AMEE 2010 ABSTRACTS

SESSION 1

1A Plenary: Training to Minimize Errors in Medical Decision Making: The challenges, obstacles, and the way forward

Itiel Dror (Institute of Cognitive Neuroscience, UCL, UK)

Medical decision making takes place in complex and distributed cognitive environments, and sometimes involves risk and time pressure. These, along with the perception and judgement that precede the actual decision choice, potentially predispose towards error. Training and education must focus on cognitively informed strategies to prevent errors. However, since they cannot be eradicated and only minimized, we must also prepare and train how to recover from inevitable errors. Understanding the decision making processes guides the way to construct training that increases decision capabilities in terms of quality and efficiency, as well as decrease errors and help recover from them.

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SESSION 2

2A Symposium: Updates in Medical Education – What you really need to know

Panel: Larry Gruppen (University of Michigan Medical School, USA) (Co-chair); Athol Kent (University of Cape Town, South Africa) (Co-chair);

Topic 1: Improving education to improve health
Bill Burdick (FAIMER, USA)

Topic 2: Improving basic sciences teaching
Geoff Norman (McMaster University, Canada)

Topic 3: Leadership in Medical Education
TBA

2B Symposium: Contextualised Simulation: New ways forward

Panel: R Kneebone (Imperial College London, UK) (Chair); F Bello (Imperial College London, UK); D Nestel (Gippsland Medical School, Monash University, Australia); I Curran (London Deanery, London, UK)

This presentation will build on our group's work with innovative approaches to simulation. At recent conferences we have presented the concept of Distributed Simulation. A low-cost, portable yet highly immersive clinical environment uses highly realistic models to create an 'operating theatre' within an inflatable enclosure. We are now expanding our focus from surgeons to other members of the clinical team. A key principle is *selective abstraction,* focusing resources where they are most effective to recreate key elements of a clinical setting in a cost-effective way. In this symposium we will apply this principle to anaesthetists, exploring how 'good enough' simulation can capture the physical interactions required for effective engagement.

2C Short Communications: Mobility of Students and Junior Doctors

2C1

Student mobility in Europe - A closer look on student exchange between 8 medical faculties

T Schlabs[1] and U Arnold[2] ([1]Bundesvertretung der Medizinstudierenden Deutschlands eV (bvmd), AG Medizinische Ausbildung, Bonn; [2]Charite - Universitaetsmedizin Berlin, Charite International Cooperation, Berlin, Germany)*

Background: The CHarME project (Challenges of Harmonising Medical Education in Europe) is an initiative of 8 medical faculties to make their curricula more transparent, more comparable, more compatible and (most importantly!) more responsive to the needs of the 21st century labour market and society in general. One major focus of the project is student mobility as this requires close collaboration between medical faculties, transparent curricula and easily readable degrees.
Summary of work: The medical students involved in the CHarME project designed an online questionnaire which was circulated among the students of the eight partner universities. The survey consisted of 43 items focusing on the motivation of students to go abroad and the obstacles they encountered (funding, language, and curriculum). Furthermore, we asked for the students' opinion on the time in their curriculum which they consider as best suited to go on an exchange. Combined with a curriculum mapping exercise we aimed to identify "mobility windows" in which student exchange could be facilitated.
Summary of results: The survey is still running and results will be presented at the Conference.
Conclusions/Take-home messages: The outcome of the project may help to make the curricula of the participating faculties more transparent and therefore facilitate the mobility of students. Moreover, our approach might be used as a blueprint for other faculties aiming to ease student exchange with partner faculties.

2C2

What's driving globalization in medical education? International admission processes in Poland and Romania

Marika A Younker[1,3] Christophe Segouin[4], Maria Athina (Tina) Martimianakis[2] and Brian David Hodges[2] ([1]University of Toronto, Department of Psychiatry; [2]Wilson Centre for Research in Education Toronto, Canada; [3]L'Ecole des Hautes Etudes en Santé Publique (EHESP), Rennes; [4]Hopital Lariboisiere, Assistant Publique Hopitaux de Paris, France)*

Background: With the adoption of the European Bologna Process, medical education in Europe has become increasingly international. As a result, medical schools in countries such as Poland and Romania have created foreign streams. However, considerable heterogeneity exists in admissions processes, leading one to ask the larger question about the role and influence of history, culture, economics and various third parties on these processes.
Summary of work: Taking Poland and Romania as case studies, a qualitative discourse analysis of formal and informal literature was carried out, to characterize the principle values asserted by medical schools in relation to their international streams.
Summary of results: A variety of different and at times competing values and priorities appear to influence the admission processes. In some instances, tension seems to exist between the explicit and implicit discourses of medical schools, as well as between domestic and foreign admission processes.
Conclusions: Medical schools may view education of foreign students differently from that of domestic students, suggesting a need for greater dialogue at the European and international level.
Take-home messages: The focus on medical ethics has perhaps been overly concerned with the individual student, whereas there are significant ethical issues at the school and country level that remain unexamined.

2C3

Electronic voting as an efficient tool for quantifying student mobility and mobility desiderata in French-speaking medical school of UCL

C de Burbure, V Godin, A Geubel and D Vanpee (Université catholique de Louvain (UCL), Brussels, Belgium)*

Background: Intracurricular medical student mobility is non-existent outside from 6th-7th year electives at UCL and a particularly sensitive issue in French-speaking Belgian universities. Yet the recently published

Eurydice Study on the Impact of the Bologna Process (http://www.eurydice.org March 2010) stresses the importance of encouraging student mobility. Quantification of student desiderata by electronic vote could help universities to move in that direction.
Summary of work: Seventh year medical students were invited to come for an evaluation afternoon at the end of their rotations. This year electronic devices were used in order to quantify mobility and student desiderata, whereas in the past these had simply been hotly debated open discussion points.
Summary of results: Those students who were given the opportunity to go abroad for two months electives (68/121, i.e. 56%) were mostly happy or very happy with their experiences. The overwhelming majority voted for freedom of choice whether to go abroad during their elective, only 5% agreed with selection by CV. Further interesting results will be presented and discussed orally.
Conclusions: Quantification of student desiderata is overwhelmingly favorable to developing mobility.
Take-home messages: Electronic voting devices help university authorities to get immediate feedback and visualize the importance students attach to the application of the Bologna process.

2C4

Bologna Process in Medical Education beyond 2010: The students' view

R Duvivier, M Weggemans*, N Davaris and R López Martos (International Federation of Medical Students' Association (IFMSA))*

Background: The International Federation of Medical Students' Associations (IFMSA) has put forward different aspects of the Bologna Process in Medicine. We evaluated the implementation of the Bologna Process in Medicine and considered constructive approaches to European policy. We present the students' perspective on the ongoing changes.
Summary of work: Our work emphasized the students' role and responsibility as an important stakeholder of the Bologna Process in Medicine. Policy papers provided a basis for discussion on national and international level. This year, we focused on the challenges faced ten years after the Bologna Declaration.
Summary of results: As we enter the second decade of the Bologna Process students identify focus areas and opportunities for the following years.
Conclusions: Medical students acknowledge the achievements of the Bologna Process as an evolving procedure of quality improvement and closer cooperation between different stakeholders. The interpretation of different action lines by medical schools and signatory countries requires emphasis. Closer observation of the progress of implementation of the Bologna Process on national level can increase mutual understanding and lead to significant progress.
Take-home messages: Active involvement of all stakeholders and increased international cooperation are necessary for the evolution of the Bologna Process in Medicine beyond 2010.

2C5

Postgraduate Medical Education opportunities: Development of online resources

Vincenzo Costigliola[1], Danette McKinley*[2], Amy Opalek[2] and John Norcini[2] ([1]President, European Medical Association, Belgium; [2]Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, PA, USA)*

Background: Increasingly, physicians migrate to pursue career and medical education goals. There is limited information available on the scope and types of training available in different countries, as well as how training is organized and monitored.
Summary of work: Staff of the European Medical Association (EMA) and Foundation for the Advancement of International Medical Education and Research (FAIMER) compiled information for 18 countries regarding the nature, structure, and organization of postgraduate medical education. Considerable variation in responses received within and between countries indicated that additional research in this area is paramount. Collaborative efforts between FAIMER and EMA resulted in revisions to database design and data collection strategies.
Summary of results: Creating and maintaining an online resource on postgraduate medical education opportunities available in various countries, though difficult, would be of great value to the global medical community.
Conclusions: Such a resource could facilitate research on comparability of postgraduate medical education and training, assist in program development, and support policy decisions regarding physician migration.

Take-home messages: Resources on medical education worldwide would contribute to research on the comparability of medical education experiences. Progress on this challenging project demonstrates the value of international partnerships and collaboration.

2C6

Council for European Specialist Medical Assessments (CESMA): Harmonising European assessments in medical specialties

Z Goldik[1], JL Noel[2] and T Severin [2] ([1]Carmel Medical Center, Haifa, Israel; [2]European Respiratory Society, Educational Activities Department, ERS Headquarters Lausanne, Switzerland)*

Background: The Council for European Specialist Medical Assessments (CESMA) was established in 2007 by delegates from various medical specialties conducting a European assessment endorsed by the European Union of Medical Specialists (UEMS).
Summary of work: CESMA provides a forum for discussion in order to promote harmonisation of European assessments. It provides guidelines to advise the specialties on the conduct of assessments and provide a basis for their administration. It seeks to build the reputation of European assessments as a quality mark and therefore provide an alternative to national assessments.
Summary of results: Delegates to the CESMA summarised their agreements in a document named Glasgow Declaration which serves as a guideline in administering European assessments. This addresses issues such the role of national authorities and the requirements in the successful conduct of assessments, to name a few. To date, 28 medical specialties are represented and have the opportunity to share best practices and discuss issues in CESMA biannual meetings.
Conclusions: The CESMA positions itself as an advisory body and engages the collective efforts of various medical specialties.
Take-home messages: This regional initiative aims to harmonise, ensure the quality and to further the development of European assessments for medical specialists.

2C7

Portuguese/English translation effects in the International Foundations of Medicine Examination

K Holtzman[1], N Sousa[2], M Costa[2], D Swanson[1], I Grabovsky[1], J Phebus[1], K Angelucci[1], L Pannizzo[1], M Jodoin[1] and P Scoles[1] ([1]National Board of Medical Examiners, Philadelphia, USA; [2]School of Health Sciences, University of Minho, Braga, Portugal)*

Background: This study of Portuguese/English translation effects was conducted in conjunction with development of the International Foundations of Medicine Examination program. This collaborative effort involving the National Board of Medical Examiners and schools in Belgium, Italy, Portugal, the US, and other countries is designed to facilitate the interchange of students and mobility of graduates internationally.
Summary of work: One-hundred basic science items recently retired from USMLE were translated into Portuguese and divided into two 50-item blocks. Seventy-five bilingual students from the University of Minho were randomly assigned to four groups; each group took a web-based test consisting of one 50-item block in English and one in Portuguese, with counterbalancing of block content, order and language. Performance was analyzed to determine effects of language on item difficulty and response times.
Summary of results: Mean scores on items presented in Portuguese were 2% higher than when the same items were presented in English; five additional seconds were required to respond to items in English. The true (disattenuated) correlation between scores by language was 1.0; correlations between item difficulties and durations by language were 0.83 and 0.97, respectively. Issues in item translation were identified for a few items.
Conclusions: Pending replication, it appears feasible to develop comparable forms of basic science examinations in Portuguese and English starting with USMLE material.
Take-home messages: With care in translation, the effects of language on test performance can be small.

2D Short Communications: Clinical Teaching 1: The Patient and Clinical Teaching

2D1

Are patients on medical wards accessible to medical students?

C Chantry[1], A M Higton*[1] and Y E Ong[1,2] ([1]St George's Hospital, [2]St George's Medical School, University of London, UK)*

Background: Meeting and examining patients is a core component of medical education. This study aimed to investigate patients' accessibility to medical students on hospital wards.
Summary of work: A survey of 240 patients across 9 medical wards was conducted when there were 49 medical students distributed across them.
Summary of results: 112/240 patients (46%) were able to complete the survey. Common exclusion reasons included: 43/240 (18%) not by the bedside, 33/240 (14%) too ill, 22/240 (9%) cognitively impaired. 105/112 patients (94%) thought it was important for students to see patients but only 95/112 (85%) were actually willing to see students with most (70%) stating their aim was to help student learning. During their admission, 64/95 (67%) spoke with and 44/95 (46%) were examined by students. 399 student/patient contacts had occurred with 64/95 patients being seen repeatedly but 31/95 of patients had not been approached by students.
Conclusions: Only 95/240 patients (40%) on medical wards were willing and able to talk to students. However, nearly a third of these had not been asked to speak to a student.
Take-home messages: Fewer patients are available to see medical students than might be expected but those that are available are willing to meet students. Some patients may be underutilised as a teaching resource.

2D2

What are the barriers to medical student-patient interaction on the wards? Comparing the student and patient perspective

I Levene, E Adams, M Lally, M Traa* and R Ling* (University of Oxford, Medical Sciences Division, Oxford, UK)*

Background: There is evidence that medical students face practical and psychological barriers which interfere with educationally beneficial student-patient contact. Few studies have compared students' perceptions of this contact to patients' perceptions.
Summary of work: 210 questionnaires were distributed to students in their first and third clinical years. A companion questionnaire was distributed to 220 inpatients in our teaching hospital. The surgical emergency and cardiology wards were chosen for their high throughput of students.
Summary of results: 77 students and 53 patients responded. 98% of patients found interaction with students pleasant and 82% found it beneficial, highlighting feeling useful and understanding more about their condition through the process. Students overestimated the negative impacts they could have on patients, which were experienced by less than 10% of patients. Students were also over-cautious in approaching patients. For example, 51% of patients were happy to be disturbed by students whilst they had visitors whereas only 26% of students would do this.
Conclusions: This direct comparison of students' and patients' views shows that students may undervalue their contribution to patient care. Thus students form psychological barriers and overestimate practical barriers in the approach to patients.
Take-home messages: Practical and psychological barriers to beneficial student-patient contact could be reduced by sharing patients' positive experiences with students.

2D3

Patients' contribution to the teaching process

S Parupalli[1], F O' Mahony[2] and N Siraj ([1]Keele University Medical School, Keele, Staffordshire, [2]University Hospital North Staffordshire, Maternity Unit, Stoke-on-Trent, UK)*

Background: Empowerment of patients involved in medical student learning process is likely to facilitate effective teaching. In order to make that happen, it is crucial to give adequate information to patients and ensure their satisfaction so that it enables them to participate without reservations.

Summary of work: Fourth year medical students at the University Hospital of North Staffordshire attend dedicated Gynaecology Teaching Clinics (GTC). Patients were given a leaflet prior to the clinic informing them about the consultation process. Questionnaires were filled by patients at the end of the clinic. We evaluated all patients who attended from January to March 2010. A total of 30 patients returned the questionnaires.
Summary of results: The results were analyzed in two themes each containing a few questions.
The average percentage of responses that indicated satisfaction with the service was 88%.
The average percentage of responses that indicated patient empowerment within the teaching process was 85%.
Conclusions: Patients are empowered by the teaching clinic and find it rewarding. This enhances the students' learning experience.
Take-home messages: Patients who are well informed, feel satisfied with their care and may contribute to further participation in teaching medical students.

2D4

Incorporating real patients in undergraduate teaching: The success story

K Egan, J Moyes, S Smith, V Tallentire and H S Cameron (Medical Teaching Organisation, The University of Edinburgh, UK)*

Background: Research has demonstrated that learning from real patients is a valuable teaching aid for undergraduate students. An ambulatory exemplar clinic involving real patients was introduced to the University of Edinburgh in November 2007, specifically within the third year locomotor module, as a result of poor feedback from students on the quality of locomotor teaching, when compared with feedback from other modules.
Summary of work: Over a 16 month period students provided written free text feedback following participation in the clinics, which has been collated and thematically analysed using a grounded theory approach by four independent researchers.
Summary of results: Students' overwhelmingly found the clinics useful and enjoyable. A total of 14 diverse themes emerged including: consideration of the impact of disease on patients' lives, patients as facilitators and contrast with other learning environments.
Conclusions: The benefits of exemplar clinics to students are multi-factorial and far reaching; this is exemplified by students' reports of the patients' positive impact on their future practice.
Take-home messages: Involving real patients in undergraduate teaching provides an effective and original way of engaging students, particularly in modules where clinical exposure is limited and demonstrates that real patients are a pivotal resource in facilitating the students learning.

2D5

Participation of medical students in patient care – a qualitative study on learning experiences in a clinical education ward

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Background: Different studies have shown that the clinical years during undergraduate medical education is a vulnerable phase where empathy of students may decline. Therefore, we aimed to examine the learning experiences of final year medical students at a clinical education ward (CEW), where students are actively participating in patient care under structured supervision.
Summary of work: 12 Final year medical students were integrated in an interprofessional health care team being responsible for the medical care of 1-4 patients at a time. A structured clinical supervision was set up as well as a professional mentoring, where students could reflect their experiences with patients and their own development with the clinical team.
Students and the mentoring expert were interviewed regarding the learning experiences and the process of learning.
Summary of results: Qualitative analysis of the interviews showed that active participation in clinical care is experienced as extremely stressful by learners. Essentials aspects to cope with the experienced challenges were a close clinical supervision, collaborative learning in the student team and sharing reflections with the mentor.

Conclusions Take-home messages: Active participation in patient care may be experienced as high stress by the learners. However, close supervision, mentoring and collaborative learning seem to be important resources for coping with this stress and for personal growth

2D6

Would you consent to being examined by a medical student? A Western Australian survey

C McMenamin[1] and N Koehler[2] ([1]Monash University, Nursing & Health Science, Melbourne; [2]University of Western Australia, Discipline of General Practice, Perth, Australia)*

Background: Patients generally have a positive attitude about being examined by supervised medical students as part of their medical care. However, it is more difficult to procure volunteer patients for students to examine purely for teaching purposes.
Summary of work: This study explores the effects of patients' characteristics, medical students' characteristics, and type of examination on whether individuals would consent to be examined by a medical student purely for teaching purposes.
Summary of results: 492 participants Western Australians completed an on-line survey in 2009. Participants reported they were generally unconcerned in regard to the gender or ethnicity of the examining medical student. However, participants with the following characteristics: Asian, non-Christian religion and those who had never been hospitalized, preferred more advanced medical students and fewer observing students for any type of examination.
Conclusions: These results suggest that the level of study of the medical student and group size but not the medical students' gender nor ethnicity are important factors for individuals deciding whether to permit examination purely for teaching purposes. Obtaining information about what type of individuals are most likely to consent to being examined by medical students maybe useful in terms of targeting recruitment of volunteer patients.
Take-home messages: The demographics of the medical students are not a barrier to patients volunteering but for certain examinations they prefer more advanced medical students and smaller group sizes. The patient demographics and experiences influence whether they would participate.

2D7

"They just had a queue of medical students doing a rectal examination": Analysing medical students' narratives of intimate examination dilemmas involving inadequate patient consent

C E Rees[1] and L V Monrouxe[2] ([1]University of Dundee; [2]Cardiff University, Cardiff, UK)*

Background: Medical students need consent to practise intimate examinations with patients. However, they still experience dilemmas of learning where consent is inadequate. Previous research has employed quantitative methods which are unable to analyse students' explanations of behaviours during such dilemmas.
Summary of work: We explored medical students' narratives of professionalism dilemmas across three schools (England, Wales, and Australia). 32 group and 22 individual interviews were conducted across all years (n=200). The data were analysed using Framework Analysis. Students' explanations of behaviours were analysed using Malle's theory of behavioural explanation.
Summary of results: Of 833 narratives, 90 involved intimate examinations. 61 of these involved inadequate patient consent for students to observe/conduct intimate examinations (e.g. genital, rectal) or procedures (e.g. catheterisation, urethral swab). 44% occurred with unconscious patients (n=27) and 46% in surgical settings (n=28). 80% (n=49) revealed professionalism lapses whereby students observed/conducted examinations/procedures with inadequate (or no) consent. Explanations for lapses included students' reluctance to challenge superiors. Explanations for refusals included their desire to maintain patient dignity and adhere to School policy.
Conclusions: Despite having clear policy, students engaged in intimate examinations without patient consent.
Take-home messages: Understanding students' intimate examination dilemmas (how they acted and why) can inform the development of professionalism curricula.

2D8

Students' and teachers' views on the roles of students in giving information, advice, and counselling to patients

A Jaiyesimi and A Cushing (Barts and The London School of Medicine and Dentistry, London, UK)*

Background: UK medical students' role with respect to interactions with patients is largely as learners, with no responsibility for delivering care. Whilst students could learn professional skills through having responsibility to explain information to real patients, this is often only practised and assessed in role-play. Tomorrow's Doctors suggests that for students to feel more prepared for their Foundation Year One, they should be given more responsibility in clinical teams by being given specific roles that contribute to patient care.[1]
Summary of work: Questionnaires have been administered to final year students at two UK medical schools on their views and experiences of explaining information to patients. Semi-structured interviews will be used to elicit the views of clinical teachers and official documents will be analysed for guidance to students.
Summary of results/Conclusions: Preliminary results suggest that most students have occasionally had the responsibility of explaining information to patients, although they consider these opportunities to have been insufficient during their time at medical school. Views of clinical tutors will be presented.
Take-home messages: Students require guidance on whether and when it might be appropriate to explain information to patients and they need feedback on their skills. Balancing the needs of student learning and patient safety are important goals for clinical educators.
[1]General Medical Council. Tomorrow's doctors. London (UK): GMC, 2009:53-54 (paragraphs 103, 108)

2E Short Communications: Virtual Patients

2E1

Writing virtual patients: table d'hôte or à la carte?
David Davies[1] and Rachel Ellaway*[2] ([1]University of Warwick, Warwick Medical School, Coventry, UK; [2]Northern Ontario School of Medicine, Sudbury, Canada)*

Background: Virtual patients (VPs) are versatile teaching tools because of the multitude of different designs and approaches that can be developed and used. There are standards that dictate how they should operate at a technical level, and there is a choice of software available to run them, both commercial and open source. But how should you write a VP scenario or select the right tool (assuming it exists) for the job?
Summary of work: There are no overarching models around creating VPs other than the 'this worked for me' reports in the literature, in great part because the phenomenology of VPs is still poorly defined and understood.
Summary of results: We will present two interlinked dimensions to writing VP scenarios based upon experiences across a number of institutions and projects. One dimension runs from systematic 'case as presentation' model to 'case as narrative' and the other runs from deductive authoring (learning objectives lead to the VP) to inductive authoring (start with a good case then layer in learning objectives).
Conclusions: This framework allows authors to orientate their needs and opportunities and thereby affords faster and more aligned VP design and deployment.
Take-home messages: Our conclusions and recommendations will be of interest to any group writing virtual patient scenarios.

2E2

Comparison of assessments of medical student achievement utilizing a web-based Virtual Patient for a Problem-Based Learning course
W T Gunning[1], K A Crist[2], N Zary[3] and U G Fors[3] (University of Toledo; [1]Department of Pathology; [2]Department of Surgery, College of Medicine, Toledo, Ohio USA; [3]Virtual Patients Lab, Department of LIME, Karolinska Institutet, Stockholm, Sweden)*

Background: We have utilized virtual patients for our problem based learning (PBL) courses for preclinical medical students for four years. Using a virtual patient (VP), we can objectively measure the ability of preclinical medical students to appropriately work through a patient's history, physical and laboratory tests to rationalize a differential diagnosis.
Summary of work: PBL had been a satisfactory/unsatisfactory course and student exam scores have been reasonable but have not correlated with class rank or USMLE board scores. The course is now graded and the VP exam has more significance establishing student performance.
Summary of results: A previous exam given to 158 second year medical students resulted in a mean score of 54.62 ± 1.24% for an appropriate inquiry of the VP. The students had a week to complete the untimed exam.

Our exams are now graded and time limited and for the same virtual patient, students had an appropriate inquiry score of 48.18 ± 0.97%. Only 28/169 (16.57%) students were able to correctly diagnose the patient in contrast to 130/158 (82.28%) for the previous untimed and "ungraded" exam.
Conclusions/Take-home messages: Comparisons of differential diagnoses, time spent and utilization of virtual patient cases for PBL assessment will be presented.

2E3

Using the Nominal Group Technique to identify students' views regarding the use of virtual patients to expand clinical knowledge

A Hemani, N Parvizi, M Toro-Troconis* and D McIntosh (Imperial College London, Faculty of Medicine, London, UK)*

Background: This paper describes the use of the nominal group technique to identify students' views regarding the use of Virtual Patients (VP) to expand their clinical knowledge.
Summary of work: Two groups of Year 6 undergraduate medical students (n= 15) were invited to participate in a nominal group technique. The nominal group technique was designed to answer one specific question: "What are your views regarding the use of virtual patients to expand your clinical knowledge?"
Summary of results: Twenty items were generated in each group initially. Voting reduced this to ten items thought to be of greatest importance. The items were classified under three main areas for interpretation: 1) Advantages of VP 2) Limitations of VP and 3) Areas of improvement.
Conclusions: The ten items generated by both groups were mainly focused on the learning experience highlighting its importance for clinical diagnosis, limitations of VP and how it provides a structure for learning.
Take-home messages: Both groups were positive about the advantages of this type of delivery mode to expand their clinical knowledge and suggested to include Practical Assessment of Clinical Examination Skills (PACES) oriented follow-up questions to broaden the use of VP.

2E4

Blended learning and summative assessment with virtual patients in clinical clerkships: a focus group study among students

S Huwendiek[1,2], C Brasch[1], F Reichert[1], H M Bosse[2], M Haag[1] and G F Hoffmann[2] ([1]Centre for Virtual Patients, Heidelberg University Hospital; [2]University Children's Hospital Heidelberg, Germany)*

Background: Little is known about using virtual patients (VPs) for both teaching and summative assessment of clinical decision making in clinical clerkships.
Summary of work: Fifth year medical students were exposed to highly interactive VPs (www.virtualpatients.de) for learning during their paediatric clerkship: VPs were offered for self-study, as preparation for bedside teaching, tutor led small group discussions and as wrap up of seminars. Furthermore, six VPs were used during the electronic summative assessment. Each assessment case consisted of a case vignette and three key features (KF) using "long menu" as question format (KF- approach). Four focus groups of 4-9 students each were performed concerning the impact of using VPs for learning and assessment.
Summary of results: According to the focus groups the following aspects fostered students' learning: 1) Using highly interactive VPs for learning. 2) Integrating VPs well in the curriculum (blended learning). 3) Using VPs according to the KF-approach as assessment tool as these were perceived as realistic and motivating. 4) Using long menu questions for assessment as these were perceived as realistic and most motivating for further study.
Conclusions/Take-home messages: According to students' opinion, the above mentioned approach of integrating VPs for learning and assessment did foster students' learning.

2E5

Effectiveness of Virtual Patients in medical education: a meta-analysis

F Consorti, R Mancuso, M Nocion and A Piccolo (Università "Sapienza" Rome, Dept of Surgery "Francesco Durante", Italy)*

Background: In the last years many studies have been published about the use of Virtual Patients (VPs) in medical education. We conducted a meta-analysis to determine the effectiveness of VPs as a mean to improve clinical skills in students of clinical curricula.

Summary of work: By the use of a set of keywords, we searched in PubMed, Embase, Google Scholar and other relevant electronic libraries and we found 1420 papers about VPs. Fifteen papers could be identified as experimental studies but only 4 of them fulfilled the Quality Criteria established by the CONSORT Statement.
Summary of results: The four studies analyzed ten different aspects of clinical competence. The meta-analysis showed a positive overall effect size of VPs in increasing this mixed set of clinical skills, with an Odds ratio of 1.5 (C.I. = 1.14 - 1.96; p = 0.004).
Conclusions: VPs are very likely to be an effective learning tool, even if available evidence is still scarce. The weight of each study to determine the overall effect size resulted balanced, but every study explored different clinical skills, evaluated by different methods.
Take-home messages: Further studies should be conducted using standardized methods in clinical skills evaluation, such as Key Features Problems (KPFs).

2E6

Estimation of time efforts for repurposing Virtual Patients – empirical data from the electronic Virtual Patient Project (eViP)

D Kempkens[1], I Hege[2], C Balasubramaniam[3], U Fors, S Huwendiek, A Kononowicz, V Muntean and M R Fischer ([1]Witten/Herdecke University, Institute for Teaching and Educational Research in Health Sciences, Witten; [2]Ludwig-Maximilian-University, Medical Education Unit, Munich, Germany; [3]St George's University London, e-learning Unit, London)*

Background: Virtual patients (VPs) are tools for training clinical decision making but are often time-consuming and expensive to produce. This study proposed to document time efforts related to repurposing existing VPs.
Summary of work: Within the eViP-Project efforts for repurposing 241 VPs were collated using a standardized recording sheet. Eight collaborating partners contributed data for statistical analysis.
Summary of results: Mean time (hrs) spent on repurposing was 12.5 (n=241, SD ± 11.75, range 0.5 – 84) per VP. Information on subcategories was only available for some VPs: case structure (n=122, mean 4.25, SD ± 4.5, range 0.25 – 25), adaptation of questions (n=82, mean 3.75, SD ± 4.5, range 0.25 – 34), multimedia–images (n=87, mean 3.9, SD ± 3.5, range 0.25 – 17) and translation (n=36, mean 7.9, SD ± 6.75, range 0.25 – 28). Main subject areas of repurposed VPs were internal medicine, dentistry and pediatrics. Three main areas of repurposing were adaptation of VP structure (n=120), content enrichment (n=116) and repurposing to different educational scenarios (n=106).
Conclusions: Efforts for repurposing VPs vary greatly. Further studies are needed for a sound comparison of repurposing versus de novo creation of VPs.
Take-home messages: This study wants to contribute to an empirically-grounded best-practice guideline for adaptation and dissemination of existing VP-banks thus improving cost-benefit relations.

2E7

Evaluation of different curricular integration scenarios of Virtual Patients: First results using the eViP evaluation instruments

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Background: Virtual Patients (VP) are becoming more and more popular in medical education and are used in an increasing number of different educational scenarios. Many studies focus on VP design. Yet the curricular integration of VP is not in the focus of research, although it has a major influence on learning outcome of students.
Summary of work: We evaluated three different curricular integration scenarios in child and youth psychiatry, paediatrics and basic sciences. Scenarios included integration of VP after a lecture as a wrap up, an additional learning tool as a preparation for an exam, integration within a seminar and VP work followed by a tutor-led small group discussion. The eViP-evaluation instrument for curricular integration was used in all settings, including a checklist completed by the curriculum designer.
Summary of results: Evaluation results pointed out weaknesses and strengths of curricular integration scenarios, which will be presented in detail. Overall feedback was positive. Differences between scenarios and impact on evaluation results will be discussed, taking the curriculum designer's intentions into account.

Conclusions: Use of the eViP-evaluation instruments for curricular integration is a useful means for pointing out shortcomings and positive effects. Evaluations are ongoing in order to allow for statistical evaluations in the future.
Take-home messages: eViP-evaluation instruments for curricular integration help optimizing the use and learning effect of VP.

2E8

Introducing Electronic Medical Records to medical students
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Background: The program Attitudes, Skills and Clinical Competences (Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal) aims to provide medical students with skills which will enable them to achieve the best results in their future clinical practice. Electronic Medical Records (EMR) are replacing Paper-Based Records, used for centuries. This change has been slowly underway for the last decades in western healthcare systems. Medical and scientific societies recognize multiple benefits of EMR.
Summary of work: EMR is introduced into the 5th year program. It starts with a formal approach where benefits and barriers of EMR are discussed. Virtual simulated patients are created and used in the EMR software, allowing students to practice since their first contact. Then, continuous learning occurs throughout the 5th and 6th years.
Summary of results: The feedback from students is good, with outcomes clearly assessed at their daily work. They demonstrated an important at-ease dealing with real patients and EMR at the end of the course.
Conclusions: Current medicine introduces several new features and challenges for medical practitioners, including EMR. Reviewing medical curriculum and introducing this skill is important for the future doctors.
Take-home messages: Contact with EMR at medical school allows future doctors to be fully capable of using them in their clinical practice.

2F Short Communications: OSCE: Case Studies

2F1

Student-led mock OSCEs - of benefit to the examiner and participant
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Background: Undergraduate clinical proficiency is often assessed using OSCEs (Objective Structured Clinical Examination). 'Mock' OSCEs are acknowledged to promote familiarity with the assessment format, and allow students to practice under exam conditions. As a student society, we have undertaken three consecutive mock OSCEs for third year Imperial College students.
Summary of work: One month prior to their final exam (April 2009), 150 third year students took part in a ten-station mock OSCE. Seventy fourth year students were recruited to take part as examiners, having undertaken their OSCEs the previous year. Students were assessed according to pre-designed mark schemes and also received individual feedback. Anonymous questionnaires were collected from both participants (number completed = 143) and examiners (number completed = 58).
Summary of results: 100% of responding participants agreed or strongly agreed that the mock OSCE examination had been useful. 79% of responding examiners agreed or strongly agreed that the event had been useful in maintaining their clinical knowledge.
Conclusions: Mock OSCEs are of overwhelming benefit for undergraduate students ahead of their final exam; however, they can also play a role in maintaining clinical knowledge in students acting as examiners.
Take-home messages: Students should be encouraged to participate in mock OSCE assessment.

2F2

What makes a good children's doctor? Exploring the experience of children participating in an OSCE

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Background: Paediatric Educators wish to instill in students qualities that constitute a child-centred approach. However, these qualities are derived from what paediatricians think children want, rather than from asking children themselves.
Summary of work: Children aged 8-10 years participated in a large, 4th year OSCE. Each child underwent cranial nerve examination by a number of students. The child was asked to score out of 10 their response to the question: 'If you had to see a doctor again, how happy would you be to see this one?' The study investigators explored what children want from doctors by asking them about the reasons behind their scoring using qualitative focus group methodology adapted for age.
Summary of results: All 28 children said they enjoyed taking part in the exam. Common attributes and behaviours were identified for a 'good' and a 'bad' doctor'.
Conclusions: The participating children had clear ideas of what distinguishes a 'good' versus a 'bad' children's doctor.
Take-home messages: As end-users of our paediatric service, children's views of what makes a good doctor are important and could help inform our teaching and assessment of medical undergraduates in Paediatrics.

2F3

Developing a dynamic multimedia system to enhance the ENT OSVE

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Background: Previously, materials of the Ear Nose and Throat Surgery (ENT) objective structured video examination (OSVE) were manually formatted and presented with corresponding video files in PowerPoint (PPT) form. Our contemporary ENT OSVE involves selected cases of real or mock patients. Students, after listening to a medical history, observing a physical examination, seeing one or more signs demonstrated or surgical procedure performed must complete relevant questions within a specified time.
Summary of work: We have designed and developed an integrated multimedia content management system (CMS) for ENT OSVE for final year medical students. It embraces a new approach to the configuration and management of various data files.
Summary of results: CMS provides a template or framework into which cases can be effortlessly added and removed, allowing the examination content but not the format to be changed from one examination to the next.
Conclusions: Our integrated multimedia CMS is adaptable, modifiable, and applicable in a wide spectrum of clinical examinations as well as educational presentations according to individual needs.
Take-home messages: Virtual patients are becoming powerful education tools that enhance decision-making skill which is essential for clinical competency and CMS has made cases of virtual patients easily incorporated into ENT OSVE.

2F4

Establishing the validity of Objective Structured Assessment of Technical Skills (OSATS) forms to assess procedural clinical skills of trainees in obstetrics and gynaecology

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Background: UK trainees in obstetrics and gynaecology use nine OSATS forms to monitor their progress in a range of operative procedures. The validity of OSATS may be partially evaluated by a) ability to discriminate between competencies as level of trainee experience increases and b) correlation between checklist and generic skills components of forms. Although the validity of OSATS forms is reported for surgical and gynaecological procedures, it has not been tested across all the forms used to assess surgical skills within a speciality.

Summary of work: In a retrospective study, the variation by trainee year in mean checklist score, generic skills score and overall competence score were analysed. In addition, correlation between mean checklist scores and mean generic skills score was calculated.
Summary of results: The forms generally showed statistically significant progression in mean scores as trainees became more senior; the only exception was for manual removal of placenta OSATS. The Pearson correlation between checklist and generic skills scores ranged from 0.4 to 0.7 implying that these measures, whilst significantly correlated, were measuring different types of competence.
Conclusions: The OSATS forms appear to have construct validity across the range of surgical skills assessed in obstetrics and gynaecology.
Take-home messages: OSATS performance improves with seniority; however, variation between trainees is still relatively small.

2F5

Assessing communication skills in veterinary medicine using an OSCE: Evidence supporting the need for multiple stations and highly trained examiners

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Background: Over the past 10 years communication-skills training has become an established part of many veterinary curricula around the world; however, appropriate assessment of veterinary students' communication skills is not well documented.
Summary of work: In April 2009, the University of Calgary, Faculty of Veterinary Medicine conducted a 4-station (2 tracks, 2 raters/station, totaling 16 examiners), communication-skills OSCE for first year students (n=33) enrolled in the Doctor of Veterinary Medicine program, using several inexperienced examiners. Reliability analysis revealed checklist items Ep2 = 0.50 and the greatest amount of variance was due to examiner. As a result, 2 highly experienced examiners independently re-assessed 1 track (i.e., 16 students, 4 interactions per student). The purpose was to re-examine the generalizability coefficients and the amount of variance due to student, station and rater using highly trained examiners.
Summary of results: The results of the fully crossed study reveal an Ep2 = 0.46, with the greatest amount of variance due to student by station and student; the variance component for the highly trained raters was 0.00.
Conclusions/Take-home messages: This study indicates that increasing the number of stations would improve the reliability of the OSCE, extensive examiner training is needed, and that communication skills curricula must reinforce the application of skills across contexts.

2F6

Evaluation of OSCE (Objective Structure Clinical Exam) as intervention in the educative process of the Medicine career of UNAN-León

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Background: In 1998, UNAN-León began its university reform, which raises philosophical foundation to train professionals in integral way, with a vision of lifelong learning to contribute to transformation of society. The Faculty of Medical-Sciences, within the framework of continuous improvement, seeking to ensure quality standards, implemented in 2007, an evaluation of skills by OSCE to students of Medicine 5th year 2002 plan.
Summary of work: To evaluate the educational impact produced by the implementation of the OSCE in the medical career, an evaluation of intervention type 3 (before-after) was carried out throughout focus groups and interviews to participating students and evaluators
Summary of results: The major curricular changes promoted by the OSCE results were: increase of one additional year medical career, distribution of modules in different departments, teachers according to their affinity with the topics addressed, cyclic organization of the modules with small groups of students and expansion and diversification of educational scenarios in rotations APS (primary health care) in rural health centers historically excluded communities.
Conclusions/Take-home messages: The impact was positive, as the OSCE is a valuable feed-back to students, teachers and curriculum itself, as it allowed strengths and weaknesses' diagnosis, it generated improvement actions and paradigm shifts about evaluation of learning, promoting participation and motivation of people involved.

2F7

Stress management and perceived performance in 4th year OSCE students

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Background: This research investigated the effectiveness of a stress management training intervention on students' cognitive and somatic anxiety, self-confidence, and perceived performance in the OSCE.
Summary of work: The 6-week intervention was delivered to two different cohorts of medical students over a two year period which consisted of 18 and 20 students, respectively. A modified competitive state anxiety questionnaire (CSAI-2md) was administered pre and post intervention, and measured cognitive anxiety, somatic anxiety, and self-confidence (intensity and direction). The intervention included applied relaxation, systematic desensitisation, cognitive restructuring, coping mechanisms, and building self-confidence. Post OSCE, students completed a self-performance evaluation.
Summary of results: T-tests revealed that both cognitive and somatic anxiety levels significantly decreased pre to post intervention for both cohorts, while self-confidence increased. The directional interpretation of somatic anxiety was perceived as more facilitating post-intervention, while cognitive direction anxiety symptoms were perceived as less debilitating toward performance. Students also provided more positive ratings on a subjective self-performance post-intervention.
Conclusions: The intervention was effective in decreasing students' anxiety and increasing their self-confidence prior to taking the OSCE.
Take-home messages: The results demonstrate the important role of mental skills in providing students with appropriate coping strategies to manage the demands experienced in examinations and other pressure situations.

2F8

The evaluation of self-efficacy of students in objective structured clinical exam done at the end of the communicational and professional skills courses in Good Medical Practice Program at Hacettepe University

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Background: This study is a descriptive research, designed to examine findings and different patterns explaining self-efficacy through data obtained from State Anxiety Scale that has been administered to medical students, using different techniques.
Summary of work: State Anxiety Scale has been administered to each student before objective structured clinical exam that has been done at the end of professional and communication skills courses in Good Medical Practice Program. 343 of 391 Phase 1 students, 322 of 328 Phase 2 students and 295 of 304 Phase 3 students have participated in the study. The students have been informed that their personal information would remain undisclosed at every stage as they were required to fill out the forms, drawn up in their names. Self-efficacy of the students will be evaluated by comparing data for each student obtained, through these forms with his/her scores of Subject Committee Examination, Final Examination and Good Medical Practice Program.
Summary of results: Self-efficacy of students who have participated in the study will be assessed with respect to different phases, languages of education (Turkish or English) and genders.
Conclusions/Take-home messages: Students are expected to take the exams in which assessments are made objectively, with a high sense of self-efficacy.

2G Short Communications: Outcome-based Education: The CanMEDs Competencies

2G1

Comparing medical student and resident attitudes towards the CanMEDS roles

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Background: CanMEDS, has come to serve as a foundation of Canadian postgraduate medical education. Similar frameworks exist in Europe and America. Recently, medical schools have begun to integrate CanMEDS

into their curriculum also. In designing effective programs to teach each group about CanMEDS, it is necessary to know: What are the attitudes of students and residents towards CanMEDS?
Summary of work: A survey investigating attitudes towards CanMEDS was administered to 180 first-year medical students and 90 first-year residents. Questions were 5-point Likert scale or open-response items. First-year students were chosen to accommodate plans to teach them about CanMEDS.
Summary of results: The response rate was 95%, and reliability (α) was 0.95. Both groups rated each competency highly (mean: 4.7, 4.4). Students rated 44/49 items higher than residents ($p<0.05$). The groups ascribed different meanings to each role. Students were generally more idealized and less practically founded than residents, but still more complex than would be expected from social desirability alone.
Conclusions: Both groups supported the importance of CanMEDS, suggesting programs targeted at these groups have potential for success. The groups ascribed different meanings to each role, possibly explaining why students rated roles higher than residents.
Take-home messages: CanMEDS educational programs must be tailored to correspond with differing student and resident attitudes.

2G2

The chief resident as a role model for CanMEDS: A surgery chief residents' conference

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Background: The chief resident has many roles to fill and requires a wide range of skill sets; there is often little or no prior training for these skills. These roles fall within the Royal College of Physicians and Surgeons of Canada's CanMEDs competencies. The chief residents are role models for these competencies for other residents and other learners. Our aim is to describe the curriculum development of this chief residents' conference and its use to promote the CanMEDS competencies.
Summary of work: A one-day introductory conference was designed to fill this perceived need in all surgical programs at the University of Manitoba. Additional educational modules have been provided and are planned throughout the year to further enhance skill sets.
Summary of results: The workshop modules and entire conference were evaluated by participants and an average score of 4 on a 5 point Likert scale was obtained on all components. Facilitators also provided positive feedback.
Conclusions: The Surgery Chief Residents' Conference has met participants' learning needs as well as the ascribed goals of the program.
Take-home messages: By providing further skill sets in the CanMEDS competencies in order to prepare for the many roles of the chief resident, this conference has created another tool to promote and advance the CanMEDS principles.

2G3

Family Medicine Mandatory Assessment of Progress (FM-MAP): Results of a pilot administration of a competency-based in-training examination

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Background: Competency-based training is an underdeveloped area in Family Medicine in Canada. The University of Toronto created competency documents to anchor curriculum renewal. A formative evaluation of the CanMED-FM Medical Expert role was created.
Summary of work: This work reports results of the pilot test taken by year 1 and year 2 postgraduate Family Medicine trainees at 6- and 18-months into training, respectively. A second iteration of the test will be completed in April 2010. Test questions using the key features model were developed by competency content area experts. Difficulty was benchmarked for the knowledge of graduating year 2 residents.
Summary of results: 255 residents at the University of Toronto participated in the first iteration. The alpha coefficient for the test was 0.76. There was a 2% difference between year 1 and year 2 postgraduate Family Medicine trainees ($p < 0.01$). Other measures of construct validity achieved will be presented.
Conclusions: Competency-based progress testing using the key features model is a valid means to assess the progress of residents in the Family Medicine Expert role.
Take-home messages: Competency-based training requires an evaluation arm. Progress testing is a good formative tool. The key features model can be used to create a valid progress test.

2G4

A Delphi study to develop a validation-checklist for workplace-based portfolio-assessment

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Background: A Delphi study was set up to develop a validation-checklist based on the CanMEDS roles. Two Delphi-rounds indicated the need to translate the CanMEDS roles and their key competences into concrete learning outcomes, as they were not applicable for workplace-based portfolio-assessment in the present form.
Summary of work: The data of two previous Delphi-rounds were discussed with experts. Their findings and literature data were used to reformulate the competences of CanMEDS roles. This renewed competence-checklist was used for a third Delphi-round, whereas the same 25 experts could give remarks on applicability for clinical settings.
Summary of results: Reformulation resulted in compactly described CanMEDS roles and overlap between the roles was largely eliminated. Now, competences per role are formulated actively and concretely. In the third Delphi-round, 79% (N=96%) of the experts supported the reformulation.
Conclusions: Modifying the description of competences into concrete learning outcomes was a next step into the development of a checklist to investigate validity of workplace-based assessment. The third Delphi-round proved their potential in a clinical setting. Further research will focus on the translation in an educational/assessment setting.
Take-home messages: Questioning the description of CanMEDS roles, could improve applicability for assessment by translating competences into concrete learning outcomes which can be validated.

2G5

User-friendly yet conceptually complex: The development and implementation of a staged CanMEDS competency model

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Background: A multi-site residency programme at the University of Toronto has developed a staged competency-based curriculum designed to ensure common educational outcomes for all residents in Family Medicine. The curriculum reflects the continuum of education from medical school to practice.
Summary of work: A staged competency curriculum describing the 'essential' competencies all residents will be able to achieve during training in order to graduate as safe and effective practitioners was developed and implemented. It also outlines 'enriched' and 'enhanced' competencies many residents will achieve in areas of interest, focus or community need.
Summary of results: The curriculum, utilized by the 14 sites of the training programme, was developed by faculty leads for identified essential content areas. Content was mapped to the CanMEDS-FM framework of the College of Family Physicians of Canada. Competency-based progress testing of the residents was developed, implemented and validated.
Conclusions: Outcomes-based frameworks must be practical to medical learners and teachers, while ensuring that they fully incorporate complex competencies required. Our model embeds residency competencies in the continuum of learner development from medical school to practice.
Take-home messages: A staged competency model provides a practical yet sophisticated approach to learner development into safe, effective family physicians who meet the needs of patients, the community and society.

2G6

Progression of competence: Delphi method for derivation and validation of milestones to guide curriculum development in one academic department

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Background: Medical education is evolving to be more competency-based, and organized around milestones that define progression of ability. However, there are currently no published methods to define milestones to guide curriculum.
Summary of work: We employed a modified Delphi method and the CanMEDS competencies as applied to one specialty to develop a framework of descriptive markers for residency education. Starting with the Royal

College's CanMEDS-based emergency medicine objectives of training, we engaged our group of educators (n=19) to define the essential milestones for each CanMEDS domain for years 1 to 5 of residency education. These were then validated by the larger departmental group academic physicians (n=51) in serial iterations until consensus.
Summary of results: We achieved consensus on a milestones framework after 7 iterations of the group process. The final framework divided the 7 CanMEDS Roles further into 11 applicable horizontal domains of EM (knowledge and clinical reasoning, procedures, communicator, collaborator, health advocate, manager, teaching, lifelong learning, critical appraisal, research, and professional). Postgraduate years 1 and 2 included 43 milestones, PGY3 included 44 milestones, and PGY 4 and 5 included 44 milestones.
Conclusions: We developed and validated a novel milestones framework suitable to guide teaching, learning, and assessment of clinical training. Medical educators interested in defining competency milestones should consider adopting a method like this one.
Take-home messages: We describe a group-process method for defining competency milestones to guide curriculum.

2G7

Re-examining the knowledges taught in medical curricula in the era of CanMEDS

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Background: Twentieth-century medical education has been criticized for constructing medicine as bioscience. Since the curriculum is a historically-mediated construct, it can be changed to accommodate changing descriptions of competence. If the current overwhelming curricular dominance of bioscientific knowledge could be changed, how would we train physicians with expertise in both biomedicine and multiple other socioculturally-mediated domains (as described in competency frameworks such as CanMEDS)?
Summary of work: We designed a thought experiment to delineate the foundational knowledges needed to train physicians to perform selected non-Medical Expert roles and to outline the disciplines that support them.
Summary of results: Students trained for competence in all physician roles would need to be educated in the ideas and ways of thinking of many disciplines beyond the biosciences. These can (and must) be introduced in context in order to support future medical practice.
Conclusions: There are major gaps between the competency frameworks such as CanMEDS and the actual contents of medical curricula. Addressing these gaps will require curricular transformation to add knowledges from disciplines not currently represented.
Take-home messages: The dominance of biomedical knowledge within medical education has created major gaps between the stated goals of medical education and actual curricula. Knowledges that support non-Medical Expert roles need to be integrated into medical curricula.

2G8

The future of competencies: A gynaecologist perspective

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Background: Competency profiles for doctors as described by CanMEDS, Tomorrow's doctors, and ACGME show a worldwide acknowledgement of the importance of, doctors having skills exceeding clinical knowledge. These profiles are currently being included in both under and postgraduate medical training programmes. The question is if these profiles still will meet societal demands in far future? This study investigates the profile for one single discipline in 2025.
Summary of work: Between September and December 2009, hundred Dutch gynaecologists were asked by email to fill out a semi structured open ended questionnaire on their vision of the future of their profession in 2025.
Summary of results: Inductive analysis of 70 returned questionnaires showed items like telemedicine, entrepreneurship and lifelong learning will be of more importance in 2025. These competencies are not covered by current profiles. Generic competencies like communication, collaboration and management will

change in content because of an altering health care environment and a different patient participation in the Netherlands and will become even more important.
Conclusions/Take-home messages: The needed competency profile of a gynaecologist in 2025 will probably differ from today's profile. Reconsidering current education in competencies is preferable. Training programmes need to reconsider current training in competencies, in order to maintain optimal health care in the future.

2H Short Communications: Portfolios

2H1

Implementation and use of E-portfolios in Undergraduate Medicine at Imperial College London
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Background: E-portfolios address a current need in higher education for students to collect, provide evidence and reflect on their learning experiences. This Short Communication provides a general overview of the process followed in the implementation of the e-portfolio system 'PebblePad' at Undergraduate Medicine level focused on reflection and evidence of clinical competencies.
Summary of work: The E-portfolio successfully replaced the original Clinical Log Book and was successfully implemented across the First Year 2 Clinical Attachment (n=294). An E-portfolio Working Group was set up, lead by an Academic and a Technical co-ordinator. Some barriers were encountered, e.g. firewall issues at National Health Service (NHS) Trusts and difficulty finding consultant time to enable training of firm leads.
Summary of results: A survey was conducted at the end of the Clinical Attachment (n=63) to determine students' opinions on the use of the e-portfolio. In general, the students found the e-portfolio a useful way to record their learning experiences but they expected firm leads to be more engaged in giving comments.
Conclusions/Take-home messages: A recent survey on mobile learning carried out at Imperial College London with undergraduate medical students (n=289) shows that approximately 42% of the student population in undergraduate medicine owns an iPhone or iPod Touch. The uptake of the recently developed PebblePad iPhone App will be reviewed for the next academic year.

2H2

Summative portfolio assessment: A method to assess reflective practice in undergraduate medical students
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Background: Medical schools have developed innovative assessments such as portfolios to ensure educational goals and competencies, such as reflective practice, are met. Portfolios require students to reflect on their achievements, their progress and future plans.
Summary of work: The aim was to determine whether preparing a portfolio helps students develop in areas of competency, such as reflective practice. A questionnaire was designed to evaluate medical students' experiences of a summative portfolio at two independent medical schools. The questionnaire consisted of 18 questions linked to six key capabilities.
Summary of results: 526 (45% response rate) students responded. Students from both universities rated the questions on reflective practice the highest 63% agreed their portfolio helped them develop in reflective practice ($P<0.001$) whereas only 22% disagreed. 52% agreed portfolios helped them with understanding ethics and legal aspects whereas only 24% disagreed ($P<0.001$). Self-directed learning was rated third highest In contrast, 41% thought the portfolio helped them to develop effective communication whereas 35% disagreed.
Conclusions: Portfolios can successfully link assessment to the development of capabilities such as reflective practice, and ethics and legal aspects whereas effective communication may require complementary examinations.
Take-home messages: Portfolios can help students develop capabilities such as reflective practice.

2H3

Using SP portfolio method as a means of formative assessment of learning patient interview skills with SP

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Background: A portfolio is a collection of student activities. It can be used for teaching with SP by collecting feedback from different sources (self, peers, SPs, teachers).
Summary of work: SP laboratory was established at our school in 2004, and used in teaching second and third year students. The program is executed by Department of Medical Education (DME). Students encounter five SPs, and observe 10 encounters of two other peers, and assessed summatively by end-year OSCE, and formatively by SP portfolio. SP portfolios include self-evaluation, peer, teacher and SP feedback reports. They are summed up by teachers and used for assessing students' participation; skills retention; and fulfillment of assessment tasks. Portfolio score is added to end-year practical exam grade at 12%.
Summary of results: Each year, over 600 students are assessed by SP portfolios. For each student, DME staff allocate a total 280 minutes to assessing video record and portfolio. Despite the huge time and energy, it is worth considering its invaluable contribution to learning.
Conclusions: SP portfolio is rather used for its contribution to learning, and attained its aim of helping students to learn patient encountering skills.
Take-home messages: The SP portfolio method combining systematic, regular and multisource feedback, multiplies the effectiveness of teaching patient encountering skills at SP laboratory.

2H4

Reflexive portfolio: a tool to identify learning needs and promote critical appraisal?

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Background: Pedagogical techniques that encourage reflective thinking of the student leads to a professional who acts in a critical hence a mere technical way.
Summary of work: To this end, each student at the course of ambulatory pediatrics at the beginning of the medical internship held a portfolio of his/hers patients, with summaries and reflections about the consultations. The individual portfolios were read and discussed by a supervisor at each encounter.
Summary of results: Most students declared having no knowledge about important topics of Pediatrics; inexperience in history taking and interview techniques and presented specific questions about the limits of the role of pediatrician and about therapeutics. They justified their difficulties with problems in doctor-patient relationship, blaming the parents for the poor quality of information obtained and the child/adolescent for his/her no participation in the consultation.
Conclusions: The portfolio was a reflective process that helped to identify learning needs and subsidized individualized discussions, enhancing the teaching-learning process. It became evident that although the students identify their difficulties, they blame the child and his parents for them.
Take-home messages: The use of the portfolio is an effective tool for promoting critical appraisal and the identification of learning needs.

2H5

FORMIR: Electronic portfolio for Otolaryngology learning and assessment in ORL/HNS medical specialization in Spain

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Background: Electronic portfolios provide organizational flexibility and display flexibility of contents and ideas. They are useful tools for data and information management. The Spanish Society of Otolaryngology (SEORL-PCF) facilitates and encourages Otolaryngology residents' specialty learning through an electronic portfolio: FORMIR.
Summary of work: Design was supported by an Excel book. Each sheet content Otolaryngology required competences in knowledge, abilities (diagnosis, medical management, surgical procedures) and attitudes. Abilities were graduated by complexity (basic, medium, advanced) and by resident participation (observer,

assistant, independent). Knowledge were assessed under qualitative criteria (yes/no), so abilities under quantitative criteria.
Summary of results: A new nation-wide learning web-based software was finally designed: FORMIR (http://www.seorl.net/formir/portalWEB/index.asp). Print capabilities were added. Each FORMIR´s new activity is recorded through an electronic form with checkboxes, radio buttons, selects and free text fields. Evidence files (text docs, pdf, PowerPoint presentations, video/audio recordings, pictures) must be added with each new activity. Reflective learning tools assess attitude competences and are recorded as new activities too. Teacher receives automatically the on-line form with its evidence to be assessed and validated. Resident gets immediate on-line feed-back. Another window shows resident learning progress through visual and numerical pictures.
Conclusions: FORMIR is a National web-based electronic portfolio for reflective and summative assessment of Spanish otolaryngology residents' competences. Its uniformed basis holds a self-guided learning, facilitated by its feed-back.
Take-home messages: Electronic portfolios such as FORMIR provide useful tools for learning and assessment in otolaryngology competences.

2H6

Linking uploaded evidence to curriculum competencies in the NES Medical Foundation program ePortfolios: Why is there such inconsistency across the UK?

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Background: Foundation Training is a two year postgraduate training programme used throughout the UK for newly qualified doctors. The NES Foundation ePortfolio is an online tool used to document progress though this programme. In this programme proficiency in specific defined competencies must be demonstrated. One of the prime mechanisms for demonstrating proficiency is to map accumulated evidence forms (for example a work place based assessment) to a competency, a process known as linking.
Summary of work: This work will investigate the reasons behind regional inconsistencies observed across the UK in Foundation trainees' linkage activity. A questionnaire has been developed to measure the attitudes of individuals towards linking in the ePortfolio and their understanding of the process.
Summary of results: Initial results show that there are differences in the rate and pattern of linking curriculum competencies to evidence items in different areas of the UK. Early feedback indicates that there are several influencing factors on linkage activity including the learning style of the trainee and approach of their supervisor.
Conclusions/Take-home messages: Given that the Foundation curriculum is the same in all areas the reasons for the observed differences in linkage will reveal the extent to which the ePortfolio can flexibly support a range of approaches to formal learning and assessment.

2H7

Use of three types of portfolios to learn human embryology in a medical school

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Background: Portfolios have been used for summative assessment and to contribute to personal development of medical students.
Summary of work: We evaluated three different portfolios (individual portfolios, group portfolios and web-portfolios) by 160 medical students during the course of Human Embryology. A questionnaire was used to assess their opinion about the three different portfolio strategies.
Summary of results: This was the first experience with portfolios for the majority of students (92%). They considered the three portfolios better for their learning than a course without one. Female medical students were more satisfied with the portfolios than male students ($P<0.001$). The grades given by students to individual portfolios were greater than for group portfolios ($P<0.001$). Students considered that portfolios helped with the learning objectives (76%), personal development (53%), reflections about the content of the course (70%), interdisciplinary thinking (60%), creativity (65%) and autonomy (60%).
Conclusions: In an embryology course, in the opinion of medical students, portfolios are helpful to reach learning objectives and also in personal development. Female medical students evaluate more positively the use of portfolios. The major disadvantage is that portfolios are time-consuming.
Take-home messages: Portfolios can be used in basic courses such as Human Embryology.

2H8

Electronic portfolio in pre-clinical stage improves professionalism

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Background: The acquisition of professional behavior required to practice medicine is slowly emerging as a central focus in the new medical curriculum for pre-clinical stage. Our aim is to use this education tool effectively by assessing the differential effects of electronic-based portfolio versus paper-based portfolio in terms of students' acceptability, user friendliness, student creativity motivation and quality of its material, documents and reflection.
Summary of work: In our study design, we used 27 4th year medical students. The same group of students were conducting paper portfolio in one block and electronic portfolio in the next block for comparative cross-section study. Student questionnaire, content analysis, and the total of 54 portfolios were scored by same pair of examiners independently, using quality rating instrument to allow for consistency and stability.
Summary of results: Student questionnaire analysis showed poor satisfaction on the impact of portfolio for learning skills, and the need for more orientation. Electronic portfolio is more time consuming but easier to conduct, more practical and increases student creativity. Content analysis showed significant effect of electronic portfolio for student motivation, creativity, reflection and evidence documentation.
Conclusions: In pre-clinical stage, electronic portfolio with proper orientation and clear quality rating can improve clinical performance with more students and examiners satisfaction than paper portfolio.
Take-home messages: Electronic portfolio prove effective in pre-clinical stage as an effective way of improving education and students' performance.

2I Short Communications: Curriculum Evaluation

2I1

Students' perceptions of their evaluation dominate overall course ratings

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Background: Although most medical schools ask students to evaluate curricula, little is known on which aspects influence these ratings. Our objective was to identify which aspects of a curriculum are associated with the overall rating.
Summary of work: We asked students to rate course material, content delivery, and evaluation for seven courses in our curriculum. We examined the structure of the rating tool using principal component factor analysis, and the relationship between factors and the overall course rating using multiple linear regression.
Summary of results: Four factors were identified: student evaluation, small group learning, basic science teaching, and teaching diagnostic approaches. Students' rating of their evaluation had the strongest association with their overall course rating, and for Year 2 students this was the only variable associated with overall rating.
Conclusions: Students' rating of their evaluation had the strongest association with the overall rating of a course, likely due to the fact that this was not only the final experience of the course, but also the most "negative" experience. This effect is consistent with the "Peak-End rule" for rating of emotional experiences.
Take-home messages: When striving to provide high quality learning experiences, educators shouldn't underestimate the importance of evaluation.

2I2

An empirically based checklist to assess quality of clinical teaching

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Background: Empirically based tools to assess clinical teaching quality of single teaching sessions have not been reported yet.

Summary of work: 10 criteria for which sound evidence is acknowledged in school teaching were identified: genuine learning time 1, climate facilitating learning 2, clarity of content 3, clarity of structure 4, meaningful communication 5, variety of methods 6, individual promotion 7, intelligent practicing 8, transparent expectations 9, prepared environment 10. These domains of teaching quality were transferred into a checklist of 33 observable items which was used by an external expert observer to assess 28 clinical teaching sessions. Results were compared to student's assessment which utilised a checklist presenting the bare criteria together with explanations. Comparison was accomplished by the Bland-Altman method. We calculated percentages of clinical teaching sessions lying within a predefined range of equivalence from delta -0.5 to +0.5.
Summary of results: For 6 criteria clinical teaching sessions lay within the range of equivalence in over 70%, criterion 4, 5, 8, 10 in below 60%.
Conclusions: Expert and students' evaluation agree well concerning 6 criteria. Operationalisation of criterion 4, 5, 8, 10 might be improved.
Take-home messages: We presented an empirically based checklist to assess quality of clinical teaching.

2I3
Electronic evaluation at CME: Advantages and disadvantages

Benedikte Marie Kaalund, Thomas K Jensen* and Helle Nielsen (Danish Medical Association, Education Department, Denmark)*

Background: In 2009 the Danish Medical Association implemented an initiative to replace all traditional education evaluation with electronic education evaluation in shape of individual electronic questionnaire which is sent electronically to all participants after the course. The change to an electronic evaluation also contained standards for a questionnaire, which enabled various results to be compared.
Summary of work: The work consists of considerations about pedagogical and organisational changes in relation to replacing the traditional evaluation with the electronic version.
The consideration of contains elements such as: 1) More reflection among the participants regarding more qualitative useful answers. 2) Trend towards the "paperless classroom". 3) Increased rationalisation in the finishing treatment. There will be a presentation of the preliminary results concerning electronic evaluation and comparison between the two types of evaluation-standards.
Summary of results/Conclusions: On the basis of the introduction of electronic evaluation, we observed more reflection, more constructive improvement proposals and more nuanced feedback from the participants. We have also observed a number of critical factors such as lower answering percentage, problems with use of electronic equipment, criticism of follow-up on the electronic evaluation version. Advantages and disadvantages will be discussed and initiatives on what can be done to compensate the critical factors.
Take-home messages: Use of electronic media may because of its flexibility and dynamic response-potential be the favourite way of evaluate CEM-courses. It is also possible to compare different courses because of standardisation of the evaluation questionnaire.

2I4
A study of medical students' and teachers' opinions and views towards clinical instruction in Damascus University

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Background: Clinical instruction at the Faculty of Medicine; Damascus University is challenged by the large number of students and the poor quality of clinical instruction. The Faculty of Medicine is committed towards improving the quality of its education. In order to understand the problem, we investigated the opinions and views of medical students and their teachers and hypothesized the determinants of their views.
Summary of work: A mixed-method design was used embarking simultaneously on both quantitative and qualitative methods. Questionnaires from 1120 medical students in the 4th and 5th grades were collected in January 2010 and a subsample of those students contributed to the focus group discussions. Teachers who responded to our survey were relatively few.
Summary of results: Preliminary findings showed that most students (70%) were not satisfied with the clinical instruction they get and most of them (65%) felt that the clinical environment at teaching hospitals and the large numbers of students hampered their education but also they agreed that the educational objectives never spelled out nor communicated with them (60%).

Conclusions: The need to improve clinical instruction at the Faculty of Medicine was well demonstrated. Effective approaches including capacity building in teaching clinical skills are highly needed in the reform process.
Take-home messages: Clinical instruction at the Faculty of Medicine, Damascus University was not satisfactory to the medical students.

2I5

Innovations in program evaluation: Building a new program theory for the Canadian child health clinician scientist program

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Background: In program evaluation, traditional outcomes-focused models provide little insight into how a program works to bring about desired outcomes (the program's "theory") nor do they capture the unintended or emergent outcomes of the program. This presentation highlights the process of building a new program theory for the Canadian Child Health Clinician Scientist Program using pre-articulated and emergent outcomes and an existing social science theory on professional identity.
Summary of work: Quantitative data from the program's logic model were examined to insure sufficient exposure to the program. Emergent outcomes identified through exit interviews with program graduates were generated, grouped and analyzed. A literature review was then conducted to explore possible theoretical explanations of emergent findings.
Summary of results: This data, along with theoretical assumptions from Ibarra's theory on professional identity change, informed the development of the theory.
Conclusions: The program theory is described and implications for continuous program planning and evaluation were discussed.
Take-home messages: Early investment in building the program's logic model is invaluable to understanding program goals and what is needed for the program's planning and development. In addition, employing a strategy that captures emergent program outcomes and asking why and how the program works to arrive at these outcomes informs the development and evaluation of future program offerings.

2I6

Student feedback in focus group - the preferred strategy for program evaluation

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Background: Value of focus group has been repeatedly been proven for identifying concerns. This study determined the effectiveness of student feedback, in the form of focus groups, as a tool for program evaluation.
Summary of work: In our integrated modular curriculum student feedback was traditionally received on Likert-based scale and responses were tabulated through optical reader. Students were less interested in filling surveys and giving comments. Out of the three methods employed for student feedback, focus groups yielded the most efficient feedback. Subsequently two focus groups were incorporated during modular delivery. They were conducted to receive student feedback in the middle and at the end of each module
Summary of results: To date ten midmodule and end of module focus groups have been conducted. The midmodule feedback was provided to the team leaders for further planning and improvements in the curriculum and served as "reflection in action".
Conclusions: The feedback was of great educational value. It helped to build rapport, identified students' levels of stress, satisfaction and served as a window for curricular evaluation
Take-home messages: Student feedback taken in the form of focus groups is a powerful strategy for program evaluation.

2I7

Realtime clerkship feedback towards higher satisfaction outcomes

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Background: Alerting clerkship directors toward learners' view of particular content of the curriculum in order to improve teaching methods, students' skills and satisfaction of students, teachers and administrators are important issues in clerkships. Challenging issues of getting feedback from each clerkship are: different check lists, different questionnaire with different timing of filling, different schedule and duration of each rotation, different members and numbers of students for each rotation. Solutions are automation of feedback through well organized computer algorithms.
Summary of work: We implemented an automatic clerkship feedback system that presents, gather and evaluate students performance across clerkships and alerts education staff of the statistical results for the school of medicine.
Summary of results: Results for 2 years duration of this system are as follows: Year of 2008-1st: feedback of total 120 students, 15 weeks rotation, 45 Clerkships Minimum: Neurology 2.73/5.00, Average: 3.40; Year of 2008-2rd: feedback of total 120 students, 15 weeks rotation, 45 Clerkships Minimum: Endocrinology 3.43/5.00, Average: 3.79; Year of 2009: feedback of total 120 students, 15 weeks rotation, 45 Clerkships. Minimum: Respiratory 3.87/5.00 Average: 3.78.
Conclusions/Take-home messages: By automating feedback of clerkships, realtime monitoring is available. Because of realtime data, current teaching methods are easy to be considered and redesigned. We published the results and observed that, clerkship administrators are challenged to a better outcome and more effective technique for teaching skills. By using realtime clerkship monitoring system average outcome of 2008 that was 3.40 raised to 3.78 in 2009, which was in 7% higher rate (68% up to 75%).

2J Short Communications: Global Medical Education

2J1

The NetWoRM Project – Net-based training for work-related medicine
S Kolb, L Wengenroth*, D Nowak, K Radon and The International NetWoRM Group (Unit for Occupational and Environmental Epidemiology & NetTeaching Institute for Occupational, Social and Environmental Medicine Munich, Germany)*

Background: Occupational health is a global issue. Therefore, the main aim of the project NetWoRM (Net-based training for Work-related Medicine) is to set-up an international case-based e-learning curriculum for occupational medicine (OM) which completes and enhances traditional training in this content domain.
Summary of work: In order to improve teaching in OM, web-based cases have been created and implemented at the University of Munich since 1999. Target groups are pre- and postgraduate medical students and physicians in CME. The integration strategies differ depending on the target group.
Summary of results: As it does not seem useful to build up disconnected teaching modules for OM in each country, the project has been further developed with a view on an international base in Europe and North- and South America. For case creation, CASUS (Instruct AG), an online e-learning platform for creating, distributing and evaluating cases, is used. By now a total of 60 cases in eight languages are available.
Conclusions: The project strengthens the international dimension in education at all levels and facilitates wide trans-national access to educational resources worldwide, promoting equal opportunities throughout education.
Take-home messages: The NetWoRM project increases co-operation and mobility in the field of education, in particular by encouraging exchanges between educational institutions, promoting open and distance learning.

2J2

Importance of global health in undergraduate curricula - the Australian medical student perspective
R Roberts-Thomson, T Smith and R Mitchell (Australian Medical Students' Association, Canberra, Australia)*

Background: When asked why they chose to study medicine, medical students are more likely to say "to make a difference" than to "make a fortune". While Australian medical students are very interested in global development and care deeply about it, knowledge of the Millennium Development Goals and global health issues is very low.
Summary of work: The Australian Medical Students' Association (AMSA) is the peak representative body for medical students in Australia. AMSA undertook a study looking at Australian medical students' perceptions on global health in their curricula.

Summary of results: 1093 students took part in a survey, during a one week period in July 2008. 93% of students felt global health topics should be covered in their curricula. 89% of students felt that the information was somewhat or very relevant to their future practice. The vast majority of students also felt that information on communicable diseases, migration, war and conflict, and access to essential medicines in resource poor countries should be included in the curriculum.
Conclusions: Medical students feel that an insufficient amount of time is dedicated to global health and teaching in this area is important to their future practice.
Take-home messages: Australian medical students felt that global health is an important part of an undergraduate curriculum.

2J3

Global medical education is creating medical nomads

S Banner (Canadian Resident Matching Service, Ottawa, Canada)*

Background: Since 2003, there has been a 1200 % increase in the number of Canadian students studying medicine abroad, who are applying through the CaRMS match for a postgraduate training position in Canada.
Summary of work: A recent survey of these students examined their career plans and where they intended to pursue postgraduate training. Visits to some of the medical schools in Europe, the Middle East, Australia and the Caribbean identified that these students have very few opportunities to enter postgraduate training in the countries where they are studying.
Summary of results: The study estimates over 2500 Canadian students studying medicine abroad and that XX% wished to return to Canada for postgraduate training and practice. There is limited capacity in Canada, to train internationally trained physicians, and Canadian students studying abroad compete with physicians who immigrated to Canada and require additional training to practice.
Conclusions: Every year more than 400 students graduate abroad, which represents more than the output of three medical schools in Canada and a significant health human resource challenge. This paper will report on the study findings and challenges these students face at home and abroad as they travel in search of postgraduate training.
Take-home messages: Global medical education has created a generation of medical nomads.

2J4

A comparison of medical students' views on patient-centredness between two culturally contrasting schools in the UK and South India

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Background: Globalisation of health care and its impact on the doctor-patient relationship is increasing dramatically. Despite the recognized importance of patient-centredness, how it is understood and enacted cross-culturally remains poorly understood.
Summary of work: We aimed to explore which professional values underpin patient-centredness and how cultural factors impact upon it. This study was set in two medical schools involving students with clinical experience (years 3-5): 'School A' in North England and 'School B' in rural South India. Two qualitative methods using grounded theory were triangulated in each. Four nominal group techniques (n=36) followed by four focus groups (n=36) were performed. These involved questions on good communication to identify students' values and views respectively.
Summary of results: Nominal group techniques revealed that both schools highly valued empathy and sympathy. School A, prioritised consent and confidentiality. Focus groups showed that whilst students across both schools described being uncomfortable with educated patients, only School B advocated family involvement and 'scolding and scaring' communication.
Conclusions: Students' contrasting cultural views suggest neglect of particular dimensions of patient-centredness in each school. Addressing such different approaches to doctor-patient interaction is of growing importance given that students are increasingly working overseas.
Take-home messages: Further understanding of students' internalised views is critically needed to inform educational and communication training.

2J5

Using socio-cultural theory to explore the felt experience of black and minority ethnic candidates in the clinical skills assessment; part of the licensing exam for British General Practice

Kay Mohanna (Keele University School of Medicine, Keele, UK)*

Background: The success rate in the CSA in 2008 was 91.6% (UK graduates), 72% (EEA graduates) and 54% for non-EEA overseas graduates.
Summary of work: In a focus group the felt-experience of black and minority ethnic candidates who had already taken the CSA were explored.
Summary of results: The manifest, or declaratory, themes were identified about how it felt to prepare for and sit the exam. Secondly the subtext or latent themes were constructed looking for the controlling principles or unarticulated experiences.
Focus group themes included: 'This is not how we do it back home', 'Trainers don't know what is needed for success', 'The exam is not the same as what we have to do in real life'.
Conclusions: For some candidates the CSA requires a double layer of simulation. It is not a real doctor-patient interaction and for some what is required to pass it is different from how they consult in real life in their community. Apart from the language differences (the CSA of course takes place in English) cultural understandings of what is expected in a doctor patient relationship are also different.
Take-home messages: The CSA assesses a particular model of communication. Is there such a thing as a universal model of effective doctor patient communication?

2J6

International, National and Institutional implementation of the Bologna model at the Iuliu Hatieganu University's Medical School

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Background: Romania is participating in the Bologna process. From 2002 the faculty was the leading higher education institution in the negotiation process in respect for European directive No93/16/EEC and 2005/36/EC
Summary of work: Instruments and criteria: 1) Adoption of a system of easily readable and comparable degrees. 2) Adoption of a two cycle system. 3) Establishment of a system of credits
4) Promotion of mobility. 5) Promotion of European co-operation in quality assurance. 6) Promotion of the necessary European dimensions in higher education. 7) Integrate lifelong learning into the overall strategy. 8) Higher education institutions and students. 9) Promoting the attractiveness of the European Higher Education Area. 10) Establish a European research area
Summary of results: Implementation in our Faculty: 1) Harmonization with EU Directives - Diploma Supplement. 2) We are concerned about negative consequences in implementing a two-cycle structure in medical education. 3) Implementation of ECTS and the grading system. 4) Continuous growth in international mobility and student exchange. 5) Cooperation with WFME, ENQUA, AMEE – AMSE – MEDINE. 6) Focus on language learning. 7) ME and CPD realized by modern teaching methods. 8. Recognition of students as active and constructive partners - Involvement of the profession. 9) 2 foreign languages sections. 10) Research Methodology Master degree - PhD school.
Conclusions: We are concerned about the negative implications of the two-cycle structure on medical education.
Take-home messages: Not implementing the two-cycle structure should not be an excuse not to implement the rest of the Bologna process.

2J7

A novel program framework for global health education in the health professions

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Background: The 'Global Health Education Institute' at the University of Toronto was created in response to an overwhelming interest in global health, a sense of social responsibility and a desire to enhance university-wide collaboration in educational activities related to global health.
Summary of work: Following a needs assessment study of >1500 post-graduate medical residents and a year-long consultative process with >70 expert faculty, a modular curriculum for a certificate program in global health for post-graduate medical trainees was developed and launched.
Summary of results: The 2-year program is comprised of both core and elective modules delivered in a problem-based interactive format consisting of three flexibly scheduled 3-hour sessions each. An evidence-informed framework for evaluation of the program has been developed with input from participants and faculty.
Conclusions: Lessons learned from the planning, implementation and evaluation of the GHEI program shed light on significant logistical, procedural and substantive content areas of global health curriculum development which will be instructive to other large academic health sciences centres in developing global health programs.
Take-home messages: Global Health is an essential area of medical education which expands trainees horizons and is a vehicle for delivery of traditionally challenging curricular elements. The development of quality global health curricula and program must be deliberate, systematic, and comprehensive.

2K Short Communications: Student motivation

2K1

Achievement motivation and online lecture usage in a human structure course: Any correlation?
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Background: This study examined the relationship between medical students' achievement motive (i.e., motive to achieve success and the motive to avoid failure) and online lecture usage. We hypothesized that a significant correlation exists between online lecture usage and fear of failure on the Achievement Motives Scale.
Summary of work: In the Human Structure course at our medical school, core content is delivered only via online lectures. 89 first-year medical students (85% response rate) were administered the 10 item revised Achievement Motive Scale (Lang & Fries, 2006). Server log files for the Human Structure course were downloaded to determine students' lecture usage.
Summary of results: Pearson correlation revealed a significant relationship between online lecture usage and hope of success ($r = .249$, $p = .019$). No significant correlation was noted between online lecture usage and fear of failure ($r = .011$, $p = .922$).
Conclusions: Students who accessed online lectures more frequently are those who are motivated to succeed and do well in the course rather than students who have fear of failing the course.
Take-home messages: Students with achievement motivation focused more on success than failure are more likely to use online lectures.

2K2

Operationalising and measuring healthcare students' intentions and motivations for learning
Elisabeth Baxter (University of Exeter, Peninsula Medical School, Exeter, UK)*

Background: The way that students in higher education approach their learning has been shown to affect learning outcomes. Students who adopt 'deep' approaches, which involve seeking meaning and understanding, achieve better outcomes than those who adopt 'surface' approaches involving rote learning. Each 'approach' is underpinned by intentions and motivations for learning.
A 2007 study (Mattick and Knight) identified motivations and intentions for learning amongst medical students that are broader than the typical deep and surface approaches. This highlighted the importance of vocational and social aspects of learning in medical students.
Summary of work: The range of motivations and intentions for learning was explored using in-depth interviews with medical and other healthcare students. The data informed the design of a study inventory to

measure the motivations and intentions. The inventory has been administered to cohorts of healthcare students on five courses.
Summary of results: A number of new sub-themes identified and study inventory captured these. Pilot work led to refined inventory. Data from cross sectional study will be analysed and results available by summer 2010.
Conclusions: This work confirms that healthcare students have much wider range of intentions and motivations for learning than is recognised by existing scales.
Take-home messages: Recognise the limitations of existing scales for healthcare

2K3

Validity of strength of motivation for medical school questionnaire

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Background: The Strength of Motivation for Medical School (SMMS) questionnaire is the only known questionnaire measuring 'the applicant's readiness to start and continue medical training regardless of sacrifices, setbacks, misfortune or disappointing perspectives' i.e. the level of motivation for medical school. But, there is not enough evidence for its validity, so this study was carried out to establish its validity and reliability.
Summary of work: The idea was to establish content validity on the theoretical basis of the questionnaire, construct validity by factorial analysis using student responses and concurrent validity by correlating SMMS scores with other established motivation questionnaires' scores. Reliability was estimated by Cronbach's alpha. 1495 medical students from two universities filled out SMMS questionnaire, Academic Motivation Scale (measuring intrinsic, extrinsic motivation and amotivation) and Maslach Burnout Inventory-Student survey measuring study stress.
Summary of results: Factorial analysis confirmed the theoretical factor structure. SMMS scores correlated positively with intrinsic motivation and negatively with controlled form of extrinsic motivation, amotivation and study stress (concurrent validity). The reliability was high.
Conclusions: The SMMS questionnaire has good content and constructs validity; and reliability.
Take-home messages: The SMMS questionnaire is a valid and reliable tool for measurement of strength of motivation of medical students.

2K4

Do gender, student performance and home language influence medical student responses of active learning in physiology?

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Background: The student body at the Nelson R Mandela School of Medicine (NRMSM) is very diverse, representing many cultures, religions and languages. Research has shown that weakness in English can negatively impact student performance. Recent studies have also highlighted gender-based differences in student learning styles. These factors pose both challenges and opportunities for teachers.
Summary of work: Student presentations were incorporated for a number of years into the traditional didactic 2nd year medical curriculum at the NRMSM. Feedback obtained about the perceived benefits of these presentations for the learning of gastrointestinal and endocrine physiology, included demographic data pertaining to students' gender, home language and self-reported performance in tests.
Summary of results: Analysis of the 50-item questionnaire responses (n>250), obtained over a two year period, provided some interesting insights. In 22/50 items i.e. 44%, student responses differed based on gender alone (4%); gender and home language (4%); gender and performance (4%); performance alone (16%); home language alone (20%); performance and home language (2%).
Conclusions: Our findings corroborate that home language, student performance and gender play an important role in the way students are motivated to learn.
Take-home messages: In designing active learning strategies, academics need to take into account the potential influences that might affect student learning in diverse, multicultural and multilingual classes.

2K5

Learning for life vs learning for School? What students think about their own learning in medical education

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Background: Evidence indicates that medical students' approaches to learning develop over the course of time, unfortunately not necessarily towards high-quality learning. In a previous study we had identified such unfavorable changes in students' learning. In this follow-up we investigated how students explain these changes.
Summary of work: A questionnaire was handed out to 200 third-year medical students many of whom had participated in a previous longitudinal study on the use of learning strategies. We provided a summary of the previous results and prompted them to explain the changes we had found. 88 students (44%) returned the questionnaire. Students' comments were transcribed and analyzed according to Grounded Theory.
Summary of results: Students attributed the changes in their learning approaches to the learning environment (i.e. work load, examinations and available time) but also to their growing experience in learning. A conflict of interest became apparent: While students aspired to high-quality learning (i.e. meaningful, "deep" learning) examinations rather rewarded a superficial learning approach. Students resolved this conflict in favor of the latter.
Conclusions: Our study contributes to the body of evidence indicating that the characteristics of the learning environment influence students' use of learning strategies.
Take-home messages: To foster high-quality learning an appropriate learning environment is necessary.

2K6

Evaluation of learning styles of medical students by VARK instrument at Iran University of Medical Sciences

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Background: Knowing learning styles in medical education has an important role in making decisions to improve the teaching-learning process. Therefore the aim of this descriptive study was to determine the learning styles of medical students using the Iranian version of the visual, auditory, read-write, kinesthetic (VARK) questionnaire.
Summary of work: This study was performed at the Medical Education and Development Centre of Iran University of Medical Sciences in Academic in 2009. The Iranian version of the VARK questionnaire was administered to medical students to determine their preferred mode of learning.
Summary of results: The unimodality preference was 45.9%, bimodality was 17.2%, trimodality was 13.1% and quadrimodality was 23.8%. The learning styles did not differ between male and female students, and no statistically significant difference was determined between the pre-clinical and clinical students in their learning styles.
Conclusions: Knowing that our students have different preferred learning modes will help the medical instructors in our faculty develop appropriate learning approaches and explore opportunities so that they will be able to make the educational experience more productive.
Take-home messages: Considering learning style for medical students should be emphasized by educators in medical schools.

2K7

Increasing pass rates through learning style flexibility

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Background: Three-hundred-and-fifty health care managers annually enrol on a one-year leadership development programme with FPD. Historically the pass rate on a single-assignment test - that favoured left brain learners – was below 50%. In 2008 FPD changed its assessment strategy to incorporate learning style preferences (LSPs).
Summary of work: The FPD module on donor relations (historical pass rate 46%) was selected for this study. The Herrmann Brain Dominance Instrument (HBDI) was used to assess the learning styles of the students. The assessment strategies of the module were redesigned to ensure that analytical and structured (left brain) and interpersonal and holistic learners (right brain) were catered for.

Summary of results: The HBDI survey indicated the presence of all four learning styles, with 53% being right brain dominant. In accommodating all LSPs the number of assignments was increased to four. Despite the increased workload, the pass rate improved to 72%.
Conclusions: Lack of learning style flexibility in assessment design rather than work load (the most commonly quoted reason) appears to have been the biggest obstacle to student completion.
Take-home messages: 90% of the students were healthcare professionals, stereotypically described as left - brain analytical scientists; this however is no longer the case. These results therefore may be relevant to the broader medical curriculum.

2L Short Communications: Postgraduate Education 1

2L1

Impact of Hospital at Night schemes on Pre-Registration Doctors' training

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Background: With the introduction of the European Working Time Directive (EWTD) newly qualified pre-registration doctors are being exposed to less out of hours work. UK hospitals are increasingly relying on Hospital at Night Scheme (HANS) which is denying doctors the opportunity of developing vital clinical skills required to successfully complete foundation year one training in the UK.
Summary of work: We conducted an audit involving pre-registration doctors (n=93) with regards to the number of vital clinical skills performed during a one month period in 1999 (pre introduction of HAN) in comparison to 2006 (post HANS) at Chesterfield Royal Infirmary. Skills included venepuncture, intravenous cannulation, arterial blood gas sampling, electrocardiogram, per rectal examination, urethral catheterisation, suturing and placement of nasogastric tubes.
Summary of results: There was a minimum of 75% reduction in the number of the times venepuncture, intravenous cannulation, arterial blood sampling and electrocardiogram were performed over a one month period following the introduction of HANS.
Conclusions: The introduction of HANS severely limits the exposure of vital clinical skills needed for completion of training of pre-registration house officers.
Take-home messages: This issue may have to be recognised as a potential weakness in the training of pre-registrations doctors in hospitals who utilise HANS.

2L2

Junior doctor perceptions of clinical training in Australia

M Bonning and R Mitchell (Australian Medical Association Council of Doctors in Training, Australia)*

Background: The clinical training environment in Australia has undergone significant change in recent years, partly due to an exponential rise in medical graduate numbers. The impact of governmental control and various reforms on junior doctor access to quality medical education has not been established.
Summary of work: The Australian Medical Association Council of Doctors-in-Training (AMACDT) is the peak representative body for junior doctors in Australia. A key area of interest is postgraduate medical education. In 2010, AMACDT undertook a literature review of junior doctor perceptions of the contemporary training environment.
Summary of results: While there is a paucity of Australian literature relating to junior doctor perceptions of training, we identified some common themes. Junior doctors were generally satisfied with their work, the quality of training programs and their initial preparedness for practice. Some reports identified issues with access to supervision and quarantined education time. Overwhelmingly, junior doctors wanted more flexible work and training options.
Conclusions: Junior doctors were generally positive about their training conditions, although access to quality clinical teaching remains an issue. There is ongoing tension between service delivery demand and the provision of clinical education.
Take-home messages: While Australia supports high quality clinical education, there are areas in which junior doctor training could be enhanced.

2L3

Discrepancy between the expectations and preferences of new residents and how these influence their satisfaction

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Background: Residency is of vital importance, as well as being part of the training process where acquired knowledge is put into practice and new knowledge and necessary skills are acquired. Residency is also a process of socialization within and for the health care organisation (culture, norms and values).
Summary of work: A previous qualitative study, which is part of a project entitled 'The satisfaction and expectations of health care professionals in training in the SSPA', carried out by the research group, points out the MIR as a group of professionals who are less satisfied, with regard to the residency period. For this reason this paper will analyse their satisfaction, and whether the gap between expectations and preferences influence the rating of the professional.
Summary of results: It has used the results of the 2008 on-line study, conducted by the Institute for Advanced Social Studies (IESA-CSIC9, the Ministry of Health, and the local government of Andalusia, in which 578 interviews with 1st year residents were completed (62.5%).
Conclusions: Note that individuals who showed minor discrepancies between preferences and expectations, are the most satisfied with the different aspects of the residence.
Take-home messages: The health system must make an effort of institutional transparency (objectives and targets) prior to the residence, so residents won't see their expectations frustrated.

2L4

Rheumatology pearls: A web-based rheumatology learning tool for internal medicine residents

Z Ahmad and D Cohen (University of Toronto, Division of Rheumatology, Toronto, Canada)*

Background: Residents in our clinics express concern that they "miss out" on exposure to key areas of rheumatology due to the variability of cases inherent in a service-based learning setting. "Rheumatology Pearls" aims to ensure that key concepts in Rheumatology are explored by all Internal Medicine residents rotating through our service.
Summary of work: Rheumatology Pearls consists of a set of 40 questions, one of which will be e-mailed to residents on each weekday of the rotation. Residents are to seek the answer to the daily question over the course of the day. On Friday of each week, the resident will receive an answer key by email. Satisfaction and patterns of use of the tool will be evaluated by questionnaire. To assess for an effect on knowledge acquisition, residents will be randomly assigned either to receive subscriptions to the daily emailed questions or to complete the rotation without the added learning tool. Upon completion of the rotation, all residents will be tested based on objectives outlined in the National Rheumatology Curriculum for Core Medicine Trainees. Test scores of residents who had subscriptions to Rheumatology Pearls will be compared to scores of those who completed the rotation without subscriptions to Rheumatology Pearls.
Summary of results: Development and implementation of Rheumatology Pearls is ongoing.
Conclusions/Take-home messages: Use of Rheumatology Pearls may enhance satisfaction and increase knowledge of core rheumatology concepts among Internal Medicine residents.

2L5

A multi-institutional survey of internal medicine residents' learning habits

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Background: Resident physicians' study habits are poorly understood. Therefore, we conducted a multi-institutional survey of learning habits among US internal medicine residents.
Summary of work: A 58-item survey was administered to medicine residents at five US training programs in 2007. Content validity was based on literature and expert input. Participating institutions provided access to Up-To-Date® independent of the study. The sample was characterized using standard univariate statistics. Comparisons were made using Cochrane-Mantel-Haenszel statistics.

Summary of results: The overall resident response rate was 189/413 (45.8%). Most residents reported reading less than 7 hours weekly (146/188, 77.7%); this percentage decreased over 3 years of training (83.3%, 80.9%, and 68.3%; p=.06). Most residents favored electronic resources (54%). Most residents stated that Up-To-Date® was their first resource for answering clinical questions (88.9%), and their most effective (94.6%) and common (30.2%) resource for acquiring medical knowledge. Most residents (86%) reported that faculty role-modeled self-directed learning at least once weekly.
Conclusions: Residents in this study generally read less than seven hours weekly and obtained information from electronic resources. Their reading was usually triggered by patient encounters, which is a preferred strategy for developing clinical decision-making skills.
Take-home messages: Future research should examine the interaction between physician role-modeling and electronic resource utilization.

2L6

A new paradigm for JMO rostering: Who, when, where, what, why and with whom?

I Graham (Postgraduate Medical Council of Victoria, Melbourne, Australia)*

Background: Victorian Hospitals have been exploring opportunities for the development and improvement of medical rosters as they create new positions and review and redesign existing positions in order to accommodate additional trainees and address the learning objectives outlined in the Australian Curriculum Framework for Junior Doctors.
Summary of work: The following key elements of a shift description have been identified as part of a new paradigm for Junior Medical Officer rostering: WHO? - Identification of the JMO, including seniority and contact details. WHEN? - Details of the start and end times of the shift or sub-shift.
WHERE? - The location and nature of the patients being cared for during the shift. WHAT? - The nature and scope of practice of the JMO during the shift. WHY? - The learning objectives and service requirements for the shift. WITH? - The supervisor for the current shift and whether the shift involves supervision of others.
Summary of results: These elements provide a framework for the development and improvement of JMO rosters.
Conclusions: It is anticipated that an electronic solution will be required to effectively manage the scale and complexity of JMO rostering.
Take-home messages: Understanding the key elements of a JMO shift description will assist with the specification, development and implementation of electronic JMO rostering systems.

2L7

Quality Education and Safe Systems Training (QuESST): Curricula development for graduate medical education

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Background: Health care regulators require that residency programs deliver instruction addressing Quality and Safety. Graduate Medical Education (GME) Quality and Safety curricula are essential for improving patient care outcomes and meeting regulatory requirements.
Summary of work: A steering committee comprised of hospital and GME administrators and educators developed a year-long curriculum to introduce first-year multidisciplinary trainees (145 residents from 16 programs) to Quality Education and Safe Systems Practice in a large multi-hospital system. A four-hour seminar included: Introduction to Quality and Safety; Teamwork; Communication Strategies; When Errors Happen; Analysis of Error; and Human Factors Engineering. Trainees were assigned to twelve mentoring groups that met for 5 sessions: Quality Measurement and Reporting; Infection Prevention and Control; Medication Errors; Transitions of Care; and Medical Errors. Subject matter experts and an instructional designer developed standardized curricula.
Summary of results: Pre-and Post-test assessments revealed increased participant knowledge of Quality and Safety topics. Trainee attendance was variable. Evaluations revealed satisfaction with the curriculum.
Conclusions: We successfully increased resident awareness of quality and safety issues. Standardized curricula were delivered by multiple mentors. Opportunities for improvement include increased stakeholder investment and revising requirements to improve attendance.

Take-home messages: Lecture enhanced with small group mentoring sessions provide an excellent institutional strategy for delivering quality and safety training.

2L8

Can foundation doctors participate in 'on-the-job' educational research without compromising their clinical roles?

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Background: Junior doctors are encouraged to develop their research skills. However, only those in the academic training programmes have time allotted for research activities. This case study looked at whether junior doctors can participate in 'on-the-job' research without compromising their clinical roles.
Summary of work: Two foundation doctors participated in the conduction of two educational research projects over an eight month period. Their jobs were full-time posts with no time allotted for research activities. They evaluated their experiences through reflective practices and small group discussion.
Summary of results: The majority of research activities took place outside work. They perceived 'on-the-job' research had little impact upon their clinical roles as clinical work always took priority. They gained teaching and research skills. The good practices employed by their hospital to support their research activities were discussed. Other ways for junior doctors to build research skills during their training were suggested.
Conclusions: Implementing these good practices will help to support junior doctors building research skills. These measures are not difficult to put into practice.
Take-home messages: It is possible for junior doctors to be involved in research projects and build their research skills without compromising their clinical roles.

2M Research Papers: Teaching and Learning

2M1

Contrasting simulated and authentic early clinical experience: a qualitative exploration of how medical undergraduates learn through difference

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Introduction: There is a paucity of research exploring how and why students create meaning from early experience[1]. Few studies compare simulated with real patients. This paper considers how different experiences interrelate, in order to understand if this potentiates learning outcomes, with two linked questions: How do first and second year medical students generate meaning from simulated and authentic early experiences? Does opportunity to compare and contrast different modes of experience improve learning?
Methods: This research was conducted at Keele University, which uses experiential learning models for early experience. Interviewees were purposively selected from three groups: firstly students, then placement providers (health, social or voluntary sector professionals providing workplace supervision), and finally medical school faculty. Interviews contained semi-structured questions on placement learning, knowledge integration, and transferable learning. Interviews were audio-recorded and transcribed verbatim. Multi-perspective data analysis was conducted using mixed qualitative methods (narrative, interpretative phenomenological and thematic). Choice of methods was determined by the research question but also iteratively evolved in response to interview data. Meaning in how significant stories were told, content themes, and the dynamic process of meaning creation by students were identified through this combined methodological approach. Ethical approval was obtained.
Results: Students generate meaning from simulated and authentic early experiences by comparing and contrasting conceptualisations of different modes of experience. With authentic patients 'unpredictability' created opportunities to learn and derive meaning, whereas simulated sessions were treated as performances of scripted parts. However, students were positive about the comparative baseline simulated patients provided. In authentic situations students believed patients might not detect underperformance, (expecting competency), creating a sense of responsibility. Students felt discomfort moving from lay to professional roles

but perceived this as creating positive learning opportunities. Placement providers were viewed as sources of 'real practice' by students creating tension when providers practiced differently to faculty teaching.
Discussion: The significance of contrast as a learning mechanism emerged when student interviewees prioritised comparing their early experiences. Exposure to different modes of teaching can expand overall learning if students critically appraise their experiences in contrast to each other. Insight into differences between simulation and real practice was used to generate learning and meaning. Unpredicted consequences from comparisons and maximising learning using educational theories will be discussed.
Conclusion: Different learning contexts can be positively contrasted by students to potentiate learner-created meaning from early experience.
[1]Littlewood,S., Ypinazar,V., Margolis,S.,A. et al. Early practical experience and the social responsiveness of clinical education: systematic review. BMJ 2005:331:387-91

2M2

Case seminars open doors to deeper understanding – Nursing students' experiences of learning
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Introduction: Creation of new knowledge is mainly accomplished by students themselves, and the main task of teachers in higher education is thus to facilitate this learning process (Ramsden 2003). The Case Method is a teaching method in which cases from real life inspire students to actively seek knowledge to be discussed in structured seminars. In the seminars, the problem-solving process is important and the aim of the seminar discussion is to consider different solutions and identify possible ways of dealing with the situation. Case seminars in health education have been evaluated and discussed, but descriptions that can help us understand how students learn in the seminars have not previously been published. In a Swedish nursing programme, where case seminars have been used in teaching cardiovascular diseases for several years, students were asked to describe how the case seminars had helped them in their learning and what had been troublesome with the seminars, and 69/72 did. The aim of the present study was to describe this learning process from the students' point of view.
Methods: Written data were analyzed using content analysis, a process of organizing and integrating qualitative information into themes, categories and codes. All quotations were read and commented on by the three authors, but the analysis was made by two of the authors in collaboration.
Results: A theme concerning how the Case Method opens doors to deeper understanding was identified as a thread running through different codes and categories. Students described the importance of new perspectives and their wish to participate in discussions with other students. The structure, which involved pre-prepared cases and writing on the white board, positioned the students' own knowledge in a wider context and the learning atmosphere seemed to enable everyone to participate in the discussions (Hofsten et al 2009).
Discussion: The interest in reflective discussions, other students' points of view and solutions to the cases indicate a deep approach to learning (Ramsden 2003). Two years later the findings were presented to the students who participated in the study. All students agreed much or very much to the analysis presented.
Conclusion: The Case Method seems to involve students in a way that deepens their understanding and critical thinking.
Hofsten A., Gustafsson C. & Häggström E. (2009) Case seminars open doors to deeper understanding – Nursing students' experiences of learning. Nurse Educ. Today, doi:10.1016/j.nedt.2009.11.001. Ramsden P. (2003) Learning to teach in higher education. RoutledgeFalmer, London

2M3

Intention to reduce the theory-practice gap in the prehospital nursing study programme
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Introduction: Nursing has long been troubled with disjunction and discussions concerning the theory–practice gap. Haigh (2009) argues that the theory–practice gap is caused by a lack of collaboration between academics and clinicians. The educators and supervisors in the clinic are challenged to search for innovative ways of bringing the theoretical and practical issues together, so students can get the best possible educational experiences. The aim of this study was to evaluate the usefulness of a curriculum design with an intention to reduce the theory-practice gap in the Prehospital Nursing study programme.

Methods: 16 students participated in the study in autumn 2009. During the clinical practice, students identified an improvement topic concerning hygiene in the ambulances. After their clinical practice the students searched literature for best evidence practice concerning how to improve the hygiene in ambulances and then summarized the results in a paper. Evaluation was made by reviewing students' papers and how they present their findings for the clinicians in the ambulance service.
Results: The students identified three improvement areas based on the Swedish national board of health recommendations concerning hygiene standards; prevention of disease transmission (n=7), cleaning of emergency equipment after use (n=5), utilization of single-use-gloves (n=4). All papers were scientifically approved. Ten of the students discussed the results with their clinical supervisors. No student admitted their papers and improvement suggestions to the managers in the ambulance services.
Discussion and conclusion: The curriculum has the possibility to reduce theory-practice gap. The students found areas for improvement and presented solutions for the identified problems. There would have been an option for collaboration between theory and practice if findings would have been used by the clinicians. The students discussed their findings with the supervisors, but did not want to present their results and findings for the managers who have the power to change routines in the clinic. Thus there was unidentified barriers' enabling collaboration between theory and practice. The students' findings could be a way of improving hygienic standard in the ambulances if the managers decide to implement and use students' results. This curriculum model has possibility to reduce the gap between theory and practice, but if the students are unwilling to take their findings into the clinical area, the theory-practice gap still exists.
Haigh C. Embracing the theory/practice gap. J Clin Nurs 2009; 18(1):1-2

2M4

Teacher-made models: The answer for medical skills training in developing countries?

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Introduction: Locally made models (simulators) could be the answer for medical skills training in developing countries, since they are much cheaper to produce. This approach would have the additional benefit that teachers can be involved in the production to ensure that their requirements are met. Teacher-made Models (TM) are not only the answer for economic but also for educational reasons. To evaluate the effectiveness of using TM in training and assessing intravenous injection skills in comparison to using the available Commercial Model (CM) (intravenous training arm S400, Gaumard Scientific company). Research Question - Are any differences in effectiveness of using teacher made model and available commercial models in training and assessing intravenous injection?
Methods: A randomized, blind, pretest-posttest experimental design. 144 undergraduate nursing students were trained and assessed in the medical skills laboratory. Students were randomly divided into three groups: Group 1 practiced on CM with a ratio of 8 students per model; group 2 practiced on TM with a ratio of 8 students per model; group 3 practiced on TM with a ratio of 2 students per model. The three groups were trained by the same team of two teachers. All students were assessed on both the TM and the CM in the pretest and posttest. After passing the posttest they were also assessed while performing the skill on real patients for the first time. The number of times practicing on models by each student was also recorded.
Results: Differences in mean scores on pretest and posttest were marked in all three groups. Training with TM as well as CM helped students to improve their performance substantially. There was no significant difference in mean scores in the posttest between students who practiced on TM and students who practiced on CM, independent of the use of TM or CM in the assessment. But students who practiced on the TM performed better on communication with the patient than students who practiced on CM when performing the skill on real patients was assessed.
Discussion and conclusion: The teacher-made models appear to be an effective and appropriate alternative for commercially-available models; students showed a similar increase in performance while being trained on these models, which cost 2% of the commercially available models. The TM may even have an extra benefit as it was found to improve the students' performance in communication with real patients while carrying out the procedure.
1. Dent, J., Current trends and future implications in the developing role of clinical skills centers. Medical Teacher, 2001. (23): p. 483 - 489.
2. Stark P., F.F., Teaching clinical skills in developing countries: Are clinical skills centres the answer? Education for health, 2003. 16(3): p. 298-306.

2M5

Interdisciplinarity: At the intersection of knowledge-production and professional identity formation

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Introduction: Interdisciplinarity is heralded by funding agencies, governments and professional associations as a way to address important and pressing social problems. Within medical education the literature has focused on how to enable and support interdisciplinary research. Few studies have explored how institutional and individual rationales for engaging in interdisciplinary collaborations relate to broader socio-political considerations. This study address this gap by exploring 1) How the discourse of "interdisciplinarity" is construed in popular and institutional texts, and 2) How the discourse affects the work of faculty and administrators in research-intensive universities.

Methods: Key texts pertaining to interdisciplinarity were assembled including policies, government and other organizational reports, academic literature, popular press, institutional websites and newsletters. Semi structured interviews were also conducted to explore the experiences of 20 faculty and administrators working at a Canadian research-intensive university. Faculty members stemmed from different disciplinary backgrounds and worked within medical or engineering fields. A foucauldian discourse analysis was conducted on the entire collection of texts and interview transcripts.

Results: The analysis of key texts revealed that four inter-related statements make up the discourse of interdisciplinarity in its popularized form: diversify-collaborate-innovate-integrate. Participants confirmed that these statements were relevant to the way they practiced interdisciplinarity and gave many examples of how the discourse affected the way they organized and conducted their collaborative activities. The analysis of texts and participant experiences revealed that the discourse of interdisciplinarity reaffirms the importance of disciplinary focus and specialization. Collaboration that brings together experts from diverse disciplinary backgrounds was projected in texts as a way to enhance the ability of researchers to integrate new knowledge into practice through innovations that offered solutions to nuanced problems. Participants also expressed similar reasons for engaging in interdisciplinary collaborations. While this form of knowledge making is currently promoted, participants noted that interdisciplinary collaboration was not rewarded in significant ways within the institution. Participants expressed altruistic sentiments of 'making a difference' through scientific innovation as constituting intrinsic rewards that compensate for lack of material recognition within the institution.

Discussion and conclusion: Interdisciplinary collaboration serves to create bridges between producers and users of knowledge, between resources and knowledge-makers and between disciplines. Interdisciplinary collaborations are currently implicated in management approaches that capitalize on the value individuals place on 'making a difference'. This affects the way researchers conduct their work and communicate their findings. It also affects the way research intensive universities account for their activities to stakeholders.

Foucault, M. (2006). The Archaeology of Knowledge (S. Smith, Trans.). London and NewYork: Routledge. Geiger, R. L., & Sa, C. (2005). Beyond Technology Transfer: US state policies to harness university research for economic development. MInerva, 43, 1-21.

2N Workshop: A new outcome a new challenge: research skills for medical students

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Background: The recent publication of Tomorrow's Doctors 2009 has highlighted the requirement for medical graduates to be able to 'apply scientific method and approaches to medical research' (outcome 12). In order to realise this outcomes all UK curricula will have to provide opportunities for students to develop and practice research skills.

Intended outcomes: This workshop will share good practice and identify innovative approaches to embedding research skills from day 1 of the medical student's education.

Structure: Part 1: Review of current practice and the need for change to meet TD2009 outcomes; Part 2: Group discussion and mapping exercise.

1. Are the teaching and assessment of the scientific method and research skills explicit or implicit?
2. What research skills are medical students taught and when are they taught them?

3. Should the emphasis on teaching the scientific method and research skills change ?
4. How can research skills be assessed?
5. Examples of good practice
Part 3: Plenary: sharing work of small groups and highlighting examples of good practice.
Who should attend: Medical teachers
Level of workshop: Intermediate

2O Workshop: Reviewing qualitative medical education research manuscripts

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Background: Learning the skills needed to be a reviewer of educational research manuscripts will enhance the ability of session participants to serve as a reviewer and help them to better prepare their own manuscripts and proposals. Generally reviewers are more familiar with quantitative research; however, qualitative methods are gaining popularity and reviewers asked to review this type of manuscript may feel unprepared to do so.
Intended outcomes: This workshop focuses on reviewing qualitative medical education research manuscripts with the intent of providing the participants with a basic understanding of the differences between quantitative and qualitative studies and expertise to help them review qualitative methods. At the end of the workshop, participants will be able to: identify the components of a scholarly publication; discuss whether the methods are appropriate to answer the research question; comprehend the results and how to present results clearly; and render a publication decision with appropriate written feedback to editors and authors.
Structure: In small and large group activities participants will review one qualitative manuscript by applying the Review Criteria for Research Manuscripts (Academic Medicine, September, 2001).
Who should attend: A familiarity with the processes of learning and teaching in medicine and general types of research in the field is helpful, but not required.
Level of workshop: Intermediate.

2P Workshop: Evidence-based learning and assessment workshop: articles that will change your educational practice

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Background: Medicine has embraced the need for evidence-based practice. Additionally, as the field of education research is rapidly growing, medical educators should know the evidence from research on learning and assessment and incorporate it into their teaching practice. The format of this workshop will be to present the data and evidence from selected articles on teaching, learning, and assessment. Articles will include the evidence on: 1) improved performance with constructive feedback compared to general compliments; 2) how self-assessment may be flawed in the lowest performers who need improvement most; 3) new conceptual framework for validity; 4) how attention to content and context may be more important that learning styles for retention.
Intended outcomes: The participants will understand the key concepts of each article and develop a plan how they will incorporate the evidence into their teaching and assessment practice.
Structure: The evidence will be briefly presented, then, in small groups the participants will plan learning or assessment exercises using scenarios or their own setting. The workshop will be highly interactive, requiring participants to use both the evidence and apply it to their teaching, learning and assessment practices.
Who should attend: Educators designing teaching, learning or assessment exercises.
Level of workshop: Intermediate.

2Q Workshop: You can do it! Managing challenging teaching situations and "problem" learners

Abi Sriharan, Jerry Maniate* and Sanjay Mehta (University of Toronto, Canada)*

Background: As teachers we are often faced with students who are difficult to manage. Sometimes it only takes one student to disrupt an entire class. However, there are strategies we can use to stop the negative behavior of even the most difficult students. This workshop will explore the following questions: What is considered as "problem" student behavior? What do you do with students who are "problem" to deal with?
Intended outcomes: At the end of this workshop, the participants will be able to anticipate, identify and prepare for challenging teaching situations. More specifically:
Identify what motivates the attitudes and behaviors of difficult people;
How to defuse learners who are angry, upset or just plain rude and how to calm tense situations;
Techniques for improving communication with difficult students to help correct or even improve their behavior;
Learn to face teaching challenges confidently, knowing you're up to any teaching challenge.
Structure: This workshop will use an interactive workshop format and will include theoretical overview lectures, case based small group problems and role plays.
Who should attend: Teachers of undergraduate, postgraduate and continuing medical education programmes, who need to deal with "problem" students in their teaching environment.
Level of workshop: Intermediate

2R Workshop: Building skills for small group facilitation

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Background: In small groups, students can organize their thinking by comparing ideas with others; be self-reflective; polish communication skills; and exercise self-directed learning. Thus, schools are increasing the proportion of time students spend in small groups versus lecture. Yet, unfortunately, not trained in this pedagogy, most medical educators resort to what is familiar – lecturing.
Intended outcomes: This highly interactive session will provide educators with practical strategies for managing small groups, an understanding of the importance of anticipating a group's stages of development, and an increased confidence in dealing with stresses particular to this teaching venue.
Structure: After sharing personal teaching experiences, participants will view a video illustrating "good" and "not-so-good" small group facilitation. "Buzz groups" (including self-appointed facilitator, scribe, and presenter) will then discuss how the facilitator had/had not) established a comfortable learning climate; moved the group forward; and/or addressed problematic behavior and recognized positive group dynamics. Presenters will summarize their group's findings and suggestions for the large group, and each group will self-assess its own challenges and dynamics. The workshop will conclude with participants sharing one take-home strategy they plan to implement. A checklist of important take-home points will be distributed.
Who should attend: Medical educators across the continuum.
Level of workshop: Intermediate.

2S Workshop: Student assessment of faculty professionalism

R Cruess and S Cruess* (Centre for Medical Education, McGill University, Montreal, Canada)*

Background: A universal barrier to the teaching of professionalism in medicine is unprofessional conduct by teachers. Giving students an opportunity to evaluate the professionalism of their teachers can provide a database for remedial action as well as involving students in improving the teaching environment.
Intended outcomes: At the conclusion of the workshop participants should be aware of the importance of unprofessional conduct by faculty in determining the nature of the learning environment, what tools are available to address this issue, and what solutions might be appropriate in their own learning environment.

Structure: There will be a brief presentation addressing the issues and outlining possible solutions. The importance of reliable data on the performance of faculty members prior to taking action will be stressed and the experience of one faculty in creating a data base will be presented. Small group discussions on the nature of the problem in participant's faculties will take place, followed by a large group discussion. Small-group discussions will finally be held during which participants will be encouraged to devise methods of documenting unprofessional conduct in their own media, along with remedial actions. A final large group discussion, summarizing the workshop results will take place. The moveProgram directors and medical educators at all levels.
Who should attend: Program directors and medical educators at all levels.
Level of workshop: Intermediate.

2U Posters: The Teacher

2U1

What is the effect of length of teaching experience and faculty development interventions on teaching effectiveness? A nested case-control study in the department of medicine at the University of Toronto
E Grigoriadis and D Dodig (University of Toronto, Canada)*

Background: It is believed that teaching effectiveness as measured by teaching effectiveness scores (TES) improves with teaching experience and formal education training, however, systematic research documenting educational outcomes is lacking.
Summary of work: We sought to assess time trends and determinants of TES among various medical faculty groups at the University of Toronto (U of T) and demonstrate positive effect of a faculty development intervention, the Master Teacher Program (MTP, on TES over time. Available TES of various medical faculty are aggregated and their trends as a function of time analyzed. In addition, two population-based (nested) groups of medical teachers, comprised of MTP participants and matched control groups are studied. Participants are matched for age, gender, time of recruitment, and job description. The study groups are assessed over time (2003-2009) using computer-generated TES. Statistical analysis is done using a factorial design approach.
Summary of results: To date we have retrieved over 32,000 records on 714 individuals of which 54 completed the MTP. Further analysis is underway.
Conclusions Take-home messages: TES are expected to improve with teaching experience among both clinician teachers and researchers. A greater rate of improvement is expected to be seen in the study group of clinician teachers who participated in the MTP.

2U2

Teaching performance assessment through three different strategies at UNAM Faculty of Medicine in Mexico
A Martínez-González, L Moreno-Altamirano, R Ponce-Rosas and M Urrutia-Aguilar (National University Autonomous of Mexico (UNAM), Mexico)*

Background: The educational system depends upon the quality and performance of their teachers. That is the reason why continuous improvement processes must be applied.
Summary of work: To assess the teaching performance of Public Health professors of the Faculty of Medicine through three different strategies. The applied strategies were compared to propose the most objective criteria of their teaching quality performance. The strategies used were as follows: Evaluation through the students' opinion, self-assessment, and evaluation by the percentage differences in the average of the correct responses in the multiple choice questions exams at entering and at leaving the course.
Summary of results: The performance of each professor through self-evaluation was rated high when compared to the evaluation of the student's opinion, and was confirmed significant ($p \leq .01$) through the Kruskall Wallis statistical analysis. The difference among the three evaluation strategies was more noticeable between the self-evaluation and the results obtained by the students in their academic performance.
Conclusions: The percentage average of correct answers appears to be the most objective when compared to the other two.

Take-home messages: The integration of the three strategies offers a more complete picture of the quality of the teacher's performance.

2U3

Effective mentoring relationships: Partner's perspective

G Pavlekovic[1], M Vrcic Keglevic[1], N Cikes[2] and Z Bradamante[2] ([1]Croatian Association for Medical Education; [2]University of Zagreb, School of Medicine, Croatia)*

Background: The mentoring relationship is a dynamic relationship between mentor and mentee aimed at promoting the career development of both. As a developmental process based on exchanging experiences and ideas between partners is particularly important at postgraduate level of education.
Summary of work: Relationship between mentor and mentee is not always recognized as well factors influencing this process. Objectives of this study were to determine attributes of a 'good' mentor, examine factors influencing partnership and analyze measures of success and failure of a mentoring relationship. Anonymous questionnaire was distributed to 35 mentors and 55 mentees (Doctoral Study in Biomedicine and Medical School Zagreb).
Summary of results: Both groups describe a 'good' mentor as an expert and advisor, less role model and sponsor. Mentees expect mentor as a friend, mentors appreciate critical mentor's style. From mentee's perspective, the most important barriers are mentor's lack of time and lack of appropriate (mostly communication) skills. Mentors point out financial incentives (negative) and academic recognition (positive) as important factors influencing mentor's work.
Conclusions: Both groups expressed similar expectations in partnership but some differences were determinate.
Take-home messages: Prerequisites for effective relationships are based on mutual respect, recognition of roles and expectations. Supportive working environment is needed.

2U4

The impact of years of experience in developing a mentorship program in a tertiary academic health care center in Saudi Arabia

Saad Al Qahtani, Thuraya Kattan and Michael Seefeldt (King Abdulaziz Medical City and King Saud Bin Abdulaziz University for Health Sciences, College Of Medicine, Riyadh, Saudi Arabia)*

Background: Mentoring is considered to be a core, central constituent of the health professional's academic work now. It has been well-known to be a catalyst for career achievement, selection, and productivity. Being a good mentor, an effective role model/supervisor requires one to have the necessary knowledge, wisdom and experience, but how does one achieve these competencies? Does years of experience matter in developing a mentorship program. Positive correlation between experience and outcome was mentioned in the literature.
Summary of work: We surveyed 86 (100%) of consultants physician in a tertiary academic health care center in Saudi Arabia (King Abdulaziz Medical City) KAMC. We divided the years of experience into three categories: <5yrs, >5yrs->10yrs, and >10yrs. We found two thirds had about 66% < 5yrs and one third 34% >5yrs. We found that years of experience in KAMC did not make a difference in understanding of mentoring, or general attitude toward mentoring. More than (80%) have a positive attitude in all categories.
Conclusions: Experience in the clinical and academic field is vital, further elaboration on how to gain this experience and how to teach it to others is needed to fully grasp its importance in regards to mentoring.
Take-home messages: Although it is needed, the years of experience is not the only criterion on selecting a mentor.

2U5

Conceptions of being a mentor

T Stenfors-Hayes[1], H Hult[2] and L O Dahlgren[2] ([1]CME, LIME Karolinska Institutet; [2]Linköping University, Sweden)*

Background: Being a mentor is generally considered worthwhile, but why this is so and what being a mentor actually means is seldom explored.
Summary of work: At Karolinska Institutet there are formalised mentor programmes for undergraduate students in Medicine and Dentistry. The mentors are also teachers, but these two roles are separated. As mentors they do not assess or supervise the students, nor is there a focus on content knowledge. The aim of

this study is to describe and compare how teachers experience their (new, formalised and additional) role as mentors. Twenty mentors in the two different mentor programmes were interviewed.
Summary of results: A number of different conceptions of what it means to be a mentor were identified. These conceptions also had an effect on what the mentors did, their relation with their mentees and their own perceived effects of being a mentor. These effects included increased understanding of the students' situation and increased reflection upon teaching.
Conclusions: Despite the use of a formalised mentor programme, the mentors' conception of their role may still vary and is also affected by the needs and interests of the mentees.
Take-home messages: Being a mentor is perceived as worthwhile but the outcomes are related to how the mentors perceive their role and act as mentors.

2U6

The characteristics of a good clinical teacher as perceived by resident physicians in Japan

Makoto Kikukawa[1], Hiromi Nabeta[1], Yasutomo Oda[1], Maiko Ono[2], Emura Sei[1] and Shunzo Koizumi[1] ([1]Saga Medical School, Faculty of Medicine; [2]Karathu Shimin Hospital Kitahata, Saga, Japan)*

Background: There have been several studies investigating the perceived characteristics of a good clinical teacher in western countries. However, it has not been known whether they are the same in Asian countries including Japan, which has different social background and culture?
Summary of work: The aim is to identify the characteristics of a good clinical teacher as perceived by residents in Japan. In 2009, we conducted five focus groups interviews with 23 residents in Saga University Hospital. A semi-structured format was used in each group session. Questions focused on the characteristics of a good clinical teacher. All focus groups discussions were audio-taped and the tapes were transcribed. Each transcript was read independently by three authors and the authors discussed and identified the themes.
Summary of results: The most frequently identified characteristics were to see residents as a doctor, to provide sufficient support, to have good teaching skills, to be enthusiastic about patient care and to be accessible.
Conclusions: The themes identified by this Japanese cohort were compatible with those reported in Western countries. In addition, the results suggested that Japanese residents seemed to prefer teaching styles of personal model, facilitator and delegator to the more expert and formal authority styles.
Take-home messages: The perception by residents regarding a good clinical teacher did not appear to be much influenced by social background and culture.

2U7

How can more General Practitioners be encouraged to teach medical students?

R Knox, B Patel and M Hampshire (University of Nottingham, Division of Primary Care, Nottingham, UK)*

Background: Primary care plays an increasingly important role in undergraduate medical education. General Practitioners (GPs) face increasing demands on their time and energy. No recent UK study has examined why GPs teach. Exploring this issue may help with recruitment and retention of GP tutors.
Summary of work: All 204 GPs who teach first and second year medical students at The University of Nottingham were sent a short questionnaire seeking to explore why they teach medical students.
Summary of results: The response rate was 62% (127/204). 82% believed that teaching improved their consultation skills, and 89% believed that teaching enhanced their CPD. Many of the GPs teach out of enjoyment, and a sense of duty was also apparent. Responders thought that other GPs may be encouraged to teach through better back-filling arrangements and information about current teaching opportunities.
Conclusions: GP tutors are an important resource in undergraduate medical education. The demand for quality primary care teaching is likely to increase. This survey provides information about the teaching motivation of current GP tutors, which will be useful in the recruitment and retention of future tutors. The results can inform a more detailed study.
Take-home messages: Teaching is important to society and the medical profession, can have personal professional benefit, and is enjoyable!

2U8

"Voices from the corridor" - What motivates clinicians?

B V Prathibha (William Harvey Hospital, East Kent Hospitals University NHS Foundation Trust, Ashford, UK)*

Background: External pressures such as European Working Time Directive (EWTD), NHS targets and skeletal junior and senior cover can demoralise consultants who then see training as an additional burden, rather than something that they enjoy.
Summary of work: To study the motivational factors to teaching amongst senior clinicians. Methods: The study was carried out in a large University Hospital Trust covering three acute hospitals. Data was collected in a variety of ways including a diary, focus group discussions, interviews and questionnaire survey of clinicians.
Summary of results: The main motivation was the enthusiasm for teaching and the main demotivator was the lack of recognition of the effort and time spent to train. The lack of protected time made their task difficult. More information and recognition were quoted by most as something that was urgently needed.
Conclusions/Take-home messages: As a result of this, "educational grand rounds", "workshops" and newsletter are being designed. In an ever changing landscape of the NHS and medical education, solutions need to reflect the choice of the trainers of the day and clearly "one size does not fit all"! To engage clinicians in medical education, we need to be more creative and organise a range of activities to suit every taste.

2U9

An evaluation of fourth year medical students' satisfaction of Medicine Department, Udonthani Medical Education Center (UdMEC), Thailand

S Pongudom and S Raiyawa (Udonthani Medical Education Center, Udonthani Hospital, Udonthani, Thailand)*

Background: Udonthani Hospital has joined 'collaborative project to increase production in rural doctors' (CPIRD) program of the Ministry of Public Health and started clinical teaching since 2009. Most staff lacked teaching experience. To improve teaching quality a study of student's satisfaction was performed.
Summary of work: Twenty-nine fourth year medical students were enrolled. Questionnaires were sent and data was collected. Focus group discussion was also arranged and recorded. Students were divided into two groups with the same facilitator. Data were analyzed in percentage with comments.
Summary of results: There were 7 males. 82.75% of students were satisfied with teaching system provided. Content was the most satisfied (88.79%). The following topics, method of evaluation, lecture and teachers and other supportive issues received following percentages 87.98, 83.62, 73.04 respectively. The focus group study found some problems, mostly related to supportive system. First, tele-lecture which was boring due to a poor signal and frequently postponed schedules. Second, bedside laboratory was not available and inadequate medical personnel to interpret results. Third, a lack of area to work at ward. Last, the unrealized of colleagues in students' duty.
Conclusions/Take-home messages: There are a number of problems in learning management system. All comments will be reported to the Department's committee.

2U10

The students' views on priorities in faculties' assessment

S M Hosseini, R Sarchami, M Najafi, B M Hosseini and H Karimi (Mashhad University of Medical Sciences, Mashhad and Qazvin University of Medical Sciences, Qazvin, Iran)*

Background: Many researchers report that students' opinions on their teachers are influenced by some factors which have no close relationship to the evaluation subject, rather they are merely related to the teachers' characteristics.
Summary of work: A questionnaire consisting of demographic and 34 questions in 5 parts (as teaching skills, communication skills, personal characteristics, respect to educational principles and evaluation skills) using 1-4 Likert scale was administered to determine the students' views on priorities in faculties' assessment in an Iranian medical university (n=609).
Summary of results: Findings indicated that majority of students (85.2%) rated "mastery of contents" as the most important priority in faculties' assessment. The other most important items rated were as "self-confidence" (78.5%), "establishing an intimate relationship with students" (69.8%), "on time starting and finishing the class" (36.9%) and "performing an exact and comprehensive exam at the end of the semester" (34.2%). Many students agreed that there is a high conformity between faculty evaluations and reality, although some did not.
Conclusions: Although students distinguished some important factors, the prominent criteria for an excellent faculty based on the scientific documents were not rated as the most important by the students, such as

"applying student-centered teaching strategy" and "encouraging students to participate in teaching-learning process".
Take-home messages: The validity and reliability of students' ratings on faculty assessment questionnaires may need serious considerations.

2U11

Introduction of teaching portfolios for faculty of Shifa College of Medicine
Sameena Ghayur, Riffat Shafi and Iqbal Mobeen (Shifa College of Medicine, Islamabad, Pakistan)*

Background: Self assessment and reflections are key components of reflective practice. Traditional way of assessing faculty members does not provide true evidence of their professional growth. Teaching portfolios have been used extensively in undergraduate institutes worldwide. We planned a workshop for the faculty on adult learning principles.
Summary of work: Objectives: To sensitize the faculty members to the process of maintaining a teaching portfolio. Methods: Concept of teaching portfolios was introduced in a large group format. Interspersed were two group activities. Faculty members were asked to write their philosophy statements on 4 major aspects of portfolios i.e. education, administration, research and services/clinical practice. In the second activity, members developed sample portfolios. Feedback was obtained on a questionnaire.
Summary of results: Workshop was found to be useful by all the faculty members, though the concept was new to most (75%). Most agreed with portfolios being a better way of presenting their progress (75%). Some members showed concern about having personal bias and that it could be a labor intensive process (25%).
Conclusions: Our workshop was received positively in creating awareness, although, some members raised their reservations in the prevailing culture.
Take-home messages: Brief introduction in the form of workshop can sensitize faculty members towards the idea of maintaining teaching portfolios.

2U12

Students' viewpoints about an effective clinical instructor in Jahrom University of Medical Sciences, Iran
Sedigheh Najafipour, Fatemehe Najafipour, Sohrab Najafipour, Vahid Najafipour, F Bizaiy (University of Jahrom Medical Sciences, Jahrom, Iran)*

Background: Effective clinical teaching happens when students learn according to educational aims and needs. Successful teaching in the clinical setting is related to professional abilities of clinical instructors and their relationships with students.
Summary of work: In this study we investigate nursing students' view about an effective clinical instructor in 4 categories (clinical competence, teaching ability, teacher-student relationship, and personal characteristics. The data gathering tool was a valid and reliable questionnaire.
Summary of results: The results showed more than 98% of nursing students stated patient care is a very important criteria for an effective clinical instructor. In the professional competence category also 77% of these students indicated role modelling is very important in this category. In teaching ability category 85% of students mentioned describing students' duties specific and clear is very important. For ability to motivate students for learning, 83% found this to be important. Giving appropriate feedback to students and participation of students in patient problem solving process was very important in the category of student-teacher relationship. In the personal characteristics category, honest behavior and tolerance to students' mistakes were very important.
Conclusions: The results showed the overall priority of an effective teacher must be teaching ability, secondly personal characteristics, thirdly, interpersonal relationships and finally professional competence.
Take-home messages: These findings show students have a good perception of effective clinical instructor criteria.

2V Posters: Specialty Training

2V1

Orthopaedic boot camp: A novel approach to teaching basic technical skills to orthopaedic trainees
R Sonnadara, A Van Vliet, O Safir, J Burkitt and R Reznick (Department of Surgery, University of Toronto, Canada)*

Background/Summary of work: We examine whether an intensive laboratory-based skills course at the start of training is an effective mechanism for teaching core technical skills. First year residents were divided into three groups (on service (ON), off service (OFF) and new training method (NEW)). Baseline surgical skills were assessed prior to training commencing. The NEW group was given a basic surgical skills course, while the other groups embarked on traditional residency. Following the skills course, all the residents had core surgical skills assessed using an observed structured assessment of technical skills (OSATS) procedure.
Summary of results: Pre-training scores revealed no differences between the groups of residents using both checklist ($F(2,9)=1.78$, $p=0.223$) and GRS scores ($F(2,9)=0.70$, $p=0.52$). Post-training scores revealed a significant difference, with residents from the NEW group performing better on both the checklists (ON=80.3, OFF=77.8, NEW=93.4, $F(2,9)=27.94$, $p<0.001$) and GRS (ON=3.47, OFF=3.44, NEW=4.28, $F(2,9)=23.92$, $p=<0.001$, than the other groups who showed no differences between them.
Conclusions: The data shows that the intensive course used in this study was highly effective at teaching and developing targeted surgical skills in first year orthopaedic residents despite small sample sizes.
Take-home messages: We predict that allowing residents to acquire key technical skills at the start of their training will greatly enhance learning at later stages of training.

2V2

Modular training in Ophthalmology – a solution for the medical retina

Sue Agger, Nick Sarkies, Jonathan Waller and Simon Gregory (East of England Multi-professional Deanery, Cambridge, UK)*

Background: With the advent of a new Specialty Training in Ophthalmology training numbers are aligned to the number of qualified specialists required. This provides an opportunity to address other needs within the specialty. There is increasing need for appropriately trained doctors in ophthalmic subspecialties including medical retina, glaucoma and cataracts.
Summary of work: The School of Ophthalmology in the east of England have developed a pilot modular training programme in locally educationally approved environments to deliver limited modified curricula covering elements of the broader curriculum to address specific training areas. Posts have been identified with approved educational supervision, assessment and agreed outcomes. The intention is to produce doctors capable of fulfilling rewarding, focused service provision roles, meeting medical career objectives and patient need.
Summary of results: Pilots have been developed to deliver 3-year modular programmes that are educational and fulfilling and will meet predicted service demand.
Conclusions: Modular training programmes offer a useful testing ground for the concept of modular credentialing and an opportunity for education to provide solutions for service re-provision. This is vital at a time of financial downturn and competing resource priorities, and offers a potential model for future development.
Take-home messages: New training models enable education to provide innovative solutions to future patient needs.

2V3

Out-of-hospital rotations - specialist training process

E Pastrana, T Campos and C Cortes (Andalusian Regional Health Ministry, Spain)*

Background: The Ministry of Health of the Andalusian Regional Government is responsible for training resident doctors in Andalusia. In order to improve the training received during the years of residency, a web-based training management platform has been developed.
Summary of work: Out-of-hospital rotations are training periods carried out in centres not included in the training programme or in the accreditation granted to the centre or teaching unit. They take place in accredited teaching centres or centres in Spain or abroad. An analysis has been made of data relating to both rotation source and destination centres
Summary of results: Data on all out-of-hospital rotations authorised in 2009, specialities with the greatest number of authorised rotations, and the number of authorised rotations according to source and destination centre have been created.
Conclusions/ Take-home messages: An analysis of rotations identifies the need for out-of-hospital rotations and the main destination centres in order to improve planning in this respect.

2V4

Meeting the demand: Design of a hospitalist curriculum in an inpatient medicine rotation

S Wali and A Relan (David Geffen School of Medicine at UCLA, Educational Development and Research, Los Angeles, USA)*

Background: Hospital medicine has shown unprecedented growth in the US, resulting in an increase of 20,000 hospitalists in the last decade and leading to rising demand for hospitalist training among younger residents. Realizing that hospitalists have unique responsibilities in patient care, we designed and implemented a new "hospitalist curriculum" in a county hospital serving a diverse, underserved patient population.
Summary of work: Curriculum design theory and ACGME competencies formed the backbone of the curriculum. A task analysis of a hospitalist's patient care responsibilities generated specific learning objectives, including demonstration of effective co-management of patients, prioritizing tasks in a complex hospital environment and exercising sound judgment in leveraging auxiliary services. Mentoring was shared among teaching faculty.
Summary of results: This curriculum has been implemented for two years in an Inpatient Medicine rotation, leading to an increase in participation from 5% to 20% among residents. Data on satisfaction with the curriculum, and assessment of hospitalist trainees' performance is being compiled.
Conclusions: The hospitalist curriculum is presently meeting the needs of an increasing demand for hospitalists seeking a more focused career, with further expansion planned in the future.
Take-home messages: A clear, dedicated curriculum enables easier integration of training in hospital medicine to increase the pool of generalists facilitating effective patient care.

2V5

Developing a framework of a post-graduate diploma programme in mental health

R J Nichol, Mm Nel, Gj Van Zyl and J Hay (University of the Free State, Bloemfontein, South Africa)*

Background: The paucity of psychiatrists in South Africa and the absence of formal tuition for doctors planning to obtain a Diploma in Mental Health from the college of Medicine in South Africa necessitated the study. The overall goal of the study was to provide a framework whereby doctors could embark on formal post-graduate training, on a part-time base, utilising the blended learning mode. The aim of the study was therefore to establish a framework for the development of a Post-graduate Diploma Programme in Mental Health.
Summary of work: The research design was based on a quantitative approach, enhanced by qualitative elements, used to ensure that sound and well-founded recommendations would be proposed in the final framework. Criteria were identified, using a survey of the literature, the researcher's own experience in psychiatry and a Delphi process.
Summary of results: The findings of the Delphi study were reported and used in order to develop the framework for the Post-graduate Diploma in Mental Health Programme in six phases.
Conclusions: This research aims to make a significant contribution towards the improvement of mental health care in South Africa, especially at primary health care level.
Take-home messages: General practitioners in South Africa can be empowered in Mental Health care through a training program.

2V6

How well does specialty training prepare new consultants for different aspects of their role? A questionnaire study

G Morrow[1], B Burford[1], J Illing[1], N Redfern[2], R Briel[3], C Kergon[1] and P Crampton[1] ([1]Durham University, School of Medicine and Health, Durham; [2]Northern Deanery, Newcastle upon Tyne; [3]Tees, Esk and Wear Valleys NHS Foundation Trust, Darlington, UK)*

Background: A quantitative study was conducted to examine how well specialty training prepares new consultants for different aspects of their role.
Summary of work: A 68-item questionnaire was developed from interviews and existing literature, and distributed to consultants with up to five years' experience, who had trained and were employed in the Northern Deanery, UK.

Summary of results: The response rate was 70.57% (n=211). Respondents were from a range of specialties, which were grouped into eight broad specialty groups. There was a concentration of management and team working, teaching and supervision, and healthcare governance items at the lower end of the scale, professional aspects of the role in the middle, and communication and clinical skills at the upper end. Effects of specialty group were found on nine items only, four relating to clinical work, with only one significant difference in each other area. There were a small number of significant differences related to gender and place of initial medical qualification.
Conclusions: There were some differences between specialties, but overall new consultants felt least prepared for managerial roles, in particular managing targets, inputting into business plans, designing or changing services, and managing resources.
Take-home messages: Perceptions of lower preparedness for managerial and other non-clinical roles may have implications for specialty training.

2V7

The challenges of delivering anaesthetic training at Queen Victoria Hospital, East Grinstead over the last five years

J Boss, M Lees and C Patel (Queen Victoria Hospital NHS Trust, East Grinstead, UK)*

Background: Every anaesthetic department faces the task of delivering a twenty-four hour service, while still protecting the training of our future consultants.
Summary of work: A retrospective study of departmental workload analyzing data from computerised staffing records, for April and November from 2005 to 2009. We reviewed solo list service provision, training lists and the impact this had on the acquisition practical skills.
Summary of results: Since April 2006 training list requirements have been in accordance with RCOA guidelines except when fewer than eight trainees or when consultant-supervised staff grade lists increased. Experience of practical procedures mirrored these observations.
Conclusions: Training opportunities have been maintained at the trust largely by evolving departmental structure. Adequate training lists and practical procedures can be delivered with a Rota of eight. We were unable to meet college training list requirements when trainee numbers fell and when non-training grade anesthetists', employed to reduce service pressures, were being 'trained up' by consultants. Paradoxically training benefited as the number of trainees increased rather than adding to competition for training opportunities.
Take-home messages: 1) Full and compliant Rotas maintain global training opportunities.
2) Departments can fulfill their service provision if a long term strategy is employed.
3) Trainees must make every effort to utilise training opportunities when they arise.

2V8

Spine safe course: The importance of extra-curricular education in surgery

S Graham, A Michael, P Millner and A Rao (Academic Department of Trauma and Orthopaedics and Spine Surgery, University of Leeds, UK)*

Background: The Spine Safe course is run by the Orthopaedic department at Leeds General Infirmary and our study group assessed trainees level of knowledge of basic spinal pathologies expected for their level of training.
Summary of work: 30 trainees attended the course (FY2-5, ST1-9, ST2-11 and ST3-6) and were asked to complete a survey in the form of 3 questionnaires.
Summary of results: 1) NICE Guidelines. The number of trainees who had: a) correct awareness of NICE guidelines for management of Malignant Spinal Cord Compression – 18% (5/30), b) consulted NICE guidelines for any pathology surgical or medical – 38% 11/30). 2) Spinal Cord Injury without Radiologic Abnormality Syndrome (SCIWORA). The number of trainees who, a) correctly identified the full abbreviation of SCIWORA – 50% 15/30), b) correctly identified the age of presentation of SCIWORA – 56% 17/30). 3) Halo external fixation device. The number of trainees who had, a) applied Halo fixation device - 7% (2/30), b) seen the application of a Halo fixation device - 33% 10/30).
Conclusions: UK orthopaedic trainees have substantial deficits in their level of knowledge of basic spinal pathologies.

Take-home messages: With the introduction of The European Working Time Directive, educational training courses are now even more essential in order to continue the development and training of surgical trainees.

2V9

Does ranking at interview predict performance in work based assessment s (WBAs) in core surgical trainees (CT1)?

RJ Mayes[1], H Holscher*[2], WJ Campbell[1] and R Gilliland[1] ([1]Department of Surgery, Ulster Hospital Dundonald, Belfast; [2]Royal College of Surgeons of England, London, UK)

Background: WBAs (case based discussions, mini-clinical evaluation exercises, directly observed procedures and procedure based assessments) have been introduced into the surgical curriculum to discriminate performance by identifying those who may require educational support. We hypothesized that trainees performing poorly at interview would perform less well in WBAs.
Summary of work: Trainees appointed in 2008 (n=36) and 2009 (n=33) were divided into quartiles according to rank in a multi-station interview which assessed knowledge, judgment, skills and professionalism. (Quartile 1(Q1)=top 25%). Total number, and mean score of WBAs performed during their first 6 month placement were compared across quartiles.
Summary of results: No significant difference was identified between quartiles with regard to the mean number of WBAs performed (p=0.65). (Mean (sd) for 2008 cohort: Q1:12.4 (3.2, Q2:9.9 (5.6, Q3: 11.5 (2.3, Q4: 12.4 (2.9). 2009 cohort Q1:14.4 (4.4, Q2:14.3 (3.4, Q3: 12.3 (3.1, Q4: 11.0 (4.5)). Similarly, no significant difference was observed between quartiles with regard to mean WBA scores (p=0.13) (2008 cohort: Q1: 4.8 (0.4, Q2:4.7 (0.2, Q3: 4.5 (0.4, Q4: 4.7 (0.7). 2009 cohort Q1:4.8 (0.3, Q2:4.7 (0.2, Q3: 4.5 (0.4, Q4: 4.8 (0.3)).
Conclusions/ Take-home messages: We conclude that ranking at interview does not predict subsequent performance in WBAs.

2V10

Mentoring in higher surgical training – desires and doubts

R Hughes and L Pugsley (University of Cardiff, UK)*

Background: Traditionally, surgical trainees have acquired their skills working alongside senior surgeons in an apprenticeship model. Post-graduate surgical training changes challenge this approach leaving trainees under pressure to acquire a huge number of skills in a short time. Mentoring schemes are being considered as a resource to overcome consequent difficulties encountered in personal and professional development.
Summary of work: A questionnaire survey investigated how higher surgical trainees and consultant surgical trainers in the Wales Deanery felt a mentoring scheme should be organised and what concerns they had with its implementation.
Summary of results: A 70% response rate was achieved. The majority understood that a good mentor-mentee relationship is key and that mentees should choose their mentor. Most respondents wanted a mixture of formal and informal meetings comprising face-to-face, email and telephone communication approximately monthly. Respondents wanted the ability to change mentors or opt out of the scheme without reprisal. Most consultants wanted instruction in mentoring. The major concerns were mentor quality and lack of time.
Conclusions: Most respondents largely understand and support the mentoring concept. Flexibility is important and the creation of tailored plans based on the needs of individual mentees was important. It was felt that adequate resources of support, time and training are vital.
Take-home messages: This study raises some important issues that are relevant to every specialty and need to be considered thoroughly prior to implementation of any mentoring program.

2V11

Developing knowledge through language in case based discussion

S F Birks* (Carousel Child Health Department, Buckland Hospital, Dover, UK)

Background: 2007/2008 was the first year of paediatric specialty training using workplace based assessments in the UK. There is little published on the educational value of WPBA, but in July 2009 the Academy of Royal Medical Colleges published a report which highlights their potential value as learning tools.

Summary of work: This was a qualitative case study to explore how case based discussions might promote learning in the context of paediatric rotations in a large multi-site trust. Two case based discussions were observed, recorded and transcribed. Two consultants and two trainees were interviewed.
Summary of results: The observed case based discussions provided examples of reflection together, and development of new understanding. The interviews highlighted the positive aspects of case based discussion, but also problems with timing, case selection and understanding the nature of the assessment.
Conclusions: This assessment helps trainers and trainees to reflect together about complex areas of practice. Factors which may affect the educational efficacy of these assessments are: the timing of assessments, the selection of cases and the tension between formative and summative assessment
Take-home messages: Case based discussion is a useful learning tool. Assessments should be done throughout the placement to assist progression. Challenging cases offer the best opportunity for development of new understanding.

2V12

A continuous quality improvement strategy for General Practice training in Wales: Start of a journey
Phil Matthews, Mary Beech and Melody Rhydderch (GP Training Wales, Wales Deanery, UK)*

Background: General Practice Training Wales, an arm of The Postgraduate Medical Deanery, is committed to its mission. To drive this commitment we initiated an explicit CQI strategy in early 2010.
Summary of work: With guidance from Cardiff University's "Lean" Team, we have now: 1) revisited our mission statement, 2) further embraced "Mission and Issue Driven" strategy development, 3) mapped key organisational interfaces, pivotal activities, and major aims, 4) identified, prioritised and initiated work enhancement projects and 5) introduced administrative leads to "Lean Skills for Managers" training .
Summary of results: We present an outline of our written output and major reflections to date. Further CQI initiatives, a 2010 strategic overview publication, and a suite of evaluation methods are planned to measure the impact of institutionalising this approach to organisational improvement.
Conclusions: CQI strategy development requires a leadership driven, team based approach.
Take-home messages: Shared mapping exercises and protected time for improvement projects are both helping to embed this new way of working.

2V13

E-Induction for GP Specialty Trainees – improving communication flow to trainees
Nicki Elliott, Siân Davies, Mary Beech, Phil Matthews and Melody Rhydderch (GP Training Wales, Wales Deanery, UK)*

Background: Lean identifies your customers and specifies a value to the service you provide them, reducing waste and improving effective communications.
Summary of work: The Wales GP Specialty Training (GPST) Office undertook Lean training and identified GPST Deanery induction as a priority for our customers (Trainees and GP Educators).
Summary of results: 1) we developed an online survey that was sent to our customers asking about what they would value in an induction pack, 2) we discussed our findings with other colleagues and decided that an online e-induction would be the most effective and efficient way to communicate and 3) we are currently developing our website to hold the information that is deemed essential for GP Training in Wales.
Conclusions: By developing an online induction pack for GPSTs we have maximised our communication flows and we are responding to the customer in the most efficient way. This will be reviewed after the next intake in August 2010.
Take-home messages: The use of an electronic induction for GPSTs will effectively decrease waste and improve communication.

2V14

Increasing lay involvement in GP specialty training activity – opportunities and challenges
Mary Beech, Phil Matthews, Melody Rhydderch (GP Training Wales, Wales Deanery, UK)*

Background: The UK's Postgraduate Medical Education and Training Board (PMETB) have urged Deaneries to strengthen the requirement for lay participation in medical training.

Summary of work: The Wales GP Specialty Training Office (GPSTO) has benefited from some degree of lay scrutiny of its activities for many years. Recent changes to the structure of GPST provided a stimulus to strengthen lay input into our quality control procedures. In 2009, we identified areas of our work likely to benefit from lay involvement.
Summary of results: Lay input into selection and training is being formalised. For each activity, the purpose of the input and desirable knowledge, skills and experience needs clarification. Robust lay recruitment, training and evaluation systems are now in development.
Conclusions: Lay scrutiny of important public sector undertakings is both practically helpful and politically desirable. However, improving lay involvement requires that complex questions about goals, roles, recruitment and, training must be addressed and monitored. GP Specialty Training in Wales has started out on this journey.
Take-home messages: GP Specialty Training activity may benefit from an increased involvement of lay people but work is required to give meaning to this role.

2V15

Evaluation of London's academic ST4 pilot project

A Lints, S Ahluwalia* and D Price (London Deanery, London, UK)*

Background: London School of Postgraduate General Practice Training has no GP academic fellow programmes. The purpose was to provide an opportunity to develop an academic career (research or teaching).
Summary of work: A pilot of 10, GP ST4 were recruited in August 2008 into academic programmes (AST4s) in collaboration with 5 Departments of Academic Primary Care. This is a summary of the formal evaluation.
Summary of results: Academic departments need to ensure that AST4s take part in ongoing projects without the need for de novo ethics approval. Within practices, personal space and timetabling proved problematic. Clinical educational needs highlighted included chronic disease management, substance abuse, and continuity of care. The academic content of the educational programme for AST4s offered a wide range of qualitative and quantitative research skills training.
Conclusions: The AST4 pilot provided a springboard into an academic career with 50% going on to substantive academic appointments. The 12-month period is clinically and academically intensive. AST4s left the pilot more clinically confident.
Take-home messages: Funding sustainability is challenging. The evaluation of the pilot did not substantially change the original concepts utilised when designing the AST4 programme.

2V16

Curriculum change in general practitioner [GP] pediatric training attachment: Views from the coalface of professional practice

T Newson (Paediatric Department, Kent and Canterbury Hospital, Canterbury, Kent, UK)*

Background: In 2006/7 changes were made to the GP training curriculum with a shortening of the paediatric attachment from 6 to 4 months. So how do the professionals at the coalface of practice view this curricular change?
Summary of work: A questionnaire study [Qs 1-7] carried out 2009 to assess the views in a DGH paediatric department and among GPs.
Summary of results: 35 Questionnaires returned [18 GP, 13 trainees, 9 Hospital trainers].
Q1 Do you feel 4 months adequate? Overall 33 No. Q2 Comments: Responses from all groups outlined the importance of developing confidence and situational awareness. The Trainees cited the pressure of assessment and busy rotas as a barrier to learning. Q3 Is change a good idea? Time frames for differing specialities needs to be considered. Too little time leads to "superficial learning" and no time to develop confidence. Q4 Sufficient consultation? Overall No 26, Yes 3, DK 9. Q5 Feedback? Trainees all seemed to have a route but many GP's did not. Q6 Do you feel your views are taken into account? Overall: No 13, Yes 5 DK 21. Q7 Optimal training time? Overall: 4 months 4, 6months 30, > 6months 4, difficult to quantify 2.
Conclusions: Recent curriculum changes in GP training affecting paediatrics has raised major concerns among trainees and training clinicians at the clinical coalface.

Take-home messages: The GP curricular change of shortened training period in paediatrics means trainees risk inadequate exposure to children and difficulties developing sufficient professional knowledge and judgment.

2V17

Rural Fellowships in Scotland: Preparation for a Rural General Practice Career

R MacVicar, P Wilkes, J Douglas (NHS Education for Scotland, Centre for Health Science, Inverness, UK)*

Background: Recruitment of general practitioners to work in remote or rural areas is challenging. NHS Education for Scotland (NES), in partnership with rural Health Boards in Scotland offers a number of one-year, post-CCT rural fellowships, the objectives of which are; to promote rural practice as a distinct career choice, to help GPs to acquire the knowledge and skills required for rural practice and to help deal with difficulties in recruitment to remote and rural areas.
Summary of work: These fellowships have been developed to deliver learning tailored to an explicit rural general practice curriculum
Summary of results: "Graduates" were very satisfied with their experience and felt prepared for a substantive role in rural or remote general practice.72% of "graduates" from the scheme over the past five years have taken substantive roles in rural general practice with a further 20% working as rural locums with the intention of securing a substantive rural post
Conclusion: The Rural Fellowship scheme in Scotland delivers "graduates" that are fit for purpose for and likely to be retained in rural general practice
Take home message: The rural fellowship scheme is a form of higher professional education that can help address recruitment issues for rural and remote general practice in Scotland

2V18

Evaluation of out-patient experience in the early years of GP specialty training: preliminary findings

Andrew Longley[1] and Clare Wedderburn (Wessex School of General Practice, Dorset Patch, GP Centre, 6th Floor Royal London House, Bournemouth University, Lansdowne Campus, Bournemouth Dorset, BH1 3LT UK)

Background: Since August 2008, GP vocational training in the UK has comprised 18 months each in hospital and general practice. This allows an additional 6 months general practice experience, which may occur in year 1 or 2 of training.
Summary of work: This innovative pilot scheme provided ST1 trainees a day a week of protected learning in an organised programme of outpatient and community clinics. Specialties included were GUM, urology and community paediatrics, all of which have not before been part of core GP experience. At each clinic trainees were required to complete a worksheet with their clinical supervisor. This was attached to the e-portfolio along with a log entry. This served both to document the trainee's learning and also their attendance at the clinic.
Summary of results: Findings show that trainees highly value the programme of clinics. Enabling learning needs to be met early on and with a GP focus was found to boost confidence, especially as learning log entries were linked to the GP curriculum statements. Informal feedback from GP trainers and consultants has been positive.
Conclusions/Take-home messages: Well-structured time in community and outpatient clinics is highly valued by trainees and can allow them to record timely and relevant learning portfolio entries linked to the GP curriculum statements.

2W Posters: Curriculum Planning

2W1

Using special study components to develop deep learning in healthcare and medical students

David Brigden, Julian Breeze and Zoe Morris Williams (Bangor University, Bangor, UK)*

Background: The aim of these is to study in depth an area of personal interest, introduce and develop the principles and practice of scientific method, consolidate and hone learning skills to become 'deep learners'.

Summary of work: The authors will review types of SSCs (Structured Review, Interpretive, Laboratory Based, Survey Based and Case Based) and how each relates to becoming a deep learner.
Summary of results: Brief guidance will be offered on each type and the pros and cons of each discussed with suggestions for incorporation into a new Bachelor of Medical Sciences curriculum.
Conclusions/Take-home messages: Special Study Components promote deep learning.

2W2

Student selected components (SSCs) - The Glasgow experience

R Mclean, A McGowan, J Burke and C Collins (University of Glasgow, UK)*

Background: In response to the GMC's recommendations in Tomorrow's Doctors 1993, all UK medical schools are required to include SSCs as part of their curriculum. At the University of Glasgow SSCs consist of 5 uninterrupted 5 week blocks. The final 3 SSCs provide a wide selection of options from the Medical School menu and also the opportunity to self-propose.
Summary of work: We were stimulated by the Glasgow medical school self-proposal system to pursue an interest in alcohol health education (HE). After proposing our ideas to supervisors we collaborated with them to develop a unique research project. This complex project required understanding and completion of ethical application as well as independent working skills and organisation. The completed project was then presented at Glasgow University's inaugural SSC Excellence Event.
Summary of results: The opportunity to self-propose an SSC provided us with the flexibility and support to develop a self-generated project. Choosing to conduct an SSC project on public health and education proved to be challenging and also encouraged our personal and professional development. This experience developed our understanding and appreciation of different research strategies including analytical processes.
Conclusions: Self-proposed SSCs provide invaluable opportunities which encourage students to develop new skills and undertake study in areas of interest.
Take-home messages: SSCs should remain an integral part of Medical Curriculum.

2W3

Integrating systems-based practice, quality improvement, and relationship-centered care into first semester undergraduate medical education

D Callender[1], J Harris-Alleyne [1], D Pederson[1], G Ogrinc[2] R Frankel[3] and M Coleman*[1] ([1]Ross University School of Medicine, Roseau, Dominica; [2]Dartmouth Medical School , Hanover; [3]Indiana University School of Medicine, Indianapolis, USA)*

Background: Ross University School of Medicine is moving to an organ system based curriculum which integrates recommended competencies including systems based- practice (SBP, quality improvement (QI) and relationship- centered care (RCC).
Summary of work: The competencies were introduced using "It's a Dog's World" video followed by a general discussion on SBP, QI, and RCC. Reading assignments and lectures on SBP, QI, and RCC highlight the importance for improving patient outcomes. Problem based learning cases require students to find evidence of the effects of recreational drugs on student learning and to develop a fishbone diagram showing causes of increased door to balloon time in a patient with a myocardial infarction. Finally, simulation is used in a case with a patient with a DNR order who arrested. This case highlights the importance of medical records, advanced directives, and how physician conflict influences patient care.
Summary of results: Surveys of activities are being analyzed and will be used for program evaluation and improvement and presentation at future conferences.
Conclusions Take-home messages: This is part of our new curriculum which involves multifaceted methods to include all competencies. We will continue this development in all semesters in May 2010.

2W4

Leadership, participation and communication of curricular change in Glasgow Medical School

*AW Lumsden*and P Evans (University of Glasgow, UK)*

Background: Tomorrow's Doctors (2009) has been recently published by the General Medical Council, the outcomes and standards set by it require initial implementation in all UK medical schools by academic year 2011/12. There have been a number of studies that have identified behaviours and attitudes that are

associated with successful curricular change. Whilst there are a wide range of these, areas that appeared to be most important were leadership, participation and communication, these concepts are interlinked and co-exist with one another. As such, the intention of this study is to look at how they manifest themselves in Glasgow Medical School and testing leadership models from the literature as it undergoes a process of curricular change.
Summary of work: Semi-structured interviews were carried out with key staff and students within the Undergraduate Medical School.
Summary of results: Leadership, participation and communication play an important role in curriculum development in Glasgow Medical School and this experience can be generalised to other institutions.
Conclusions: Successful curricular change is associated with leadership, participation and communication within Medical Faculties, this will be tested as Glasgow undergoes a period of curricular change.
Take-home messages: Leadership, participation and communication of curricular change are important in achieving success.

2W5

Peculiarities of undergraduate medical education in former soviet countries
Z Vadachkoria, R Beriashvili and G Simonia (Tbilisi State Medical University, Tbilisi, Georgia)*

Background: During the last decade medical education in former Soviet countries is undergoing reforms in undergraduate medical education directed towards transition from Soviet style of teaching and learning to European standards. Vast majority of these countries joined Bologna process (except 3 cycle model), introduced ECTS system and established quality assurance structures in higher medical educational institutions.
Summary of work: Analysis of current situation of undergraduate medical education in post-Soviet countries revealed the following common problems: 1) Since Soviet Times undergraduate education is based on traditional strictly subject based curriculum, divided in three phases – basic (2 years, preclinical 1 year) and clinical (3 years), 2) Outdated methods of teaching and learning (classroom based, teacher oriented, information based teaching), 3) Low motivation of students to learn due to: (a) existence of large groups (b) fragmented learning – separation of basic and clinical subjects in existing curriculum (c) boring classroom based and teacher centered studies (d) unawareness of academic staff about new teaching methods, 4) Despite the alarming fall of average life expectancy in post-Soviet countries that is mostly due to improper treatment and care of elderly people, geriatrics is not included in undergraduate curricula of medical schools as “poor” tradition inherited from Soviet times.
Conclusions Take-home messages: Solution of the above listed problems is a difficult and very demanding task, which is unrealistic to resolve without close collaboration with European partners experienced in modernizing medical education.

2W6

Evaluating the proposed and needed training courses in terms of requirements for entrepreneur and job finding in the view of the students and graduates of Medicine colleges of south of Iran
S Hkavari (Faculty of Health, Semnan Medical University, Semnan, Iran)*

Background: Medical practice is an expensive profession which is necessary for each and every society.
Summary of work: The present descriptive-analytic research was conducted using a questionnaire containing 19 subjective questions. The sample size included 300 students and 200 graduates (and employed GPs) of medical universities of (Shiraz, Bushehr, Yasooj and Bandarabbas, randomly selected. Questionnaires were filled in by the sample size and the crushed ones were omitted.
Summary of results: A meaningful difference was observed between students and the employed graduates regarding learning a foreign language. It means that students were more serious to learn a foreign language. 1) no significant difference was observed between the two groups regarding computer skills, psychology of human sources, conducting projects and familiarity with the workplace environment. 2) group A (students) were more familiar with the global systems of the medical course than group B (the employed graduates) which could be attributed to the change in educational structures as well as technological revolution. The difference was 15%. 3) regarding innovation and creativity the difference was significant between the two groups. Group A does more teamwork than group B and as for the introduction of the job, the difference was significant between the two groups.

Conclusions/Take-home messages: Students generally believe that an employment could be gained through nepotism in the first place and based on practical and scientific abilities in the second place. This problem could be solved through equalization, holding educational courses for teaching computer skills, management etc.

2W7

Educating Integrative Medicine over the whole curriculum - six years of experience with the Integrated Curriculum for Anthroposophic Medicine (ICURAM)

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Background: With nearly 90 years of existence, Anthroposophic Medicine (AM) is a rather young holistic system. It considers four layers of man in diagnosis and therapy: physical, biological, emotional body and I (ego)-organization. AM is spread worldwide in over 80 nations. There was postgraduate but no undergraduate medical education until 2004.
Summary of work: A full-length curriculum was established in a German faculty by insertion into a regular curriculum. Students can choose ICURAM as an option. 6 years direct observation was conducted.
Summary of results: The regular preclinical PBL-curriculum was enriched with two ongoing AM seminars, six basic sciences were taught under an AM perspective and clinical rotations in eight specialities were established. From 2004 to 2009, 193 of 361 students (53.5%, 9 cohorts, n=35-43 per cohort) participated in ICURAM course. Participation ratios were grouped in completely, partially and occasionally. 20 credits of the regular curriculum can be obtained by enrolling in ICURAM.
Conclusions: Implementation of a full-length undergraduate curriculum in Anthroposophic Medicine into a curriculum of conventional medicine is possible, concerning contents, structures and acceptance (participation ratios).
Take-home messages: Integrative Medicine can be realised over full length in medical education. Anthroposophic Medicine, broadening conventional medicine with the spiritual side, may be integrated easily.

2W8

The unique mutual relationship between oral epidemiology and dental education

E Joury (University of Damascus, Faculty of Dentistry, Damascus, Syria)*

Background: The unique mutual relationship between oral epidemiology and dental education has not been discussed before. Oral epidemiology can contribute to dental education by a number of measures. First, it offers the required information regarding oral health needs of the community in which most of the dental graduates are expected to serve. Second, it provides a dynamic picture of the constantly changing oral disease patterns and trends. This would help to evaluate when and how the dental curriculum should be changed to meet society needs. Third, its research methods guarantee achieving valid measures of the effectiveness of dental treatment and care delivery. Fourth, it provides a valid context to learn preventive dentistry, a subject difficult to learn in a hospital context with its emphasis on curative measures. Fifth, it provides dental graduates with a unique way of thinking where oral health is seen from a population rather than individual perspective. Dental education can contribute to enhance the “what” and “how” to teach oral epidemiology. Oral epidemiology needs a clear statement of its relevance to dental graduates. In addition, modern methods of education such as small group teaching and problem based learning can distinguish between enhanced deliveries of oral epidemiology concepts to dental graduates.

2W9

Missing lectures found in hidden curriculum

S Morang, M Taylor* and P Goff (Ross University School of Medicine, Commonwealth of Dominica, West Indies)*

Background: A change in curriculum provided a unique opportunity to present traditional material in a new format. Although faculty feared that some material was missing, the integration of didactic lectures provided an opportunity for collaboration between student affairs and academics to address curriculum concerns.
Summary of work: Creative teaching activities, using both active and passive learning modalities, were strategically designed within a hidden curriculum program to align and support the basic science experience of

the new curriculum: monthly health themes that coordinate with organ-system modules, movie/television nights to critique and discuss real life relevance, Internet posting and discussion boards, as well as professional social networking such as Twitter and/or Facebook.
Summary of results: An ongoing analysis of collected data (student and faculty surveys, written evaluations, number and types of events, number of participants) provided a quantitative and qualitative overview of program effectiveness to the student learning process.
Conclusions: The supportive partnership between student affairs and academics provided an opportunity to creatively present essential medical education concepts to enhance overall student learning.
Take-home messages: The desired outcome will be to identify quantifiable markers to document positive changes towards a well balanced quality doctor.

2W10

A multi-faceted approach to enriching advanced practice nurses gerontological cultural competence
L Kennedy-Malone and E Jones* (The University of North Carolina at Greensboro School of Nursing, Greensboro, NC, USA)*

Background: The nurse practitioner concentration is located in the most racially and ethnically diverse county in the state as well as being considered the one of the most diverse in the United States.
Summary of work: Consequently, our nurse practitioner program has been diligent in creating a myriad of opportunities for our students to understand culture, ethnicity, and disparities that face the culturally diverse older population of our state and nation.
Summary of results: The faculty has taken a systematic approach to integrate these concepts across the curriculum. Students first ascertain their own cultural competency. Students conduct Health Fairs for disparate populations. OSCEs are developed with culturally based cases using simulated older adult patients from culturally diverse groups. Students are placed in clinical settings that manage the care of the medically underserved vulnerable adult and older adult populations. Students are encouraged to select topics that address the needs of culturally diverse populations for their evidenced-based project. Additionally select E-learning materials are embedded into the curriculum that pertains to managing the care of ethnically diverse older adults.
Conclusions: Emphasis is placed on the providers' recognition of their own beliefs regarding maintenance of optimal health into older adulthood and providers' role in administering health care.
Take-home messages: A multi-faceted approach is needed to enrich the gerontological cultural competency of advanced practice nursing students.

2W11

Norwegian medical students' attitudes to the pharmaceutical industry
D Lea, O Spigset and L Slørdal (Norwegian University of Science and Technology, Faculty of Medicine, Trondheim, Norway)*

Background: The interaction between physicians and the pharmaceutical industry has been the focus of considerable research. Little is known about medical students' interaction with the pharmaceutical industry.
Summary of work: A self-assessment questionnaire was distributed to fifth and sixth year students at all medical schools in Norway as well as Norwegian medical students at selected universities abroad. The Deans at the universities were interviewed regarding practical handling of issues concerning industry relations.
Summary of results: The response rate was 65.8 %. In total, 73.9 % of the students had been exposed to the industry to a variable degree. Only 17.5% reported a generally positive attitude towards the industry. Increased exposure correlated to a subjective feeling of increased confidence in dealing with industry representatives. There were significant differences in students' attitudes between the universities, suggesting that they are prone to influence from lecturing. All medical faculties in Norway had guidelines regarding student interactions with the industry, but the amount of lectures on the subject varied.
Conclusions: Norwegian medical students are opinionated and critical regarding pharmaceutical industry relations. This interest can be explored and probably modified by educational initiatives.
Take-home messages: Discuss ethical considerations regarding interaction with the pharmaceutical industry with your students and be aware of your status as role model.

2W12

Medical students´ estimates regarding the incidence of chronic diseases in general practice

H Karppinen, M Nevalainen, L Kuikka, H Liira, P Salokekkilä, L Sjöberg, M Torppa, J Eriksson and K H Pitkälä (University of Helsinki, Department of General Practice and Primary Health Care, Helsinki, Finland)*

Background: Finnish medical students see mainly university clinic patients with severe or rare diseases during their first clinical years. In this study, we explored how 5th year students estimate the incidence of common chronic diseases in primary health care practice.
Summary of work: During the years 2008-2010 all students filled in an electronic questionnaire before entering the course in primary health care. Students were instructed to estimate the annual incidence of cancer, dementia, asthma and coronary heart disease (CHD) in an average GP's population of 2000 people. 316 students responded (88%).
Summary of results: Students' mean age was 25.7 years. The students estimated that they should find a median of 30 new CHD patients, 20 new asthmas, 15 new patients with dementia and 10 incident cancer cases annually in their 2000 patient population. However, the range of estimates was large: CHD 0-600, asthma 1-200, dementia 2-300, and cancer 1-400. Only 10-25% of the students had the magnitude of their estimate approximately correct.
Conclusions: Students overestimate the incidence of common chronic diseases. A realistic view of epidemiology helps GPs in the diagnostic process and care of their patients.
Take-home messages: It is important to provide students with realistic information on disease epidemiology.

2W13

Quality assurance for active modular team performance in modular planning, delivery and assessment of rheumatology module for 3rd year MBBS curriculum

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Background: In order to produce physicians who are humane, altruistic, knowledgeable and lifelong learners, Shifa College of Medicine moved towards system based integrated modular curriculum. Assuring high standards of quality in planning, delivery and assessment of modules is of paramount importance in achieving excellence in delivering medical education.
Summary of work: A comprehensive strategy for quality assurance was developed. Planning Phase: Prior to the delivery of module, the team lead by a team leader arranged meetings for reviewing and finalising objectives, designing and finalizing strategies for the delivery, and drafting time table and study guide for students. Blueprinting for both written and practical assessment was finalized before the start of module. Delivery Phase: In midway of module team members gathered to review student learning based on intended objectives. Modifications were done according to their feedback. Assessment Phase: MCQs and SAQ's were reviewed and discussed for content validity, distracter selection and integration of disciplines in consultation with the Medical Education department. Post-hoc analysis of assessment was done considering various psychometrics based on item response theory.
Summary of results: Most of the students regarded their learning contextual, patient-centered and promoted clinical reasoning and critical thinking. Assessment matched with the objectives and delivery. Faculty members also liked team based approach employed in the module.
Conclusions: Enforcement of quality assurance mechanisms will lead to better module delivery.
Take-home messages: Quality assurance is a key to achieve better module delivery.

2W14

Going back to school: Educating ourselves about students' transition to medical education

Janette Myers and Kirsty Wadsley (St George's, University of London, UK)*

Background: Transition to medical studies has implications for attainment, resilience and student support. Disparity between students' prior learning experience (PLE) and the demands of medical studies can affect student performance in ways not necessarily related to ability or later academic attainment. This communication discusses the benefits to curriculum development and teaching of understanding PLE.
Summary of work: The majority of undergraduate medical students at St George's, University of London (SGUL) have A-levels, the higher education (HE) entry qualification taken by approximately fifty percent of English students aged sixteen to eighteen. Seventeen SGUL lecturers observed nineteen A-level science

lessons at six schools and colleges. Participants met before and after visits and completed structured feedback on lessons observed and on the project via questionnaires.
Summary of results: Scientific knowledge at A-level was felt sufficient to enable students to access the undergraduate medical degree. However, lecturers felt students' learning skills did not meet the need for independent study at undergraduate level.
Conclusions: SGUL staff benefitted from understanding students' transition, changing their attitudes and adjusting their teaching in the light of students' prior experience and preparedness.
Take-home messages: 1) Observe students' PLE. 2) Audit curriculum and teaching for testable assumptions about PLE. 3) PLE affects all students.

2W15

Clinical veterinary students' perceptions of a 'day one' skills guide

Claire Duncan, Vicki H M Dale and Matthew Pead (The LIVE Centre, The Royal Veterinary College, Hatfield, Herts, UK)*

Background: Veterinary students in the UK are required by the profession's governing body, the Royal College of Veterinary Surgeons, to attain essential 'day one' skills (DOS) by the time of graduation. The Royal Veterinary College (RVC) produced a printed DOS guide to make these skills explicit for students, distributed in 2007-8.
Summary of work: Fourth and final year RVC students were surveyed (using online and paper-based questionnaires respectively) towards the end of the 2008-9 session about the DOS guide, in terms of its perceived usefulness in supporting learning and students' levels of competence.
Summary of results: Responses from 88 fourth (39%) and 174 (87%) final year students revealed that while almost all students were aware of the DOS guide, current use was very low. Final year students, being close to the end of their course, rated themselves more competent than fourth year students, but were less optimistic about their expected level of competence regarding some of the more complex skills.
Conclusions/Take-home messages: The DOS guide should be better integrated into clinical placements, and may need to be tailored to indicate that students can realistically only expect to observe or assist with some of the more complex procedures before graduation, gaining full competence in the first year of practice.

2W16

Developing internship programme for undergraduate medicine: Lessons learnt from Universitas Gadjah Mada, Faculty of Medicine

Titi Savitri Prihatiningsih Damardjati (Universitas Gadjah Mada, Sekip, Yogyakarta, Indonesia)*

Background: UGM FM reformed its curriculum from 6 years to 5 years in 2002. The curriculum is integrated. Unnecessary content or duplication is removed, clinical skills training is introduced from the beginning. An 8 week Internship is conducted at the end of study to work as a full medical doctor under supervision.
Summary of work: The purpose is: 1) to integrate and apply all competences, 2) to increase students' confidence in carrying out medical practice, 3)to exercise professionalism and 4) to do community service. The interns work in GP policlinic, emergency units and in patient wards. Participants consult cases to the Clinical Supervisor who will give feedback to the interns. The requirement is passing all exams. As participants have no license to practice, clinical supervisors are willingly to delegate their authorities. This implies that they bear responsibilities of the interns' work.
Summary of results: 179 students participated in this programme since October 2009 in 40 health centres and 12 district hospitals. Checklist on clinical competence is used for assessment. Questionnaires were distributed to ask for interns' comments on this programme. 95 % agreed that internship programme is useful and improve their clinical competence. Results of assessment are satisfactory
Conclusions: An internship program incorporated in the medical curriculum prior to graduation can improve graduates clinical competences and professionalism
Take-home messages: Opportunities for doing medical practice independently under supervision is worth. The practicing physicians as clinical supervisors are willing to delegate their clinical authorities to participants.

2W17

Writing and teaching medical education curriculum with patients and families

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Background: People who have had frequent or intense needs for health care can enhance the development and delivery of medical education by sharing their experiences, providing descriptions of helpful physician behaviors, and helping to create effective educational strategies. This poster will describe a process and provide two examples of working together on teams of patients (service users), families (carers) and medical education faculty to co-develop and co-teach curricular activities.
Intended outcomes: Describe a process for incorporating patient experiences in curriculum development; describe two examples of curriculum materials developed by medical education teams of patients, families (carers), and other medical education faculty; generate a list of other medical education curriculum materials that such teams could develop.
Structure: This poster will illustrate a curriculum development process that uses patient and family narratives and in which patients, families, and other medical education faculty work together to develop new curriculum activities and materials. The process involves writing trigger questions to use in curriculum planning groups that include patients, families, and other medical educators. Planning groups write learning objectives and create teaching strategies that incorporate insight gleaned from patient and family experiences, and plan curriculum activities that include patients and families as well as other faculty members in teaching. The poster will include two examples: a standardized patient case and a teaching activity about shared decision-making.

2W18

The sociological role of medical faculties to teach the importance of cuisine in health

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Background: There are illnesses from the “exterior” that the patient can catch and that the future doctor learns to recognize during his studies, and illnesses from the “interior” that the patient causes by his social behavior, notably through food.
Summary of work: The medical faculties must teach the risk factors from food in the prevention and treatment of cardiovascular diseases, cancer, obesity, diabetes and aging. The interdisciplinary project integrates medical specialists, nutritionists, dietitians, cooks and sociologists.
Summary of results: A white book on the recommendations is directed in a scientific and understandable way for health care professionals connected to the help of therapeutic education.
Conclusions: Cooks elaborate on recipes that retain pleasure and flavor that show it is possible to limit risk factors by an adaptive diet and adaptive cooking. Physicians can suggest this type of diet and cooking to the patients. The doctor appears more human because he can speak about food with his patient.
Take-home messages: The interdisciplinary coming-together of professionals of medicine and cooks are part of the faculty’s role in participating in the therapeutic education of patients.

2W19

Development of community-based medical education module incorporating and promoting the concepts of Education for Sustainable Development (ESD)

Y Takeda[1], E Boostrom[2], N Khalek[3], P Kessoomboon[4], H Yamamoto[5], H Hori[1] and K Ando[1] (Mie University [1]Graduate School of Medicine, Mie; [2]Research Institute, Okinawa Japan; [3] University of Sharjah College of Medicine, Sharjah UAE; [4]Khon Kaen University, Khon Kaen, Thailand; [5]Okayama University, Japan)*

Background: Community-based Medical Education (CBME) has been introduced and implemented in many medical schools to provide learning activities in the community, where most health problems can be prevented or treated. Incorporating Education for Sustainable Development (ESD, a UN initiative) into CBME gives both students and communities increased opportunities to acquire competencies in building partnerships, empowering communities and in critical thinking including considerations of sustainability.

Summary of work: To promote ESD in CBME programs, we conducted workshops to develop educational approaches and materials adaptable for use in various international circumstances. International participants were community medicine faculty from Thailand, Laos, UAE, and Tanzania. This project was supported by International Cooperation Initiative by Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan.
Summary of results: Workshop participants became more familiar with ESD and agreed that introducing it within their current CBME would enrich the existing programs. Together, we developed a Teacher's Guide and Student's Guide as well as booklet of Examples of Good Practices, which could be used for faculty development.
Conclusions: ESD would be an important part of health professions educations, since prerequisites of health as stated in Ottawa Charter are also essential for sustainable development of the community.
Take-home messages: Developed materials are available at the website, http://www.medic.mie-u.ac.jp/community-oriented/bin/Teacher's_Guide_ver.2.0.pdf. http://www.medic.mie-u.ac.jp/community-oriented/bin/Examples_of_Good_Practices_ver.1.0.pdf.

2X Posters: Patient Safety

2X1

Result of a reflective introduction to communications and teamwork for patient safety with SBAR for 2nd year medical students

J V Patenaude[1], M Aylward*[2], M Hotte[2], K Dupuis[2], P Drolet[1], R Thivierge[1] and C Scherrer[2] ([1]Université de Montreal; [2]CAE, Montreal, Quebec, Canada)*

Background: Teamwork and communications are key elements in CPSI competencies. We wish to present utilisation of SBAR as an innovative way to introduce communication framework to undergraduate medical students.
Summary of work: In a 90 minutes simulation learning activity, medical errors and patient safety from poor communications are introduced to 2nd year medical students in a reflective manner as preliminary homework. The workshop starts with a hypoglycaemic patient simulation demanding a team response. Afterwards, a live interactive touch-pad survey is conducted about issues with the results juxtaposed with the purpose of introducing SBAR. Basic knowledge teaching is followed with a second simulation to practice: a simulated patient follow up scenario and hand-off. The survey is repeated.
Summary of results: The results of this work and survey are presented.
Conclusions: We believe that 2nd year medical students need to appreciate that communications are important to conduct their professional affairs, and that specific training is already needed.
Take-home messages: SBAR is the newest component included in our curriculum to improve teamwork and patient safety.

2X2

Patient safety education: National data use for program development

D Danoff, T Gondocz and S Swiggum (Canadian Medical Protective Association, Ottawa, Ontario, Canada)*

Background: The mission of the Canadian Medical Protective Association (CMPA) is protecting the professional integrity of physicians and contributing to a high quality health care system by promoting safer medical care in Canada. To this end, the CMPA provides educational programs to practitioners and trainees. Understanding learner needs is critical in developing and implementing effective programs. The CMPA is in the unique position of having risk management data for the majority of Canadian physicians.
Summary of work: CMPA interactions with physicians are classified and coded to predetermined categories. Aggregated data can be analyzed for specific time periods, discipline or interaction type (advice request, legal issue etc.). This paper describes how such data is used to determine educational priorities. In addition, closed case data is used for clinical scenarios that provide "real life" experiences for learners.
Summary of results: CMPA works with stakeholders to develop presentations that accurately reflect areas of major concern. Feedback from learners confirms that presentations raise awareness and direct them to practice changes that enhance patient safety. This presentation will provide examples of aggregate data and illustrative cases.

Conclusions: Use of national data and closed cases is effective in needs assessment and development of meaningful educational products.
Take-home messages: Risk management data supports the development of meaningful educational programs

2X3

Phantom of the operation theatre – Not yet considered influences on the communication in the operation room

M Henninger, S Murrmann, J Baumgart and A Kutter (University of Education Weingarten, Media Didactics, Weingarten, Germany)*

Background: Errors in medicine are the eighth leading cause of death in the USA, concerning about 100,000 patients per year. In Germany a mortality rate of 0.1% was found, concerning about 17,000 deaths per year. Researchers identified ineffective communication within an operating-team as reason for medical errors. Furthermore, other studies accent the influence of the communication between particular roles, due to the variety of professions represented in an operation-room. Therefore, to avoid incorrect medical treatment in stressful and high-risk situations, communicative competency has to be supported. This support as part of the non-technical skills has initially been recognized during recent years. Unfortunately, it isn't possible yet to identify exactly the influence of operation-team-members' communication-skills on their teamwork and the progress of work.
Summary of work: So far communication-skills are part of trainings of non-technical skills, which derive from the Crew-Resource-Management in aviation. Considering several studies, the development of mental models besides communication-training is very important, regarding the above-mentioned plurality.
Conclusions/Take-home messages: Therefore it's necessary to find out if these non-communicative factors affect the outcome of communication-trainings. Thus, the authors will arrange a communication-training, including the promotion of shared mental models and investigate if and how it affects the outcome in order to develop adequate training contents.

2X4

The effect of a new theatre etiquette course on medical students' theatre etiquette skills

N D Mackay, J Nutt, R Mehdian and C F Kellett (University of Dundee, Faculty of Medicine, Dundee, UK)*

Background: Many students have minimal formal teaching in theatre etiquette, resulting in last minute "on the job" training. Student competency could have an effect on patient safety. This study aimed to identify differences between the students' knowledge, technique and competency in theatre etiquette skills between two cohorts of students who received different methods of teaching.
Summary of work: Thirty three 2nd year medical students, with no previous exposure to theatre etiquette, were recruited. All participants were observed scrubbing, gowning and gloving using their baseline knowledge. Each student's technique and knowledge was tested. The students were ranked on initial competency then separated into two groups. Group 1, were taught using the new Dundee Theatre Etiquette Course. Group 2, received traditional teaching by theatre staff. Both groups' knowledge and practical skills were reassessed following their teaching and at 3 months.
Summary of results: The change from baseline of the total score after teaching was an improvement of 29.9 (SD 6.7) for group 1 and an improvement of 33.0 (SD 6.0) for group 2. These improvements are not statistically significant, p=0.175. Data at 3 months will also be reported.
Conclusions: The results obtained demonstrate that student's knowledge, technique and competency improve dramatically after teaching.
Take-home messages: Theatre etiquette teaching should improve patients' safety.

2X5

The roles of surgery and anesthesia trainees in the uptake of preoperative team briefings

Sarah Whyte (The Wilson Centre for Research in Health Professions Education, University of Toronto, Canada)*

Background: Team briefings among surgeons, nurses, and anesthesiologists are widely promoted as a strategy for protecting patient safety, but their uptake has proven challenging. The role of surgery and anesthesia trainees in the team briefing process is largely unexplored.

Summary of work: Between 2004 and 2007, 756 team briefings were conducted at four Canadian hospitals and documented in observational field notes. We analyzed these observational notes to address the following questions: 1) how did trainees affect the uptake of team briefings? 2) how did team briefings affect trainees?
Summary of results: Surgery and anesthesia residents demonstrated a wide range of attitudes toward team briefings. Uptake of briefings was facilitated by trainees' consistent presence on the team, their sense of responsibility, their respectful attitude toward colleagues, and often their initiative in taking leadership roles. Uptake was discouraged when residents lacked sufficient knowledge or demonstrated dismissive attitudes toward colleagues or the briefing itself. Trainees bore considerable responsibility for team briefings, this was an opportunity for professional development and sometimes also a source of anxiety.
Conclusions: The success or failure of team briefings often hinges on surgery and anesthesia residents. Trainees not only learn from but also lead team briefings.
Take-home messages: Trainees should be recognized as central to the uptake of new interprofessional practices.

2X6

The use of "Values Exchange" as a special study module option as part of the medical curriculum
Helen Orton (University of Liverpool, UK)*

Background: Values Exchange is informed by Professor David Seedhouse, an eminent writer on health, ethics and decision-making and the instigator of a number of decision-making tools designed to assist in choosing actions in ethical issues to produce the highest degree of morality. It uses software which enables users to express their feeling and arguments by means of common concepts and feeds back structured reports which can then be used to compare different users' perceptions.
It is proposed that Values Exchange offers an additional educational resource as there is an increasing pressure to ensure that education institutions meet the Department of Health's agenda to deliver team and collaborative working to ensure high quality of clinical care in addition to encouraging transparent debates in ethical dilemmas.
Summary of work: Values Exchange: "Fits well with professional issues teaching and with the increasing use of e-learning it is considered that it is a teaching tool with enormous potential within clinical practice across all health care specialties. Furthermore, it may provide health care educators with an additional method to address the complexities of delivering inter-professional learning."
Conclusions/Take-home messages: Values Exchange is being offered as a Special Study Module (SSM6) as an alternative and additional tool to encourage in depth reflection of both everyday and more complex moral and ethical dilemmas. The poster will review its use to date.

2X7

Shaping great physician-PA teams
R Ballweg and R Cohn (National Commission on Certification of Physician Assistants, Johns Creek, GA, USA)*

Background: The purpose of this study was to uncover the keys to success for the most successful physician-physician assistant (PA) partnerships as the foundation for a broader effort to equip new teams for greater success from the outset. The authors believe that the more effective the team, the more effective the care.
Summary of work: Fourteen PA members, of teams nominated for this project participated in in-depth telephone interviews. Eleven interviews also included the physician member of the team. The participants practiced in a variety of specialties and practice settings. The average span of the partnership was 9.07 years, with a range of 1 ½ years to 25 years. A survey based on insights from the interviews was sent to 80 physician-PA teams who had been qualified for the project. Over 50% completed the survey.
Summary of results: Five key success factors were identified that are critical to creating and sustaining great physician-PA teams.
Conclusions: Communication on several levels between the physician and PA, before and throughout the development of the partnership, is critical to success.
Take-home messages: Successful teams have shared priorities, communicate frequently and effectively, deliver patient care consistently, share mutual trust and respect, and include a physician who is available, accessible and approachable.

2X8

Student engagement: Teamwork, training and personal curiosity supporting academic development

D Geçkalan[1], C Soysal*[1], P de Roos*[2] and K Nesterowicz[3] ([1]Çukurova University, Adana, Turkey and Turkmsic Turkey; [2]European Medical Students' Association and Vrije Universiteit Medical Center, Amsterdam, The Netherlands; [3]European Pharmaceutical Students' Association and Krakow University Poland)*

Background: The quality of the teacher is often a bottleneck in academic education. When using the power of pedagogies of engagement, the student takes responsibility for the learning while being supported by the teacher.
Summary of work: In July 2009 the first international Parkinson's disease Summerschool for healthcare students was held. The educational experience was designed around personal curiosity and motivation of students from different healthcare professions, the story of the patient and training of teamwork skills. The main task for the students was to construct a PhD level research project proposal as team effort with no guiding direction to start with.
Summary of results: The students achieved their goal and produced research project proposals, with only 1 formal lecture in 9 days. The students presented their literature research daily to experts and the final outcomes were subjected to an international online peer review. The final level of the work produced, was not of sufficient quality to immediately lead to a PhD project. The students highly appreciated the experience measured by an elaborate evaluation and a second edition will follow in 2010 as well as a summerschool on Dementia using the same format.
Conclusions: It's possible to make students skip lunch voluntarily and wake up early for 9 days, while working 10 hours a day on academic research, during their Holidays.
Take-home messages: Personal motivation and curiosity in students are powerful forces which could fuel academic progress.

2X9

The effect of application of reasoning map on nursing students' self perceived caring behavior

M Moattari M Keshmiri and S Z Tabeee (Shiraz University of Medical Sciences, Shiraz, Iran)*

Background: In our nursing curriculum in Iran there is no special course or credit for teaching ethics. This study was conducted to find out the effect of reasoning map application in a nursing ethic workshop on 3rd year nursing students' caring behavior.
Summary of work: This quasi experimental study was performed on 37 volunteer nursing students. At the first stage of the study the students' self perception of their caring behavior was assessed, using a valid and reliable questionnaire specialty developed for measurement of caring behavior by the same authors previously. Then the experimental group participated in a 2 day workshop on ethics. During the workshop they were provided scenarios and the opportunity to use specially designed software in Melbourne University called reasoning map. They were asked to reason about their claims on each scenario and then share their reasoning with others. One month later posttests were done to assess their caring behavior. Data were analyzed using SPSS.
Summary of results: The pre to posttest changes in the mean score of caring behavior between the two groups was significant ($p<0.001$).
Conclusions: Offering nursing ethics courses using reasoning map in our nursing curriculum is highly suggested. However, more studies should be conducted with larger sample size. Comparing this method of using a reasoning map with traditional methods of teaching ethics is recommended.
Take-home messages: Use of innovative teaching strategies such as a reasoning map in the context of ethics improves our nursing students' perception of caring behaviors.

2X10

Developing moral reasoning skills in the Virtual Learning Environment (VLE)

C Roche[1] and P Gallagher[2] ([1]Trinity College, School of Pharmacy and Pharmaceutical Sciences, Dublin; [2]Royal College of Surgeons Ireland, School of Pharmacy, Dublin, Ireland)*

Background: Professional ethics education incorporates four components of professional decision-making, namely moral sensitivity, reasoning, implementation and action, as interactive elements in the development of a professional. Moral reasoning competencies, in particular, benefit from knowledge of reasoning frameworks

such as Principlism, their application in independent decision-making regarding the resolution of ethical dilemmas and peer discussion regarding choice of appropriate response(s).
Summary of work: Students were introduced to Principlism (podcast, required to independently answer questions related to a relevant dilemma and subsequently required to choose the three 'best' and three 'worst' options from a selection of 12. Randomly assigned teams of 7 were then given one week to seek to reach consensus as to the 3 'best' and 'worst' options. All interactions took place in the VLE.
Summary of results: Both individual responses and peer interaction reflected competencies in moral reasoning. Choices of 'best' and 'worst' options consistently reflected 'expert' opinion.
Conclusions: Individual commitment to preferences prior to being assigned to teams gave team-members a considered starting point, which then required negotiation to move towards team agreement. Initiatives aiming to improve ethical reasoning skills suit the e-learning environment.
Take-home messages: Peer interaction, as required to develop moral reasoning skills, can be effectively stimulated in the e-learning environment when appropriate methodology is employed.

2X11

Ethical issues medical students confront during clinical rotations in Tehran University of Medical Sciences

Nazila Nikravan Fard[1], Fariba Asghari[1] and Azim Mirzazadeh[2] (Tehran University of Medical Sciences, [1]Medical Ethics and History of Medicine Research Center; [2]School of Medicine, Educational Development Office, Tehran, Iran)*

Background: To study the most common and important ethical issues that medical students experience during clinical rotations.
Summary of work: In a cross-sectional approach, we reviewed the 713 medical ethics cases of the logbooks of all medical students (241 people) who attended the medical ethics course during October 2006 to July 2007. Information related to the ethical issues and the conditions in which ethical problem of cases occurred was extracted and recorded by two experts who showed 0.77 agreement. In cases of discrepancy, they both reviewed the record to come to an agreement.
Summary of results: A total of 713 cases were analyzed. The most common issues reported by students were ethics in medical education (20.1%, n=143, professionalism [1]8.8%, n=134, confidentiality (7.6%, n=54, doctor-patient relationship (7.3%, n=52, informed consent (7.0%, n=50, and doctor-peer relationship (7.0%, n=50). After adjusting for the length of the rotation, the highest numbers of ethical incidents were reported from urology, general surgery, orthopedics, internal medicine, neurology, and obstetrics and gynecology wards.
Conclusions/Take-home messages: Results of the study indicated professionalism and its related elements and ethics in medical education are the most important concerns that need to be addressed in planning courses for medical students.

2X12

Are medical students more empathic than others?

N Najem, E Nemr, S Abou Jaoude, A Yazigi and F Haddad (Hotel Dieu de France Hospital, Beirut, Lebanon)*

Background: Despite its crucial role in patient-physician relation, there is a dearth of empirical research on empathy during medical studies and especially in comparing this feature among entering students to different schools. Do people choosing medicine as a career have higher baseline empathy scores than other students? The aim of this study is to measure empathy in incoming students to medical school and other schools and observe whether there is a baseline difference.
Summary of work: It is a cross-sectional study at Saint-Joseph University including 4 schools: medicine, engineering, law, and art. All incoming (first year) students were surveyed. Empathy was measured with the Davis Interpersonal Reactivity Index (DIRI, a validated 28-item self-administered questionnaire.
Summary of results: 354 incoming students participated in the study (medicine 78, engineering 160, law 88, art 28). Empathy in medical students was not statistically different from law students or art students, but was higher than in engineering group that had the lowest scores compared to the 3 other schools ($p<0.05$).
Conclusions: Empathy, measured at the beginning of university studies, is not uniform. And, although engineering students have the lowest scores, medical students do not have the highest scores.
Take-home messages: Empathy could play a role in career choice and its impact should be further studied.

2X13

Medical students' professionalism narratives: An insight to the hidden curriculum

F M Meagher[1], Gina Menzies[2], David Smith[2], NG McElvaney[1] (Royal College of Surgeons in Ireland [1]Department of Medicine; [2]Division of Population Health, Dublin, Ireland)*

Background: The subject of professionalism is now formally addressed in most medical undergraduate curricula but one of the challenges facing medical educators is to understand how medical students acquire their professional values. The influence of the academic environment in which students are educated is recognized as an important factor in shaping attitudes and professional development.
Summary of work: Final year students completed a course on Professionalism/Ethics. Each student was required to write a case report in which they described a critical incident they had experienced during their clinical training. Students reported experiences that embodied both positive and negative examples of professional values. They reflected on the gap between what is taught and the behaviours they observed in the learning environment.
Summary of results: A thematic analysis of narrative case reports was carried out (n =173). Major themes that emerged included the doctor-patient relationship, teamwork, role models and the learning environment. These narratives captured the student-lived experiences and were valuable triggers for small group discussion. Our preliminary experience to date suggests that students' reflective narratives are a rich source of information regarding the hidden curriculum
Conclusions/Take-home messages: We recommend the inclusion of brief reflective writing exercises on ethical dilemmas and lapses in professional judgment, as an approach to fostering ethical and professional development.

2X14

Perception of professionalism in physicians of the new generation

Kai-Kuen Leung[1]and Wei-Dean Wang[1,2] ([1]National Taiwan University Hospital and College of Medicine, Department of Family Medicine; [2]National Department of Social Medicine, Taiwan)*

Background: Professionalism is defined as a social contract between physicians and the society. It should be understood under contemporary social context.
Summary of work: We used focus groups to understand how physicians' perceive professionalism, the contents, and characteristics in present social context. Seven groups of medical students, 3 groups of family medicine residents, and 2 groups of young clinical faculties were interviewed. The contents of the discussion were audio-taped, typed into verbatim and analyzed by two researchers independently.
Summary of results: 1) altruism, knowledge, excellence, interpersonal relationship and communication skills are mentioned by all groups, 2) physicians need to maintain a balance between clinical works and personal life, 3) professional as an organization should cultivate a good practice environment and provide training for the profession, 4) society has many negative impressions to the profession, 5) medical insurance has a great impact to professionalism, 6) perception of medical profession is changeable.
Conclusions: Physicians of the new generation perceived professionalism differed from what has been defined in the literature.
Take-home messages: Perception of professionalism may change with time and social context. The perception of future physicians should be taken into consideration in medical education.

2X15

Critical discourse analysis (CDA) of professionalism, uncovered by faculty Shifa College of Medicine, Islamabad, Pakistan

Syed Shoaib Shah, Mubashir Farooqi (Shifa College of Medicine, Islamabad, Pakistan)*

Background: Professionalism is on top of today's agenda in medical education. Though practice of professionalism is rooted in the history, the recent challenges of the health care delivery system have changed its values. Consequently there are recent calls for increasing professionalism in medical training world over.
Summary of work: We conducted the CDA of professionalism amongst the faculty of Shifa College of Medicine, on the methodology of Foucault. Each faculty uncovered three distinct discourses that have constructed what professionalism actually is. Both approaches, quantitative to see the trends and qualitative for explanatory power of the discourse were utilized to analyze the text.

Summary of results: Out of 75 completed scripts, 84% wanted morals and attitude, 60% knowledge, 42% competence, 33% communication skills as major attributes of professionalism in the doctor of tomorrow. Compassion and altruism were not reflected as key attributes which are extremely desirable by the society.
Conclusions: The institutions and individuals that gain power in this discourse should not be the only managers of health care delivery system. The voice of the people should also be reflected in the practice of professionalism.
Take-home messages: A longitudinal, interdisciplinary approach should be adapted to inculcate professionalism at undergraduate medical level with a lot more emphasis on the sociological perspective.

2Y Posters: Continuing Professional Development

2Y1

Medical Qualification Online (QUOMED) – An innovative and interactive online CME programme for general practitioners

Th Brendel[1], J Eberle[2], J Avila[3], M Holzer[1], A Görlitz[1], K Stegmann[2], L Kühne-Eversmann[1], K Sostmann[3], F Fischer[2] and M R Fischer[4] ([1]Medizinische Klinik - Innenstadt, Munich; [2]Chair of Education and Educational Psychology, Munich; [3]Charité-Universitätsmedizin Berlin; [4]Private Universität Witten/Herdecke, Germany)*

Background: To date many online continuing medical education (CME) programmes for general practitioners exist in Germany, but none of them combines podcasts, interactive cases and the opportunity to discuss results with fellow participants and experts. By combining these interactive approaches we expect to create an innovative learning environment that should lead to better knowledge transfer, higher acceptance by and motivation of participants and an evidence-based behaviour-modification in clinical practice.
Summary of work: Over two years, 24 CME modules have been developed that cover various aspects of internal and general medicine. The main focus of this interactive CME-programme lies on diagnostics and treatment of common diseases in general practice. Module-content-selection is based on focus-groups with experienced general practitioners. Every module consists of three phases: Activation of prior knowledge, an individual learning phase and a cooperative learning phase. In addition participants get access to the QUOMED-community where they can share and discuss their own cases and experiences.
Conclusions/Take-home messages: The first QUOMED-modules have been accepted well by participants. Further data and analysis will show if the goal of better knowledge transfer and an evidence-based behaviour-modification in clinical practice can be accomplished by our interactive learning environment.

2Y2

Physician self-care and wellness: 21-year trends in Alberta family medicine graduates

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Background: Physician health is receiving increasing attention in medical education. Our objective was to examine trends in Physicians Self-Care of family medicine graduates in Alberta, Canada.
Summary of work: Cross-sectional surveys were conducted in 1997, 2002 and 2007 of graduates who completed residency training at University of Alberta or University of Calgary between 1985 - 2005. Some questions were common to the 3 surveys. The data from the 3 surveys was pooled to analyze trends over the 21 years. SPSS 16 is being used for descriptive analysis (frequency, crosstabs, along with Chi-square. Alpha has been set at 0.05.
Summary of results: 1448 graduates were mailed the questionnaires. 966 completed the survey. Pooled response rate: 66.7%. There was an incremental increase in preparedness for physician self-care from 47.2% of cohort 1 1985-90) to 78.2% of cohort 4 (2001-05) ($p < 0.05$). An increase in preparedness for self-care was also observed for age when younger (<30) and older (≥ 30) respondents were compared, (60.6% vs. 69.9%, $p < .05$). There was no difference in self-care preparedness by gender or practice location.
Conclusions: Preparedness for physician self-care and wellness has increased significantly and incrementally over the 21 survey span.
Take-home messages: Physician health matters.

2Y3

Newly appointed GPs and consultants action learning set

C Wedderburn, T Battcock and M Masding (Centre for GP Education, Bournemouth University, Bournemouth, UK)*

Background: Evidence suggests that unmet learning needs remain on completion of traditional training programmes for doctors. These are typified by a lack of confidence in non-clinical generic skills areas.
Summary of work: Objective: The action learning set provided an opportunity for newly appointed GPs and Consultants to learn together in a supportive environment, to improve levels of understanding across primary and secondary care and to enhance communication and networking opportunities at a local level. Method: Pre course questionnaire data was used to inform the content of the programme. The course ran each month, with participants joining as they were appointed.
Summary of results: Evaluation methodology: A qualitative assessment of the experiences of participants was undertaken, to determine the value of the programme and whether the project had improved understanding of working relationships across the primary and secondary care interface.
Results: Post-scheme data is being collected using questionnaires, confidence scales and focus group accounts. Further statistical analysis of aspects of the data is to be conducted.
Conclusions: The action learning set has provided an opportunity for interprofessional learning. This type of programme facilitates improvement in communication between primary and secondary care doctors and provides an opportunity for shared generic skills learning.
Take-home messages: There are many non clinical generic skills which cross primary and secondary care boundaries. Joint learning provides a positive forum for professional development and enhancement of working relationships at a local level.

2Y4

A pilot study of newly implemented nationwide antimicrobial stewardship programs by the Japanese Society of Chemotherapy in Japan

H Gomi[1] and K Mikasa[2], et al ([1]Jichi Medical University, Tochigi; [2]Nara Medical University, Nara, Japan)*

Background: Japanese Society of Chemotherapy has implemented educational programs regarding antimicrobial stewardship since 2007 for any interested medical professionals. Over 4,000 participants attended these programs.
Summary of work: This pilot study was performed to investigate the demographics and satisfaction of the participants and the impact of the programs on clinical practice. A questionnaire was administered to a total of 553 participants in the 9th lecture series as part of the registration process. There were seven questions regarding the content and quality of the lectures (10-grade, score 9 as the highest).
Summary of results: All attendees returned the questionnaire. There were 296 doctors (54%), 247 pharmacists (44%), and 10 others (2%). Their specialties included medicine (59%), surgery (24%), pediatrics (7%), emergency medicine (6%) and other (4%). The participants were generally satisfied with the lectures scoring of 9 (29%), 8 (25%) and 7 (27%). The lectures will impact clinical practice, 9 (32%), 8 (25%), and 8 (25%). Overall, participants were highly satisfied with the logistics of the conference.
Conclusions: Overall, the 9th lecture series was well accepted and understood.
Take-home messages: This program is the first nationwide continuing medical education on antimicrobial stewardship. Further investigation is needed to demonstrate any impact on the decision-making processes for antimicrobial choices in clinical practice.

2Y5

Lessons learned From CME development: Educational gaps and barriers to learning

S Verma, S Berry and K Warzecha (Sunnybrook Odette Cancer Centre, Department of Medical Oncology, Toronto, Canada)*

Background: Online CMEs provide accessible educational resources to a wide audience. Evaluation of these programs is key in recognizing whether learning objectives are being met and in discovering obstacles to learning.
Summary of work: Two web-based oncology-specific CMEs were offered between 2008 and 2010. Post-program data analysis was performed with a focus on participant specialty and program evaluation.

Summary of results: 2,084 health-care professionals participated in the programs (2.7% Oncologists, 28.3% Family Physicians, 69.1% Other). Post-program evaluation identified that while learning objectives were realistic, (91.2%) and were met, the majority of the time (93.3%), the greatest obstacles to learning were: overly detailed/advanced content, a lack of expertise/background knowledge on the subject, and technical problems.
Conclusions: CME participation of non-targeted health-care professionals has identified what could be an educational gap in the needs of these groups. The limited participation of the intended audience (oncologists) could be the result of poor program promotion, or that the CME topics did not cover the needs of oncologists. Further investigation must be performed.
Take-home messages: Due to the ease in accessibility of online CMEs, individuals not part of the intended audience are participating in these programs. This may lead to significant barriers in learning as the intended objectives may not be in-line with learners' needs.

2Y6

Influencing pharmacists practice in women's health through a professional development course
N Yuksel and TJ Schindel (University of Alberta, Faculty of Pharmacy and Pharmaceutical Sciences, Edmonton, AB, Canada)*

Background: Regulations in Alberta, Canada have expanded the role of pharmacists to include direct patient care and prescribing. Understanding the need for enhanced support of pharmacists, a continuing professional development (CPD) course in menopause was developed and evaluated.
Summary of work: The 3-day CPD course consisting of lectures, group discussion, simulated patient interactions as well as practice tools focused on practice skill development. A mixed methods research design was used to evaluate the impact on pharmacists' practice, including written surveys and semi-structured interviews conducted 9 - 12 months following the course. The evaluation received ethics approval.
Summary of results: Twenty pharmacists completed the course in February 2009 and 16 (80%) were interviewed. Survey data shows increases in knowledge and confidence. Analysis from the interviews identified perceived benefits to practice including changed attitudes about menopause, recognized role in empowering women to make therapy decisions, and increased confidence in patient assessment skills. The course components that influenced practice most were peer learning, simulated patient interactions, and practice tools.
Conclusions: A CPD program that involved peer learning, simulated practice experiences and practice tools appears to translate to changes in pharmacists practice.
Take-home messages: Powerful influences on pharmacists' practice in a women's health course included interacting with patients and peers.

2Y7

How can e-Learning help physicians in their CPD self-management plan?
M Borduas, A Jacques, P Raîche and C Guimond* (Aptimed Inc, Montréal, Québec, Canada)*

Background: Technology is an integral part of daily medical activities and it spreads dynamism to the quest for knowledge and knowledge management. Today, using a simple computer, physicians are able to develop their knowledge based on their timely needs, thanks to online resources of their choice, at their own pace and wherever is convenient for them. As they have to continuously update their knowledge, physicians must maintain their skills through a structured reflection method in a process of continuing professional development (CPD).
Summary of work: The aim of this article allows to identify the role that medical e-Learning could play in continuing professional development (CPD) and to understand the role of online learning environments in physicians' clinical and professional reflection so as to facilitate their clinical decision and self-evaluation in their CPD.
Conclusions/Take-home messages: Online learning environments provide doctors with ergonomic collaboration and communication tools, which facilitate surfing towards the available data, identifying the learning path, sharing knowledge with peers while allowing self-assessment. By enabling physicians to build and refine their knowledge in practice situations, they will have the opportunity to mobilize and transfer them in their clinical decision. It is according to such path that they will prepare their strategy for online learning.

2Y8

Developing the skills of a reflective practitioner

David Brigden and Julian Breeze (School of Medical Sciences, Bangor University, Bangor, UK)*

Background: Reflective practice is a method of learning from clinical experience, identifying learning needs and implementing changes in practice. It is an important learning tool for medical students, who alongside their academic study must be able to gain and retain knowledge from clinical experiences. For practicing doctors and doctors in training, it can be an important tool for continuing professional development (CPD) and continued learning from clinical experiences.
Summary of work: In this study the authors look at : 1) how reflective practice can be used to develop portfolio learning, practice based teaching, quality of care, CPD, appraisal and revalidation,
2) different models of reflective practice, 3) benefits of reflective practice, 4) potential barriers, 5) teaching of reflective practice at undergraduate and postgraduate levels.
Summary of results: Reflecting on the views of medical schools, deaneries and Royal Colleges.

2Y9

Significant event analysis: Is there consistency in the quality of the peer review process?

Morven Mellan [1], Fiona McMillan [2] and Ailsa Power ([1]NHS Education for Scotland; [2]University of Strathclyde, Glasgow)*

Background: The Significant event analysis (SEA) scheme aims to identify individual learning needs, encourage reflective thinking and provides useful objective feedback to further enhance practice. Each SEA undergoes double-blind peer review by two trained pharmacist reviewers.
Summary of work: Study aim was to explore the quality of the peer review process on 50 SEAs. Each SEA section (n=10) was allocated a numerical score (0-7) by the peer reviewer. In addition, the reviewer made a subjective judgement on the SEA of 'satisfactory' or 'unsatisfactory'. The relationship between the total numerical scores and the subjective judgement was analysed.
Summary of results: The mean score of 'satisfactory' SEAs was 41.2, significantly different to those which were 'unsatisfactory' 29.7 ($p=<0.05$). There were however, 9 satisfactory SEAs which received low scores (> 30 out of a possible 70).
Conclusions: Numerical ratings given to SEAs did correlate with the overall judgement. It was found that most SEAs were of a high standard with 63% receiving a score of >36 out of a possible 70.
Take-home messages: Peer reviewers need a clear, shared idea of criteria for a successful SEA to ensure a consistent and fair review process. Monitoring of the review process and regular training of reviewers may be a way to achieve this.

2Y10

Validation of an electronic case-based learning system to measure faculty physicians' reflections on adverse patient events

J H Szostek, T J Beckman, L K Decker, T I Morgenthaler, F Lopez-Jimenez and C M Wittich (Mayo Clinic College of Medicine, Rochester, MN, USA)*

Background: We validated an electronic case-based learning system (CBLS) to measure faculty physicians' reflections on adverse events.
Summary of work: The CBLS was developed by Mayo Clinic, education and quality improvement experts in 2009. Three cases (actual adverse events) were selected based on the most common error categories: systems, medication, and diagnosis. Faculty participants in cardiology, pulmonary, and general medicine read validated cases, answered multiple choice management questions (options 1 – 5, rated case relevance and generalizability, and completed an 8-item reflection questionnaire (scale 1 – 5). Validity measures included factor analysis, internal consistency reliability, and case-based associations.
Summary of results: Forty-four faculty completed 107 case reflections, 91.3% rated the CBLS favorably. Faculty scored poorly on case management questions (category, percent correct): systems (24.1%), medication (62.5%) and diagnosis (39.5%). Factor analysis revealed 3 levels of reflection (items, Eigenvalue): minimal (2, 0.95), moderate (3, 3.52), high (3, 1.42). Overall internal consistency was good (Cronbach alpha=0.77). Reflection scores were associated with faculty age ($p=0.01$), case generalizability ($p=0.001$), and case relevance ($p=0.02$).

Conclusions: The CBLS reliably stratifies faculty reflections on adverse events. Reflection scores correlate positively with faculty age and event relevance.
Take-home messages: An electronic case-based learning system can reliably measure physicians' reflections on adverse patient events.

2Y11

Analysis of factors that influence the competency of candidates at organized programme of continuous medical education in the field of reanimatology in Croatia

Silvija Hunyadi-Anticevic[1], Gordana Pavlekovic[2] and Davor Milicic[3] ([1]Croatian Resuscitation Council; [2]Croatian Association for Medical Education; [3]Medical School, University of Zagreb, Croatia)*

Background: From April 2002-December 2009, there were 74 European Resuscitation Council (ERC) provider courses (55 Advanced Life Support-ALS and 19 European Paediatric Life Support-EPLS) in Croatia. A questionnaire has been distributed to all 1730 candidates 1328 ALS, 402 EPLS, covering subjects as professional background, motivation, knowledge, satisfaction with courses, applicability to everyday practice, changes in attitudes.
Summary of work: 1) Analysis of competency (knowledge and skills) of candidates in relation to their previous/basic education 2) Analysis of personal evaluation of the course quality in relation to candidates' competency 3) Analysis of internal motivation as the most important factor that influences successful acquisition of knowledge and skills at the organised programme of continuous education.
Summary of results: Preliminary results from 500 questionnaires collected to date show satisfactory competency of candidates in relation to their professional background, ranging from specialists and residents to nurses. Majority of candidates rated these courses with highest grades and would recommend them to other medical professionals. Higher internal motivation and satisfaction of candidates correlated well with course results.
Conclusions/Take-home messages: Based on the preliminary results from this survey, organized programme of continuous medical education in the field of reanimatology is recognised as a successful educational programme applicable to Croatian medical professionals.

2Y12

Supporting the 'lost tribe': A collaborative project between medical education and library services

Girendra Sadera and Victoria Kirk* (Wirral University Teaching Hospital, Arrowe Park Hospital, Wirral, UK)*

Background: This project is a collaboration between postgraduate medical education and a modern NHS library service at a large UK teaching hospital. Staff Grade and Associate Specialist (SAS) doctors are neither trainees nor Consultants, and as a result have specific educational requirements. The library service at Wirral University Teaching Hospital (WUTH) NHS Foundation Trust has worked closely with the SAS Tutor to develop tailored library services for SAS doctors in order to meet their specific information needs.
Summary of work: A dedicated SAS Library Assistant provides a named point of contact, who can signpost a range of tailored library services including: A Literature Searching service to locate high quality evidence to support audit, research, publications, presentations and Journal Clubs. A dedicated library webpage or 'portal' to library resources, including the latest evidence based guidelines. A Library Open Day for SAS doctors to showcase the library services and evidence based resources available
Summary of results: Evaluation feedback was gathered from the Library Open Day to inform future project development. Collaboration between the SAS Tutor and the library service has forged a positive working relationship.
Conclusions: Engagement with this specific group of doctors has been successful in raising awareness of ways in which the library service can support the educational needs of SAS doctors.
Take-home messages: Modern NHS libraries offer a resource to support the educational needs and continuing professional development of the medical fraternity, raising awareness of this resource enables such a valuable resource to be utilised effectively.

2Y13

Medication administration in a post conflict area: The impact of an educational program on quality improvement in a hospital in Northern Uganda

D Hawker, K Livingstone*, M Surgenor and G Byrne (University Hospital of South Manchester, UK)*

Background: Drug administration is an essential component of the medical-nursing role. Medication errors occur globally and can result in significant patient harm. Many healthcare challenges exist in developing countries that lack sufficient medicines management, posing a risk of increased medication errors. Safe drug administration is a multifaceted process. Clear and concise documentation is essential for multi-disciplinary communication. Education about drug administration is needed for Continuing Professional Development. There is a lack of literature concerning medication administration in post conflict areas.
Summary of work: To identify and overcome barriers to safe administration and documentation of medications on a resource-limited medical ward at Gulu Regional Referral Hospital, Uganda. Method: A retrospective audit and a nursing questionnaire to assess the quality of drug administration and the perspective of the hospital's native staff. This will be followed by a targeted educational intervention. An improvement in drug administration documentation rates will be deemed as an indicator of achievement.
Summary of results: 7.9% of prescribed drugs were documented as given to patients. The educational programme is ongoing and findings will be reported.
Conclusions: We identified improper documentation as a serious barrier to safe drug administration.
Take-home messages: Data about quality improvement measures in post conflict areas and sustainable healthcare projects in developing countries is lacking.

2Y14
Maintenance of licensure: Competency-based CPD approach
K Smythe[1] and K Hodgson[2] ([1]College of Veterinarians of Ontario, Guelph; [2]University of Toronto, Office of Continuing Education and Professional Development, Toronto, ON, Canada)*

Background: Effective Continuing Professional Development (CPD) which supports maintenance of licensure has evolved from simply counting annual hours of continuing education attendance to become a continuous, iterative, rigorous CPD cycle throughout one's professional career.
Summary of work: The College of Veterinarians of Ontario (CVO) has developed a cyclical three-step CPD program for its members which guides their identification of relevant learning opportunities and professional reflection, and includes mechanism for the College to monitor compliance.
Summary of results: Peer review of CPD documentation is an effective means for the CVO to ensure its licensed members maintain and enhance their competence across the broad spectrum of veterinary medicine.
Conclusions: A CPD Cycle is an integral part of a QA Program which allows a health-care profession to uphold its commitment to maintaining members' competence, and ensures that its regulatory body carries out its mandate to protect the public interest.
Take-home messages: (1) Effective CPD is a continuous, iterative commitment throughout one's career; (2) Professionals can efficiently demonstrate their engagement in meaningful CPD; (3) Maintenance of Licensure (Registration) needs to be linked to Maintenance of Competency (QA) within the regulatory schema.

2Z Secrets of Success 1

2Z1
A web-based platform to create teaching materials and automatic testing of anatomy
A Thirunavuukarasuu, J Liu, G L Yang and W L Nowinski (Biomedical Imaging Lab, Agency for Science, Technology and Research, Singapore)*

Short description of innovation: Anatomy is the basis of all medical knowledge. The use of 3D digital models of anatomy to create teaching material coupled with sound pedagogy provides a refreshing change that would inspire all educators as well as students.
What will be demonstrated: The web-based 3D application will consist of the complete human body derived from the visible-human-data, together with our award winning 3D brain atlas correlated with neuroimages. Using the 3D models, users can quickly and easily create user-specified teaching materials. It also enables automatic generation of test questions which students can take.
What is particularly interesting about the innovation/How could it be implemented? With all the information technology innovation happening around us, medical education is undergoing a paradigm shift. Our web-based tool promises to provide a new dimension to educators as well as students by making it available as public domain software.

Why participants should come to the demonstration: Educators need lots of time to prepare teaching materials and assessments. Students are overloaded with school work. With an IT savvy generation and emphasis on computer-based lessons, this web-based tool makes anatomy teaching and learning more efficient and interesting. This would facilitate more time to concentrate on professional development and sharing of best practices. Students will also gain as they will be motivated by the instant reviews after attempting each self-generated quiz.

2Z2

Collaborative development of virtual patients in clinical education

Norman Berman and Leslie H Fall (Institute for Innovative Technology In Medical Education, Lebanon, New Hampshire, USA)*

Short description of innovation: We have developed virtual patients in three medical disciplines (pediatrics, internal medicine and family medicine) that have achieved a very broad level of use in the US and Canada. We believe that the collaborative development and maintenance model is the key to success of these projects. This model recognizes that incorporating technology in medical education is primarily an educational, not a technological, challenge. The collaborative model incorporates six key components: 1) multi-institutional authoring to achieve comprehensive coverage of a nationally accepted curriculum, 2) a consistent pedagogical approach within and across disciplines, 3) instructors resources for integrating the program in the curriculum, 4) maintenance of the content with nationally representative editorial boards, 5) support for the academic needs of medical educators, and 6) a stable and financially sustainable support infrastructure. The broad acceptance of these virtual patients achieves the goals of sharing of content, elimination of redundant work, and improved medical education. We believe that the collaborative development and maintenance model can and should be advanced in other areas of computer-based learning.
What will be demonstrated: Virtual patients in Pediatrics, Internal Medicine and Family Medicine, available via the World Wide Web at www.med-u.org, will be demonstrated.
What is particularly interesting about the innovation/How could it be implemented? The collaborative development and maintenance model, and the key components of the model, are of interest to any medical educator seeking to advance the use of technology in medical education.
Why participants should come to the demonstration: Participants should come to the demonstration to learn about the collaborative development model in depth, and to discuss application of the model in other settings in medical education.

2Z3

Blogging for bones

J Dent, J Smith and N Lafferty (University of Dundee, Centre for Medical Education, Dundee, UK)*

Short description of innovation: Second year students were supported during the 4-week musculoskeletal course by a new e-learning resource Blog. This interactive, multimedia website was hosted by Wordpress.com. Two orthopaedists, trained by an IT specialist to administer the site, made 46 posts, filtered 94 incoming comments and answered student questions. Nineteen categories were created including, X-rays, clinical problems, fractures, self-assessment questions and useful websites and references. Links to the password-protected university VLE allowed podcasts, PowerPoint presentations of lectures and videos demonstrating joint examination to be accessed.
The opinion of 109 students to the innovation was assessed by audience response system to 13 questions plus free comments.
What will be demonstrated: 1) Construction of the categories to support the musculoskeletal course. 2) Integrated learning opportunities. 3) Design and discussion of X-ray and case presentation problems. 4) SAQs and their answers. 5) Links to related websites.
What is particularly interesting about the innovation/How could it be implemented? A Blog to support student learning can be created with minimal IT knowledge. Over 3000 hits were recorded in four weeks. There was a demand for more SAQs, clinical management problems and annotated X-ray and anatomy images. 58% appreciated opportunities to ask questions.
Why participants should come to the demonstration: Any course provider could create an innovative, multimedia, interactive resource to support student learning which requires only minimal technical support.

2Z4

It's virtually a bug's life!

Alan Gilchrist, Janette Moyes* and Barbara Findlay* (Medical Education Centre, Western General Hospital, Edinburgh, UK)*

Short description of innovation: In Edinburgh University, Year 1 students choose from a selection of topics during their Student Selected Component. We invited a random group of these students to review Second Life as an approach to learning about infection control.
What will be demonstrated: We will demonstrate how IT support can facilitate clinical skills education. Second life will be shown in real time so that you can visualise how the students used their creativity to build a virtual environment world. Some of the possible media learning tools which can be used in second life will guide you through videos, galleries, and snap shots showing how the students developed their ideas.
What is particularly interesting about the innovation/How could it be implemented? Second life provides an alternative approach to today's students familiar with online social networking. It encourages collaborative learning in a safe environment and facilitates self assessment and reflective learning. With funding, Second Life has the potential to provide a multi-centred, multi-disciplinary approach.
Why participants should come to the demonstration: By bringing you into Second Life we would like to show you how interested students respond when they are given the freedom to develop innovative ideas. This demonstration will attract those interested in exploring how to use information technology to address patient safety in education.

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SESSION 3

3A Symposium: Advances in understanding self-assessment

Panel: Joan Sargeant (Dalhousie University, Canada); Kevin Eva (University of British Columbia, Canada); Carol-Anne Moulton (University of Toronto, Canada); Robert Galbraith (National Board of Medical Examiners, USA)

There has been much discussion pertaining to whether or not learners and professionals can indeed accurately self-assess. Such discussions have been clouded by the variable interpretation and use of the term self-assessment. In this symposium we will distinguish between three conceptualizations of self-assessment: (1) self-assessment as a personal unguided reflection on performance; (2) informed self-assessment as a dynamic process of accessing, interpreting and responding to data; and (3) reflection-in-action and self-monitoring in practice. We will briefly synthesize recent research around each conceptualization, propose practical implications for education and practice, and engage the audience in a discussion of implications and directions for further research.

3B Symposium: Some developments in medical education

This symposium will look at two initiatives which are part of the EU-funded MEDINE2 Thematic Network:

Part 1: Changes relating to the Bologna Process
Panel: Madalena Patricio (AMEE) (Chair); Olle ten Cate (Netherlands); Manuel João Costa (Portugal); Christian Schirlo (Switzerland); Claire de Burbure (Belgium)

Part 2: Curriculum Trends in Europe in the 21st Century
Panel: Ronald Harden (AMEE) (Co-Chair); Madalena Patricio (AMEE) (Co-chair); Rayenne Dekhinet (AMEE)

3C Short Communications: Continuing Professional Development 1

3C1

Turning the tables: When students teach professionals

S Amanali, A Andersson, S Carrera Löhr, Z Eliasson, H Eriksson, A Erlandsson, S Goobar, J Holm, C Johansson, E Langendahl, A Lindberg, J Lundin, C Savage, U von Thiele Schwarz and A Uhrdin (Medical Management Centre, Department of Learning, Informatics, Management & Ethics, Karolinska Institutet, Stockholm, Sweden)*

Background: Is it possible to increase the value, meaningfulness, and relevance of an undergraduate nursing course by more closely integrating it with the students' future workplace? Can we align teaching with health care so that students learn AND contribute at the same time?
Summary of work: Students in a five-week leadership and education course were offered the opportunity to create e-based continual professional development (e-CPD) courses for nurses specialists. The experience was evaluated in terms of: 1) student self-reflections on the learning process, 2) student self-assessed outcome achievement, and 3) relevance of the e-CPD courses as perceived by the hospital.
Summary of results: Thirteen students created three e-CPD courses. The task of designing, creating and producing the courses provided a concrete experience upon which the students met and exceeded course outcomes. Students regained their confidence and courage to lead, as shown in their reflections and demonstrated by the positive response to their courses.
Conclusions: Students can contribute products which meet the needs of health care and in so doing develop their own competencies. To do that, we let the students become the teachers and create courses in collaboration with and for their supervisors.
Take-home messages: Students are a resource.

3C2

Power, empowerment and voice - supporting patients with learning disabilities

A Gisvold (Kent, Surrey and Sussex Postgraduate Deanery, London, UK)*

Background/Summary of work: The MENCAP "Death by Indifference" Report and the Government's Response "Valuing People", highlighted that Patients with Learning Disabilities have a range of needs - particularly in their interactions with healthcare workers in primary and secondary care contexts, but rarely have clinicians received any formal training as to how these needs might be best met. The "Supporting Patients with Learning Disabilities Programme" has been developed to support the practice of doctors to enable improvements in patient care. This paper reports the beginning phases of this initiative taken by the Kent, Surrey and Sussex Deanery.
Summary of results: A key goal of this project has been the development of workshops which include a presentation from a service user with learning disabilities, discussions around the Mental Capacity Act and obtaining consent, the risk of diagnostic overshadowing and how the voices of the service users, carers and clinicians can be heard equally. Early results indicate that clinicians welcome the opportunity to engage with the initiative to gain confidence in communicating with these often doubly disadvantaged individuals.
Conclusions/Take-home messages: Supporting postgraduate doctors in developing their knowledge and understanding of Patients with Learning Disabilities will deliver improved patient care.

3C3

Finnish web-platform for documenting and assessing continuous professional development

J Patja and T Litmanen (The Association for Continuous Professional Medical Development in Finland (Pro Medico)*

Background: High quality health care requires skilled professionals. As medicine develops fast, documenting and assessing professional's development becomes essential. Web-technologies provide a flexible way to unite multiple methods into one solution. Work environment is a major learning environment. Assessment systems can be linked directly into quality work and personnel management.
Summary of work: A web-platform for reporting and assessing CPD is being constructed in collaboration with Healthcare Centre of Helsinki. It includes a web-platform for documentation and a tool for comparing patient data with systematic evidence based medicine data and giving proposals for quality improvement. System will recommend training from electronic CME calendar. The platform will form a data source for organisations

providing versatile information on performing, and more importantly on core competencies of the organisations. Framework is based on supporting professional development and adult learning in the working environment. Practice solutions, technology and user interface are shown in more detail.
Conclusions/Take-home messages: In the long run, this system is potentially an important part in ensuring quality of the Finnish health care. Advantages are numerous: individuals are the main targets, but data formed can be used in anonym groups for quality work of organisations.

3C4

Annual survey of doctors' CPD in Sweden

H Hjelmqvist and T Stenhaugen (Swedish Medical Association, Stockholm, Sweden)*

Background: The Swedish Medical Association has for the last five years conducted an annual survey of doctors' training. The study has included 7% of the specialists, with a response rate between 77%-85%. The Medical Association's policy states that each specialist should attend at least 10 days yearly in external training and at least 4 hours/week, to in-house training and self study.
Summary of work: Survey results show that Swedish doctors last year had 8.3 days in external training and 2.8 hours of in-house training and self study. A major problem is that the possibility of training is closely linked to its funding, where doctors in specialties such as general medicine, psychiatry and geriatrics are getting significantly less training than the more well-funded specialties. A worrying trend also is that more doctors in recent years are not able to dedicate any time for in-house training /self studying. In everyday clinical practice there is a positive trend with many doctors saying that they are having a positive learning environment and annual development discussions with their managers.
Conclusions/Take-home messages: When there is a competition for time and resources, doctors' training is threaten. The need for training must be clarified and communicated to those responsible for the health care.

3C5

Implementing practice change: What educational methods are effective?

A Jefferies and V Shah (Department of Paediatrics, Mount Sinai Hospital, University of Toronto, Canada)*

Background: Educating busy clinicians about practice change requires methods that engage and motivate. We examined which educational tools were effective.
Summary of work: A multifaceted approach was used to educate clinicians about new recommendations for management of infants at risk of sepsis. Educational tools included seminars, web-based tutorial, handouts, pocket cards and web-based management algorithm. Seminar attendees completed feedback questionnaires that included 3 questions assessing knowledge of the recommendations. After 3 months, an electronic survey containing the same questions was sent to 41 staff physicians and trainees. Compliance with the recommendations was assessed by chart audit.
Summary of results: Ninety-two seminar participants completed questionnaires. Content was helpful to 97% and 88% were comfortable using the recommendations. Response rate for the 3-month survey was 71%. The most frequently used and useful tools were pocket cards (85%) and seminars (75%); 77% continued to use the card. Only 1 respondent used the web tutorial and 4 used the algorithm. There was no significant difference in percent correct responses to the questions between the 2 timepoints ($p>0.05$). Compliance with the recommendations was 83%.
Conclusions: Pocket cards plus seminars were useful and effective educational methods producing good knowledge retention. Self-directed web-based modules were rarely used
Take-home messages: Simple, readily available tools seem preferable for busy clinicians.

3C6

Emergency competencies at primary care settings: physicians and nurses point of view

Alessandra Bassalobre Garcia, Marília Angelina Ferreira Papa, Paulo Marcondes Carvalho Junior (Marilia Medical School, Brazil)*

Background: Primary care units are one door for the health system in Brazil. There physicians and nurses need to see its ascribed community. This includes emergency procedures, until other care facilities could be called. Our school uses these basic units to train medical and nursing students in a competency-based model.

Summary of work: We used a questionnaire with closed and open-ended questions. These were sent to 58 professionals from all 29 Family Health Care Units at the city.
Summary of results: From population, 65.5% answered the questionnaire. Almost half percentage considers their unit as not prepared to care emergency patients, besides 81% consider themselves prepared to do so. Only half pointed correct answers on open questions. 76% refer lack of necessary equipments for emergency care. Almost all (92%) refer no participation on continuing education process on the subject area.
Conclusions: We found divergences between what professionals say they do and what they really know and can do. There is a lack of knowledge on specific content.
Take-home messages: There is a need on continuing education about emergency medicine at primary care units in our city and this can occur in other places.

3C7

Describing the learning climate of training general practices - a learner's perspective
Sharon Wiener-Ogilvie and Victor Smith (NHS Education Scotland, General Practice, South East Scotland, UK)*

Background: The learning climate in health related educational environments is an important concept that is known to have an effect on key outcomes such as learner satisfaction, stress and attitudes to learning. There have been few attempts to describe the learning climate of training for General Practice (GP) and to date none have been linked to quality management of GP training.
Summary of work: Objective: To provide a description of the learning climate in GP training practices. 67 GP trainees in south east Scotland took part in 7 focus groups to discuss what constituted aspects of their experience of GP training. Interviews were transcribed and analysed qualitatively to identify themes. The themes were validated by an independent GP educationalist.
Summary of results: Five themes were identified: 1) issues relating to the training practice, 2) issues relating to the GP trainer, 3) issues relating to learning, 4) issues relating to stress, 4)issues relating to tutorials
Conclusions: GP trainees identify many intangible aspects of their training practice, such as relationships within the practice, flexibility of the practice to trainees' needs, and issues such as autonomy. Existing quality management systems often measure tangible criteria, such as evidence of teacher development. They must be developed and refined if they are aiming to capture the learning climate from the learners' perspective.
Take-home messages: What this study adds: A description of a learning climate (GP training practices) from the perspective of the learners. This could be used to inform a learner-centred and evidence-based system of quality management.
Suggestions for further research: The themes could be developed into a learning climate tool.

3D Short Communications: Clinical Teaching 2: The Context of Clinical Teaching

3D1

Opportunities not challenges – Setting up a clinical skills lab in Malawi
J Coupe (University of Bradford, Nursing Division, Bradford, UK)*

Background: This paper will discuss the opportunities and challenges of setting up a Clinical Skills Laboratory, single handed, at the College of Medicine, University of Malawi. Whilst on holiday last September in Malawi, I was invited to come back early in 2010 to work as a volunteer at the Medical School, to assist with the development of the facility. I was granted 6 months sabbatical from my post in the UK. Malawi is one of the poorest countries in Africa. Its population is 14 million and it is anticipated to increase to 40 million over the next 30 years!
Summary of work: The curriculum is based on an integrated and problem based learning model. The entire curriculum is taught in English. I gained an insight into working in a different cultural setting, in a developing country, with limited resources and having to "make do". I was challenged by the very different work ethic. Some of these challenges were more than compensated for by the friendly people, enthusiastic students and the rich patient resource that their UK counterparts can only read about in text books.
Summary of results: At conference, this paper will draw further on these points.
Conclusions/Take-home messages: There were no challenges, only opportunities!

3D2

'Trochars No More': Addressing national skills needs through shared e-learning resources

Janet Skinner, Jeanette Stevenson, Andrea Baker, Jean Ker, Anna O'Neill, Jerry Morse, Sarah Race and Lisi Gordon (Clinical Skills Managed Educational Network, Scotland, UK)*

Background: The Clinical Skills Managed Educational Network (CS MEN) forms part of the Scottish Clinical Skills strategy (NES 2007). A questionnaire of remote and rural practitioners, a scoping exercise and patient safety reports all identified training in chest drains as a priority learning need.
Summary of work: In response, the CS MEN developed an evidence-based multi-professional clinical skills pack. This e-learning resource encompasses all aspects of chest drain management, both pre and in-hospital. The interactive pack is used to deliver chest drain training on the mobile clinical skills unit. Standardised workshops and assessments have been developed and the pack is available on the NHS shared e learning platform. Evaluation has been through the use of semi structured questionnaires.
Summary of results: Evaluation confirms that the chest drain pack is a valuable resource and has been widely used to deliver skills training. Feedback from all professional groups is positive.
Conclusions: In response to national clinical skills needs and patient safety issues shared clinical skills packs and workshops, supported by a mobile unit, can be utilised to deliver clinical skills training to a range of practitioners.
Take-home messages: Shared e-learning resources may be an effective way of addressing clinical skills needs.

3D3

Clinical experience during psychiatry placement for undergraduate medical students: How does it link to their performance in examination?

Daniel Tai-yin Tsoi (Nottinghamshire Healthcare NHS Trust, and University of Nottingham, Division of Psychiatry, Nottingham, UK)*

Background: Gaining experience in clinical settings and from patients is important in the undergraduate medical curriculum. It remains unclear whether students with more clinical experience during their psychiatry placement perform better in their examination.
Summary of work: 162 fourth-year undergraduate medical students from the University of Nottingham were asked to record their clinical experience during their 6-week psychiatry placement. These experiences included the number of patients the students had seen and discussed with staff, as well as the number of clinical activities they had attended. This data was compared with the results of the students' summative assessments (a knowledge examination and an Objective Structured Clinical Examination [OSCE]).
Summary of results: The number of patients the students had seen showed a significant positive correlation with the scores of their knowledge examination (Pearson coefficient [r] = 0.24, p = 0.002) and of their OSCE (r = 0.22, p = 0.006). In contrast, the number of clinical activities the students had attended did not have a significant correlation with the performance of their knowledge examination and OSCE.
Conclusions: Seeing more patients, rather than attending clinical activities, may enhance students' performance in their examinations.
Take-home messages: Providing opportunities for medical students to see more patients is helpful for their learning.

3D4

Undergraduate out of hours experience – does it prepare medical students for the real thing?

K High and W Watson* (University of Aberdeen, Division of Medical and Dental Education, Aberdeen, UK)*

Background: Tomorrow's Doctors 2009 states that final year medical students should have the opportunity to rehearse their eventual responsibilities as a foundation year one (F1) doctor. We aimed to evaluate the effectiveness of undergraduate out of hours experience in preparing students for life as an F1 doctor and to help inform change in our undergraduate curriculum. We aimed to evaluate the effectiveness of undergraduate out of hours experience in preparing students for life as an F1 doctor.
Summary of work: An anonymous questionnaire was delivered to F1 doctors based in the North of Scotland Deanery.
Summary of results: 67 F1s completed the questionnaire. 57 had experienced undergraduate 'out of hours work', mainly by shadowing the F1 doctor and as an attachment to the Hospital at Night team. 33/57 felt

their undergraduate experience had prepared them for out of hours work as an F1. The number of sessions worked significantly affected this result. Those not prepared suggested further 'out of hours' opportunities.
Conclusions: Different experiences were gained by students in 'out of hours' attachments, with the overriding theme that the more sessions experienced, the more they felt prepared for 'out of hours' work as an F1 doctor.
Take-home messages: More 'out of hours' sessions with formal objectives and learning outcomes should be offered to final year medical undergraduates.

3D5

Triadic interaction in bedside teaching encounters in primary care: A video-observational study in Australia
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Background: Previous research has explored the doctor-patient-student interaction during bedside teaching encounters (BTEs) in UK hospital settings. To our knowledge, no research has been conducted to explore this triadic interaction during BTEs in the primary care setting.
Summary of work: This study addresses the question: what is the flow of talk among doctors, patients and students during BTEs in primary care? We are videotaping BTEs in primary care settings in Australia and audio taping de-brief interviews with all participant groups immediately after the BTEs. Data from 3 of 12 planned BTEs have been collected and preliminary thematic and discourse analyses has begun.
Summary of results: Preliminary analyses suggest that despite this being an inherently triadic encounter, the majority of interaction within the BTEs is dyadic. When the focus of the encounter is on patient care, the patient is commonly involved but the student excluded and when the focus shifts to student learning, the student is commonly involved but the patient excluded.
Conclusions: So far, the GP directs the flow of interaction within the BTE in a dyadic fashion depending on the role adopted (i.e. teacher or clinician).
Take-home messages: We encourage GPs to increase the amount of triadic interactions during BTEs and we provide recommendations about how this may be achieved.

3D6

The demoted apprentice - undergraduate clinical placements within the changing NHS
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Background: Concerns about the state of junior doctor training in the UK are well documented. 1 "The main problems are lack of confidence and competence in clinical-decision making, clinical procedures and prescribing (...), lack of understanding of the NHS and how it works". 2 Our research focused on the 'firm', i.e. the site and mechanism through which apprenticeship-style teaching was delivered. Despite its centrality, the concept has remained under-explored within the literature. Our research asked: What was the firm? How has it changed? What is the impact on undergraduates?
Summary of work: One-to-one semi-structured interviews with 34 clinicians were conducted, transcribed and analysed thematically by the team (ethics nr: SOMSEC028.09).
Summary of results: The European Working Time Directive, in conjunction with the changes to junior doctor training have severely weakened firm structures with shift-working delivering the final blow. The 'absence' of junior doctors has resulted in a loss of continuity for patients and undergraduates and thus threatens apprenticeship-style learning.
Conclusions/Take-home messages: With the disruption of the firm structures, undergraduates have lost their main access point, mentor and guide on the wards. Structured teaching sessions ensure their instruction, but remove them from everyday practice. On ever-shorter attachments, ever-larger teams become impenetrable. Increasing numbers of sub-specialties hinder satisfying teaching relationships. In this context undergraduates struggle to demonstrate their engagement; they are effectively demoted to the sidelines.

3D7

Improvement of undergraduate clinical education in Lao PDR: From central hospitals to provincial hospitals

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Background: Health human resource development in Lao PDR has quality issue on the lack of clinical teaching skills and quantity issue of the low number of medical doctors, especially in the provinces. In January 2010 University of Health Sciences in Lao PDR decided to send medical students to four provincial hospitals to tackle the increased number of medical students.
Summary of work: Project Team of Japan International Cooperation Agency has conducted two two-day faculty development (FD) workshops each in four provincial hospitals to promote 1) team formation of students, residents and teachers, 2) job description of each level, 3) scheduling of round and conferences, and 4) clinical teaching skills. FD activities were evaluated by interviews from students, residents, and teachers in three provinces.
Summary of results: All medical students enjoyed MTU because of more case experiences than central hospitals. FD made all the provincial teachers more confident for clinical teaching. Minister of Health, Lao PDR, declared that fulfillment of MTU system would solve health human resources in the community.
Conclusions: Training management system of team approach, job description and scheduling with clinical teaching skills helped improve health human resource development system.
Take-home messages: Undergraduate clinical training management system should be verbalized to disseminate to the provinces especially in developing countries.

3E PhD Reports 1

3E1

Unravelling learning by doing: A study of workplace learning in postgraduate medical education

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Introduction: Despite major reforms, medical specialist training still mainly consists of learning on the job, where residents progressively take on more responsibility for patient care. The current literature provides only limited insight into what 'learning by doing' actually means. Therefore, the central research question of this PhD-thesis was: how do residents learn in the medical workplace? This thesis was successfully defended in 2009 and reports on a line of programmatic research projects. It has resulted in five publications in peer-reviewed journals, e.g. ref 1. The presentation will focus on its most important findings and on how interdisciplinary research has contributed to the results.
Methods: Reviews of the relevant medical education and psychological literature provided the basis for four empirical studies. Two qualitative studies used a 'grounded theory' approach to explore residents' and clinical supervisors' perspectives on how residents learn. A subsequent experimental study investigated how context can influence residents' learning. The theoretical foundation for this study came from the social psychology literature on category accessibility. Psychological literature on feedback-seeking informed an investigation of how situational and personal factors influence residents' feedback seeking behaviour. 'Structural equation modelling' was used to analyse the hypothesised relations between variables.
Results: The qualitative studies resulted in an initial framework of residents' learning processes. It shows that participation in work-related activities is pivotal. The social processes of interpreting situations and constructing meaning will lead to a resident's evolving abilities to perform. The social psychological study showed that context can influence a resident's interpretations of a situation by activating mental concepts which in turn affect how residents' experiences. The research on feedback-seeking behaviour showed that residents with the goal to learn from their experiences perceive more feedback value and fewer costs, and therefore ask for feedback more often. Attending physicians' supervisory style also influences the value and costs of feedback as perceived by residents.
Discussion and conclusion: This thesis offers a framework of 'learning by doing' that starts to clarify how residents learn in the workplace. It can help researchers identify new research areas while building on existing insights of learning in the workplace. The results make clear that understanding workplace learning requires an

understanding of the interaction between personal attributes of learners and the tasks and contexts in which they participate. To improve postgraduate medical education, learning opportunities and outcomes should be made more explicit.

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3E2

Self-assessment in general practice trainees: insights into the profession and its postgraduate training

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Introduction: General practice has produced new definitions of its tasks and implemented specialised postgraduate curricula. We explored the results of these endeavours by examining the perceptions of the next generation of general practitioners (GPs). In order to frame our questions, we developed a model of self-assessment as a multilayered construct from the global notion of self-concept, to self-perceived competence, self-monitoring, and metacognitive regulation[1]. Research questions addressed three levels of self-assessment:
1. Professional identity: How do GP trainees envision their future role?
2. Self-perceived competence (SPC): Do GP trainees feel prepared to practice autonomously? What are the determinants of SPC?
3. Metacognitive regulation: Do trainees possess adequate levels of usable (i.e. certain) knowledge? Are they able to assess their knowledge appropriately?

Methods: Study 1 (professional identity and SPC framed as self-efficacy beliefs): We conducted 5 focus groups in Belgium and France with 28 participants. Transcripts were analysed by immersion crystallisation. Study 2 (SPC and metacognitive regulation): We conducted a cross-sectional study of 127 postgraduate trainees in Belgium. Trainees assessed their competence in four clinical domains using ordinal scales and sat a written test on these domains. Confidence judgements were elicited for each test item.

Results: Study 1: Trainees' descriptions were consistent with new definitions. Initially low self-efficacy beliefs usually increased through experiences of success, positive feedback and sharing anxieties with peers. A few trainees developed avoidance strategies, continued to display low self-efficacy beliefs and envisaged leaving the profession.
Study 2: Depending on the domain, 20.5-76.4% of trainees described their competence as good or very good. Number of patient contacts and on-call duties were not linked to higher SPC, nor was postgraduate year. Men were more likely to feel competent (OR 1.2-6.1). SPC was not correlated to test scores. The average proportion of knowledge that was usable (i.e. assigned a high degree of certainty) was 36.6%. The average proportion of ignorance that was hazardous (i.e. assigned a high degree of certainty) was 14.3%. These were not linked to test performance.

Discussion and conclusion: New definitions are being embodied by future GPs. Most trainees feel confident enough to practice autonomously. There are however concerns about those who do not. Volume of practice does not seem influential. The impact of low SPC on future practice requires longitudinal studies. Self-assessment ability is low even at the specific level of test response confidence judgement. Teachers should be aware of the partial nature of much knowledge and of the significant amount of misconceptions.

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3E3

Outcome-based Continuing Medical Education - an intervention to improve rational prescribing

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Introduction: The concept of outcome-based education (OBE) could be more effective than traditional methods to improve continuing medical education (CME) programmes. OBE can influence the entire process of education: decisions about the content, formulation of aims, educational strategies, teaching methods, assessment procedures, and the educational environment. We have evaluated the effectiveness of OBE in CME on "Rational prescribing" and how it impacts the prescribing practices of general physicians in primary care (GPs) in Iran.

Methods: Cluster randomized controlled design. Outcome-based educational indicators were identified using a two-round Delphi consensus process, and submitted to panels of experts for assessment and determination of the curricular content. GPs working in six cities in one province were invited and 159 agreed to take part. The cities were matched and randomly divided into an intervention arm for the OBE programme, and a control arm for a traditional programme on rational prescribing. The GPs' knowledge and skills were assessed using a questionnaire and their prescribing behaviour evaluated through collected prescriptions, nine months before, and three months after the programmes. All nine trainers and 12 GPs (out of 58) in the intervention arm were interviewed. Content analysis was applied to explore their views.
Results: Twenty-one learning outcomes were identified and combined in six educational topics: Principles of prescription writing, Adverse drug reactions, Drug interactions, Injections, Antibiotic therapy, and Therapy with anti-inflammatory agents. In total, 112 GPs participated in the programme. There were significant improvements in knowledge and prescribing skills after the training in the intervention arm, with an overall intervention effect of 26 percentage units. The GPs in the intervention arm significantly reduced the total number of prescribed drugs and the number of injections per prescription. They increased their compliance with requirements for a correct prescription, in particular explanation of specific time and manner of intake and necessary precautions, with intervention effects of 13, 36 and 42 percentage units, respectively. The GPs stated improved knowledge and skills to a higher extent than after previously attended programmes. The trainers emphasized the effect of OBE on their educational planning, teaching and assessment methods, while the GPs' challenge was how to adapt their learning in the real work environment considering social and economical barriers. Self-described attitudes changed towards more rational prescribing.
Discussion and conclusion: An outcome-based approach in CME was well accepted and effective when creating programmes to improve GPs' competence and performance. An OBE approach is strongly recommended to achieve higher effectiveness of CME programmes.
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3E4

The power of prepositions: Learning with, from and about each other

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Introduction: The Centre for the Advancement of Interprofessional Education in the UK has provided us with the most widely used and commonly accepted definition of interprofessional health education (IPHE) internationally. "… learning with, from and about each other to improve collaboration and quality of care" (CAIPE, 2001) has become an interprofessional mantra but in practice, what does it mean? This doctoral research study focused on two questions: (1) What does learning with, from, and about other health professions mean in interprofessional health education, and (2) How is it articulated and operationalized in the context of curriculum design?
Methods: This presentation uses the findings from this research study to describe differences among learning with, from and about from both student and faculty member perspectives. A mixed methods approach was used to try to determine a more explicit understanding of learning with, from and about each other. Data from focus groups held with students and faculty members were analyzed using thematic analysis and an electronic survey was used to corroborate, or not, the themes derived from the qualitative data. The qualitative and quantitative data were triangulated with the literature to strengthen the application of the results of the study.
Results: Examples of important messages include the conceptualization of IPHE as a process that is both complex and gradual, the importance of planned and explicit integration into curricula, and the value of focusing IPHE in the practice setting. The importance of the patient and family, as anchors for effective interprofessional health education and for interprofessional collaborative practice, was reinforced. The prepositions with, from, and about were confirmed as complex. Words describing learning with, from and about each other are described along with specific characteristics of IPHE that were perceived as critical to its success as a form of pedagogy. The results of the study were used to propose a taxonomy for developing an IPHE curriculum using learning with, from and about each other as the foundation. The concepts of exposure (early introduction), immersion (practice in the clinical setting) and mastery (achievement of collaborative practice skills) are also introduced in the proposed taxonomy. The taxonomy itself and relevant examples of IPHE learning activities form part of the report.

Discussion and conclusion: Understanding a more detailed meaning for the prepositions with, from and about will help us to more effectively plan, implement and evaluate interprofessional health education. The proposed taxonomy provides a framework for strategically embedding IPHE into health professional curricula.
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3F SHORT COMMUNICATIONS: OSCE: Psychometrics

3F1

Onward and upward from the great exhibition: Aspects of sequential testing

G Pell, R Fuller and M Homer (Medical Education Unit, University of Leeds, UK)*

Background: In AMEE 2009, we considered the theory of regression towards the mean and its implication on underperforming OSCE candidates, concluding that traditional models of remediation and re-test did not lead to long term improvement in performance. We theorised that sequential testing models, with a full year repeat and bespoke support package for failing candidates would better deal with performance.
Summary of work: Analysis of OSCE performance over a 5 year period, and the modelling of sequential testing to underperforming (borderline or worse) candidates to explore impact on number of students and overall cost
Summary of results: X% of candidates would be examined using a sequential test model for underperformers with a longer OSCE. This could lead to shorter assessment for the majority of candidates, the length of which can be modelled with quality metrics. By employing a full year repeat for failing students in a longer test, this obviates the need for a separate, later resit, and this reduction in examinations carries significant cost savings
Conclusions: Sequential testing has a number of theoretical advantages, both fiscally and educationally, facilitating a cleaner model for student development.
Take-home messages: Detailed analysis of longitudinal student performance at the station level allows theoretical modelling of the impact of alternative methods to traditional remediation and retest for underperforming students.

3F2

The OSCE quality iceberg: 90% is hidden

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Background: Quality metrics are a central part of high stakes OSCE assessment. Measuring 'station-level' metrics permits deeper analysis of assessment performance and impact of quality improvement.
Summary of work: This work investigated the extent of station level error variance (variance due to factors other than student performance) and the impact of interventions to reduce this variance. Analysis of final year OSCE physical examination station metrics in 2006-2009 was undertaken. Error variance and R2 coefficient of determination were measured against a series of anticipated improvements
Summary of results: Despite acceptable reliability (cronbach's alpha) throughout this period, initial high levels of mean error variance (2006, 67%) were significantly reduced (2009, 8%), with accompanying improvements of R2 coefficient. Key successful interventions included checklist redesign and item 'chunking', improvements in assessor support and circuit layout.
Conclusions: High levels of error variance existed at station levels despite overall good assessment reliability. Interventions were designed to remediate effects due to assessors, stations and circuit design with significant and sustained reduction in error, and improvement in station level metrics.
Take-home messages: A single reliability metric may hide unacceptable quality within stations. However, focusing quality improvement at the station level will always lead to a good reliability metric.

3F3

The evolution of high stakes OSCEs using global ratings, key features and essential tasks

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Background: The Clinician Assessment for Practice Program (CAPP) assesses IMGs for direct entry into family practice using a 14 station OSCE, with Physician Examiners (PEs) who are active, experienced family physicians in urban and rural practice.
Summary of work: Intramural program research has focused on enhancing the validity of the OSCE for determining practice readiness.
Summary of results: Our data show the importance of PE overall global ratings and also PE global ratings of OSCE domains (e.g. history, diagnosis). PE station checklists for history and physical assessment have been removed but provide PEs use a template of expectations. Checklist items have been retained for the Clinical Decision Making domains along with their global ratings. OSCE blueprinting has been modified to incorporate key features and essential tasks (broadly based/generic actions important to comprehensive care). PE OSCE preparation includes scoring of an on-line case video with exam day group discussion of inter-rater variability.
Conclusions: Physician Examiner written comments and criterion referenced domain global ratings are essential in constructing the CAPP report which is provided to the licensing authority and the candidate.
Take-home messages: Since 2005 the CAPP has developed innovative approaches for blueprinting and scoring high stakes OSCEs to assess practice readiness.

3F4

The relationships between examinee use of time and global ratings on the USMLE Step 2 CS examination

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Background: During the USMLE® Step 2 Clinical Skills® (CS) standardized patient (SP) encounters, examinees have a total of 25 minutes to interact with the SPs and complete a patient note (PN). Examinees receive global ratings of spoken English and communication skills from SPs, and global ratings from physicians on PNs. It is of interest to see how examinees use their time throughout the encounter, and whether time use is related to performance on the rating scales.
Summary of work: Videos for 5792 first-taker examinees were reviewed and timing variables (e.g., history taking, providing closure, and overall encounter times) were created. Hierarchical linear modeling was used to investigate relationships between timing, examinee, and case/rater variables and communication, spoken English, and PN scores.
Summary of results: Examinees who spent more time with SPs providing closure obtained higher communication scores, but spending more time in the SP encounter was associated with lower spoken English ratings. Spending more time on PNs was not associated with a meaningful change in PN scores.
Conclusions/Take-home messages: Designers of clinical skills assessments should be attentive when assigning time limits to stations and components, and the relationship between examinees' use of time and performance is not necessarily obvious or direct.

3F5

Towards improving the standards in objective structured clinical examinations – The Aga Khan University experience

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Background: To improve OSCE reliability and implement standard-setting at AKU-Medical College, 7-point rating-scale with global-ratings was introduced after faculty development retreat and examiner orientation. This study was conducted to study error of measurement, correlate global-ratings with actual-scores, and compare AKU Passing-score (AKU-Ps) of 55% against scores derived using Borderline Standard-Setting Method (BM).
Summary of work: Results of fifteen-station Year 2 OSCE held in 2009 were studied. Reliability and standard error of measurements (SEM) were calculated. Global-ratings and station mean-scores were correlated using Pearson's Coefficient. Passing-scores identified using BM were compared to AKU-Ps.

Summary of results: Overall examination reliability was 0.66 and SEM 2.43. Reliability of different stations was 0.53-0.93 and SEM 3.03-4.90. Correlations of global-ratings to mean-scores were 0.59-0.94. BM produced passing-scores of 44-59% for different stations and overall passing-score of 50.85%. Using AKU-Ps and BM, station failure-rates were 5.3-69.1% and 5.3-42.6%, respectively; the overall OSCE failure rate was 13.8% and 3.2%, respectively. Students failing upto nine stations could pass the overall OSCE.
Conclusions: The reliability and SEMs were acceptable. Global-ratings correlated highly with actual-scores. AKU-Ps produced high failure-rates for OSCE stations. BM adjusted station difficulty to students' level, but allowed overall failure of upto nine stations.
Take-home messages: Non-compensatory standard-setting is essential to minimize false-positive decisions on overall OSCE. Moderate level of faculty development was sufficient to successfully implement 7-point rating-scale with global-ratings in OSCE.

3F6

Scores equated on high stakes OSCEs administered from 2006-2009 to determine shift in outcomes

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Background: OSCEs are an effective tool in the evaluation of clinical skills but their scores are susceptible to measurement errors. The purpose of this study was to examine the amount of variance and reliability of scores due to different facets within high stake OSCEs. Specifically, we compared exam difficulty and candidate ability across 4 administrations.
Summary of work: The OSCE scores of 161 candidates were included in this study. Each year consisted of 20 OSCE stations, in which three were deemed critical and 17 non-critical stations. Multi Facet Rasch Modeling (MFRM) was used as the statistical framework to analyze candidate ability, year difficulty, station difficulty, station type difficulty, and examiner stringency/leniency. Equating/standardization across the four years was achieved by placing all facets onto one scale. One universal MPL enabled candidate comparison of scores determines a shift in outcomes to a common pass/fail standard.
Summary of results: Of the total systematic variance, candidate ability accounts for 62%, 22% was due to differences in examiner stringency/leniency, and 14% was due to differences in station difficulty. If a universal MPL and candidate IRT scores had been used to make outcome decisions, there would have been a 9.3% shift in outcomes.
Conclusions/Take-home messages: It is recommended that MFRM be used to remove undesirable error variances from candidate observed scores. Equivalence and fairness would be attained by using a universal MPL that is compared to candidate IRT scores.

3F7

Using item analysis to improve the internal reliability of the Calgary-Cambridge communication medical student OSCE

T Donnon (University of Calgary, Medical Education Research Unit, Calgary, AB, Canada)*

Background: The Calgary-Cambridge guidelines provide a standard communication's checklist that is used with all pre-clerkship medical students in the Medical Skills course.
Summary of work: In this study, we used item analysis (difficulty and discrimination values) to assess the internal reliability of the 35-item OSCE content-specific and process-general checklist responses from all second year medical students (n=138).
Summary of results: Using difficulty criteria settings of between 0.25 to 0.75 and discrimination cut-offs of 0.40 or greater (excellent) and 0.30 to 0.39 (good) as criteria for item discrimination, we found that over half the items were at either the good (10 items) or excellent (9 items) discrimination values. Although all items discriminated positively, those items in the poor (0.03 to 0.14) and fair (0.15 to 0.29) range were reviewed for content and process relevancy. Removal of poorly discriminating items (7) improved the internal reliability of the checklist from 0.66 to 0.75.
Conclusions: The use of item analysis for evaluating the psychometrics of the communication OSCE checklist has merit for the post-examination review and determining the appropriateness of checklist items.

Take-home messages: Item analysis can be used to evaluate the internal reliability of OSCE checklists by eliminating poorly discriminating task-related items.

3G Short Communications: Training the Student and Junior Doctor as a Teacher

3G1

Introduction to pedagogy for medical students

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Background: In France, medical students are not shaped by pedagogy during their curriculum.
Summary of work: For the past two years, 3rd year medical students have been molded by pedagogy applied to individual and collective emergency situations.
Summary of results: Students learn to learn. They choose case studies, research information, argue and organize simulations with their peers and use different pedagogical techniques. They are evaluated by a portfolio and an interview with the teachers in order to readjust the teaching method
Conclusions: The early initiation to pedagogical techniques develops in the student a reflective attitude and the ability to empathize (to put oneself in the place of others: patient or other health professional). It gives the basis of communication for the relationship with the sick patient.
Take-home messages: This educational course diminishes the separation between student and professor and prepares the student to the relationship with tomorrow's patient who will be the activist of his health.

3G2

Teaching medical students to teach

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Background: Guidelines from the General Medical Council stress the importance of experience in teaching for medical students and junior doctors alike. Peer-led teaching is becoming an increasingly important component of medical education; however, formal preparatory training in teaching skills is seldom offered.
Summary of work: We developed a pilot teaching skills symposium for senior medical students. Twenty four 4th and 5th year students were recruited to attend, and a programme was devised to include lectures on topics such as lesson planning, clinical teaching, giving and receiving feedback; delivered by clinicians with training in medical education. These were followed by small-group sessions in which students could practice skills they had learnt by teaching each other prepared and unprepared topics, and receiving feedback. Anonymous questionnaires were completed by all participants.
Summary of results: Overall, 100% of responders agreed or strongly agreed that the symposium had been useful, and that their teaching skills had been improved. 96% of responders agreed or strongly agreed that they would recommend the symposium to other students.
Conclusions: Initial evidence shows that medical students find learning to teach and practice teaching sessions useful.
Take-home messages: Education in teaching skills can begin early in medical training.

3G3

How do medical students prepare as teachers?

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Background: Various studies from UK, Canada, US show the effectiveness of the programs mainly in the final year for preparing medical students to teach. Our previous study suggested some students want to complete the program even earlier in the undergraduate curriculum.
Summary of work: Before doing a clinical placement, we offered a 2-day elective program entitled "An Introduction to Educational Technique as a Basic Clinical Competence" to Japanese year-4 students in a six

year curriculum, and conducted a focus group for students who attended to explore their views on how well the course prepared them as teachers.
Summary of results: Analysis of the focus group data showed; the program inspired students' awareness of the importance of medical education, students want to have distributed "just-in-time" programs to prepare as teachers corresponding to their learning methods especially on clinical subjects, and the years of liberal arts are regarded as an inappropriate timing for the program to take place. Additionally, role model and teaching experiences stimulate intrinsic motivation to be teachers.
Conclusions: The focus group indicated the students' positive views of the possibility of placing the program in earlier stages such as pre-clerkship years.
Take-home messages: Students can start to prepare as teachers even before doing a clinical placement.

3G4

Residents as procedural teachers: impact on central venous catheterization skills

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Background: Impact of resident-teachers (RT) on learners' procedural skills is unknown. This study evaluated the effectiveness of RT teaching on central venous catheterization (CVC).
Summary of work: After 4 PGY-3 RTs attended a teaching workshop, each taught at least two CVC sessions to 22 PGY-1 learners. Two educators observed and gave feedback on RT teaching between sessions. Effectiveness of RT teaching was assessed by learner performance on CVC and learner rating of RT teaching using the Clinical Teaching Assessment Form (CTAF), (Irby, 1981). Learner performances pre and post-teaching were videotaped and evaluated by two attendings using a validated checklist
Summary of results: Learners' CVC performances improved from pre- to post-teaching (checklist score 37% +/- 24 vs. 84% +/- 11, $P<0.001$). Performance in learners did not differ between those who attended the session before the RT received feedback vs. after ($F=0.14$, $P=0.71$). Post feedback, compared with pre-, RTs were rated higher by learners on CTAF in being enthusiastic and stimulating, and providing feedback and direction ($P=0.02$ and $P=0.04$, respectively).
Conclusions: RT teaching of CVC was associated with objective improvement in learner performance. Feedback on teaching skills was associated with improved teaching assessment.
Take-home messages: Residents can be effective procedural teachers. Teaching skills are improved upon by observed teaching and feedback.

3G5

Utilising junior doctor led teaching for undergraduate education

L Rohman, S Keddie*, HK Hussein and M Piper (Wansbeck General Hospital, Ashington, Newcastle-Upon-Tyne, UK)*

Background: Junior doctors are under-utilised in Undergraduate Medical Education. Recent experience of finals examinations place them in an ideal position to assist students revise for exams.
Summary of work: Aims: 1) To cover key areas of the undergraduate curriculum. 2) Pass on tips and experiences of final examinations. 3) Help students understand the forthcoming transition from student to doctor. A five-week revision course, with two sessions per-week, was designed and delivered by junior doctors. An online forum supplemented the teaching, covering clinical cases and providing the opportunity for students to discuss the topics.
Summary of results: A qualitative survey was conducted. Students commented junior teachers pitched information at a more appropriate level, pointed out must-know topics and imparted useful tips for finals. Many reported the course prompted an earlier start of revision with a focus on important topics. Finally, students felt the course/support improved their perception of the hospital. The junior doctors reported they gained experience planning, preparing and delivering structured teaching sessions.
Conclusions: Junior doctors' recent experience of passing finals provides a unique understanding of students' revision needs when preparing for finals.
Take-home messages: Utilising juniors to teach final year students will aid students preparing for finals, augment the hospitals reputation and better integrate students into their firms.

3G6

Distinction in Medical Education: Training students in educational scholarship

Norma Saks (Robert Wood Johnson Medical School, Piscataway, NJ, USA)

Background: The Distinction in Medical Education Program (DIME) was implemented in 2007-08 as an enrichment program to train and recognize medical students who participate in teaching and curricular development. DIME prepares students to teach, to engage in educational scholarship, and promotes careers in academic medicine.
Summary of Work: Requirements include completion of two medical education electives, teaching experience, and completion of a scholarly project. DIME projects are mentored, and judged according to standards by a faculty committee.
Summary of Results: The qualifying elective has enrolled 94 students; 18 have completed the elective. Twelve submitted applications for DIME. Two completed scholarly projects and graduated with Distinction in Medical Education in May, 2010.
Conclusions: Challenges addressed regarding the DIME Program: (1) Student perceptions about rigor, and what it takes to plan and complete a scholarly project; (2) Identifying core and non core experiences in the DIME elective; (3) Recruiting faculty to mentor students, develop electives, etc.; (4) Determining criteria for judging scholarly projects. Faculty are working together to assure success and continuation of the project.
Take-home message: DIME is gaining in popularity as a program for students interested in teaching and careers in academic medicine.

3H Short Communications: Integrating Anatomy and Clinical Teaching 1

3H1

The relationship between anatomy and clinical skills performance of junior medical students

S Schoeman (University of the Free State, Dept of Internal Medicine, Bloemfontein, South Africa)*

Background: Across the world there is an increasing trend towards integrating the teaching of Anatomy and Clinical Skills in undergraduate medical curricula. This was the first study which investigated the relationship between students' competence in Anatomy and their proficiency in Clinical Skills
Summary of work: Three cohorts of junior medical students, 538 in total, were investigated using a correlational research method. Their summative exam performance data from Anatomy's assessments and Clinical Skills OSCE stations over the first two academic years were collated and analysed. In addition, to investigate the influence of students' academic ability, a locally available marker, the Overall Cohort Mark (OCM), was employed as well. Correlations between Anatomy and Communications Skills were used as a control measure in this study.
Summary of results: Anatomical competence correlated weakly to moderately with Clinical Skills proficiency and not at all with Communication Skills. The academic ability of students had a major effect on the correlation between Anatomy and Clinical Skills.
Conclusions/Take-home messages: In this early phase of a student's medical training, the relationship between anatomical ability and Clinical Skills proficiency is minimal and once academic ability is controlled for, the relationship is virtually zero.

3H2

Integrating the preclinical years in the medical curriculum: Experience at the Universiti Teknologi MARA

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Background: Much emphasis has been placed on integration of the curriculum. This has become a priority, particularly as we plan to review the curriculum in light of the recommendations of the Malaysian Qualifying Agency report.
Summary of work: Prior to the review process, a questionnaire and a mapping template were distributed to the subject and module coordinators. This process helped in identifying key principles addressed in each module and mapping the curriculum in these years. During the curriculum review workshop the principles for the integration process and the educational principles were discussed. Task groups representing each module

and subject representatives together with the chair of Medical Education Research and Development Unit worked together to develop the contents and the teaching and learning for each module. These curricular contents have been reviewed at Task Group and Curriculum Committee levels.
Summary of results: The integration of the curriculum is based on identifying learning outcomes of each module and clustering the integration around a "theme" highlighted for each week by using a spiral curriculum design, students were able to revisit concepts learnt in year 1 about a particular body system again in year 2.
Conclusions: Mapping the contents of years to be integrated is vital for guiding this process and highlighting key principles in each module. Reviewing the proposed design at different levels helps in achieving optimum outcomes.
Take-home messages: Integration of the curriculum should be based on educational principles.

3H3

Competency-based integrated practical examinations: bringing relevance to basic science laboratory practical

R Shafi, K Irshad and M Iqbal (Shifa College of Medicine, Islamabad, Pakistan)*

Background: The practical examinations in subject based curriculum have been criticized for lack of relevance and clinical application. We developed competency-based integrated practical examinations (IPEs) for first two years incorporating basic science principles with clinical relevance in our integrated curriculum.
Summary of work: IPEs were developed according to competency-based blueprinting for each integrated module. Clinical scenarios were used as triggers followed by tasks pertaining to laboratory tests, relevant physical diagnosis and ethics/professional aspects utilizing standardized patients. Checklists were developed for standardized marking. A feedback questionnaire and two focus group discussions were administered to a random group of students from both 1st and 2nd year students. Faculty members' feedback was also recorded on a questionnaire.
Summary of results: Almost all the students agreed that IPE was a useful experience. 89% agreed that it was a fair examination and elicited less degree of psychological stress. 82% agreed that IPE encouraged critical thinking and application of knowledge. However students suggested better organization and longer duration of stations. Faculty members also liked the experience.
Conclusions: Integrated practical examinations were well received and valued both by students and faculty members.
Take-home messages: Implementation of competency-based integrated practical examinations provide clinical context to basic science learning.

3H4

Realisation of the clinical relevance of anatomy: students' perceptions before, during and after clinical rotations

Esther M Bergman, Cees P M van der Vleuten and Albert J J A Scherpbier (Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, The Netherlands)*

Background: Previous research has shown that students at all stages of their medical education view anatomy as a very important subject for their clinical studies. However, advanced clerks have shown a relatively more positive attitude towards the basic sciences (including anatomy) than beginning clerks.
Summary of work: To clarify the influence of clinical experience on the student's perception of the clinical relevance of anatomical knowledge, we conducted focus groups with students that had variable clinical experiences.
Summary of results: Medical students agree that anatomical knowledge is very important for many different aspects of their future profession. However, for students with no clinical experience the importance seems also to be strongly connected to the severity in which it is assessed. True realisation of the importance does not seem to be reached until a student is actually participating in the clinic.
Conclusions: For students, relevance and importance of anatomy can be two different aspects. Perceiving the relevance is not always enough for students to be continually interested in studying the subject.
Take-home messages: This research is yet another indication that vertical integration of anatomy education is highly desired, as students' intrinsic motivation for this subject grows with increasing clinical experience.

3H5

The use of videos to aid self-directed learning and improve understanding of living anatomy

Gabrielle M Finn[1], David Cox*[2], Michael Northend[2] and Fiona Curtis[1] ([1]Durham University, School of Medicine and Health; [2]University College London, Medical Education, UK)*

Background: Medical students complain about a lack of access to the dissecting room for self-directed study. This, coupled with staff commitments, means that the opportunity to consolidate learning outside of timetabled teaching is troublesome. Whilst there are a plethora of online resources available which demonstrate anatomy using cadavers, few emphasise living anatomy to facilitate students' understanding of the clinical context.
Summary of work: A series of videos emphasising living, clinical and functional anatomy, as well as relevant clinical examinations were produced on the lower limb. These videos were made by students, for students and content was checked for accuracy by faculty. Projections of the Virtual Human Dissector™ onto volunteers were also incorporated into the videos to improve anatomical understanding in relation to surface anatomy.
Summary of results: Evaluation of the videos as a learning resource and revision aid is currently underway. We will present quantitative and qualitative data to show students perceptions of videos highlighting living anatomy.
Conclusions: E-resources provide an alternative when access to laboratories is restricted as they can be accessed at any time.
Take-home messages: Videos based around living anatomy allow students to appreciate the clinical context of the anatomy they are learning.

3I Short Communications: Curriculum Implementation in Action

3I1

Introducing aspects of quality assurance into the curriculum transformation process

M Kayyal (University of Damascus, Syria)*

Background: The University of Damascus is the oldest and largest university in Syria. In 2006, it embarked upon a major change process with a re-developed Mission and a Strategic Plan.
Summary of work: The adopted approach focuses on curriculum reform. It envisages the formation of a curriculum transformation committee; elaboration of trends and future directions; curriculum mapping; and incorporation of modern teaching, learning and assessment techniques. The process is informed by stakeholders' consultations, and is accompanied by capacity building programme. A key aspect of the process is the introduction of elements of quality assurance in order to ensure that the desired outcome is achieved efficiently and effectively. Elements of quality management systems, such as commitment of faculty and university administrations to curriculum transformation; provision of resources, training and necessary expertise; determination of stakeholders' requirements and dissemination of findings thereafter; and application of suitable methods for monitoring, analysis and improvement of the transformation sub-process, are introduced.
Summary of results: In this paper, details of implementation of these elements are presented in two pilot faculties (Medicine and Dentistry) in an attempt to illustrate the importance of incorporating quality assurance into the curriculum transformation process, and their importance on fulfilling the expectations of stakeholders and for achieving planned results.

3I2

Curricular change in a developing country medical school: Some organizational change lessons

Melchor Sánchez-Mendiola, Irene Durante-Montiel, Sara Morales-López, Rogelio Lozano-Sánchez, Adrián Martínez-González and Enrique Graue-Wiechers (UNAM, Secretaría de Educación Médica, México)*

Background: Curricular change is a complex endeavor that medical schools traverse to reach the institutional mission and vision. Change process is fraught with challenges and opportunities, and requires strategic planning to achieve a successful outcome. UNAM Faculty of Medicine in Mexico is the largest medical school in Latin America, with more than 15,000 students and 3,000 professors. Our medical school undergraduate curriculum has remained essentially the same since 1993, so a curricular revision was deemed necessary.

Summary of work: After four years of intense discussion and high-quality work by several committees, a standoff was reached where the proposal appeared incompatible with the institutional resources. A regrouping of the curriculum task force using published evidence on curricular and organizational change was initiated, focusing on the medical school strengths, culture and organizational structure.
Summary of results: In less than a year a major curricular reform was designed, including several novelty elements (generic outcome competencies, intermediate progress testing, new courses) but retaining components that took advantage of our institution's positive qualities and resources. This new curriculum went through several iterations and passed all the University committees approval, and will start implementation this year.
Conclusions: Major curricular change is a complex challenge in traditional medical schools. It requires long term vision, participative leadership, innovative teamwork strategies, and a diffusion of innovations conceptual framework to increase the chance of success in the intricate systems of modern universities.
Take-home messages: Curricular change needs careful planning, use of published evidence and cognizance of local factors.

3I3

Sustainable and significant improvements in students' academic performance in the basic sciences as a result of program modification synergy

H Yoshida and R J Testa (American University of the Caribbean School of Medicine, St Maarten, Netherlands Antilles)*

Background: Institutional success includes formulating goals related to an institution's mission and developing assessment benchmarks to gauge progress. Improving educational outcomes in a medical school requires addressing the complex system of multiple, essential components of our programs and their interdependence. In systematically improving our educational outcomes, we have used periodic institutional assessment coordinated with several targeted interventions.
Summary of work: We have witnessed dramatic and sustainable improvement in our students' academic performance over the last 6 years by making concurrent modifications of five major components of the program: 1 Curriculum, 2 Students, 3 Faculty, 4 Student services and supporting programs, 5 Policies.
Summary of results: The students achieved a 60 - 65% improved 1st time pass rate as well as an increased mean score of the USMLE Step 1 by 28 points on a 3-digit scale since 2003 to 2009 through the evolutionary modifications of the program.
Conclusions: The multiple component modifications of our medical education program helped students' performance effectively and synergistically.
Take-home messages: It is not only a curricular change to make effective and successful academic progress on the students' performance, but also concurrent modifications of each component of the medical education program.

3I4

An iterative approach to developing a new undergraduate medical curriculum: A grand day out

P Burns and Jo Hart* (University of Manchester, Manchester Medical School, Manchester, UK)*

Background: A wholesale curriculum review at Manchester University included visits to ten medical schools.
Summary of work: An initial model was compared and reviewed during and after each visit. A set of questions, sent in advance, guided discussions and highlighted good practice, innovation and lessons learned by other schools. Post-visit review of innovations and lessons learned were adapted to our local context. Observations of cultural, environmental and educational differences were made.
Summary of results: A strong sense of willingness to share and collaborate was found. Recognition of the success and challenges faced by other schools heightened and accelerated reflection and modelling of our curriculum. Many similarities were found in vastly different curricula e.g. a systems-based approach and movement to a 'middle ground' between traditional and enquiry-based methods, driven by outcomes-based regulation. Clear differences in culture and ethos were noted.
Conclusions: We hypothesise that openness, honesty and willingness to critically appraise a programme is a marker of its success. It's not clear where a school's culture and ethos comes from – the leader, the university, the students or the city.

Take-home messages: Openness and honesty may enhance quality. Reflection on a programme with members of another institution is mutually beneficial. How a positive medical school culture is established needs further investigation.

3I5

Communication and PBL: An interpretative analysis of verbal interaction in group meetings

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Background: In education there has recently been a shift from teaching to learning. The interest in student-centered approaches to teaching, e.g. problem-based learning, has increased since small group communication can serve as a tool for reflective learning. The purpose of this study was to analyze student-student and tutor-student interaction as learning resources during PBL-meetings.
Summary of work: PBL sessions with 6-8 students and a tutor in a pre-clinical course were recorded, transcribed into verbatim protocols, and analyzed with reference to: 1) PBL-work procedures; 2) interaction patterns; 3) students' verbal activities; 4) characteristics of tutor speech.
Summary of results: The analysis showed that students and tutor followed standard PBL-procedures. The discussions were distinctly collaborative, and there were cumulative and explorative contributions. Cognitive conflicts emerged and were solved. Most of the interactions were between students, and the tutor intervened infrequently. The tutor drew upon expertise in formulation of questions, and the tutor also engaged the students in reflecting on the function and significance of their contributions.
Conclusions: Student contributions lead to joint construction of the reality they sought to understand. The students were able to direct the studies and the discussions in order to suit their own learning needs.
Take-home messages: Students can take advantage of the PBL-process for learning with peers.

3I6

What level of attitudes towards PBL can be explained by self-regulated learning skills?

S Turan and A Konan (Hacettepe University, Department of Medical Education, Ankara, Turkey)*

Background: The aim of this study is to investigate relationship between students' attitudes to problem-based learning (PBL) and the self-regulated learning strategies they use.
Summary of work: The study was conducted with 4th phase students (309 students). Participation rate was 94%. Motivated Strategies for Learning Questionnaire (MSLQ) and an attitude scale to the PBL was used. The relationship of the MSLQ score with attitudes to PBL score was analyzed with multi-linear regression analysis.
Summary of results: The sub-dimensions of motivations indicate a meaningful relationship at moderate levels with attitude scores ($R=0.59$, $R2=0.34$, $p<0.001$). According to the standardized regression coefficients, the most important sub-dimension relative to attitude is task value. The sub-dimensions of learning strategies, indicate a meaningful relationship at moderate levels with attitude scores ($R=0.50$, $R2=0.25$, $p<0.001$). According to the standardized regression coefficients, the most important sub-dimensions relative to attitude are metacognitive, time management and organization strategies, respectively.
Conclusions: When students' attitude level increase their beliefs about importance of the course content ($r=0.44$) and the use of metacognitive ($r=0.14$), time management ($r=0.14$) and organization strategies ($r=0.12$) increase, too.
Take-home messages: Developing positive attitude is important for value attributed to the task and uses the learning strategies for learning this task.

3J Short Communications: Management and Leadership Education

3J1

Making leadership education happen: A participatory action research approach to change

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Background: There is great hope within the field of medicine that focuses on developing all doctors as leaders is key to achieving improvements in patient experience, care and safety within today's NHS.

Summary of work: Through gathering together a group of 'leadership champions' (managers and clinicians) from each hospital trust the KSS Deanery has begun to develop regional and local communities of practice, which are focused on translating national policy into change in practice, so as to raise the profile and effectiveness of leadership education for all doctors.
Summary of results: Leadership Champions have worked at a variety of levels to integrate leadership development in the enacted postgraduate medical curricula. These include:
1) developing infrastructure within local education providers. 2) managers and consultants working together to open new leadership learning opportunities for trainees. 3) trialing the adaptation of existing work-place based assessments to foreground leadership development. 4) providing education for trainers in how to integrate leadership development into the ways they already teach and assess trainees within the clinical setting.
Conclusions: Developing leadership education by simply making changes to the written post-graduate medical curricula will not work. Bringing about this change can only occur by preparing and engaging educators who work in the local setting.
Take-home messages: Ensuring that leadership development for all trainees does not remain a paper change in the official curriculum, but actually makes a difference to what goes on within the enacted curriculum only be achieved through multi-pronged approach, working from the practice of teaching and learning in clinical settings upwards.

3J2

A systematic review to explore what is known concerning the knowledge, skills and attitudes of medical students regarding leadership and management.

M Abbas, T Quince and J Benson (University of Cambridge, General Practice and Primary Care Research Unit, UK)*

Background: This systematic review aims to provide evidence to inform curriculum development in leadership and management by reviewing what is known concerning the knowledge, skills and attitudes of medical students regarding leadership and management.
Summary of work: We searched major electronic databases and citation indexes within the disciplines of medicine, education, social science and management. We undertook hand searching of major journals, and reference and citation tracking. We accessed websites of UK medical institutions and contacted individuals working within the field.
Summary of results: 34 studies were included. Most were conducted in USA, using only quantitative methods. Five main content areas were identified. Students have poor-midrange baseline levels of skills and knowledge. Students have positive attitudes to multidisciplinary teamwork but mixed attitudes to managed care. Education interventions had positive effects most frequently on students' knowledge. Effects on attitudes were variable. Medical students perceive a need for leadership and management education but identified lack of curriculum time and disinterest as potential barriers to implementation.
Conclusions: The findings from our review likely reflect the relatively little emphasis given to leadership and management in medical curricula. However, students recognise a need to develop leadership and management competences, and our review suggests education interventions can be effective in improving knowledge, skills and attitudes.
Take-home messages: There is a growing acknowledgement of the need for medical students to develop leadership and management competences. This systematic review provides evidence to inform curriculum development in this developing field of medical education.

3J3

No relation between Emotional Intelligence and leadership style in Medical Education managers

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Background: Emotional Intelligence is a subject considered more and more in management and leadership. Some studies show its role in leadership style especially in change-making leadership style. The aim of this study is to assess this relationship in medical education managers because of the importance of change-making leadership style in medical education reform.

Summary of work: 57 medical education managers in educational hospitals in Ghazvin, Iran were included. Leadership style was assessed by Varner questionnaire which consider two styles of leadership and emotional intelligence by H Visinger questionnaire which has five dimensions.
Summary of results: Mean Score of emotional intelligence was 35.1 (SD=8.5) and mean score of change making leadership style was 27.6 (SD=4.3) which revealed that most of educational managers have change making leadership style. But there were no significant relation between emotional intelligence and its 5 dimensions with leadership style.
Conclusions/Take-home messages: Despite much attention to emotional intelligence in leadership, it seems that in medical education managers, it is not a matter to be considered in managers' empowerment for change making leadership. But since emotional intelligence could be learned and improved, larger studies are suggested to better assess this relation.

3J4

A qualitative assessment of a modular leadership training program

L J Miedzinski and J Charles Morrison (University of Alberta, Department of Medicine, Edmonton, Canada)*

Background: In 2007, the University of Alberta, Department of Medicine developed a facilitated leadership training program with eight 2 hr non-sequential seminar sessions. An initial assessment was positive with unexpected benefits including development of "community".
Summary of work: Structured interview surveys of year 2 faculty attendees and matched non-attendees assessed the program's value, explored non-attendance, and solicited career development (CD) needs.
Summary of results: Eighteen of 26 second year registrants participated with all ranks represented equally. The arrangement of 2 sessions per month on different days at different times was endorsed. Session length and seminar style were deemed appropriate. The highest ranking module was "emotional intelligence". The highest ranking CD need was "change management". "Conscious planning and execution of tasks" with "more reflection" were reported. Greater session focus and task orientation was recommended. Of 19 matched non-attendees, 17 were aware of the program, 5 found times inconvenient, and 4 felt confident in their skills. Their highest ranking CD need was "time management".
Conclusions: Administrative education appears valued with benefits beyond skill development.
Take-home messages: Physicians will attend "time compact", non-sequential courses. Peer mentoring appears a byproduct of adults learning new skills together.

3J5

Dutch Medical Residents' perceptions of the need for management education in the revised postgraduate medical curriculum

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Background: The Dutch postgraduate medical program has been revised to focus on seven professional competencies. The role as manager is one of these competencies and is thought to receive less attention during the training. The aim of our study was to investigate whether there is a need for training in management skills among Dutch medical residents and ways of developing this competency during training.
Summary of work: We designed a survey to investigate resident's perceived needs for health care management training. We used a 20-item questionnaire to investigate the preferred management topics, timing, location and duration of the training. 506 residents from different specialties in four Dutch hospitals participated in the web-based survey.
Summary of results: The response rate was 31.2% (n=158). 84% of the respondents perceived a need for management training, 49% felt the attention for management tasks was insufficient. Preferred topics for the training included contract negotiation (71%), career building (58%) and knowledge of the Dutch health care system (57%). The preferred training method was a workshop (83%) given by a medical specialist (84%). The preferred timing of training was during residency (93%).
Conclusions/Take-home messages: Dutch medical residents perceived a need for training in medical management competencies, preferably as a workshop during the period of their residency program.

3J6

Medical education accreditation in the Philippines: Impact on student outcomes

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Background: Despite the prevalence of accreditation systems worldwide, little research has focused on the relationship between medical school accreditation and student outcomes.
Summary of work: Since 2003, the Philippine Accrediting Association of Schools, Colleges and Universities (PAASCU) is responsible for the voluntary accreditation of Philippine medical schools. Graduates seeking to enter training programs in the United States must be certified by the Educational Commission for Foreign Medical Graduates (ECFMG®). Certification requirements include passing USMLE® Step 1, Step 2 Clinical Knowledge (CK) and Step 2 Clinical Skills (CS). We investigated USMLE performance of Philippine-citizen, ECFMG applicants based on medical school PAASCU-accreditation status.
Summary of results: From 2003 – 2009, 2,688 Philippine applicants applied for an exam leading to ECFMG certification. Of these applicants, 1,909 attended 8 PAASCU-accredited or candidate for accreditation schools and 779 attended 25 non-accredited schools. Applicants from accredited or candidate schools were almost twice as likely to pass USMLE Steps 1 and 2CK on the first attempt as compared to applicants from non-accredited schools.
Conclusions: This study lends support to the value of PAASCU accreditation.
Take-home messages: A system of quality assurance of medical education can help ensure the production of highly skilled physicians. Further research is necessary to determine the impact of accreditation aspects and other extenuating factors.

3K Short Communications: The Student in Difficulty

3K1

Factors associated with medical student distress: A cross-sectional study

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Background: Factors associated with medical student distress are poorly understood. This cross-sectional study evaluated the prevalence of anxiety, depression and burnout in one Medical School and investigated associations with personal, academic, social and economic factors.
Summary of work: This was a cross-sectional study of undergraduate medical students (N=465; 84% response rate) representative of all classes. Depression, anxiety and burnout were assessed, respectively, with the Beck Depression Inventory, State Trait Anxiety Inventory and Maslach Burnout Inventory. Statistics: ANOVA and t-tests used for pair wise comparisons; Logistic regressions evaluated associations between factors and distress.
Summary of results: The prevalence of depression was 21.5%. Levels of state ($p<.001$) and trait anxiety ($p<0.001$) and depression ($p<.01$) were highest in women. Students in clinical training presented higher levels of exhaustion ($p<.001$) and lower levels of efficacy ($p<.001$) than others. Dissatisfaction with social support or academic performance were factors associated with higher levels of anxiety ($p<.001$), depression ($p<.001$), exhaustion and cynicism ($p<.001$), and lower levels of efficacy ($p<.001$). Negative personal life events and perceived hassles were associated to different dimensions of distress.
Conclusions/Take-home messages: A multitude of factors showed significant associations with undergraduate medical student distress. Women and students in the clinical years of the curriculum have higher levels of specific distress dimensions.

3K2

Trainees in difficulties – is the NACT categorisation useful in Denmark?

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Background: Trainees in difficulties are a serious problem in postgraduate medical education. It involves the trainee, the department giving education and the department responsible for planning specialist training.

Summary of work: In 2009 the Department for Postgraduate Medical Education in Region of Southern Denmark registered 34 trainees being in some kind of difficulty. These difficulties were categorised in the following five groups in accordance with guidelines from NACT (National Association of Clinical Tutors UK): Clarifying expectations, environmental issues, personality and behavioural issues, sickness/ill health and clinical performance. Due to the problems identified each case was categorised to one or more of these groups.
Summary of results: 12 trainees completed training, 13 trainees were still in training and 9 trainees had interrupted at end of study period. Categorisation will be presented.
Conclusions: 18 trainees got training extended, 7 of these did complete training, 2 completed after specific supervision, 3 after transfer to another department. 13 trainees are still in extended training including specific supervision and for 1 trainee a language course and 9 trainees interrupted their training.
Take-home messages: It is possible to categorise educational difficulties in accordance with NACT guidelines, we expect the categorisation to support problem solving for trainees in difficulties in the future.

3K3

Fitness to practise begins in medical school: Developing processes to manage the parallel issues of support, progression and documentation for students experiencing difficulty

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Background: Medical schools around the world are becoming clearer about what it means to be a physician. We have a duty of care to both students and their future patients to ensure that graduates are equipped not only with knowledge and skills but are fit to practise in the widest sense. A small number of students struggle and there are strong links between performance, professional behaviours and health and well-being. Regulatory bodies have clearer expectations of student conduct and in Australia have legislated for early notification of impaired students.
Summary of work: The Sydney Medical School identifies impaired students and students with professional behaviour issues in the wider context of students who may benefit from support and remediation be they distressed, unwell, display unprofessional behaviours, be disruptive or fail to progress. Student issues are often self limiting and contextual but can indicate a concerning pattern that may impact in their capacity to meet fitness standards set by the licensing authorities. The need for individual remediation, documentation and tracking is essential for managing students in difficulty.
Summary of results: The presentation opens a dialogue about parallel processes for early identification, sport, documentation, protection of privacy and monitoring of the struggling or disruptive and the impaired student.
Conclusions: Students with serious difficulties will have a history of isolated incidents which when looked at together indicate a need for management and support. The challenge is to 'join the dots' whilst protecting privacy
Take-home messages: Fitness to practice begins in medical school.

3K4

Physiological and psychological responses to stress in year 6 medical students faced to ambulatory symptomatic patients in Internal Medicine

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Background: In France, a few medical schools give the pre-graduate students the possibility to solve clinical problem in an ambulatory setting.
Summary of work: The objective of this work was to compare stress responses in students faced to symptomatic out and inpatients. Participants were asked to solve a clinical problem during consecutively (1) a time-limited consultation in an ambulatory setting and (2) a time-unlimited consultation within their usual hospital setting. Physiological and acute psychological responses to stress were assessed by salivary cortisol measurements and by the Spielberger questionnaire whereas cognitive response to stress was estimated according to Tomaka's method.
Summary of results: On the first included students, a significant increase is found in the Spielberger score in the ambulatory setting as well as in the cortisol measurements, whether tests are performed before (4,15+/-

2,12 vs. 2,54+/-0,84 ng/mL) or after the consultation (4,17+/-1,53 vs. 2,22+/- 0,72 ng/mL) ; p<0.001. Moreover, in that setting, stress is clearly experienced as threatening rather than challenging.
Conclusions: Before September, we will be able to complete the study (60 students expected) in order to report the final results performing a statistical analysis according to the different groups (setting, gender, order of the consultations).
Take-home messages: Solving a problem in an ambulatory setting represents a high source of stress for medical pre-graduate students

3K5

Case-Based Learning: early identification of 'at risk' learners and provision of on-line support.
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Background: In assessment of performance in Case-Based Learning (CBL) tutors provide six-weekly assessments for students. Staff also use these to identify students 'at risk' of poor performance. On interview, a number of these appear to lack competency in Knowledge-Base and Reasoning.
Summary of work: A pilot study assessed whether providing a proforma for developing strategies, with on-line tutor support, would assist these students' performance. Ten 'at risk' students entered this 12-week support program. Nine used the proforma. Six also used the on-line tutor.
Summary of results: All ten students improved their performance. Feedback indicated nine changed their preparation methods through use of the proforma. The tenth became more active in CBL as a result of the interview alone. Of the six who used the additional online tutor, four found it too time-consuming; two very helpful.
Conclusions: Interviewing 'at risk' students and providing clear strategies made a difference. Using the proforma also helped: those students spent more time analyzing their researched information, were better prepared and better able to demonstrate their reasoning. The on-line tutor may only be necessary in the initial phase.
Take-home messages: Early intervention for students with Knowledge and Reasoning problems assists improved CBL processes and performance.

3K6

Quality of life, daytime sleepiness and burnout in medical residents of a teaching hospital
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Background: Medical residence has several factors of stress that may affect the physical and mental health, quality of life (QoL) and professional performance of the resident.
Summary of work: We applied a self-evaluation score of QoL, the WHOQOL – brief questionnaire of QoL, the Epworth daytime sleepiness scale and the Maslash burnout inventory to 136 residents.
Summary of results: The grades given to QoL in the residence were lower than the grades of QoL in general (6.1±1.6 vs 6.6±1.8, p<0.001); 76% of the residents had pathological scores of daytime sleepiness, mainly women in the first year of residence. Considering burnout analysis, we found high levels of emotional exhaustion and depersonalization, with moderate levels of feelings of inefficacy. A negative correlation between the scores of the Epworth scale and the four domains of the WHOQOL–brief and the self-evaluation of QoL was observed. There was a positive correlation between daytime sleepiness scores and the amount of working hours (p=0.001).
Conclusions: Medical residency may decrease substantially the quality of life of medical residents.
Take-home messages: Burnout levels and daytime sleepiness are high among residents and may be associated to low levels of quality of life.

3L Short Communications: Teaching and Learning

3L1

Combining problem based learning and team based learning: The Sharjah model for guided discovery learning
H Hamdy, E Agamy and N Abdelkhalek (University of Sharjah, College of Medicine, Sharjah, United Arab Emirates)*

Summary of work: In Problem Based Learning (PBL), it was assumed that lectures should not be given. This misconception led to the description of some PBL curricula as "Hybrid" because some lectures were given. The College of Medicine at the University of Sharjah implements an Outcome Based, Integrated, PBL curriculum. Over the last four years, Team Based Learning (TBL) was introduced as an additional learning strategy which guides student learning while maintaining the principles of small group learning.
Summary of results: In this communication, we describe the Sharjah PBL/TBL model for Guided Discovery Learning and its implication on the curriculum organization, content, students' and faculty roles and student assessment.
Conclusions: TBL complements PBL as a good model for guided discovery learning.
Take-home messages: TBL can be combined with PBL in different learning settings.

3L2

Using team-based learning (TBL) to teach clinical hematology to enhance active learning and critical thinking in large group sessions

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Background: TBL promotes students' active participation and knowledge sharing, even in large-group session. The purposes of this study are to examine the effect of teaching clinical hematology using a TBL method on students' learning performance and satisfaction, and to evaluate how much objectives were achieved.
Summary of work: TBL was implemented in two sessions of the Health and Disease of Adults and Elderly course for the 4th year medical students of year 2008 (n=132) and year 2009 (n=141). Each session consisted of 38-50 students with single tutor. The questionnaire with 5-scale Likert-type response and open-ended questions were used as reflection tool.
Summary of results: Cronbach coefficient ranged .888-.953. Students reflected positive attitudes (range 4.10-4.39) on group discussion, team-working, learning atmosphere, knowledge application and critical thinking skill. Overall satisfaction was favorable (mean 4.35). Also, all of objectives were reached (range 3.94–4.20). With TBL exercises, team scores were significantly higher than individual scores. Pre-class preparation and group give-and-take interaction are main factors affecting the effectiveness of TBL.
Conclusions: TBL is a promising approach to provide better learning performance and outcomes for students. It focuses on application of knowledge to solve problem.
Take-home messages: TBL can foster active learning and critical thinking in large class. It emphasizes student accountability, group process, and knowledge sharing.

3L3

Factors influencing seminar group learning in the undergraduate curriculum

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Background: Many medical and veterinary curricula use small instructional formats such as seminars. A seminar involves a group of 25 students discussing assigned readings and questions under supervision of a content-expert, in order to achieve interactivity and deeper learning. However, this goal is often not reached. Purpose of this study was to assess students' perceptions of factors influencing seminar group learning, so that deeper learning in a small group format can be enhanced.
Summary of work: The study is executed in an integrated veterinary curriculum. Twenty-one Year 2 students participated twice in three structured focus groups to discuss factors influencing seminar group learning.
Summary of results: Factors important for seminar group learning and in need of improvement were the schedule's rhythm, the relation between different instructional formats within the schedule, the amount and presentation of self-study materials, group size, students' behaviour and the way teachers' behave in supervising the seminar.
Conclusions: The results give rich information in order to translate to possible interventions to enhance seminar group learning.
Take-home messages: Students have clear ideas about what promotes and disturbs deeper learning during seminars and should be heard to enhance deeper learning during a small group format.

3L4

Learning plans: Tool for supporting self-regulated learning

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Background: Self-regulation is key to professional competence. Cleveland Clinic Lerner College of Medicine uses learning plans (LPs) throughout medical school to help students develop habits of reflecting on multi-source feedback to self-assess learning needs and develop learning goals. Learning goal outcomes are assessed at the next LP submission to build in accountability.
Summary of work: Five classes of students and their advisors completed questionnaires about learning plans. Descriptive statistics and the Wilcoxon signed rank test were used to examine and compare student perceptions over time. Interviews with advisors were analyzed to provide insight into their role and perception of the value of LPs.
Summary of results: Over 80% of students and 100% of advisors agreed that LPs focused on important goals. From year 1 to year 2, students found assessment evidence gave them fewer insights about strengths and weaknesses and were less positive about the value of learning plans ($p<.05$). Advisors reported that they acted as facilitator, coach and a reality check and that LPs provided a road map and continuity of focus for learning.
Conclusions: LPs are an effective learning tool for supporting self-regulation.
Take-home messages: Combining advising with LPs helps students develop habits of reflection and self-regulated learning skills.

3L5

Applications of cognitive load theory in medical education

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Background: Cognitive Load Theory (CLT) develops instructional design guidelines based on a model of human cognition. Three types of load are: Intrinsic load, which is a function of task complexity and learner expertise; extraneous load, which is a result of superfluous processes not directly contributing to learning, and germane load, which is directly caused by learning processes.
Summary of work: A systematic review of applications of CLT in the field of medical education was conducted.
Summary of results: Applications are found for visual representations (animations, 3D images) and simulation training. The use of guidelines to decrease extraneous cognitive load, such as integrating information sources and using multiple modalities, is prominent in the design of visual representations. The use of guidelines to lower intrinsic cognitive load, such as simple-to complex ordering and working from low to high fidelity, is prominent in the design of simulations. Examples of guidelines to optimize germane load were not found.
Conclusions: Applications of CLT in medical education are beginning to appear, especially in the design of visual representations and simulations.
Take-home messages: CLT is relevant to instructional design issues in medical education but up till now it is not used to its full potential.

3L6

Logging and Learning; a comparison of the roles of electronic and paper logbooks

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Background: Electronic and paper-based logbooks may be used by faculty to structure the content of clinical experiences required by undergraduate medical students and by the students themselves to record their clinical encounters and provide a resource for learning.
Summary of work: A study was made of the use of electronic logbooks in the Rural Clinical School of Western Australia and of paper-based logbooks in the University of Dundee medical school, UK.
The study seeks to answer the questions: What is the role of logging in the curriculum? What supplementary purpose may it have? What issues does its implementation raise? What are student perceptions of logging?

Summary of results: The contribution of the logs to each curriculum and the issues related to implementing and running an e-Log or paper-based logging system are discussed. Student perceptions of logging are reported and comparisons of each approach are made.
Conclusions: Logging can play a role in structuring students' clinical encounters. It can be used to monitor clinical exposure and learnings. Both electronic and paper logbooks may pose implementation problems. However, student appreciation may be warmer than expected.
Take-home messages: Both electronic and paper based logbooks provide a way of structuring students' clinical encounters, a record of their clinical experiences and a source of reflective learning.

3M Research Papers: Learning Outcomes / Patient Safety

3M1

How well are the CanMEDS roles implemented in postgraduate specialist training?

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Introduction: Many countries are reforming postgraduate specialist education according to the concept of the CanMEDS roles (Medical Expert, Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional). Several studies report on challenges and problems related to interpreting the concept and translating it into concrete teaching, training and assessment in clinical practice[1]. A national reform in Denmark introduced the CanMEDS roles back in 2000. The Danish National Board of Health is responsible for the quality assurance of postgraduate education. This includes regular inspection of clinical departments hosting specialist training. The research questions were: How well are the CanMEDS roles implemented across hospital specialist training programmes? How do inspectors support the implementation?
Methods: All inspection reports from 2005 to 2009 were analysed. These reports include a quantitative scoring on issues related to teaching the roles. Reports also include a qualitative text part where the inspector comments on strengths and weaknesses and gives recommendations for improvement. Quantitative scoring of the roles were analysed using t-test. Two researchers performed content text analysis in order to identify current themes. All texts were coded and issues relating to overall categories were rated regarding strength and frequency of appearance.
Results: 297 inspector reports were included. On a 4-point Likert scale the roles scored: Medical Expert: mean 3,2 (SD 0,6), Communicator: mean 2,7 (SD 0,6), Collaborator: mean 2,8 (SD 0,6), Health Advocate: mean 2,5 (SD 0,7), Manager: mean 2,4 (SD 0,6), Scholar: 2,9 (SD 0,6) and Professional: 3,0 (SD 0,5). The role 'Medical Expert' was rated significantly higher than any other roles. 'Manager' and 'Health Advocate' received the lowest ratings. The texts were mainly descriptive and quite vague. Comments frequently related to 'Communicator', 'Manager' and 'Scholar'. The roles of 'Communicator, Collaborator, Manager, Scholar, and Professional' were often handled en bloc and the text seldom provided in depth considerations or concrete ideas for improvement. The role of Health Advocate was often neglected.
Discussion and conclusion: Results demonstrate that 'Medical Expert' are higher on the agenda than the other roles. However, despite rating roles as insufficiently taught, inspectors did not provide concrete recommendations of improvement. Aspects of other roles may lie implicitly in teaching medical expertise. Yet, also the inspectors might lack qualifications regarding how to apply these roles in a clinical context. It is increasingly recognised that the CanMEDS concept should be perceived holistically rather than disintegrated[2]. Hence, confining rigidly to the framework is a challenge when studying how well roles are taught and assessed.

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[2]Zibrowski EM, Singh SI, Goldszmidt MA, Watling CJ, Kenyon CF, Schulz V, Maddocks HL, Lingard L. The sum of the parts detracts from the intended whole: competencies and in-training assessments. Med Educ 2009;43:741-8.

3M2

Integration of core competencies in daily supervision: An action-research in a family medicine residency program

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Introduction: The development of professional competence is the main goal of residency training; core competencies (CC) encompass medical expertise but also include communication, professionalism, and so on. Daily supervision is the most commonly used teaching and learning method in the clinical setting but the literature provides little information on useful strategies to encourage the development of CC through supervision. Therefore we decided to undertake an exploratory study to describe if and how competencies are addressed during daily supervision in a family medicine residency program, and to identify factors influencing their integration.
Methods: We selected an action-research design to engage participants in actively exploring their actual precepting practices, in a constructivist inquiry. Eleven volunteer faculty and 6 residents from a large multi-center family medicine residency program took part in a 9-months long process, which included 3 focus-group encounters, alternating with data gathering during supervision. This iterative process allowed for progressively deeper problem definition. We used mostly qualitative methods for data collection and analysis, with thematic content analysis, triangulation of sources and of researchers, and member-checking.
Results: Participants, both residents and faculty, realized that they addressed during daily supervision all of the core competencies listed as program outcomes, but implicitly, intuitively, often unconsciously and superficially. We identified in their practices a series of factors that influenced the discussion of core competencies: a) CC must be both known and valued in order to be addressed during supervision; b) Discussion of CC happened in a constant adaptation to numerous contextual factors, such as time constraints or residents' characteristics; c) Integration of CC during supervision was influenced by six challenges in the preceptor – resident interaction, such as identifying strategies to find common grounds, and adoption by residents of an active stance; d) Coherence with other elements in the curriculum and amongst preceptors contributed to the integration of CC during supervision. There were some differences between residents' and preceptors' perspectives on these issues.
Discussion and conclusion: This is the first descriptive study focusing on core competencies during daily supervision, and it included both residents' and preceptors' perspectives. Content and process issues were equally important in facilitating or hindering the discussion of CC versus limiting the dialogue to low level immediate medical expertise. We identified strengths and obstacles, as experienced in ambulatory care settings in a family medicine residency program. This led to a representation of factors determining the integration of CC in supervision, and suggests directions for faculty development and for interventions with residents, for further enhancement of CC through supervision.
Kilminster SM, Cottrell D, Grant J, Jolly B. AMEE Guide No. 27: Effective educational and clinical supervision. Medical Teacher 2007; 29: 2–19.
Wolpaw TM, Wolpaw DR, Papp K. A learner-centered model for outpatient education. Acad Med 2003;78(9):893-98

3M3

Emerging themes in patient safety education: An evaluative case study
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Introduction: To Err Is Human: Building a Safer Health System was a resounding indictment of the educational preparedness of health professionals in the United States. The Association of American Medical Colleges posited that reforming medical education to address safety and quality presents a challenge to medical educators because the shortcomings which must be addressed are deeply entrenched in the tradition and culture of institutions composing the medical education system. This evaluative case study explored the following research questions: 1) how did a two week patient safety course bridge the identified gap in patient safety education? and 2) how did the training influence participants' knowledge, skills and attitudes regarding patient safety and quality?
Methods: Participants included students enrolled in their final year of medical school. Quantitative data were collected through the Health Crew Management Attitude Questionnaire (HCMAQ) and analyzed using descriptive and inferential statistics and a paired t test. Qualitative data were collected utilizing focus groups, managed by NVivo software, and analyzed to determine patterns and themes common within the participant attitudes, perceptions, and the influence of learning on behavior.
Results: Significant improvements occurred in 6/25 summary scores of the HCMAQ; 5/25 items approached significance. The qualitative and quantitative perception data were merged. Themes identified were: (a) importance of patient safety topic, (b) relevance of course content, (c) existence of individual responsibility, (d) medical errors system and individual based, and (e) importance of teamwork. Notably, 89% of the students indicated the course influenced them to take responsibility and become involved in patient safety work in their medical practice. Participants described the course as a "revelation" as they had previously been tasked

primarily with learning basic science, disease diagnosis and treatment, and had essentially been unaware of the patient safety crisis.
Discussion and conclusion: Health care offers astounding advances in technology and treatment, but is overburdened by inefficiencies, errors, resource constraints, and other issues that threaten the safety of patients. Medical education should prepare physicians to address problems that profoundly affect the health of the public. This study suggests that formal patient safety education can positively influence knowledge, skill, attitudes, and medical practice behavior. The findings of this case study provide support for the integration of mandatory training in patient safety for all physicians.
Cooke, M., Irby, D. M., Sullivan, W., & Ludmerer, K. M. (2006). American medical education 100 years after the Flexner report. New England Journal of Medicine, 355, 1339-1344.
Institute of Medicine. (2000). To err is human: Building a safer health system (L. T. Kohn, J. M. Corrigan, & M. S. Donaldson, Eds.). Washington, DC: National Academies Press.

3M4

Improving patient safety by teaching safe prescribing: developing evidence informed recommendations
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Introduction: New doctors make prescribing errors that harm hospitalised patients. This research was commissioned to find whether and how medical education needed to change to increase patient safety. We conducted two systematic reviews, which found little informative evidence (1, 2). The present research questions were: Q1) How prevalent are prescribing errors; Q2) Who makes them; Q3) Why do newly qualified doctors make them?
Methods: PREVALENCE SURVEY (Q1 AND Q2): All new inpatient medication orders in19 hospitals in NW England were checked by pharmacists on 7 census days for prescribing errors. Severity was rated against descriptors and quality controlled by interprofessional 'adjudication panels'. IN-DEPTH SURVEY OF CAUSES (Q3): 30 Foundation Year 1 (FY1) doctors from the same catchment hospitals were purposively recruited to represent 18 of the UK's 30 undergraduate medical programmes. After a critical incident debrief on specific errors, respondents discussed their education. Data were analysed by the constant comparison method. A coding framework was developed based on interviewees' words and phrases and errors were classified according to Reason's Model of Accident Causation.
Results: Q1: 11,077 errors were detected in 124,260 medication orders, a mean error rate of 8.9%. Q2: FY1 doctors made 4190 errors in 50,016 medication orders (error rate 8.4%). All grades of doctor (including consultants) made prescribing errors and the highest error rate (of 10.3%) was in foundation year 2 doctors. Q3: A 'safety culture' was conspicuous by its absence from respondents' discourses of their prescribing errors. New doctors were often inadequately supported when prescribing. Errors resulted from complex mixtures of antecedent and contextual factors, which could best be described in terms of complex adaptive systems rather than any simple, linear relationship between cause and effect.
Discussion and conclusion: Since errors arose in complex workplace interactions, education (particularly undergraduate education) will not prevent them unless other factors are also corrected. Since errors were made by fully trained doctors as well as trainees, and trainees sometimes changed correct decision to incorrect ones on the advice of seniors, the planning of any educational intervention must include continuing as well as basic education. This programmatic research produced novel, empirical findings which have informed a set of recommendations for UK practice, concerning: Clinical working environments; Undergraduate medical education programmes; FY1 education; other parts of the medical education continuum; and interprofessional education.
1) Lewis PJ, Dornan T, Taylor D, Tully MP, Wass V, Ashcroft DM. Prevalence, incidence and nature of prescribing errors in hospital inpatients: a systematic review. Drug Saf 2009; 32:379-389.
2) Tully MP, Ashcroft DM, Dornan T, Lewis PJ, Taylor D, Wass V. The causes of and factors associated with prescribing errors: Systematic Review. Drug Saf 2009; 32:819-836.

3M5

Resident Doctors' Reflections on Quality Improvement: Temporal Stability and Associations with the Preventability of Adverse Patient Events
C M Wittich, D A Reed, M M Drefahl, F S McDonald, KG Thomas, A J Halvorsen, T J Beckman*

Introduction: Resident doctors in the U.S. must demonstrate competency in practice improvement, so many residency programs have implemented quality improvement (QI) curricula. Although a vital step in the QI process is reflection on practice, little is known about characteristics of resident doctors' reflections on QI. In previous research, the Mayo Educational Reflection on Improvement Tool (MERIT), which was designed for assessing the quality of residents' reflections on QI opportunities, was shown to comprise three factors: Personal Reflection, Systems Reflection, and Event Merit [1]. We hypothesized that residents' reflections on adverse events would improve with level of training and that personal reflection scores would be higher than systems reflection scores. Therefore, we investigated the temporal stability of internal medicine residents' MERIT reflection scores over three years of training, 2) examined for potential differences between MERIT factor scores, and 3) determined associations between MERIT reflection scores and characteristics of residents and adverse events.
Methods: This was a 3-year longitudinal study of 48 internal medicine residents at Mayo Clinic Rochester between 2006-2009. Study variables included MERIT overall and factor scores (18 items on 4-point scales), training level (post-graduate year), learner gender (male, female), event preventability (yes, no), and event severity (near miss to death). All residents completed biannual written reflections on QI opportunities and classified their perception of event severity and preventability. The previously validated MERIT instrument was used by two trained faculty members to assess residents' reflections. Faculty ratings were averaged to generate overall and individual factor MERIT reflection scores. A repeated measures ANOVA was used to identify MERIT score changes across years-of-training and differences among factors. Paired t-tests were used to identify differences between individual MERIT factor mean scores. Generalized estimating equations were used to examine associations between MERIT reflection scores and learner characteristics (gender and training level) and adverse event characteristics (preventability and severity).
Results: All 48 residents (100%) in the 2009 graduating class participated and completed 240 of 288 possible reflections (83.3%). There were no significant changes in MERIT overall or individual factor scores across three years of training, thus supporting the temporal stability of MERIT scores. A repeated measures ANOVA test for equal factor means revealed a significant difference between MERIT factor mean scores ($p < 0.001$). Paired t-tests showed significant differences (all p values < 0.0001) between all factor means, with Event Merit being the highest and Systems Reflection the lowest. Multivariate models revealed that event preventability was associated with MERIT factor (all p-values ≤ 0.01) and overall (beta = 0.415; CI = 0.186 – 0.643; p = 0.0004) scores. No significant associations between gender, training level, or event severity were identified.
Discussion and conclusion: Residents' reflections on QI were stable over time, lower for systems compared with personal factors, and associated with the preventability of adverse patient events. These findings support the validity of MERIT scores, indicate that residents may report adverse events that affected them personally, and extend upon previous studies showing that context (e.g., preventability) impacts reflectiveness. Future research should determine ways to enhance learners' reflectiveness on systems aspects of QI, and elucidate the relationship between QI and event preventability.
[1] Wittich CM, Beckman TJ, Drefahl MM, Mandrekar JN, Reed DA, Krajicek BJ, Haddad RM, McDonald FS, Kolars JC, Thomas KG. Validation of a method to measure resident doctors' reflections on quality improvement. Med Educ 2010; 44:248-55.

3N Workshop: Workshop to explore current best practice and utility aspects of progress testing

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Background: Progress testing is now well established and used in many different ways and schools around the world. Although testing is developed for particular outcomes in different curricula there is nevertheless sufficient data to think about what works well and what does not. Can we now begin to say what are the aspects of best practice for this assessment?
Intended outcomes: Agreement on best practice which can be used to guide on the methods and use of progress testing.
Structure: This will be a "working" workshop. Candidates are expected to contribute to and start the development of guidelines for best practice. The facilitators will lead separate groups who will explore separate aspects of the utility of progress testing. Particular questions will be explored such as how many tests a year, how many questions, most effective types of feedback, benefits of collaboration, etc.

Who should attend: Candidates for this workshop should have experience of progress testing and knowledge of the literature around the subject. They should have had some individual prior thoughts about the subject area.
Level of workshop: Advanced.

3O Workshop: Hearing versus listening: Is there a difference?

A Tekian (University of Illinois at Chicago, Department of Medical Education, Chicago, USA)

Background: Communication, traditionally defined as a simple exchange of information, or a "message" between a "sender" and a "receiver," is now considered a complex process with verbal and nonverbal components, requiring interpretation and inferences of meaning, synthesis of information, and translation into situational context. One of the vital skills in becoming an effective communicator is the ability to listen. Hearing is done through the ear; however, listening is a function of the brain that requires concentration, paying attention and understanding. Hearing is a passive act that could even be done during sleep; however, listening is active process and leads to learning. Participants of this workshop will go through a series of exercises and games to clearly distinguish hearing and listening skills, and will be provided a menu of how to develop good listening skills.
Intended outcomes: By completion of this workshop, participants will be able to:
Make a distinction between hearing and listening skills
Participate in three different games, discover the power of learning through games in education, and derive learning principles
Demonstrate the importance of effective communication and listening skills during teaching and patient care settings
Reflect on their own experiences and integrate them into their courses.
Structure: This is a very interactive workshop with a short presentation, several small group activities, and in-depth discussions.
Who should attend: This workshop is intended for all health professionals (medicine, nursing, allied health, etc.) interested in improving communication skills particularly concentrating on the active listening skills.
Level of workshop: Intermediate.

3P Workshop: Open Education Resource Publishing - The MedEdPORTAL Experience

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Background: The Association of American Medical Colleges developed MedEdPORTAL (www.mededportal.org) to serve as a free, yet prestigious online publishing venue through which medical and dental educators and learners around the globe may both publish their educational works and locate free, high-quality, peer-reviewed educational teaching and assessment resources.
Intended outcomes: 1. Describe the purpose of MedEdPORTAL, the peer-review criteria and process. 2. Identify teaching activities that would be appropriate for submission to MedEdPORTAL. 3. Evaluate the degree to which items meet accepted standards of educational scholarship. 4. Demonstrate how MedEdPORTAL addresses international intellectual property, copyright, and potential patient right violations.
Structure: Participants will learn about the submission, screening, and the peer review process, and how to formally cite MEP publications and gather utilization and impact data of their publications for promotional purposes. The presentation will also address issues associated with international copyright and intellectual property. Attendees will present teaching activities and evaluate the degree to which their items meet the accepted standards of educational scholarship. Small groups will be encouraged to critique the materials and identify areas where they might enhance the scholarly value of the resources.
Who should attend: Individuals representing medical education that seeks a repository and publication venue to support promotion and tenure decisions.
Level of workshop: Beginner

3Q Workshop: Caffeinating PBL: Innovations to maintain discovery, interactivity and activated learning in follow up PBL sessions

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Background: PBL "first sessions" brim with the excitement of small group problem-solving. In contrast, follow-up sessions, devoted to listening to reports, are dull.. This workshop presents innovations designed to energize PBL follow-up sessions through experiential learning.
Intended outcomes: By workshop's end, participants will be able to implement 3 PBL follow-up session innovations in their home institutions.
Structure: 1. Introduction: [large group 15 min] share personal experiences: challenges of PBL follow-up sessions.
2. Exploring innovations: [small groups 1 hour] rotate through 3 innovations stations [20 min per station], experiencing and discussing the innovation.
Station A: Performing a Role Play: "Doc, my family and I have some questions…" Participants role-play the "Attending Physician", "Patient Explainer", the patient or family member using a pre-designed script.
Station B: Comparing and Contrasting Cases: Participants, in the role of students, encounter selected portions of 2 Compare/Contrast cases (e.g., same disease with different presentations, different diseases with similar presentations, child/ adult, or male/female).
Station C: Creating a Debate: Participants, provided with a brief summary of evidence on both sides of a controversy, role play a debate.
3. Discussion [large group 15 min] discuss reactions to innovations stations.
Who should attend: Educators involved in problem-based learning.
Level of workshop: Intermediate.

3R Workshop: Future of Medical Education: Charting the course for change

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Background: "The Future of Medical Education in Canada (FMEC): A Collective Vision for MD Education" was released in January 2010, coinciding with the centenary of Flexner's report. The report has 10 recommendations grounded in evidence, and 5 enabling recommendations, that emerged from a broad and vigorous consultative process. The recommendations strive to improve Canadian medical education to best respond to Canadians evolving health needs. Using the 10 recommendations as a framework, participants will share and explore exemplary models and approaches from a variety of countries that can be used in developing the future of medical education.
Intended outcomes: Participants will leave with innovative examples that will help them develop the future of medical education and chart the course for change in their own settings.
Structure: 15 minute introduction by facilitators; 45 minute brainstorming session on models, approaches and strategies for developing medical education (in small groups, divided up according to the recommendations framework); 30 minutes for the small groups to report back to large group.
Who should attend: Particularly useful to those involved in the process of curriculum renewal or those who can effect change in medical education in their setting.
Level of workshop: Intermediate.

3S Workshop: Using a Teaching Scholarship Plan (TSP) and other key strategies to move your teaching to publication

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Background: Shulman (1999) has presented attributes and definitions of scholarship, and Glassick (1997) has identified criteria for assessing scholarship. However, strategies for successfully moving from effective teaching to scholarship (i.e., creating publications related to one's teaching) are neither well defined nor understood. Few faculty have been instructed how to engage in scholarly inquiry about their teaching to produce published scholarship. Learning how to "do" scholarly teaching and share the results as teaching scholarship can make for a better teacher and improve teaching and learning within disciplines.
Intended outcomes: After completing this workshop, participants will be able to (1) describe elements of scholarship and assessment criteria, and apply them to the products of their teaching activities; (2) identify key strategies for moving their teaching activities to peer-reviewed scholarship; (3) create a Teaching Scholarship Plan for moving their teaching to published research.
Structure: This highly interactive workshop will provide opportunities for participants to discuss their teaching goals and activities, assess readiness for publication, and develop a customized Teaching Scholarship Plan (TSP) for moving their teaching to an educational publication. The TSP is a step-by-step, hands-on method that participants can also employ as a blueprint to conduct educational scholarship at their own institution.
Who should attend: Medical educators, especially junior.
Level of workshop: Beginner.

3U Posters: Simulation

3U1

Does prior exposure to clinical practice enhance reflection and learning in simulation training?
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Background: It is generally accepted that simulation training offers a safe bridge between theory and real life practice. In learning venepucture, students are expected to progress from practising on 'dummys' to performing on real patients. However, students may encounter a procedure before simulation in various ways, either through observation or participation. Do students reflect on prior experience when undertaking simulated training? Does this equate to better performance?
Summary of work: Aim: To identify if there are any learning benefits in observing venepuncture in clinical practice before undertaking simulation training compared with simulation training alone.
The study is a randomised controlled trial with one arm being the intervention and the other, the control. Both groups will receive the same introductory lecture. One group will then complete a period of observation in a phlebotomy department before simulation. The other group will have simulation only. Participants will complete reflective questionnaires and modified OSCE exams to assess learning.
Summary of results: The results of this study will assist in deciding how simulation should be approached and whether prior experience has an impact on learning in simulation. Positive results may imply a need for observation as a first step to learning and more importantly: formalisation of learning pathways for clinical procedures.

3U2

Simulations in education – How useful?
T Söderström, F Petterson*, L-O Häll, R Holmgren, C Lindgren and D Sjöberg, (Umea University, Department of Education Umea, Sweden)*

Background: Education is much about directing learning. We need perspectives on learning that provides guidance and direction. The main objective with the learning in simulated environments project, is to explore and deepen the knowledge about simulators and education. The project investigates how simulator based training influences on learning.
Summary of work: The theoretical approach in the project connects to those traditions that regard knowledge and learning as a process of construction where individuals create meaning and coherence in life. Special focus is given to what the students do while doing it - reflection-in-action.
Summary of results: Results from a literature overview show that previous research has focused on the actual simulation and not so much on the post training or reflections after training (e.g., debriefing). The question is whether an increased focus on pre- and post training will enhance the effectiveness of simulators in education.

Conclusions: The project will contribute to enhanced knowledge about simulator based training in education, which will be of importance for not only medical education but also for competence development within other areas.
Take-home messages: Is it important to consider pre- and post training to enhance the effectiveness of simulators in education.

3U3

Enhancing self-confidence in providing structured laparoscopic simulation training for medical undergraduates

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Background: Medical students are hard to feel confident and familiar with the procedures of laparoscopic surgery merely by traditional teaching practices. We introduced a laparoscopic surgery simulator to improve the basic surgical skills and enhance their self-confidence.
Summary of work: The simulation was conducted by 21 medical undergraduates at Far Eastern Memorial Hospital in Taiwan and was done structurally by using laparoscopic surgery simulator- LiNA from moving the pearls, practicing tubulation to cutting. Each student was received a pre-test and post-test by calculating the time of tearing open a toffee candy and filled in a questionnaire regarding self-confidence before and after simulation training.
Summary of results: The accumulate percentage of poor and very poor on self-assessment for practicing tubulation were 38.1% and decreased to 14.3% after training. Moreover, the percentage of over 4 minutes in pre-test was 42.9% and decreased to 28.6% after training. The results suggested simulation significantly enhanced their self-confidence and shortened the time in training session.
Conclusions: Students can construct their self-confidence and improve their skills on laparoscopic surgery through structured laparoscopic simulation training.
Take-home messages: Structured laparoscopic simulators training can provide safe environments for repeated practice and enhance self-confident on laparoscopic techniques of medical students.

3U4

Teaching laparoscopic intracorporeal suturing: What is the key step?

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Background: Some advanced simulators or training boxes require considerable resources and may be too difficult for beginners. This study investigates the steps of training novices by using our training box.
Summary of work: Surgeons and in-training surgeons without advanced laparoscopic experiences (N = 10) practiced 1) suturing in a commercial laparoscopic training box with video system provided by Olympus and then in 2) Homemade "open system" training box. Time using for the first successful stitch was recorded in both systems. Potential for using our training box as a training tool was discussed. Subjects were divided into 2 groups: practice and non-practice. Practice group needed to practice suturing with our training box for 1 week. Post 1 week) laparoscopic suturing performances were assessed.
Summary of results: Mean time for the first successful stitch in the Olympus training box was 8:31±4.0 mins with 4 failures. Mean time for our box was 1:94±1.2 mins. The positive potential for training with our box (3.7/5). 1-week follow up were 4:36±2.3 mins for practice group and 7:38±2.5 mins for non-practice group.
Conclusions: Rather than practicing with the "real" 2-D training box, the "open system" box should be the first key step in training laparoscopic suturing.
Take-home messages: This small experiment showed some benefits from our "open system" training box in teaching and learning laparoscopic suturing.

3U5

Cortisol levels and heart rate in two simulation scenarios of cardiopulmonary resuscitation (CPR)

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Background: Simulation is much used in CPR training. It is unknown whether stress level and performance differs between traditional testing with a manikin in a classroom (CLASSIM, and a more sophisticated clinical simulation (CLINSIM).
Summary of work: Volunteer lay-persons (N=64) did 10 minutes of CPR after randomization. In CLASSIM CPR was performed on an easy accessible manikin in a classroom. In CLINSIM the test was performed in an apartment, where one of the researchers had a simulated cardiac arrest, and the study subject had to perform CPR alone in a realistic, confined space. Salival cortisol (nmol/L) was measured directly after the test and compared with baseline values with paired non-parametric testing (Wilcoxon).
Summary of results: Cortisol increased in both scenarios, from 5 (2, 9) to 7 (4, 13) in CLASSIM, p=0.001, and from 5 (3, 7) to 7 (4, 10) in CLINSIM, p=0.005. CPR performance, maximum heart rate ^{1}20 ± 17 min-1, and reported exhaustion on a VAS scale from 0 to 100 (41 ± 19) was similar in the two groups.
Conclusions: Cortisol levels increased both in clinical and classical CPR testing. Quality of CPR, heart rate, and exhaustion were similar in the two scenarios.
Take-home messages: Cortisol increases after testing elderly lay people's CPR skills.

3U6

What do mannequins teach us?

L Richardson (University of Toronto, Faculty of Medicine, Toronto, Canada)*

Background: Simulation technology is an integral component of the medical education environment. Trainees in faculties of medicine around the world engage with simulation technologies such as interactive e-learning cases, high fidelity mannequins and virtual reality scenarios on Second Life. While medical education has largely embraced simulation technologies, there has been little critical discourse analysis of them.
Summary of work: Harvey(TM) is a high fidelity mannequin who simulates various cardiac conditions. Harvey breathes and has a palpable pulse, blood pressure and cardiac apex. He has audible heart sounds and various pathological murmurs. As a fabricated hybrid of machine (computer) and organism (the projected heart sounds have been recorded from “live” patients, Harvey is a true cyborg. Harvey, however, is a plastic torso who is simulating a patient. Medical trainees interacting with Harvey engage with a fragmented body that is removed from any clinical or personal context. Furthermore, Harvey is non-conversant. Teaching with Harvey risks perpetuating the medical gaze of the modern era, which generates the patient as an object of medical scrutiny. It undermines the importance of the doctor-patient relationship, the clinical context, and the patient’s narrative. Harvey privileges the objective findings of the cardiac exam over the subjective experience of the patient.
Conclusions/Take-home messages: While simulation technologies are an important tool in medical education, this case study of Harvey highlights the importance of critically analysing each of these technologies and their uses.

3U7

Venepuncture in children: How do we train the medical students?

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Background: Venepuncture is the required procedure of Thai medical council for MD. The conventional lecture and demonstration for Venepuncture have been used, but the medical students still have limitation of skills by OSCE. Simulation-based training is considered the method to improve their skills before performing with pediatric patients.
Summary of work: Thirty-two of fifth-year medical students were trained to perform venepuncture by simulation under supervision. The number of training with simulation to improve the student's confidence scored more than eighty percent. The experience in venepuncture simulation, patients in 4th year and GPA were collected. Successful venepuncture and steps of procedure were assessed by OSCE in real patients. Descriptive statistic and Spearmen correlation were applied.
Summary of results: Numbers of training to achieve confidence more than 80 percent are 4.2 + 2.2. All students who performed more than 6 times simulation-base training succeed in this procedure. Mean numbers of training for successful venepuncture is 4.3 + 2.4. The success correlate to simulation-based training ($r = 0.411$, $P = 0.024$) and their experience in the past ($r = 0.392$, $P = 0.032$).

Conclusions: Medical students have successful venepuncture in children when they train with simulation for at least 5 times and practice more in adult patients.
Take-home messages: The simulation-based training can successfully improve performance o n venepuncture in children.

3U8

Introducing clinical simulation into the undergraduate medical curriculum

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Background: The program Attitudes, Skills and Clinical Competences (University of Beira Interior, Faculty of Health Sciences - Covilhã, Portugal) is intended to enable medical students to acquire a set of skills needed for clinical practice. Different didactic strategies are used to achieve this goal. Simulation has been demonstrated to be effective in teaching basic science, clinical knowledge, procedural skills, teamwork, and communication.
Summary of work: During the 2009/2010 academic year, clinical simulation with a sepsis scenario was introduced into the 5th year program with the objective of enhancing clinical knowledge and management of severe sepsis and septic shock. Groups of 8 students per session were expected to act based on the clinical situation. They had to interact with the patient, analyze hemodynamic variables, laboratory and imaging studies, diagnose septic shock and treat accordingly. Thereafter, a debriefing was conducted. They completed a written evaluation and provided satisfaction ratings.
Summary of results: Clinical simulation received high marks. Students value experiential realism, interactivity, discussion, and wanted more exposure to simulation.
Conclusions: Simulation for undergraduate students had good acceptance, and helped them assimilate basic science and clinical knowledge.
Take-home messages: Simulation may be a good teaching method to be incorporated in medical school training.

3U9

Use of new teaching tools in clinical skills education at Faculty of Medicine Osijek, Croatia

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Background: Readiness for standalone work of graduated medical students has always been reconsidered especially when it comes to the clinical skills performance. Patient's consent and safety are a priority which makes access to the patients somehow difficult. To overcome that, the main teaching tools became models and high-fidelity medical simulations (HFMS). Although advantageous teaching approached, it is not incorporated enough into some traditional medical curricula, e.g. Croatian.
Summary of work: We carried out a survey on fourth-sixth (171) year medical students at Medical faculty in Osijek and interns (20) at Clinical Hospital Osijek, who were asked to self-evaluate their experience with models and HFMS.
Summary of results: A majority of the students and interns practiced at models (94 %) and HFMS (48%) and they consider it a useful tool in medical teaching (89 %) that hasn't been used enough (94 %). Models and HFMS have been used most frequently at "Anesthesiology", "First Aid" and "Clinical Skills Course" courses organized by students. As their advantage students mention possibility of numerous repeats provide a less stressful first contact.
Conclusions: Students experienced models and HFMS as a useful tool in clinical skills teaching but that haven't been used enough. Their level of confidence in own clinical skills performance increased after practicing on models.
Take-home messages: Self evaluation on the level of own clinical skills performance showed increased self-confidence in students practicing with models and HFMS, thus they should be regularly used in medical teaching in Croatia.

3U10

Systematicity as a framework for clinical education using human patient simulation (HPS)

*R Y Wood*and L Wolf* (Boston College, Connell School of Nursing, MA, USA)*

Background: Systematicity is a useful framework for teaching and evaluating clinical decision-making where problems present with conflicting assessment data, have multiple solutions, and narrow windows of time for interventions. We propose an expanded definition of systematicity as the ability to remain firmly in the center of a clinical problem (the point of priority) while exploring surrounding rings of cause, effect and intervention.
Summary of work: Impact of HPS practice on systematicity was assessed with a sample of novice nursing students (N=110) learning health assessment skills. Random assignment to experimental or control groups was based on HPS or traditional practice for a midterm competency exam. HPS practice included planned distractions. CCTDI scores measured systematicity. Outcomes also included time to task completion and accuracy on the exam.
Summary of results: Paired t-tests for the entire group found a significant difference (df=109, p<.01) in mean pre-posttest CCTDI total scores but no significant between-group differences for systematicity or time to task completion. Further analyses are examining strength of intervention in terms of time exposed to HPS practice.
Conclusions: HPS may foster systematicity in clinical decision-making but more research is needed to determine relationship between HPS exposure and outcomes.
Take-home messages: Early use of HPS may encourage systematicity in clinical students.

3U11

Software based simulation for medical education

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Background: Today, healthcare costs are too high, there is a shortage of doctors and nurses, medical technology is not propagated to poor communities, and quality and safety of healthcare is subpar. Our initial research was to explore if interactive software simulation, where students can interact with their surroundings, can help solve these problems. Research involved surveys of medical professionals, and an analysis of the new software technologies available along with their financial viability in the mainstream market. This analysis indicated that in virtual simulation, where individuals can participate in hands-on experience will be a superior and cost effective learning method. Virtual simulation allows the creation of multiple scenarios and patterns and encourages self learning and refreshing due to the scoring and logging of training sessions. To validate, we created a simulator for the training of Hyperbaric Medicine, which involves giving patients oxygen under high pressures. It was broken into three parts, an orientation of the chamber, an actual treatment section, and a cause effect analysis of hyperbaric diseases. Through advanced graphics and animation, the simulation shows a internal organs through a transparent body. Students take part in what if analysis, a study in which students see the effects of their actions.

3U12

ABC is out – CCC is in: Simplification of the basic life support algorithm with "Check-Call-Compress" improves practical performance

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Background: Within Basic Life Support importance of quality of external chest compressions (ECC) is of paramount importance. Recent guidelines arrange an 8-Step-Approach within initial assessment algorithm. We observed if reducing and focussing on key elements improves retention of practical skills.
Summary of work: Hundred-thirty laypersons were randomly assigned to: Group 1 (G1) with 8-Step-, group 2 (G2) with 4-Step-sequence, group 3 (G3) with simplified "check-call-compress"-instruction and compression-only-CPR. Evaluation was done on a manikin in cardiac arrest mock scenario immediately after standardized course, one week and six months later. Primary endpoints: compression rate/depth, correct algorithm/time checking airway.
Summary of results: Compared to control complete algorithm was significantly better on test 1 in G2 and G3 (30.0% vs. 84.2% [p≤0.001] vs. 75.0% [p≤0.001]) and after six months 12.5% vs. 73.7% [p≤0.001] vs. 69.2% [p≤0.001]). G1 demonstrated poor performance in all evaluations, especially after six months for compression depth (40% vs. 68.4% [p=0.014] vs. 65.4% [p=0.020]) and time checking airway (35.0% vs. 60.5% [p=0.041] vs. 76.9% [p≤0.001]).
Conclusions: Simplification of initial assessment algorithm and focussing on ECC is reasonable and facilitates acquisition of high-quality ECC even six months after initial training.

Take-home messages: "Check-call-compress" as concise sequence produces long-term improvement of laypersons.

3U13

MBChB undergraduate surgical skills teaching- A pilot study

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Background: A day course of core surgical skills was introduced for 4th year medical students at the University of Dundee. This commenced in the 2009/10 academic year at the Cushieri Skills Centre, Ninewells Hospital.
Summary of work: Pre and post course questionnaires were completed by participants regarding their perceived ability in knot tying, instrument handling, tissue handling and the overall benefits of the course. The questionnaires allowed responses which could be ranked from 1 (strongly agree)-4 (strongly disagree). This allowed a Wilcoxon signed ranks test to be performed on the data.
Summary of results: 106 students participated to date, revealing a highly significant change in perception of ability ($p<0.001$ for each skill, confidence in surgical skills (mean 3.717) and interest in seeking more opportunities to go to operating theatres (mean 3.547). Students agreed about the importance of surgical skills training in medicine (mean 3.413) and strongly agreed about the importance of the inclusion of this course in the curriculum (mean 3.802).
Conclusions: The introduction of a surgical skills teaching day to medical students has increased perceived knowledge of and confidence in surgical skills, inspired the pursuit of surgical experience and was perceived to be of importance within the curriculum.
Take-home messages: Basic surgical skills training should be incorporated into all undergraduate medical curricula.

3U14

Model of clinical skills training for large medical schools

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Background: The opening of Clinical Skills Centers (CSC) three years ago in medical schools of Kazakhstan gave big push to the development of clinical skills training model. There was a need to develop a unique model due to the large number of students.
Summary of work: Developing a model, we took into account the system of undergraduate medical education in Kazakhstan aimed to educate large numbers of students (c. 800-1000 per year of study) in one medical school using governmental obligatory standards. At the same time there was a need to train large numbers of teachers, since there was a very limited use of simulation technologies in clinical skills training in the past.
Summary of results: The CSC served as a coordinating center for allocating appropriate resources and providing an environment for clinical skills training, while the actual training was done by the faculty of appropriate clinical departments. A lot of attention has been given to independent student work and video-recording of simulations.
Conclusions: The given model of clinical skills training allowed us to consolidate the efforts of administrative staff and faculty to develop new strategies for clinical skills training and assessment.
Take-home messages: The model is suitable for large medical schools, especially in the countries of CIS and Eastern Europe.

3U15

Effect of simulative training workshop on Interns' performance in delivery and labor: A randomized controlled trial

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Background: The aim of this study is to assess the effect of a training workshop designed with simulation, on performance of interns in an educational hospital in Ghazvin, Iran.
Summary of work: In a parallel randomized controlled trial, we assessed the performance of two randomized groups in before, during and after delivery related skills: a group with a routine plan of education and the

intervention group, who attended a three day training workshop in skill lab of the University. The performance was assessed with a performance assessment checklist before and after the intervention period in both groups.
Summary of results: The mean score of performance was respectively in intervention and control group: 66.72 (SD=6.39) and 53.8 (SD=10.85) for before delivery skills, 120.38 (SD=6.45) and 86.22 (SD=15.06) for during delivery skills and 61.61 (SD=7.16) and 41.83 (SD=8.32) for after delivery skills which showed a significant difference between performance of these groups in all three skill categories
Conclusions/Take-home messages: Some factors such as lack of experience, stress, unpredicted events and self-esteem can affect the performance of interns. The skill lab training courses, exposing interns to simulative conditions can develop their skills remarkably and such workshops are suggested for all educational hospitals in Iran.

3U16

Performance of interns in infant CPR after a simulation designed workshop: Necessity of a remarkable change

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Background: A large number of infant deaths is a result of problems such as asphyxia which could be prevented by CPR. The aim of this study is performance assessment of interns in this area and to develop these skills by a training workshop in a simulative manner.
Summary of work: Two randomized groups of interns in an education hospital (n=36) included a randomized controlled trial in which the first group received normal training and the intervention group attended a training workshop. Performance assessment was performed with a 30 item tool which had two dimensions of basic and advanced skills related to infant CPR.
Summary of results: After period of intervention, total score in basic skills was 24.38 and 33.88 respectively in the control and intervention group and 24.94 and 46.94 in advanced skills of infant CPR. There is a significant difference in performance score of two groups. None of the control group has learned tracheotomy which is a vital skill in infant CPR.
Conclusions/Take-home messages: The results show a very low performance of interns in some infant CPR skills. Because of vitality of some skills in infant CPR, learning and experiencing such skills is so necessary and skill labs via some simulative workshops could be a successful solution to resolve this problem.

3U17

Teaching heart sounds and veterinary cardiology in a blended-learning scenario – an effective way to use "New Media"

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Background: The interpretation of acoustic findings is a big challenge for beginning veterinarians. To raise the quality of teaching in this area the use of new media seems to have advantages.
Summary of work: Setting: 1) face-to-face, 2) Self-study with a web-based training, 3) Face-to-face seminar. To evaluate the learning success a pre-test with 20 MCQ was written. This test was repeated after the self-study phase and again after the last face-to-face meeting. The acceptance of the web-based-training (WBT) was evaluated.
Summary of results: The course was offered three times as an elective class for third year students (group A, n=36) and for comparison two times for fifth year students (group B, n=33, only Part I & II). Overall response rate: 75.4%. The students rated the WBT positive (3.3) with a good practical relevance (3.2). They had the feeling to learn cardiologic aspects well (2.7) and worked with the WBT for 2.3 hours. There were no significant differences between both groups in the pre-test. The students in both groups A and B raised their test-score highly significantly ($p < 0,001$) by using the WBT. Students in group A had another highly significant improvement after the second face-to-face meeting.
Conclusions: The results of the current study could show that the blended-learning concept was not only well accepted by the students, but enhanced the learning effect.

Take-home messages: Blended Learning could even further increase the learning success than e-learning alone.

3U18

Medical student satisfaction in learning pediatric procedure skills: A comparison between watching a video of the procedure and supervised practice in a skills lab

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Background: In 2002, our institution introduced a 2-step method of teaching medical student pediatric procedure skills, which, all must complete before being allowed to perform a procedure in a patient.
Summary of work: Aims: To assess student satisfaction with the two steps of the pediatric procedure skills training. Seven basic pediatric procedures were taught through two steps: Watching a video of the procedure followed by supervised practice in a skills lab. A questionnaire was completed after each step. Assessment areas included 1) knowing the equipment, 2) ability to choose appropriate equipment, 3) knowing the steps of the procedure, and 4) confidence in performing the procedure on a patient.
Summary of results: Eighty-five students completed the study. Student satisfaction was comparable with both teaching methods in assessments areas 1 and 3, while area 2 and 4 student satisfaction was higher after supervised practice in the skills lab than watching a video.
Conclusions: Watching videos can be beneficial in certain teaching areas, but supervised practice in skills labs is necessary to instill confidence in performing the procedure on a patient.
Take-home messages: Several modalities should be used in teaching pediatric procedures to improve skill education for medical students.

3U19

Retention of knowledge and skills over time following the Newborn Life Support (NLS) course

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Background: Aims: 1) to investigate whether airway management and non invasive ventilatory skills are retained after the NLS course, 2) to compare the relationship between the resuscitation provider's confidence in and their competence at, performing these skills.
Summary of work: Candidates undertaking the NLS course in a single centre were recruited over a two year period. An airway management scenario re-test took place 3-5 months after the course. Immediately prior to the test they completed a self assessment questionnaire and if unsuccessful in the test they were offered a mini 'booster' session and re-tested immediately. Peer review forms asking about competence were distributed to their colleagues. If successful the candidates were tested at 12-14 months.
Summary of results: 166 candidates were recruited into the study. First re-test (n=66). Passed: 1st attempt 25 (40%), 2nd attempt 34 (52%), Failed 7 (11%). Second re-test (n=41). Passed: 1st attempt 16 (40%), 2nd attempt 23 (56%), Failed 2 (5%). Main reasons for re-test were, failure to assess HR after inflation breaths, failure to dry or remove the towel, incorrect insertion of airway and not assessing chest movement.
Conclusions: There is poor retention of knowledge and skills over a short time after NLS course. Retesting at 3-5 months doesn't assist with knowledge and skills retention. Despite a 'booster' on the first re-test there were different reasons for re-testing at the subsequent test.
Take-home messages: 1) A booster session may remind candidates of a 'scenario format'.
2) Health care professionals find 'scenario' testing difficult.

3V Posters: e-Learning: Case Studies

3V1

Using e-learning modules in a blended learning approach to clinical skills procedures

Brian Jenkins and Siân Williams* (Cardiff University, Cardiff, UK)*

Background: Like many learning terms, 'Blended Learning' gives the illusion of being a concrete concept, whilst in reality it is a flexible term that can mean different things to different people. In simplest form, it may

be a scheme that combines computer generated information, combined with face-to-face tutor instruction. By providing a combination of these two learning environments, the benefits of both media provides greater access to the learning experience.
Summary of work: The Clinical Skills team within the School of Medicine have worked with Medical Photography, Medical Illustration, E-learning technologists and clinicians to produce a high quality set of e-learning material forming part of the Clinical Skills syllabus.
Summary of results: Students access e-modules through the school intranet before attending the skills lab for practical sessions. They are revisited for self-directed revision during practice sessions within the lab, via laptops at each skills station. Student evaluation to date is highly encouraging.
Conclusions: Co-ordinated and innovative teamwork has produced high quality e-learning modules that form part of a blended learning approach to Clinical Skills practical procedure teaching.
Take-home messages: E-learning modules can enhance the teaching of clinical skills by preparing the student with background and theory of a practical skill, prior to laboratory based sessions.

3V2

B-Learning in a program of medical residency

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Background: The use of e-learning has been increasing even in institutions with formal education activities and this integration of activities has been called blended learning (b-learning).
Summary of work: To describe the formal introduction of the virtual learning environment - module, in order to record the sequential development of theoretical and practical activities and formative assessment for students of the Internal Medicine Residency Program of Catholic University Medicine School of São Paulo-Brazil.
Summary of results: The b-learning encouraged students to seek technical and pedagogical support and complemented the traditional teaching-learning system. Its use made possible the assessment of the progress of students. It is important to remember that this learning tool does not dispense with the continuous teacher's work to support and encourage research by students.
Conclusions/Take-home messages: The b-learning is a powerful teaching tool and can stimulate learning and allows frequent self evaluation of students. In our study, we found progressive development of the learning capacity of the students and an increase in use of digital libraries.

3V3

Blended learning in undergraduate medical education is congruent with principles of adult education

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Background: Increasing use of Computer Assisted Instruction (CAI) in undergraduate medical education raises concerns regarding congruence of these blended educational environments with principles of adult education.
Summary of work: Medical students' experiences on one such programme were generated using an interpretivist approach through focus group discussions. Core themes representing factors that were perceived to either promote or detract from adult learning were identified.
Summary of results: CAI enabled autonomy to learn at one's own pace in a non-threatening environment. 'Advance planners' used CAI as a foundation on which to build schema through transfer of information from the computer to the clinics. CAI though seemingly reinforcing 'spoon feeding' was perceived by the students to increase motivation to learn particularly at the onset of new placements. Potential barriers to adult learning were heavy workload which encouraged surface learning approaches and a disorganised clinical environment. Students perceived CAI as an adjunct and not a replacement of clinical teaching.
Conclusions: A CAI programme underpinned by a constructivist epistemology encouraging learner participation, promotes adult learning through efficient use of limited time, early needs assessment, self-directed learning, acquisition of knowledge for problem solving.
Take-home messages: Teachers play a pivotal role in fostering adult learning in blended learning environments to ensure congruence with principles of adult education.

3V4

Multimedia-based patient education: Helping healthcare professionals teach

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Background: Twenty-first century healthcare promotes continuity, active partnerships between clinicians and patients, and shared responsibility for care-management. Patient education is the responsibility of the healthcare professional and can facilitate comprehension, empower patients, and support informed decision-making. Technology can assist in the creation of this material.
Summary of work: Challenges to patient learning include anxiety, health literacy, multilingualism, and fragmentation of care. This short communication describes the development and implementation of arts-informed multimedia, web-based, patient education oncology modules that address diagnosis, surgical options, chemotherapy and radiation therapy.
Summary of results: The modules were made available in January 2010 at a quaternary healthcare center. Initial feedback from clinical staff and patients emphasized the positive impact of the modules on patient understanding and satisfaction, communication between patients and healthcare providers, resources, and efficient management of resources. Research is continuing.
Conclusions: The on-line nature of the modules permit unconstrained and easy access to the material, allow for the integration of multimedia, promote interactivity, individualization within a collaborative framework, and reinforce the importance of the teaching moment and the ongoing nature of oncology patient education.
Take-home messages: Technology permits innovative approaches to patient education. Developers of patient learning material should look to web-based methodologies.

3V5

Lack of preparation for clinical placements: A solution

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Background: In the UK veterinary students are required to undertake extramural clinical placements, mostly in first-opinion (general) practice. Students and placement providers agree that existing preparation for placements is deficient.
Summary of work: Focus groups and surveys of students and placement providers identified key issues relating to clinical placements. These informed the content of a computer-aided learning (CAL) package called the 'EMS Driving Licence', which underwent an iterative design process with key stakeholders. The CAL consists of sections: Preparation, Working with People, Professionalism, Frequently Asked Questions, Top Tips and Useful Information. A post-placement questionnaire with two groups of students: those who had used the CAL prior to their placement (n=32, and those who had not (n=24, assessed the CAL's impact on their experiences.
Summary of results: Significant differences existed between the two groups for nine items, all indicating those who had completed the CAL felt better prepared for placements. Free-text responses highlighted negative and positive aspects of placements, plus positive features of the CAL and suggested improvements.
Conclusions: Through an iterative process of stakeholder consultation and development, a resource has been created which assists veterinary students with preparation for placements.
Take-home messages: An online CAL package enabled students to better prepare for placement learning, benefiting students and placement providers alike.

3V6

Basic Burns Management e-learning tutorial: A new teaching tool

FM Egro (University of Bristol, UK)*

Background: A questionnaire showed structured burns teaching is organised in few medical schools in the UK. An e-learning tutorial was developed with the objective of incorporating burns teaching within the undergraduate medical curriculum.
Summary of work: A variety of web programmes (Flash, Coursegenie) and scripts (HTML, javascript, actionscript) were used. The content was based on the Emergency Management of Severe Burns course material and takes into account complete inexperience of burns management.

Summary of results: A total of twenty web pages were created, covering topics such as pathophysiology and assessment of burns, first aid, primary and secondary survey, and referral guidelines. The focus was on creating a captivating and interactive website, containing regular self-assessment. Positive feedback was obtained by consultants, junior doctors and medical students, confirming the value of this tool.
Conclusions: The "Basic Burns Management" tutorial provides a useful tool for easy and fast incorporation of burns teaching within the medical curriculum as well as in other medical teaching settings.
Take-home messages: The use of a tutorial can overcome academic and logistical issues such as lack of expertise to deliver training, lack of time within the course and differing teaching opportunities between academies. Furthermore, this tool could be considered for supplementary teaching of the Emergency Management of Severe Burns course.

3V7

Paediatric intensities-care-unit nursing train on an e-learning-based programme increased nursing-children communication and reduced children's pain and anxiety related with drugs administration

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Background: Explain to children how the nurse is going to administrate drugs to them is a problem in the paediatric intensities care unit (PICU) because drug administration may be stressful, painful or frightening for children.
Summary of work: We evaluated the effect of nursing training by an e-learning-based programme (Pic-e-learning) with pictorial-interactive tables explaining drug's administration routes on children's pain and anxiety development after drugs administration. PICU hospitalized children after had elective major surgery and oncology therapies were prospectively collected. Pain (VAS-scale) and anxiety (STAIC-questionnaire) experimented by children attended by PICU nursing trained on Pic-e-learning programme were compared with Pic-e-learning-non-trained nursing attended group (control). Clinical stage, treatments and complications were recorded.
Summary of results: 135 children (aged 3-10 years, 6.3±2 years old, 67% male) subjected to major surgery (77%) and oncology diseases (23%) were enrolled. The drugs routes administration were oral/nasogastric tube [1]%, intranasal (3.1%, inhalatory (30.9%, intramuscle [1].3%, intravenous (50.2%, intrathecal [1]3.5%). Pain and anxiety were higher ($p<0.05$) in control than in Pic-e-learning group (5.6±0.9 vs. 5.1±0.5, and 7.8±1.1 vs. 5.5±0.6). Control group needs much more analgesics and anxiolytics than Pic-e-learning group.
Conclusions: Nursing training on e-learning-based programme on pictorial iterative tables explaining drug's routes administration reduced both pain and anxiety of intensities care unit hospitalized children.
Take-home messages: Paediatric nurses need a specific training in communication techniques to better take care of children. E-learning may be a useful method to facilitate nursing training and nursing communication with small children.

3V8

Experiences with e-learning training exercises by teaching of developmental biology: Molecular aspects of development newly

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Background: The traditional lecture-based training of molecular aspects of development does not favour needs of undergraduate medical students starting the 3rd semester of studies when they have poor knowledge of molecular biology. The course of developmental biology becomes dreaded for students.
Summary of work: We developed and implemented an interactive e-learning training exercise from molecular developmental genetics based on a step by step approach in 2009. Questionnaire surveys were applied after the examination for 135 students.
Summary of results: In the evaluation, the e-learning training exercise is better than the conventional exercise. In 2009 21.5% students appreciated the e-learning method as excellent, 73.3% as very good and fecund, only 5.2% students had a neutral opinion with personal remarks. No student found the e-learning training in developmental biology as inappropriate. They concluded that the new approach helped them comprehend the relatively difficult objectives of developmental molecular genetics.

Conclusions: This study shows usefulness of the novel e-learning training method, that encourages self-regulated active learning behaviours and enable to study less details and more embryological coherences
Take-home messages: Students have shown that they have a good understanding of the kind of e-learning training they would like to use. The project was supported by FRVS 193F3A/2009 grant and Diana Lucina.

3V9

Online material for teaching of clinical otorhinolaryngology: A pilot study

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Background: Training of clinical skills is a necessary part of teaching in otorhinolaryngology (ORL). To improve and strengthen clinical ORL skills needed in worklife, a new material for ORL teaching and learning was developed.
Summary of work: Based on experiences and student feedback obtained in years 2005-2007 more versatile material for teaching of indirect laryngoscopy, posterior rhinoscopy and diagnostics of otitis media were developed. This new material contained 150 photographs and figures of the above mentioned topics, as well as 10 virtual patient cases. Material was obtainable both online and in printed form. In 2008, after the ORL course, 84 students filled an electronic questionnaire on the appropriateness and usefulness of the new material.
Summary of results: Virtual patient cases and graphic materials increased the effectiveness of clinical skills training in the central educational topics in ORL. A majority (85%) of the students considered the new material useful for the ORL training. Similarly, students mainly (77%) preferred online material to printed versions. However, more material from diseases was requested.
Conclusions: Regular student feedback, supports teaching and learning material development. Online material is easily available and updated, but it can`t substitute clinical ORL training.
Take-home messages: Students prefer online to printed learning material in ORL. Continuous material development is necessary.

3V10

E-learning Exemplars for GP training on physical examination skills: A new resource for GP training

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Background: Experience from the nMRCGP Clinical Skills examination and from GP trainers has highlighted a need to help GP Registrars perform appropriate physical examinations in the context of a consultation. A new RCGP e-learning project uses video clips to demonstrate problem-based examples of physical examination.
Summary of work: Each video clip showed an examination linked to conditions commonly presenting in a ten-minute GP consultation. Experienced GPs created the sessions using a standardised template. Volunteer GPs and AiTs worked with professional actors for the filming. Each e-learning session contained interactive prompts to encourage reflection. A steering group agreed the standard for the module, appropriate for postgraduate GP speciality training.
Summary of results: 16 examination sequences were filmed including dialogue between the patient and the doctor. The clips formed part of interactive sessions made freely available online through the RCGP e-GP resource.
Conclusions: This module complements existing resources demonstrating generic whole systems examinations. The clips were not exclusively focused on the nMRCGP examination, and can be accessed by GPs before and after licensing. They may also be relevant to appraisal and revalidation.
Take-home messages: Demonstrating what's "good enough" for a typical 10-minute GP consultation is a challenge, but this new resource sets out to illustrate this in terms of physical examination skills.

3V11

Web based training package for Paediatric HEADSSS assessment and Motivational Interviewing (MI) techniques: a multi-professional evaluation survey

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Background: Screening adolescents for health risks using HEEADSSS assessment (Home, Eating, Education, Activities, Drugs, Safety, Spirituality and Sex) has been shown to enhance the patient-doctor relationship and influence "motivational interviewing (MI) techniques" aimed at optimising health behaviours.
Summary of work: A survey of paediatric healthcare professionals revealed sporadic awareness of the techniques - 28% and 39% had heard of HEEADSSS and MI, respectively. A web-based training package was developed and presented at the Teenage and Young Adult Cancer conference. Feedback forms were distributed.
Summary of results: 76 responses were received (72% response rate). Most respondents were confident explaining confidentiality (doctors 78%, social workers 80%, nurses 68%). Confidence discussing drugs, smoking and alcohol was higher than in discussing sexual health. Doctors were less comfortable (46%) "negotiating time alone", than nurses (72%). 85% rated the package 'highly useful', doctors (83%) and nurses (90%) found the techniques relevant. 72% would incorporate the techniques into their consultations, 85% were interested in further training.
Conclusions: There exists a strong need for HEEADSSS-specific training. The package provided participants with knowledge and confidence to begin using new communication skills.
Take-home messages: HEEADSSS is now a proposed requirement for MDTs at Nottingham Children's Cancer Centre. This is a further opportunity to study the effectiveness of this well-received training package.

3V12

Educational Development using electronic device and internet

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Background: Education development is the main goal in every educational system. Those who are involved in teaching are constantly planning to improve for better and easier learning. In our medical center we have developed a teaching program by using these facilities to improve our education besides our regular teaching (traditional method).
Summary of work: 102 medical and paramedical students (37 medical/65 paramedical) were asked to visit and study their biochemistry subjects through the department's site. After every chapter what was covered in the class, they had to read and answer the related questions within seven days. After this date students could no longer gain access to the material and questions. Those who had not answered the questions were omitted from the study. After the final exam their average marks where compared with their previous term which was covered traditionally (lecturing). Data were analyzed by SPSS software after applying pair T-test.
Summary of results: After comparing the average marks in the previous term with the new method there was an increase of 22% ($P \geq 0.012$) in their marks in almost all of the groups.
Conclusions/Take-home messages: Having a learning timetable via electronic device and internet facilities helps students to have easy access to the material and sample question which helps them to improve their learning program.

3V13

Can Online-Conference systems improve veterinary communication?

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Background: There is a constant need in veterinary medicine for national and international experts to exchange knowledge of the latest research and clinical developments and to inform themselves about unusual cases, emerging diseases and therapy.
Summary of work: Within the framework of three dissertations covering different topics in e-learning at the University of Veterinary Medicine Hannover, a survey about the use of multimedia in veterinary medicine was conducted. To test the differences and the utilisation spectrum of online-conferences, different systems were deployed in different situations.
Summary of results: In total 1776 took part in the survey and 34.9% were veterinarians and 65.1% students of veterinary medicine. The internet was used at least once daily by 93.3% and 61.7% communicated with instant-messengers. 94.6% used the internet for communication and 45.6% used the online conference software Skype. In total 591 persons took part in 63 online events. In the rating questions 99.4% said, that participating in the virtual event was fun and in total 96.1% people think that virtual events are useful.

Conclusions: Online conference systems provide short-term training and planning at a reasonable price over long distances.
Take-home messages: Online conference systems offer new opportunities for information exchange in veterinary medicine and are likely to be used in future for more advanced applications including conferences, information events and advances education.

3V14

Reflection on-line with the e-value system to reinforce residents' teaching skills

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Background: After learners participate in a skills program, evidence suggests that without reinforcement, skills performance decays. To reinforce resident teaching skills presented in our Residents-as-Teachers (RATS) program, we designed an on-line system using a commercial product, E-Value. After the program ended, it triggered residents and their students to reflect upon and assess their teaching encounters.
Summary of work: 10 PGY-1 Ob-Gyn residents completed a 6-workshop RATS program. Six months later using the E-Value system, residents self-assessed after teaching episodes with third year clerks. After residents completed their self-assessment, the E-Value system triggered the students to evaluate their residents.
Summary of results: Resident self-evaluations in all 6 teaching skills were consistently lower than student evaluations (means: resident 3.7-4.0, student 4.2-4.9). Examples of themes from free text comments: Residents: 1) Taking pride in using innovative teaching methods. 2) Gaining personal value from teaching. Students: 1) Enhanced learning through strong interpersonal connections with residents. 2) Valuing the residents interpersonal skills with patients
Conclusions: Residents' evaluated their teaching skills consistently lower than students. Personal growth from teaching emerged as an important theme from residents, compassionate treatment of patients, from students.
Take-home messages: Further studies are needed to evaluate the usefulness of web-based systems to trigger reflection and prevent the decay of teaching skills.

3V15

An online resource on effective small group work

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Background: All students at University participate in forms of small group work because this aids learning by allowing students to collaborate with peers, reinforcing and adapting, where necessary, their understanding through discussion. It is understood that online learning resources are an integral part of blended learning, complementing classroom contact.
Summary of work: Medical and technology students were filmed extensively in a variety of group work environments. This was produced as a DVD and also provided footage for an interactive Moodle course (VLE). Feedback was gathered on students' confidence in group work and on the effectiveness of the resources with both quantitative and qualitative data being collated.
Summary of results: 1) Confidence feedback showed an increase, although it was unclear whether this was due to the resources or to experience. 2) Resource evaluation suggested that the DVD and VLE were effective but usage could be more extensive.
Conclusions: The project produced two excellent resources and, for the future, could be targeted to encourage more usage across a wider audience.
Take-home messages: The use of educational technology is a useful addition to classroom teaching, but the future challenge is improving student participation.

3V16

Mechanism of musculoskeletal contraction: Development of e-learning sessions in musculoskeletal theme in competence-based curriculum

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Background: Implementation of SPICES principles is essential in competence-based curriculum. Accordingly, an online session on mechanism of skeletal muscle contraction was developed for 248 second-year medical students as part of e-learning activities in six-week musculoskeletal theme.
Summary of work: The online sessions consist of reading section followed by online quiz, themed online discussion, and essay writing. The activities were voluntary, with essay writing the only compulsory session. Summative test was done at the end of the sixth week. Students were also asked to rate the activities. Four hours of lecture time were also dedicated for this subject.
Summary of results: The average rate of the writing was satisfactory. The summative test on this subject indicated higher correct response than the overall Musculoskeletal test. It was also higher than previous year's response. The e-learning sessions were highly appreciated, with reading and online quiz favored more than the other.
Conclusions: A series of online sessions on mechanism of skeletal muscle contraction implemented in a six-week musculoskeletal theme were highly appreciated by the students. Moreover, it showed better summative test performance.
Take-home messages: In competence-based curriculum, development of student-centered learning method such as e-learning could improve students' chance to reach their optimal potential.

3V17

Focus-group methodology for need assessment in the development of a Mediterranean based e-learning system in agriculture

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Background: A three years research project for the development of an innovative e-Learning system for the agricultural sector in the Mediterranean countries, funded by the Italian Ministry for Research was carried out by Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise, in partnership with Scienter, Giunti Interactive Labs, and the School of Veterinary Medicine of Teramo. An e-Learning tool on detection, diagnosis, control and prevention of six Arthropod-borne diseases was implemented and delivered in English and French, to 100 official veterinarians.
Summary of work: The purpose of this paper is to show the preliminary investigation carried out to collect data concerning the general context and the profile of the beneficiaries of the e-Learning activities. A specific methodology was implemented to (i) collect general information on vocational training needs in Veterinary Public Health and Animal Health, focusing strengthens and weaknesses and also opportunities and treatments, and (ii) understand the real need of training courses on Arthropod-borne diseases, the urgency of them and the best methodological approach to adopt.
Summary of results: During an international focus–group, a significant sample of witnesses coming from Balkan and Mediterranean countries was interviewed and past, present and future scenarios were studied and compared, showing a positive trend.
Conclusions: Face to face sessions are still the most used.
Take-home messages: Traineeship experiences (also abroad) are very common but both Veterinary Public Health and Animal Health showed a real interest in a rapid introduction of "e-Learning" as the most flexible methodology, able to guarantee either the largest synchronous training or the cheapest cost per training/hour/participant.

3V18

E-learning – what works? Comparing the design of electronic modules for third year medical students

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Background: Electronic and Online Modules with precourse and postcourse assessments are used extensively on popular continuing medication education websites. We wished to look at the impact of such modules on undergraduate learning and assess different styles of providing course content for renal stones.
Summary of work: 27 students were divided into 3: Group A read a reputable book chapter on paper, Group B read the same in electronic pdf format, Group C undertook a designed electronic module based upon published guidelines (Cook et al.). All groups sat pre-course and post-course tests and filled in a survey.

Summary of results: All groups demonstrated improvement in results ranging from 15.3% in Group B to 32% and 31.5% in Groups A and C respectively. 21/27 (78%) of students found the course 'interesting' or 'enjoyable' whilst 19 (71%) felt they learnt 'a fair amount' or 'a great deal'.
Conclusions: Those who read the book chapter electronically had a lower increase in performance compared to other groups. This indicates that simple provision of text electronically demonstrates less benefit compared with provision in a guideline based interactive format.
Take-home messages: Precourse and postcourse assessments are valued by students as a means to consolidate learning. Online learning adds most to education if provided in an interactive format.

3V19

A compass for self-direction and reflection: Combining technology and adult education theory to facilitate learning and assessment in medical education

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Background: Reflection, self-directed learning, development of higher order thinking – these are characteristics that educators would like to instill in all physicians-in-training. But how? We have developed a new system specifically designed for learning and assessment at the Tufts Family Medicine Residency Program to put these ideas into practice. The Compass Learning Management System, an online learning environment, supports and enhances this new educational model.
Summary of work: The framework of our system is competency modules, which describe learning objectives that represent the minimum understanding, skills, and knowledge that a resident must master by the end of training. Each competency module includes multiple assessment tools, suggested resources and a written reflective component. Compass supports the principle of competency-based learning and includes features such as space for reflective entries, self-assessment, learning resources, learning plans, and a community forum. It allows learners to chart their learning trajectories and showcase knowledge acquired.
Summary of results: We will present our system framework and our Compass learning environment.
Conclusions: Although the system is still being studied, we believe this is an innovative training method based on solid educational theory and new technologies.
Take-home messages: The new educational system at Tufts Family Medicine Residency combines new technologies with sound educational theories to create self-directed, reflective, life-long learners.

3W Posters: Written Assessment and Portfolio Assessment

3W1

How can we assess reflective writing more consistently?

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Background: Reflective writing is considered to have an essential role in developing reflective practice. Peninsula Medical School students have to write reflective essays twice a year and these are summatively assessed by academic tutors who are all experienced scientists or doctors. The use of tutors has the potential advantage that they can give personal and individual feedback, however, most come from a generation that is unfamiliar with reflective writing. In spite of teaching sessions about reflective writing and annual benchmarking using anonymous scripts, disagreement over standard setting remained.
Summary of work: To address this, assessment criteria and descriptors were modified to give more specific indication of levels expected in each year. Then tutors were required to compose a personal reflective account, assess one another using these criteria and provide feedback about how to deepen the reflection.
Summary of results: Feedback from tutors was very positive and results of a subsequent benchmarking exercise demonstrates greater agreement on standards.
Conclusions: Assessors of reflective writing may have insufficient personal experience themselves. They need clear criteria and benefit from practice and feedback themselves before they assess students.
Take-home messages: Experiential learning of reflective writing is important for teachers as well as students.

3W2

Knowledge management on the results of national license examination part 1 (NLE-1) of medical students at Srinakharinwirot University

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Background: Since 2006, the NLE-1 has been used to assess the competency of medical students after preclinical years by Thai Medical Council. Medical students from every medical school in Thailand as well as graduates from aboard could apply to take this examination.
Summary of work: It was appeared that more than 90% of our students were able to pass the examination for the past three years. To explore the resulting achievement, the average scores in all topics of our students were compared to those of total medical institutions. Moreover, opinions from an arranged, brain-storming session were gathered to strengthen our mission.
Summary of results: It was found that the average scores of our students were higher than those of total students taken the exam in almost every part. This may result from our integrated, PBL-based curriculum as well as a comprehensive examination for the third-year students, contributing to well-prepared students for the NLE-1. Giving fruitful opinions and powerful narratives, they all realized their devotion as well as good student-teacher relationship effectively promoted teaching-learning atmosphere.
Conclusions: In summary, knowledge management could be beneficiary to define a pivotal impact of how we achieved this goal.
Take-home messages: The results indicated that the quality of our preclinical education has been continuing developed and maintain the standard.

3W3

Applying Rasch model for assessment of medical education in Mashad University of Medical Sciences in Iran 2009

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Background: The Rasch model and item response theory (IRT) models have been around for half a century. They are now widely employed by almost all testing agencies all over the globe. Despite its widespread applications for practical testing situations and research purposes, it is a quite new area in the Iranian circles of measurement. The main purpose of this study is to disseminate the basic knowledge of Rasch measurement and IRT.
Summary of work: This is a study to determine the difference between two analysis models in evaluation of multiple choice questions. We selected one final test (one course's subject) that includes 80 items and determines difficulty index and ability index that are based on IRT. The sample was divided into groups, a high-ability group and a low-ability group. We computed these indexes with Winsteps software.
Summary of results: We found that mean of score in two groups is close. Items, had significant difference in difficulty ($p<0.05$) in two groups. The results revealed that parameter of items (difficulty index) are not dependent on abilities of the examinee.
Conclusions: Psychometricians have always been concerned about the inadequacy of conventional methods of testing in educational and psychological measurement.
Take-home messages: The Rasch model can decrease teachers' concern about precision of measurement. By using this method we estimate difficulty index that it is not dependent on person's ability.

3W4

Concept map assessment in medical education: Reliability and learning outcomes correlation

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Background: Concept mapping is a tool to represent ideas with related concepts by graphic writing. It can enhance learning process and reflection.
Summary of work: Objectives: To determine the reliability of concept map assessment and knowledge correlation. Concept maps of 68 fifth-year medical students of Hatyai Medical Education Center during 2008 and 2009 academic year were collected. After orientation and workshop, each student was assigned to write 4 patient reports with concept maps during rotating to pediatric department. Assessment scorings with 5-point

rating scales were categorized into 4 structures (cross links, hierarchy, concept links and examples) and were assessed by 2 raters. Reliability using Generalizability theory with two-facet case nested within student design was done. Knowledge correlations were assessed using MCQ, MEQ and CRQ as learning outcomes.
Summary of results: The mean scores of concept maps were 45.4% which was highest in concept links. There was correlation of each structure between 2 raters particularly in hierarchical organization. Interrater reliability was high (G-coefficient =0.99). The knowledge correlation was found in MEQ only (r=0.24, p value=0.04).
Conclusions: There were high reliability for psychometric measurement of concept mapping and correlation with MEQ as learning outcome.
Take-home messages: Concept mapping is a reliable assessment tool and correlates with problem solving process like MEQ. However it's a specific skill and needs continuous practice.

3W5

An assessment of functioning and non-functioning distractors in multiple-choice questions: a descriptive analysis

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Background: Four- or five-option multiple choice questions (MCQs) are the standard in health-science disciplines, both on certification-level examinations and on in-house developed tests. Previous research has shown, however, that few MCQs have three or four functioning distractors. The purpose of this study was to investigate non-functioning distractors in teacher-developed tests in one nursing program in an English-language University in Hong Kong.
Summary of work: Using item-analysis data, we assessed the proportion of non-functioning distractors on a sample of seven test papers administered to undergraduate nursing students. A total of 514 items were reviewed, including 2056 options 1542 distractors and 514 correct responses). Non-functioning options were defined as ones that were chosen by fewer than 5% of examinees and those with a positive option discrimination statistic.
Summary of results: The proportion of items containing 0, 1, 2, and 3 functioning distractors was 12.3%, 34.8%, 39.1%, and 13.8% respectively. Overall, items contained an average of 1.54 (SD=0.88) functioning distractors. Only 52.2% (n=805) of all distractors were functioning effectively and 10.2% (n=158) had a choice frequency of 0. Items with more functioning distractors were more difficult and more discriminating.
Conclusions: The low frequency of items with three functioning distractors in the four-option items in this study suggests that teachers have difficulty developing plausible distractors for most MCQs.
Take-home messages: Test items should consist of as many options as is feasible given the item content and the number of plausible distractors, in most cases this would be three.

3W6

MCQ, MEQ, CRQ: which one is the best?

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Background: The most widely used methods to assess knowledge include multiple choice questions (MCQ, multiple essay questions (MEQ) and constructed response questions (CRQ). This study aims to evaluate the best method for assessing medical student's knowledge.
Summary of work: Cross sectional study was performed among the fifth year medical students to evaluate the correlation between each method and the National Examination (NE), gold standard for assessing student's knowledge. The score in each method were used to determine the correlation with NE.
Summary of results: The score of 109 medical students were collected during March 2007 and February 2009. The median score were 56.25, 60.50 and 61.33 percent in MCQ, MEQ and CRQ, respectively. The median score of NE was 60.67.The MEQ and CRQ score were statistically significant correlated with NE score, $p \leq 0.01$. The MEQ score had the highest correlation, R = 0.384, follow by 0.316 in CRQ score and 0.210 in MCQ score, p = 0.03.
Conclusions: MEQ performed the best correlation with NE than CRQ and MCQ test. It should be the best method to assess student's knowledge.
Take-home messages: MEQ and CRQ may be the methods that should be used for assessment student's knowledge.

3W7

Polytomous scoring models are more appropriate for students' achievement evaluation

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Background: Through a scoring scheme, test scores are assigned to individuals according to their item responses. Research interests were concentrated on dichotomous models, which involve test item responses scored either right or wrong. Since the 1980s interest in polytomous models began and each category of response is scored according to its degree of correctness. This study aims to show that in medical settings, the polytomous model results in a more consistent evaluation.
Summary of work: Item response data on a sample of different courses for medical basic science examinations given to 130 students at TUMS School of medicine were submitted to a dichotomous and a polytomous scoring model alternately to get two different score sets. The estimate of each examinee's ability in either case was compared with the same students' total score on the national medical basic science examination scored in the two different ways. The results in each case were compared to see which scoring model would show a better consistency.
Summary of results: The results indicated that under most combinations of research conditions, polytomous models produced more accurate ability estimates than the dichotomous models.
Conclusions: We expect to gain much better results provided we had originally designed test items for polytomous scoring.
Take-home messages: Switching to polytomous test models should contribute to a more appropriate and healthier educational atmosphere in medical schools.

3W8

Applicability of feedback about MC items

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Background: Analyzing statistics of MC items represents one part of the assessment cycle (Fowell, 1999). This feedback should improve the quality of MC items in the long term. The team of the German progress test medicine regularly gives feedback to authors when questions were used in the test. In this study we wanted to know if the requirements of improving item quality due to the feedback are met: getting, understanding and using the feedback.
Summary of work: We sent a short questionnaire to all 139 authors of the last two tests via electronic mail and via traditional mail.
Summary of results: About one fifth of all authors do not get the feedback at all. Almost all authors who get the feedback and look at it say they would understand it. But only a small group actually improves the questions.
Conclusions: Feedback within the assessment cycle is only useful when it reaches the addressee and when it is utilized. Therefore we have to ensure that authors get the feedback and help them to use the feedback to improve their questions.
Take-home messages: Don't just give feedback, ensure that it is translated into action.

3W9

A pilot project to demonstrate the feasibility of exchanging data related to learning portfolios among medical schools

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Background: Information about learners in medicine (students, postgraduate trainees, and practicing doctors) is collected and stored in a variety of formats and places. Learners must transmit information to others to progress in their careers. Lack of interoperable systems results in duplication of effort.
Summary of work: The eFolio Interoperability Initiative (EII) is a collaborative of US medical schools undertaking a pilot to test the feasibility of exchanging data on progress of students through medical school using standardized data definitions. The student trajectory was chosen as the pilot because relevant data are

important in the transition to postgraduate training but are currently difficult to access, compare and comprehend readily.
Summary of results: EII has agreed upon categories of student activities, developed a visual presentation of student progress and technical standards for key data sets, and begun collecting data. A formal test of interoperability is scheduled for spring 2010.
Conclusions: The visual representation of the trajectory is readily understood. It was feasible to reuse existing data specifications, a major challenge is technical difficulty of assembling information at each school due to free-text data storage and proprietary software.
Take-home messages: The EII pilot is a first step toward the goal of allowing physicians to provide trusted, original source verified data to requesting authorities.

3W10

Comparison of medical students' logbook assessment

Pathikan Dissaneevate (Hatyai Medical Education Center, Songkhla, Thailand)*

Background: Logbook is one kind of portfolios for documenting learning experiences. It can be used for formative or summative assessment and be assessed by teaches only. However, students could assess their own as well as for systematically recording habits.
Summary of work: Objective: To compare logbook assessment scoring between students self assessment and teachers. Methodology: Logbooks of twenty eight 5th year medical students when rotating to department of emergency medicine and accident were evaluated. Assessment form focused on contents of knowledge, procedures and used 4-point rating scales for completeness. Data analyses were performed by paired t-test and Mann-Whitney U test appropriately depending on data distribution.
Summary of results: The mean scores rated by students and teacher were 21.82+0.52 and 21.17+0.28(p=0.16) respectively. Total score was 24. By category, the difference of mean scores between student and teachers on contents of knowledge and procedures were 0.46+0.24(p=0.07) and 0.14+0.26(p=0.59) respectively.
Conclusions: There are no significant difference of logbook scoring between students and teachers for quantitative assessment. It might be better if patients' problem discussions are included in logbooks which need teachers for qualitative evaluation.
Take-home messages: Logbook providing quantitative data on the students' activities can be evaluated by self assessment as good as teachers.

3W11

Faculty development is a MUST when implementing an ePortfolio

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Background: The whole scale implementation of portfolio use is lacking in US medical schools. We launched an electronic portfolio (eportfolio) to assess learning in the sociocultural curriculum. In order to implement faculty development was necessary as none of the faculty had prior experience with utilizing portfolios in student assessment.
Summary of work: Three workshops allowed 12 faculty from 10 different specialties and 5 different departments to practice the skills necessary to provide proper mentored reflections to students. The faculty practiced the methods and developed a scoring rubric.
Summary of results: Faculty provided feedback for 165 reflective essays. Evaluations were favorable. All agreed that the workshops allowed them to better understand the use of and their role in eportfolios. The activity took on average of at least 13 hours to complete.
Conclusions: It is possible to introduce eportfolios as an assessment tool in a longitudinal curriculum.
Take-home messages: Faculty are novices at this type of feedback, faculty development is essential to successfully implement a portfolio in a large medical school class. Note of caution, mentored reflection of eportfolios is time consuming. This must be taken into account when deciding about further implementation.

3W12

A survey looking at Junior Doctors' beliefs about the electronic-portfolio system

E Joynes and A Fergusson (Heart of England NHS Foundation Trust, Birmingham, UK)*

Background: An online portfolio referred to as the electronic or E-portfolio has been developed for use in postgraduate medical education in the UK. It is used at foundation year 1 (FY1) and 2 (FY2) level. Little work has been published on its use and the opinions of trainees who use it.
Summary of work: A questionnaire-based survey was conducted across the West Midlands Deanery to assess junior doctors' opinions on the E-portfolio.
Summary of results: 46% of junior doctors found the E-portfolio user-friendly and 43% found it easy to navigate. 53% experienced technical difficulties, and felt a lack of training amongst trainers and trainees was an obstacle to implementation. 26% of junior doctors preferred the on-line to paper-based portfolio, whilst 51% preferred the paper-based portfolio.
Conclusions: This study highlights a number of obstacles associated with the E-portfolio, namely a lack of training and a number of technical difficulties when accessing the website. Despite this, a quarter of doctors preferred the online to paper-based portfolio, and most found the E-portfolio user friendly and easy to navigate.
Take-home messages: With better training and more technical support, the E-portfolio has a lot to offer post-graduate medical education.

3W13

Engaging trainees in portfolio building

A Williamson and N Walton (Newcastle Upon Tyne Hospitals NHS Foundation Trust, Freeman Hospital, Newcastle Upon Tyne, UK)

Background: Portfolio building is an integral part of modern medical education. However, it's a challenge in a busy clinical life and 68% of our trainees submitted inadequate portfolios for final review.
Summary of work: Administrative staff were trained to review portfolios at 3, 6 and 8 months and provide qualitative feedback believing this support would reduce the time taken to review portfolios at year end. A detailed timeline was produced to guide trainees in building their portfolio over the year
Summary of results: This intervention made no difference to the quality or timeliness of portfolios. Focus groups revealed trainees valued feedback on their final submission but found it difficult to engage throughout the year.
Conclusions: 1) Trainees wanted to focus on clinical activity. 2) Trainees should be encouraged to view portfolios as part of lifelong learning and a tool to record their development and achievements. 3) Trainees wanted feedback at year end.
Take-home messages: 1) A change of focus to demonstrate how portfolios can help future recruitment into specialty was more effective. 2) We plan to run "mock" portfolio reviews to illustrate the difference between good and poor portfolios. 3) We were commissioned to write a BMJ learning e module based on our experience with engaging junior doctors in portfolio building

3W14

The reliability of assessment for online CPD portfolios

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Background: In 2005 we developed an assessable online CPD portfolio for pharmacists. Reliability of this assessment was established during a pilot. We now wish to determine if the initial reliability of assessment has been maintained in the 5 years after implementation.
Summary of work: We developed an assessment system that evaluated nine different elements of each reflective CPD cycle. The overall portfolio rating [1]-4) was based on the percentage of acceptable cycles. A number of remediation options were available, dependent on portfolio rating. Portfolios were evaluated by trained assessors. Agreement between assessors for the final portfolio rating was established using control portfolios. Inter-assessor reliability was determined using percentage agreement.
Summary of results: Over five years 1166 CPD portfolios were assessed by an average of 12 assessors per year. Agreement between assessors for control portfolios was 74.5% (2005, 66.6% (2006, 59.5% (2007, 59.9% (2008) and 66.7% (2009). Excellent and unacceptable portfolios tended to yield higher levels of agreement than portfolios at an intermediate rating. The decline in agreement has been reversed through better assessor training.

Conclusions: The online CPD system produced higher inter-assessor agreement than previously reported. The decline in agreement, observed over time, was improved through better training.
Take-home messages: Inter-assessor agreement was higher using this system than previously reported.

3W15

Can a learning portfolio assess the competency of anaesthesia residents?

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Background: To demonstrate validity, reliability and practicality of a learning portfolio in general competency assessment according to Thai Medical Council's learning objectives in first year anaesthesia residents.
Summary of work: A learning portfolio was developed from Thai Medical Council general competencies, academic activities and performance assessment in several modalities including self- reflection and development plan. Twenty four first year anaesthesia residents and 8 mentors were enrolled. One staff mentored 3 residents and rated their competencies in portfolios twice, 4-months apart. Content validity was assessed by 6 content experts. Concurrent validity of portfolio was determined by agreement with faculty global rating and in-training examination. Inter-rater reliability of portfolio was evaluated by 5 faculties which rated 24 residents. Practicality was commented upon by all mentors and residents in the questionnaires.
Summary of results: All content experts accepted that this portfolio could assess general competencies of the first year anaesthesia residents. Concurrent validity of portfolio was demonstrated by high overall agreement with faculty global rating and in-training examination (91.7 and 79.1%). Inter-rater reliability was good (Intraclass correlation = 0.8144). Majority of mentors and residents (>70%) agreed with the benefit of portfolio based on learning development and competency assessment. However, half of residents were not satisfied with the burden from portfolio.
Conclusions: A learning portfolio was a valid and reliable tool in competency assessment, but not practical in the residents' point of view.
Take-home messages: A learning portfolio was a valid and reliable tool in competency assessment, but not practical in the residents' point of view.

3X Posters: Management of Postgraduate Training

3X1

A sense of community lost? First year doctors: How does the loss of free accommodation affect professional development?

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Background: Before 2008, UK healthcare organisations were legally bound to provide free accommodation for first year doctors (FY1s), but can now charge for it, resulting in some FY1s living out. We performed a qualitative study exploring how losing free FY1 accommodation affects professional development.
Summary of work: Focus groups were conducted in two English hospitals, with FY1s who live in and live out of hospital accommodation. Questions were asked on integration into hospital communities, development of support networks, and how this affected professional development.
Summary of results: Most FY1s who live in value the support of other FY1s and the hospital community, although the quality of accommodation affects this integration and development of supportive networks. Those living out generally do so with a partner, but talk of having to work harder than those living in to integrate with FY1 and hospital communities, and develop social and support networks. All participants agreed that belonging to the hospital community is important for their professional development.
Conclusions: FY1s who live out of hospital have to work harder than those living in to become part of the FY1 and hospital communities, which plays an important role in their professional development.
Take-home messages: Healthcare organisations should ensure that accommodation provided supports communities of professional practice.

3X2

Expected and unexpected effects of a re-structured call schedule on two internal medicine clinical teaching units: A qualitative study of attending physicians, residents, and medical students

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Background: Because of patient safety concerns, resident work-hour regulations, and attending physician dissatisfaction, a new internal medicine clinical teaching unit (CTU) structure was implemented at two university teaching hospitals in 2009. The new system, in which team members would take call on different nights, was widely anticipated to be superior, but there were concerns regarding unanticipated negative effects, especially on team camaraderie.

Summary of work: Ten focus groups were conducted with faculty, residents, and students. Discussions were audio-taped and analyzed using grounded theory.

Summary of results: Seven themes emerged. Four were role-related: physician, manger, student, and teacher. The remaining three influenced the role-related themes: workload (tangible theme) and accountability and 'teamness' (both intangible themes). Although there were perceived advantages to the new system (improved patient safety, more predictable and distributed workload, increased accountability, there were major unexpected disadvantages (loss of learning opportunities for senior residents, challenges to teaching for faculty, and greater impact of absenteeism). Surprisingly, 'teamness' was only a minor issue.

Conclusions: The impact of the new model was largely positive, but several unanticipated negative outcomes were found.

Take-home messages: When changes are introduced to training programs, it is important to study them to ascertain all effects. Without performing an open-ended exploratory study, these would not have been determined.

3X3

Belief in gender polarisation is both manifested and resisted by medical educators

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Background: Medical apprenticeship involves a work focus, a master-apprentice relationship, and a community of practice that defines the epistemology of clinical practice. Gender roles affect medical practice and education and it is necessary to include discussion of the impact of gender on medical practice as part of the curriculum. Gender polarisation is defined as the view that male and female roles lie at opposite ends of a continuum (Bem 1993, Lorber 1994). It is important to understand how medical educators respond to perceived differences in the roles of women and men as doctors.

Summary of work: The aim of this study is to determine whether gender polarisation is evident in curriculum talk. The research method is a doctoral case study using in-depth interviews of twenty eight participants, all either ophthalmic trainers or trainees.

Summary of results: The study indicates that the predominant curriculum model is apprenticeship and that gender equity and role modelling are viewed as a required part of teaching practice.

Conclusions: Examples of gender polarisation are evident, as are statements of resistance.

Take-home messages: Identifying gender role difference is both problematic and useful. Future medical educators might draw upon these data in making otherwise hidden gender values more open to scrutiny.

3X4

The Gold Guide - Ensuring high quality application of the regulations for postgraduate training in the UK

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Background: Historically there have been separate regulations for: Foundation training, GP training, and other speciality training. In 2007 these were brought together in one manual known as the Gold guide, with a new version being produced each year. The guide represents a significant shift in the rights and responsibilities for trainees, their educators and those who manage them. Having originated from multiple sources and decades of local (good) practice, it is apparent that there was a diversity of application which had the potential to lead to inconsistencies in how training was being managed. A public/private partnership was created between the Deanery and Eversheds' solicitors to look into the issues.

Summary of work: Eversheds delivered through interactive workshop training on the guidance set out in the Gold guide, pitfalls and practical application.
Summary of results: There was recognition that there were inconsistent practices regarding practical application of the Gold guide.
Conclusions: Following the workshop, a senior solicitor from Eversheds was seconded to the Deanery for a 6 month period to review and develop policies and procedures to ensure transparency of process and thoroughness of application.
Take-home messages: Apply your policies consistently!

3X5

Developing a Cultural Consensus Analysis (CCA) based on the internal medicine milestones

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Background: A national task force identified domains and developmental milestones from the national competencies for resident training. Cultural Consensus Analysis (CCA) is a standard anthropological technique that identifies value conflicts.
Summary of work: 1) Convert the 39 milestones domains into active statements. 2) Reduce the total number to twelve by summarizing and combining. 3) Simplify these statements. 4) Checked the initial face validity.
Summary of results: CCA statements: Care for patients by ordering tests and procedures correctly.
Care for patients with different diseases in the clinic, nursing home and hospital. Know how to read basic labs and x-rays, and use medications. Know how to handle patients with different diseases .
Listen to feedback, work to find weaknesses, and try to improve. Find and analyze new studies to help patient care. Talk clearly with patients, families, doctors, staff, and outside groups. Keep timely, complete, and clear chart notes. Show caring and respect for patients and others. Show respect for society and the medical profession. Work with the team to get quality patient care and make the best system. Think of cost and risk when making decisions.
Conclusions/Take-home messages: A set of milestone CCA statements exists. It can be used to test receptivity to milestones and validate the six residency competency model.

3X6

In-patient record keeping in Oral and Maxillofacial Surgery (OMFS) units in the west of Scotland: Are we getting closer?

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Background: Good quality record keeping is emphasised by the GMC, GDC and defence unions which have their associated guidelines. It is required, not only to keep a record of all treatment performed and adequate referrals, but also for the growing medico-legal implications.
Summary of work: 60 patient records were reviewed by a single investigator from three OMFS units, six months apart, looking at the same group of junior doctors. The standard of record keeping was compared against the CRABEL scoring system.
Summary of results: Overall adequacy for cycle 1 of the record keeping was 77% of records completed adequately (range 42%-96%) and this rose to 84% (range 64%-96%) by the 2nd cycle. Record keeping was reinforced to the staff and the initial clerking pro-formas were modified and their use emphasized between cycles. A number of areas were deficient during both audit cycles with some improvement by the 2nd cycle.
Conclusions: Deficiencies in record keeping will always be present. Implementation of simple techniques and continual reminding/education of the importance of good record keeping may lead to improvement.
Take-home messages: Continuous education at both the undergraduate and postgraduate level is required to ensure adequate record keeping.

3X7

Improving the quality of supervision in a large trust

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Background: Educational Supervision (ES) of Junior Doctors is a pivotal component of training. Definition of the role of supervisor and time required for effective supervision is unclear.
Summary of work: A project was undertaken to review the existing process. A questionnaire assessed supervisor allocation, duration, content of meeting, and satisfaction with the process. Trainee focus groups and supervisor interviews were undertaken. Trainers wanted accessible training and a programme was developed and delivered in departmental meetings with excellent feedback.
Summary of results: 1) Supervisor response was 73%, 2)100% of trainees had an allocated ES Meetings averaged 30 minutes, 3)70% of trainees with satisfied with the process, 4) 56% of trainers with satisfied with the process, Average ES time per trainee per month was 0.125pa.
Conclusions: Trainers wanted clearer guidance on the process. Dissatisfaction was highest in the supervisors who had not been trained but they also felt they didn't need training. Trainees expressed high satisfaction with the process and emphasised the importance of mentoring by supervisors.
Take-home messages: 1) further investigation into time for workplace assessments is required, 2) educational supervision training sessions adapted to local needs and delivered within departmental meetings increases engagement, 3) a short ES handbook was produced to clarify process and has been widely used by supervisors.

3X8

The function of pedagogical clinical lecturers in Denmark

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Background: A pedagogical developing function, consisting of the clinical associate professors (pedagogical clinical lecturers (PCLs)) from all specialties affiliated, was established in 2004 as a provincial function in Denmark. Having existed for some years, we decided to ask, those in training for specialists and those associated with postgraduate medical education, about their knowledge of the functions of the PCLs.
Summary of work: An electronic based questionnaire was mailed to 1355 recipients in the eastern part of Denmark. The returned questionnaires were analysed by Survey-Xact ©.
Summary of results: 687 (51%) persons responded to the questionnaire: 52% were in specialty training, 48% were tutors or doctors with administrative functions. 69 % worked in hospitals, while 31% worked in general practice. 114 (17%) expressed knowledge of the PCL and had personal contact with the PCL of their specialty concerning educational issues.
Conclusions: The existence and function of PCLs are known by a smaller percentage than expected. This may be due to the PCLs participating in a variety of overlapping educational jobs, without clearly communicating when they are acting as PCLs.
Take-home messages: As knowledge of PCLs is limited, it is important to bring attention to their existence and functions.

3X9

Supporting new program directors: A national orientation program

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Background: In Canada, 100-120 new program directors are appointed annually. Many state they are not prepared for the challenges of administering a postgraduate training program.
Summary of work: For the past 10 years, the Royal College of Physicians and Surgeons of Canada, the national accreditation body for all specialty programs except family medicine, has provided an invitational orientation workshop for new program directors. Program directors from different specialties and different universities are invited to attend this workshop. Based on needs assessment, this interactive workshop includes sessions on program development and evaluation, resident evaluation, and developing objectives. Sessions are offered by content experts including experienced program directors. Teaching methods include didactic presentations, small-group discussions and simulation using mock program reviews.
Summary of results: Eighty percent of new program directors attend this orientation. Post course feedback indicates that the workshop improves program director confidence by providing specific information and job skills as well as offering important networking opportunities.
Conclusions: A national orientation program for new program directors is effective in assisting them understand the challenges of administering a program.

Take-home messages: A national orientation program for new program directors offers a unique opportunity for new program directors from different specialties to network and learn the skills for their new role.

3X10

The minor ops list - good old fashioned general (practice) surgery

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Background: With reduced junior doctors' hours, increasing specialisation and patient expectation that consultants perform their surgery, opportunities for junior doctors to "cut their teeth" removing lumps and bumps is diminishing.
Summary of work: Every week, in a well-equipped treatment room in the surgical outpatient department is a 'choose and book' minor ops list. Approximately five patients undergo the excision of skin lesions under local anaesthetic. This list has traditionally been extremely unpopular amongst senior surgical trainees, who find the procedures too basic and do not attend.
Summary of results: Over the last four months FY2 doctors have attended the list, taking charge, greeting and consenting the patients. Both GP trainees and junior surgeons excise lesions from large moles to lipomas and sebaceous cysts under the supervision of an attending registrar.
Conclusions: FY2s learn to handle surgical instruments, diathermy, tissue dissection, haemostasis and develop their suturing skills. Most importantly, however, they acquire diagnostic skills and judgement in differentiating lesions that are best left alone or require excision under general rather than local anaesthesia.
Take-home messages: In an environment where day surgical procedures are increasing and training opportunities are diminishing this list provides an excellent training opportunity for both future GPs and surgeons to acquire basic surgical diagnostic and procedural skills.

3X11

Small groups sessions: Enhancing participation

A N R Kishore (Sussex Partnership NHS Foundation Trust, Sussex, UK)*

Background: Reduction in time available for training in medical education has increased the need to maximise available learning opportunities.
Summary of work: This study examined Journal clubs, Case discussions and Audit presentations as formal, repeated, regular small group sessions focusing on ways to enhance participation.
Participant observation techniques were used to examine Case discussions, Journal clubs which were compared with each other and against Audit presentations in terms of the number and type of interactions.
Summary of results: The flow of talk represented the degree of participation. Journal clubs were more likely to have a linear flow of talk with lesser participation. Case discussions were more likely to have a free flow of talk and greater participation. Participation, discussion and negotiation are important aspects of learning in small group sessions.
Conclusions: The study found the participation could be enhanced by contextualising information through generating more personal examples, by generating more hypotheses, by the presenter taking on the role of a facilitator and if the locus of knowledge was seen to lie in the participants rather than in the presenter or the paper. Participants have a choice in shaping the structure of the sessions. Understanding, developing and refining clinical decision making is enhanced through participation and enhancing personal knowledge.
Take-home messages: View Journal clubs as small group sessions where participation can be enhanced to facilitate learning.

3X12

Clinical librarian - Reaching out for evidence

M Kerr, R Cox, R Mir, P Sinha, L Taylor and B V Prathibha (William Harvey Hospital, Ashford, UK)*

Background: Modernising Medical Careers (MMC) and EWTD have challenged the way junior doctors are trained. New and innovative ways are necessary to ensure that training is adequate and of good quality. We describe a new initiative undertaken at East Kent Hospitals University NHS Foundation Trust (EKHUFT).
Summary of work: Initiative: EKHUFT is a large Trust with three acute hospitals each with its own education centre and library. Traditionally students and juniors access the library services either within or out of hours

for any evidence and literature review. We wanted to undertake an initiative where the librarian would go out to the students and juniors in their area of work and "take the evidence to the bedside." The Clinical Librarian does just that. Apart from helping with literature reviews, he also helps with journal clubs and interview preparation. Being part of the clinical team, his contribution emphasises the importance of evidence based practice in our daily work.
Conclusions/Take-home messages: Medical education needs to be responsive to the changing working practices in Medicine. Here we portray a good example of the library services adapting to and adopting a novel and meaningful way of integrating service and education.

3X13
Out-patient clinic experience: Time to re-think?
P Newens, R Mir, L Taylor and B V Prathibha (William Harvey Hospital, Ashford, UK)*

Background: EWTD has challenged the way junior doctors are trained. Increasingly the core medical trainees (CMT) have less exposure to out-patient clinics as the total time spent is reduced. The changing patterns of work also make it difficult for juniors to attend clinics
Summary of work: Initiative: EKHUFT is a large trust with three acute hospitals and many specialities. An initiative was proposed whereby out-patient clinics were "open" to juniors. They could then "book" themselves into the desired clinic eight weeks in advance. The choice of clinic was based on their previous experience and educational needs. Their attendance was confirmed two weeks before the clinic so that specific patients could be slotted in. This approach gave the trainees ownership of their training and an opportunity to map their training according to the curriculum. It required support from the consultants and responsible behaviour from trainees but addressed the needs of both in a very successful way.
Conclusions/Take-home messages: Traditional ways of working are being challenged by working time directive and modernising medical careers. It is time to re-think the way we undertake learning and service delivery to ensure that one is not at the expense of the other.

3X14
European working time directive (EWTD): Evaluating the impact of international legislation on a district general hospital
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Background: The European Working Time Directive (EWTD) states that from 1st August 2009, the maximum number of hours that a junior doctor (not consultants) can work is 48 hours per week (BMA, Online). Compliance with the EWTD in the United Kingdom has received a mixed response from the UK medical profession. Proponents of the implementation of EWTD hours claim that it will lead to improved patient care. Since implementation a number of issues and concerns have been raised by opponents of the new regulations. The biggest pressure will fall on training, as juniors will be spending much less time actively learning in the wards and theatres.
Summary of work: 50 questionnaires with single answer and free text for comments were sent out to evaluate the opinions of both junior and senior doctors at a district general hospital in Kent with regards to the implementation and consequences of a 48 hour week for junior doctors.
Summary of results: 32% were unhappy with the introduction of EWTD, 77% felt that EWTD would affect clinical exposure of junior doctors, 55% felt that EWTD would affect patient care. 83% felt it would affect junior doctors' training. Respondents were most worried about impact on the ability of junior doctors to gain the required level of competency to practice safe medicine.
Conclusions/ Take-home messages: Our findings support what has been reported anecdotally. Doctors are anxious about the reduction in hours and feel that the EWTD will impact negatively on patient care, training opportunities and personal finances.

3X15
Attitudes of medical students to surgical training and the European Working Time Directive
J Reilly, A Macey*and V Shah (University of Glasgow, Faculty of Medicine, Glasgow, UK)*

Background: The European working time directive (EWTD) is the subject of much debate, especially in relation to the training of surgeons. This survey set out to examine the attitude of medical students to training compliant with EWTD restrictions. Also visited, were the factors drawing students to surgery, the preparations for a surgical career in medical school and the influence of a student's sex.
Summary of work: The survey was returned by 83 delegates at an Undergraduate Surgical Conference. Data was analysed using SPSS.
Summary of results: 67% wanted to see surgery exempt from the EWTD. These respondents were more likely to be male (Exp(B)=3.75, p=0.013) and/or to have been told by a teacher that the EWTD would result in poorer quality training (Exp(B)=0.22, p=0.046). 80.5% thought that the 48 hour week would make it difficult to gain enough experience whilst training in surgery.
Conclusions: The vast majority of students surveyed believe they will get insufficient training in a 48 hour week. This is in line with the views of surgeons writing in the literature. However, they welcome the resulting increase in free time.
Take-home messages: Students seem torn between the better quality of life and the poorer quality of training offered by the EWTD.

3X16
How handover and ward rounds complement each other to maximise educational opportunities
A Mathew (Western Sussex Hospitals NHS Trust, Department of Paediatrics, Worthing, UK)*

Background: Recent changes in postgraduate medical training in the UK have led to reduced clinical contact for trainees, all impacting on educational opportunities.
Summary of work: An Action Research project evaluating educational engagement at handover and ward rounds, through focus groups, semi-structured interviews and non-participant observation.
Summary of results: This research demonstrated how handover can provide several advantages to trainees by promoting the concept of continuity of care, provide an ideal forum to promote education and training and be an essential and complementary prelude to the ward round especially in the light of the restrictions placed by the European Working Time Directive (EWTD). Incremental progress in education and training can be achieved through promoting the ideals of communities of practice, ensuring appropriate workplace affordances, co-participation and the development of a symbiotic relationship between trainer and trainee, being mindful of differentiation and individual capabilities and finally by stimulating reflection through feedback.
Conclusions: When applied diligently the different settings provided by handover and ward rounds complement each other and demonstrate encouraging evidence that they serve to enhance educational opportunities.
Take-home messages: When provided in tandem handover and ward rounds cushion the restrictions the other imposes and demonstrate considerable synergies that maximise educational opportunities.

3Y Posters: Outcome and Competency based Education

3Y1
Development of a competency framework: The process and the outcome are both important
Ali Aminian, Azim Mirzazadeh, Mohamad Jalili, Ali Afshari, Ali Labaf, Fariba Asghari, Zahra Sadat Meshkani, Laya Rahban, Narges Saleh and Sara Mortaz Hejri (Tehran University of Medical Sciences, Tehran, Iran)*

Background: School of Medicine of Tehran University of Medical Sciences (SoM-TUMS) conducted a comprehensive evaluation of its MD program during the last three years. One of the most important challenges in this program is lacking well defined outcomes. This is the foundation of an outcome-based education which TUMS has decided to pursue in its educational reform process.
Summary of work: After two focus group sessions with our graduates, and two nominal group techniques sessions with more than 60 faculty members of the school of medicine, we have defined the principal domains of our competency framework. Each area (level 1) has a definition (level 2) and subdomains (level 3). In a full day workshop, the participants defined the initial draft of expected outcomes in each subdomain (level 4). In the second workshop more than 100 faculty members discussed and finalized the competency framework.

Summary of results: The final TUMS MD competency framework includes 8 domains: clinical skills, communication skills, patient management, disease prevention and health promotion, professionalism and medical ethics, personal growth, Clinical decision making and physician in health system.
Conclusions/Take-home messages: Developing a competency framework which is the fundamental step in an outcome based education could be considered as a transforming tool which helps the faculty members to cope with it.

3Y2

Development of transferable skills: A three-year study of first year Emirati medical students
M McLean and S Shaban (Medical Education, United Arab Emirates University, Al Ain, UAE)*

Background: Developing generic skills in learners contributes to equipping graduates to become self-directed, life-long learners able to function in an unknown future.
Summary of work: Using a validated inventory reflecting 31 generic skills in 6 categories (e.g. information-handling and computer skills, this three-year study measured the self-perceived experience and confidence of incoming first year medical in terms of these skills. Students also completed a 1-page supplement identifying strengths and weaknesses. A year later, the audit was repeated. Students also reflected on their summaries, indicating what had contributed to skills development.
Summary of results: On entering the medical school, students were most practiced and confident in their computer and organizational skills and least experienced and confident with their technical, numeracy and presentation skills. A year later, the inventory reflected a significant increase in the information-handling skills (e.g. using the library to source information). Practice and confidence with technical and numeracy skills, however, decreased significantly. Incoming male students reported being less experienced and confident in many of skills compared with their female colleagues, but this difference was partially addressed during the year.
Conclusions: The skills audit identified areas requiring attention (e.g. technical and numeracy skills).
Take-home messages: Knowing incoming students' skills level is important in planning their learning activities.

3Y3

Introducing competency-based postgraduate medical education (CBPME) in Cruces Hospital, Basque Country, Spain
J Morán-Barrios, J Somme, A Basterretxea, E Bereziartua, M Iriberri, A Martínez-Berriochoa and M J González-García (Hospital de Cruces, Postgraduate Medical Education Unit and Teaching Committee, Baracaldo, Spain)*

Background: Medical boards around the world have adopted competency-based frameworks as the basis for new postgraduate training programmes. To our knowledge, we have the first experience in CbPME in Spanish hospitals.
Summary of work: In 2008, the Cruces Hospital (300 residents, 40 specialities) introduced the CbPME as a new formative framework. We have adopted the seven roles of the Global Minimum Essential Requirements (International Institute of Medical Education-New York) with contributions based on CanMEDS-2000 and the Outcome Project-ACGME-USA. The main objective is to change the medical education culture of trainees, supervisors and medical teams.
Summary of results: Implementation actions: 1) Reflexive Portfolio: Evidence of skills and knowledge, with written reflection in each of the seven roles. In 2009, 31% (43/137) of the residents of the first and the second year wrote reflections on the seven roles. 2) A new design of Global Resident Competency Rating Form (seven roles). 3) A Continuing Medical Education programme focused on the supervisor.
Conclusions: It is possible to put into practice the CbPME in residents with no previous experience in the competency-based programmes in their universities.
Take-home messages: It is necessary to introduce CbPME in the Spanish hospitals to adapt the medical education to the demands of the society.

3Y4

Successful implementation of a competency-based Clerkship-curriculum using the Kern's framework and the "Swiss catalogue of learning objectives for undergraduate medical education"
M Monti (Centre Hospitalier Universitaire Vaudois, Department of Internal Medicine, Lausanne; [2]University of Lausanne, Medical Education Unit, Lausanne, Switzerland)*

Background: In 2004, according to the Bologna process, the University of Lausanne completely renews the medical studies' curriculum. In 2008 students entered the clerkships program, the first clinical immersion of long duration. Until 2008 those clerkships were not well evaluated from both students and clinicians, because of lack of clear goals, structure and inability to expose students to relevant clinical experiences.
Summary of work: As conceptual framework we used the "Six steps" of curriculum development described by Kern and the "Swiss catalogue of learning objectives for undergraduate medical education (2008)". Problem Identification and Needs assessment of targeted learners (steps 1-2): we obtained the necessary information through questionnaires and semi-structured discussions with the principal stakeholders. Combining that information with an in-depth analysis of the "Swiss catalogue of learning objectives", we derive the Goals and Objectives (step 3) for the new clerkship curriculum. For each learning objective we chose the most adequate and feasible educational and assessment method (step 4). To implement (step 5) the new curriculum we developed a faculty development program and we defined the administrative structure of the clerkship.
Summary of results: The questionnaires used for the Program Evaluation (step 6) showed that students were satisfied about most of the aspects of the new curriculum.
Conclusions/Take-home messages: The Kern's approach to curriculum development and the Swiss catalogue of learning objectives are two valuable tools to implement successful competency-based clerkship curricula.

3Y5

Comparison among faculty's, students' and graduates' perception on medical outcomes

S J Chea[*1], K B Lee[2] and K Y Lim[3] (Ajou University School of Medicine, [1]BK21; [2]Pathology; [3]Medical Humanities and Social Medicine, Suwon, South Korea)*

Background: Medical schools around the world are increasingly embracing the concepts of outcome based education. South Korea is no exception.
Summary of work: This study aims to examine how important faculty, students, graduates consider the 15 items of educational outcomes (importance, how much the university prepared for outcomes (preparation, how much they think they achieved at graduation (accomplishment, and to verify whether the outcomes vary in accordance with groups. The questionnaire was conducted on a total of 63 faculty, 47 senior and 85 graduates of Ajou University School of Medicine in Suwon, South Korea. The collected data was analyzed by factor analysis, t-test, ANOVA using the SPSS 12.0.
Summary of results: 15 medical outcomes divided into 3 factors. Educational outcomes such as medical knowledge and clinical skills of basic medical level, communication skills, and social accountabilities turned out to be considered important in every group. t-test result showed that the 4 items of 15 educational outcomes had statistical significance between senior and graduates ($p<.05$). There is difference between importance and preparation in keeping healthy body and mind and medical ethics, communication.
Conclusions: This research result may be used as basic material for reflecting educational objectives, students' performances, and revisions of curricular. Further profound studies on how to measure educational outcomes are necessary.
Take-home messages: Higher education institutions must be concern for the adequacy of students'' professional and career preparation by specifying the outcomes or abilities critical for future professional performance.

3Y6

Development and validation of a competency framework for Veterinary Medical Education

G J Bok[*1], A D C Jaarsma[1], P W Teunissen[2], C P M van der Vleuten[2] and P van Beukelen[1]([1]University of Utrecht, Faculty of Veterinary Medicine, Utrecht; [2]University of Maastricht, Department of Educational Development and Research, Maastricht, Netherlands)*

Background: Postgraduate and undergraduate medical curricula are increasingly using competencies as a guide for curriculum design and assessment. Within the veterinary medicine community there are no validated competency frameworks. Preparing students to make the transition into the multifaceted veterinary profession does require a valid competency framework suited for the profession of veterinary medicine. The aim of our research was to develop and validate such a framework.
Summary of work: Focus group research was conducted with newly graduated veterinarians and animal owners in The Netherlands. Through a qualitative data analysis and a subsequent Delphi study a competency

framework was developed and validated. The framework was then compared with existing competency frameworks in medicine.
Summary of results: This qualitative research resulted in a veterinary competency framework divided into seven domains.
Conclusions: The Veterinary Education Directives (VED) competency framework has some striking differences with existing medical competency frameworks. Specifically reflection and entrepreneurship are identified as important aspects of the framework.
Take-home messages: Developing and validating a competency framework within one's own profession is worth the effort. The VED has some important differences with already existing frameworks in medicine and may have considerable impact on veterinary curriculum design, education and assessment.

3Y7

The Scottish Prospective Education Supervisor's Course (SPESC)

Barr, Mack*, MacPherson* and Shackles* (NHS Education Scotland S E Deanery, Edinburgh, UK)*

Background: Doctors training to be UK general practitioners have to demonstrate that they have acquired the competencies specified in the RCGP curriculum. GP educational supervisors (ES) facilitate the trainee's learning journey and have to assess their competency in 12 key domains. We describe an innovative new course for prospective ES that mirrors this trainee journey.
Summary of work: This is a national course for all Scottish prospective ES. Participants attend 3, 2 day units over a 9 month period. Pre course preparation is supported by an interactive website. A course guide outlines the 12 key domains and how these translate to ES learning outcomes. Work is required both during and between units and is mainly led by participants. Each group (n=6-7) is led by the same facilitator throughout, who supports the educational process whilst also assessing competency in the12 domains.
Summary of results: Most participants are signed off by their facilitator as competent and also leave with future needs identified. Participant feedback is very positive.
Conclusions: This course prepares ES well and able to support the learning journey of trainees.
Take-home messages: Basing an ES course round the competency domains expected of their trainees gives practical experience of the curriculum and enhances participant's confidence about their future ES role.

3Y8

Knowledge and practice gaps amongst residents, interns and nurses regarding provision of printed health information to patients

N Ali, S Meghani and V Rajput (University of Pennsylvania Health System, Pennsylvania Hospital, Philadelphia, PA, USA)*

Background: 40-80% of verbal health information is forgotten by patients' immediately. Written information improves recall and compliance. About 77 million Americans with low health literacy cannot comprehend a typical patient handout.
Summary of work: Cross sectional study conducted via quantitative survey of residents of an internal medicine program and nurses of a university affiliated hospital to determine the practice of providing printed health information and assessing barriers associated with it. 41 (95%) house staff and 34 (47%) nurses returned the survey.
Summary of results: 15% residents and 32% nurses often or always provided printed information to patients (P=0.04). 17% of house staff reported that they had often or always observed attendings provide printed information. 35% respondents observed that patients and families often or always asked for printed information. 19% never and 34% occasionally found printed information available in the units. 21% believed that verbal information is more effective than written information. 64% believed that most printed health information is easy to understand.
Conclusions: Lack of role models, lack of available resources, knowledge deficit pertaining to low health literacy were identified as potential barriers to provision of printed health information.
Take-home messages: Improving health literacy awareness amongst health providers is critical to improving patient care quality.

3Y9

Epidemiology training needs assessment in Vietnam

Dao Thi Minh An, Le Thi Huong, Nguyen Van Huy and Luu Ngoc Hoat (Hanoi Medical University, Dong Da, Hanoi, Vietnam)*

Background: Vietnam is facing numerous health threats and has a shortage of trained preventive medicine staff (PMS). Epidemiology competencies (ECs) are an essential requirement for PMS. Unfortunately, ECs in the traditional preventive medicine curriculum are no longer appropriate. An epidemiological training needs assessment (ETNA) is a crucial first step clarifying ECs needed by PMS.
Summary of work: Three stages of ETNA: Stage 1 used focus group discussion, in depth interviews with targeted subjects to identify ECs. Stage 2, workshops with key informants clarified the overlapping and inconsistent ECs identified and grouped them into 15 main ECs. Stage 3, PMS and faculty rated these 15 ECs on three dimensions: "frequency of use", "importance", "self-confidence in doing" and "need", "required skill level", "self-confidence in teaching" respectively.
Summary of results: Different points of view emerged when PMS and faculty ratings these 15 ECs in these above dimensions. Notably, around 27% PMS did not feel confident in practicing the five most frequently used ECs. Faculty were less self-confident than PMS using these 15 ECs (25.84% (±4.86%) versus 61.72% ± (9.82%)).
Conclusions: Lack confident competencies of PMS should be prioritized. Trainer training for faculty staff in 15 identified competencies is necessary.
Take-home messages: Competencies rated differently should be considered in term of their content, time allocated to them.

3Y10

Surgical and clinical competences of the medical student in Guatemala

J Aquino, L Matus and J Morales* (Universidad de San Carlos de Guatemala, Facultad de Ciencias Médicas, Guatemala Hospital Roosevelt, Guatemala)*

Background: This research project identifies the real update competences acquired by a 4th year medical student in the Surgery Department of Hospital Roosevelt.
Summary of work: A prospective research documented competences presented through personal registries of 41 medical students during two years (June, 2007 to September, 2008). The following competences were analyzed: number of bedside wound debridements, catheters' placed, sutures, blood extractions and operating room attendance, among others.
Summary of results: There were 66% male and 34% female. Each student attends the operating room an average of 60 times. The most frequent procedures were: wound debridements 12, appendectomies 11, exploratory laparotomies (8, cholecystectomies and amputations (5 each). They placed 40 catheters and realized 52 sutures each. The number of bedside wound debridements and blood extractions done were between 445 and 228 respectively. A number of capillary glucose measurements, blood component transfusions, as well as other activities were also done.
Conclusions: Guatemalan medical students have the opportunity to learn a variety of competences in which medical education is addressed to guide the knowledge "to know to do" and "how it is done", always pursuing formative apprenticeship.
Take-home messages: Competences demand that future professionals quality outcomes in the formation of the medical human resource to avoid medical or legal problems.

3Y11

Developing generic competences for pharmaceutical profession

L Granadeiro and I Neto (Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal)*

Background: Generic competences are not subject-related learning outcomes and can be developed as part of, or integrated into subject modules and programmes. Some of these competences are related to the knowledge of the profession, teamwork, oral communication or research skills.
Summary of work: Students of the 1st year of Pharmaceutical Sciences are introduced to the various aspects of their future profession: community and hospital pharmacy, pharmaceutical industry, chemical and biological analysis, and research. For each of these themes the first approach is a discussion with tutors and colleagues about the information students found on the internet while working in small groups. Then they

have an encounter with a professional with extensive experience in the field. Finally they have to prepare a group presentation about a particular aspect of a theme and present it for their colleagues.
Conclusions: Our experience indicates that students appreciate this approach because they can be more confident about the choice they have made for their career.
Take-home messages: 1st year students must have a realistic perception about their future profession.

3Y12

A curriculum needs assessment of the family medicine residency program at the University of Manitoba

J Hamilton (Department of Medical Education, University of Manitoba, Winnipeg, USA)*

Background: The College of Family Physicians of Canada (CFPC) oversees the accreditation standards for Family Medicine residency programs across Canada. These standards prescribe 'The Four Principles of Family Medicine' and the competencies derived from them which serve as the training framework for Canadian family medicine residency programmes.
Summary of work: A literature review revealed little about the development of the Four Principles of Family Medicine therefore we conducted a needs assessment to determine which competency was considered relevant to clinical practice and to evaluate the effectiveness of the family medicine program at the University of Manitoba. We used a Delphi process with experts in the field to refine the competency list to those which were highly relevant to clinical practice and used most often. Participants were recent graduates of the University of Manitoba Family Medicine program and experts defined as practicing family physicians and faculty. Respondents were asked to rate each competency on its importance to clinical practice and its frequency of use.
Summary of results: Participants rated all competencies highly with only 5 points of significant difference between the expert group and new graduate family physicians.
Conclusions/Take-home messages: This supports the use of the four principles as a competency and evaluation framework for family physician trainees in Canada.

3Y13

Roles lost, roles found: The birth, death and resurrection of the doctor as "person" in roles-based competency models

C R Whitehead[1], V J Selleger[2], J JS van de Kreeke[2] and B D Hodges [1]([1]University of Toronto, Faculty of Medicine, Toronto, Canada; [2]VU University Medical Center, Department of Medical Psychology, Amsterdam, The Netherlands)*

Background: Competency-based frameworks are common in medical education internationally. Many describe competency as a series of roles. However, little attention has been paid to the historical development of particular roles. Examining roles that disappear or appear can provide insight into changing discourses of medical competence.
Summary of work: A trans-Atlantic historical investigation explores the birth, death and resurrection of the "person" role in competency frameworks moving from Canada to The Netherlands.
Summary of results: An early roles-based framework, the Educating Future Physicians of Ontario project, created eight physician roles. CanMEDS adapted seven of these, with the role of "person" getting lost or subsumed. In The Netherlands, VU University Medical Centre (Amsterdam) has adopted CanMEDS while adding an eighth role: "reflector" which explicitly re-introduces "person" into the roles framework.
Conclusions: The specific language and imagery used to describe competency roles is pivotal in shaping conceptual understandings of the roles. While the professional role has been extensively explored in medical education, the person taking on that role is frequently underemphasized.
Take-home messages: Historical changes in competency roles in Canada and The Netherlands highlight the lack of attention to the professional as a person, and provide an intriguing example of the interplay of differing discourses of the person engaged in medical training.

3Y14

Satisfaction of the new graduates' learning outcomes

Wasant Dansawang (Buddhachinaraj Hospital, Medical Educational Center, Phitsanulok, Thailand)*

Background: Learning outcomes for new medical graduates should be evaluated. Reflection about satisfaction of their outcomes by chief doctor of each new graduate might be helpful. Purpose of this study was to demonstrate the achievement of their learning outcomes.
Summary of work: The study of 38 questions surveyed in 7 domains of learning outcomes defined by Faculty of Medicine, Naresuan University was done. New graduates from Naresuan-Buddhachinaraj Medical School in year 2009 after practiced in general hospitals for 9-10 months were evaluated by their chief doctors.
Summary of results: Thirty-six responders were enrolled in the study (63.2%). In seven domains of learning outcomes professionalism scale were the highest (4.1 from 5). The other domains: communicator, manager, lifelong learner, decision maker, care provider and community leader, the range of their scale were 3.9 – 3.7. There are some students (1.8%) that took scale only 1 from 5 in the domain of decision maker and community leader but overall satisfaction was 4.0.
Conclusions: This study showed the achievement of learning outcomes in every domain of the new graduate doctors was rather good in the opinions of their chief doctors. These are essential elements for the competent of medical practitioner.
Take-home messages: Continuous curriculum development for medical students to achieve their learning outcomes should be evaluated regularly.

3Y15

An e-questionnaire evaluating self-reported clinical skill competencies of final year medical undergraduates at a UK medical school

T Perkins[1] and R Varma[2] ([1]Royal Bournemouth Hospital, Dorset; [2]Guys and St Thomas Hospital, London, UK)*

Background: The clinical skills competencies expected by medical graduates in the UK are stated in the General Medical Council's "Tomorrows Doctors". There is no validated assessment process that ensures that students have achieved competency in these skills. Several studies have identified deficits in many of these skills in final year undergraduate and foundation level doctors.
Summary of work: An electronic questionnaire was distributed to 344 final year undergraduates at a UK medical school. Specific to each of five clinical skills, the questionnaire recorded the student's responses to skill frequency, a knowledge test and self-reported clinical competency.
Summary of results: Students self reported clinical skills competencies were used to generate a borderline group which generates a pass/fail mark. Using this pass/fail mark derived from the borderline group 68% of respondents achieved a pass. Significant factors which affected self reported competency were knowledge, frequency and male sex. After multivariate logistical regression analysis knowledge and male sex were significant factors.
Conclusions: Between 19%-57% of final year students, depending on the clinical skill, are either not confident or uncertain (borderline) in their clinical skill competency. This method of aggregating student's self-reported clinical competencies and standard setting should be validated against formal OSCE clinical skill assessment to determine its accuracy and validity.
Take-home messages: Further clinical skills' training is urgently needed. The Borderline Group Method of standard setting requires validation.

3Y16

Training of clinical skills during medical studies and postgraduate internship in Poland

M Krupinski, B Guzik, M Job, M Nowakowski and J Mirecka (Jagiellonian University Medical College, Krakow, Poland)*

Background: In Poland 6-year medical studies are followed by a mandatory one-year postgraduate internship.
Summary of work: In October 2009 questionnaire survey was conducted among 205 young doctors, who had just finished postgraduate internship in Krakow. 146 questionnaires were returned. The aim of the survey was to compare effectiveness of clinical skills training during studies and postgraduate internship. The main interest of the survey concerned general physical examination, some practical medical interventions (urinary bladder catheterization, injections administration, surgical suturing, wound dressings replacement, advanced life support, ability to communicate with a patient as well as other professional skills (diagnosis making, decision taking, medication prescription, medical documentation, team work, application of medical law). The respondents were asked to indicate on a 5 grade scale their own perception regarding the level of skills attainment during their graduate and postgraduate phases of education.

Summary of results: Majority of respondents, who declared achievement of very high or high level of competence in surveyed medical skills (grades 4 and 5), claimed to have obtained it during postgraduate internship. In many cases the level of skills attainment during the studies was strikingly low.
Conclusions: Actually in Poland most of the practical training in clinical skills takes place during the postgraduate internship. It seems necessary to undertake actions which will enhance efficiency of the in-school education.
Take-home messages: Postgraduate internship plays an important role in medical education.

3Z Secrets of Success 2

3Z1

Development of real-time 3D web-based application for general practitioners and patient users on back pain

S Grant[*1], D Kelly[2], J Turner[2], V Charissis*[*3] and D Chanock[4] ([1]NHS Education for Scotland (NES), Central Quay, Glasgow; [2]Ayr Hospital, Department of Trauma & Orthopaedics, Ayr; [3]Glasgow Caledonian University, School of Engineering and Computing; [4]Ayr Hospital, Department of Radiology, UK)*

Short description of innovation: We present the development of an innovative web-based learning tool for general practitioners on back pain. Clinical assessment is demonstrated by the use of podcasts. These include patient histories and clinical examination of common conditions affecting the spine. This traditional clinical assessment is complimented by novel 3D models and animations that explain important pathological processes.
What will be demonstrated: The web-based module on back pain will be demonstrated. This will include: 1) Podcasts on clinical assessment of patients. 2) The real-time 3D models on normal spinal anatomy. 3) Explanatory animations on common pathological conditions. 4) Interactive problem based learning (PBL) scenarios.
What is particularly interesting about the innovation/How could it be implemented? By combining traditional and new innovative modes of education on web-based application we have developed a valuable education tool for health care professionals that can be continually updated and developed for any musculoskeletal condition. It has been possible to implement the innovation by the development of an all-inclusive web-based platform allowing the user to access the website via their own web-browser.
Who should come to the demonstration: 1) Undergraduate medical students. Postgraduate medical trainees. 3) Physiotherapists. 4) Allied health care professionals involved in the treatment of musculoskeletal conditions. 5) Industry leaders in e-learning development and innovation.

3Z2

The use of facebook in medical education

Julie K Hewett (International Association of Medical Science Educators (IAMSE), Huntington, WV, USA)*

Short description of innovation: With close to 400 million users worldwide, Facebook is being used as a communications tool within the medical school classroom but also throughout medical education. As with any new technology, questions arise as to the proper use of the application. Ethical issues have been raised regarding the faculty/student relationships online, especially when addressing the sharing of personal vs private information. Institutions are struggling with the development of social media policies that can be followed. Students need to be provided with guidelines for acceptable use procedures that may impact their future success.
What will be demonstrated: In our session, we will attempt to demonstrate the purpose of the application, and then specifically how it is being used by medical students, educators and health care professionals. We will look at the various aspects of Facebook such as the development of personal profiles, review of security settings, and the use of Fan Pages or discussions groups. While Facebook was originally designed by a University for Faculty and Students to better know one another, it has evolved into a social communications tool that is changing the way communities are connected.
What is particularly interesting about the innovation/How could it be implemented? As medical students are actively using this platform in their daily personal life, we will look at how educators can take advantage of the opportunity for increased communication.

Why participants should come to the demonstration: Participants should attend this session to gain a better understanding of how this application can be effectively used both in and outside of the classroom.

3Z3

Assessment and management of PTSD in primary care and disasters

Ken Harbert (School of Physician Assistant Studies, South College, Knoxville, TN, USA)*

Short description of innovation: Comprehensive approach to preparing graduate health care students for assessing and managing Post Traumatic Stress Disorders focusing on a variety of educational strategies.
What will be demonstrated: Innovative instructional design using a comprehensive approach to Post Traumatic Stress Disorders in the primary care community focusing on the needed skill sets to provide rapid, reliable, sustainable assessment and mangement.
What is particularly interesting about the innovation/How could it be implemented? This approach was implemented using expert faculty input, high fidelity simulations, OSCEs, standardized patients, small group problem based learning and standard lectures.
Why participants should come to the demonstration: Demonstration of a comprehensive approach to educational strategies that develop skill sets for students using a variety of tools that challenge students ability to assess and manage PTSD within primary care setting and/or disaster events.

3Z4

Clinical education on the move: Development and testing of mobile learning and reflective tool in the clinical environment

T Johnston, N Lynch, S Arbuckle, R Dolan, D Linden, S Maclean, G Paterson, J Rossi, S Khan, D Dowie and P Davey (University of Dundee, Medical School, Dundee, UK)*

Short description of innovation: A "Safe Practice Diary" application for use on personal digital assistants (PDAs) has been developed using Pocket Interview software. The student can quickly revise checklists and theory for common practical procedures, such as venepuncture, before carrying them out on a patient. Subsequently, they can measure their performance and reflect on how they might improve their skills. Data are uploaded to an excel spread sheet for graphical display of improvement in practical skills over time.
What will be demonstrated: Participants will be given the opportunity to test the software and PDAs.
What is particularly interesting about the innovation/How could it be implemented? The increasing technical capabilities as well as the wide distribution of mobile devices challenge educational institutions to develop appropriate concepts and applications for mobile learning. Our application is based on freely available software and is transferable to other devices (e.g. mobile phones or touch screen computers). It could be used as part of an e-learning portfolio for undergraduate medical education as evidence of competency in practical procedures.
Why participants should come to the demonstration: Mobile learning is an exciting new research area in medical education which is gaining rapid pace. Learn and share ideas of how to take this forward.

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SESSION 4

4A Symposium: Team-based Learning

Panel: Dean Parmelee (Wright State University Boonshoft School of Medicine, USA); Larry Michaelsen (University of Central Missouri, USA); Sandy Cook (Duke-NUS Graduate Medical School, Singapore); Hossam Hamdy (University of Sharjah, UAE); Toshi Yoshioka (Tokyo Women's Medical University, Japan)

Team-based learning is an active learning strategy using the power of small groups in large class settings with as few as one instructor. This symposium will present the key components of the strategy, highlight the challenges in its best-practice implementation, and generate discussion. The moderators have been instrumental in the promulgation of the strategy in medical education, and the panel participants have pioneered its implementation in very different medical education cultures.

4B Symposium: Assessing the future healthcare professional – what is best practice?

Panel: John Norcini (FAIMER, USA); Brian Hodges (University of Toronto, Canada); Lambert Schuwirth (University of Maastricht, Netherlands); Katharine Boursicot (St. George's University of London, UK)

The 14th Ottawa Conference, which was held in May 2010, produced a series of consensus statements and recommendations regarding the practice of assessment. Specifically, six working groups and Conference participants focused on 1) criteria for a good assessment, 2) technology-based assessment, 3) performance assessment, 4) assessment of professionalism, 5) assessment for selection, and 6) research in assessment. Conference participants refined the consensus statements and added practice points over the summer. The aim of this session at AMEE 2010 is to highlight the key conclusions of the work and to identify areas for future development.

4C Short Communications: Continuing Professional Development 2

4C1

Practice-based small group learning in Scottish GP Specialty Trainees

H Hesselgreaves and R MacVicar (NHS Education for Scotland, Glasgow, UK)*

Background: Practice-based Small Group Learning (PBSGL) is a Canadian approach to Continuing Professional Development for general practitioners (GPs). It involves small groups of GPs who work through clinical modules. PBSGL is now an established method of learning in Scotland, found to be effective in GP, practice nurse and multi-professional cohorts.
Summary of work: This research aimed to explore GP Specialty Trainees' (GPSTs) perspectives of the impact of PBSGL on curriculum needs, preparation for independent practice, and facilitator learning. One-to-one interviews were conducted with sixteen GPSTs from a range of Scottish deaneries and stages in training and analysed using qualitative techniques.
Summary of results: Findings were arranged in three main areas: group membership should consist of trainees at a similar career stage, as this support psychological safety; PBSGL helps strategise a 'one best way' for future care planning, but is also used to find alternatives to trainees' current approaches; some facilitators moderate their involvement for the perceived benefit of the group.
Conclusions: Learning is experienced in a very unique way for GPSTs, and the views of the cohort are formed on the basis of the delicate stage in their career.
Take-home messages: Aiding the transition from structured education into independent practice is a more immediate need for GPSTs than curriculum needs.

4C2

Developing consultation skills in the experienced family practitioner

Harina Murugasu, Johnny Lyon-Maris* and Samantha Scallan* (Wessex School of General Practice, Southampton University Hospital Trust, Southampton, UK)*

Background: The Southampton Patch of the Wessex Deanery (UK) runs a scheme that offers established GPs the opportunity to review their consultation skills with a senior educator, in order to explore their approach to consulting, to reflect on alternative approaches and to identify areas for development. Six GPs have participated in the scheme over the 2 years it has run, and they have been supported by 2 senior educators. The scheme is being evaluated in order to identify the strengths, weaknesses and outcomes, and how it may

evolve to provide a means of exploring practice in the light of the requirements of revalidation and enhanced appraisal.
Summary of work: A case study approach was chosen to explore the views and experiences of participants, both GPs and educators. The evaluation addresses the following research questions, amongst others: 1) Motivation and barriers to participation, 2) Reflections of the GP participants on the process, 3) The approach used by the senior educators to observe and provide feedback; and
4) The effects of the scheme on participants' subsequent approach to consulting.
Summary of results: The aim of the presentation will be to report the findings of the case study, and place them in the context of the wider literature.
Conclusions/ Take-home messages: The research will consider how such programmes can support the CPD of GPs and link to revalidation and enhanced appraisal.

4C3

The problems faced by sessional and remote GPs in fulfilling revalidation requirements – pilot study
B Burford[*1], C Kergon[1], G Morrow[1], J Illing[1], P Wright[2] and D Jelley[2] ([1]School of Medicine and Health, Durham University, Durham; [2]Northern Deanery, NHS North East, Newcastle, UK)*

Background: Revalidation is being introduced for all UK doctors, involving collection of evidence to demonstrate reflection, and feedback from colleagues and patients. The Royal College of General Practitioners has proposed that GPs present clinical audit, significant event analysis (SEA) and colleague and patient feedback. However, those working only a few sessions (e.g. locums), or in small or remote practices, may have particular difficulties with this.
Summary of work: Focus groups and telephone interviews involving 50 sessional and remote GPs identified perceived problems collecting the required evidence, and potential solutions.
Summary of results: Sessional GPs felt that effective audit and SEA were at best disproportionately onerous, at worst impractical, due to exclusion from meetings, problems accessing records and the lack of a practice base to follow up patients. These issues were felt to be cultural as well as practical.
Lack of support also presented problems collecting patient feedback, while limited contact with other staff presented difficulties for collecting colleague feedback for sessional and remote doctors.
Conclusions: Alternative forms of evidence should be identified, and employers made aware of the risks of not engaging with revalidation requirements.
Take-home messages: Revalidation tools cannot be 'one size fits all'. Employers should ensure sessional doctors are treated fairly, and not disadvantaged in collecting revalidation evidence.

4C4

FMOQ – Self-managed Continuing Professional Development plan (SCPDP) – a reflexive approach to CPD
C Guimond (Federation of General Practitioners of Québec, Canada)

Background: The Collège des médecins du Québec (CMQ), the Quebec Licensing Authority, required all physicians to join a self-managed continuing professional development plan as of July 1st 2007.
Summary of work: The FMOQ's CME department developed tools (SCPDP, electronic SCPDP, workshops, guide) to help physicians plan their continuing development strategy based on a reflexive approach.
Summary of results: Almost three years after implementation, over 5000 physicians choose our plan. Of those, 1800 use the electronic version, available on the Web and on mobile devices (iPhone, Blackberry, etc.). Completing the reflexive approach within this electronic version builds a huge database of perceived needs and objectives. These needs and objectives are completely free of bias since no orienting questions are asked. Confidential access to this database helps our CME department to develop more appropriate CME programs.
Conclusions: This electronic plan make the reflexive approach to plan CPD easier for the majority of physicians and the way of reaching it at once after the training makes this reflection even more valuable.
Take-home messages: Supporting tools help physicians to adapt the reflexive approach. Direct access to a data base of needs prevent any bias in identifying perceived needs.

4C5

Incorporation of new technologies in top quality training in Andalusia
C Lopez de Lis, M Periañez-Vega, L Villanueva-Guerrero, F Castro-Muñoz, E Valverde-Gambero, J Centeno-Astudillo and T Esposito-Gonfia (Andalusian Agency for Healthcare Quality, Seville, Spain)*

Background: The Health Department promotes the incorporation of new technologies in continuing medical education and certifies with optimal levels and excellence institutions and activities that incorporate new technologies in their development.
Summary of work: Descriptive and retrospective study on all of the training institutions and accredited activities, with the purpose of analyzing the development of the implementation of e-learning and its results.
Summary of results: In the past year, the incorporation of this typology has increased by over 50% and, even though they account for only 2% of the total of accredited activities, these reach over 20% of the seats offered. These activities earn a 1.87 average 1.87 (minimum 1, maximum 2.8) versus 1.81 average of other typologies.
Conclusions: The Ministry of Health boost caused a greater development of e-learning activities that earn top quality levels and reach a higher number of professionals.
Take-home messages: We need continuity in policies to boost the development of e-learning.

4C6

Remedial training programme of TMDU for women doctors returning to work after pregnancy and child-rearing in Japan

T Suzuki[1], M Beppu[1], T Morio[2], T Kubota[3], N Nara*[1], S Takano, Y Yokoyama and Y Hara ([1]Centre for Education Research in Medicine and Dentistry; [2]Pediatrics [3]Obsterics and Gynecology, Tokyo Medical and Dental University, Tokyo, Japan)*

Background: In Japan, a shortage of doctors, especially in OB-GYNE and pediatrics has become a nationwide problem. One of the most effective strategies to increase those doctors is to recruit women doctors who left the clinics after pregnancy and child-rearing.
Summary of work: Tokyo Medical and Dental University (TMDU) started remedial training programme for such women doctors entrusted by the Ministry of Education-Japan since 2008. The programme consists of two-weeks OB-GYNE, pediatrics, and medicine courses. The first week is small group lectures and simulation-based learning in the skills laboratory; the second week is training at the ward. They are evaluated by MCQ, OSCE, and portfolio and given certification by the Director.
Summary of results: Four women doctors took OB-GYNE course, 6 pediatrics, and 9 medicine, respectively. They were 7 physicians, 3 pediatricians, 1 gynecologist, 1 ophthalmologist, and 1 otolaryngologist. They learned state-of-the-art medicine, remembered communication and clinical skills. They were willing to come back to practice with full confidence.
Conclusions: The remedial programme helps women doctors come back to practice. The continuation of the programme will assist with shortage of doctors.
Take-home messages: We should develop better announcements to inform larger numbers of women doctors of this programme.

4D Fringe 1

4D1

I'm a patient, get me out of here!

Hugh Gifford, Tom Bannister*, Adam Barnett*, Claire Greszczuk*, Nadeem Hasan* and Alison Weetch* (Oxford University Medical School, Osler House, John Radcliffe Hospital, Oxford, UK)*

The Heroes: Poor wee medical students have so much to learn. Poor doctors have so much to do! Opportunities in the clinical learning environment are under threat. Can we rescue the state of play? The Plan: The drama of a card game, played before your very eyes. Designed by final year medical students with thrill in mind and built on years of research (The ELEPHANT Criteria, Varatharaj et al. 2009). The Story: Hospitals are bizarre places – patients pitch up, producing problems for physicians to ponder upon. Doctors diagnose disease, drawing on disorders seen before. They then manage the mountain of malevolent medical marauders with medicine (or surgery). The Twist: Players battle each other to successfully treat and discharge patients: the player with the most patients discharged wins. Could this game offer the level of excellence, encouragement and excitement that our generation seeks?

4D2

Do teaching skills actually make you a better doctor?

J Fasham, L Beard*, E Buckwell*, P Fletcher* and S Atkinson* (University of Bristol, CfME, Bristol, UK)*

In 2009 we offered 6 hours of free, voluntary teacher training to F1 doctors in a local trust, with the aim of improving their teaching of Y5 medical students. Only around 20% of F1 doctors volunteered, and we wondered how we could attract more. We wondered what benefits teaching skills could possibly hold for a junior doctor still focussed primarily on patient care, and how we could make teaching skills as sexy as that cardiology teaching everyone seems to rush to. We wanted to test and hopefully win the argument that teaching was a worthwhile skill for any doctor to develop. Participants will critically and self-deprecatingly evaluate their own and our practice as doctors and teachers. Why do doctors want to teach – why not simply become a teacher? Is a doctor who can teach really a doctor? Whose patient you would want to be? Participants will learn how to turn teaching into the 'glamour' skill it really is, as well as the dark arts of persuasion needed to make health service managers fund it. We will look at some typical clinical scenarios and consider the different options available to the doctor with and without educational knowledge. We will draw upon our own and participants' experiences as well as relevant literature, using film, roleplay and active learning. There will be some attempts at humour and free leather elbow patches for every participant if we can get the right sponsorship.

4D3

Interprofessional teamwork: An original symphony

WA Stewart[1], Health Educator Learning Partnership (HELP) Group[(2-9)] ([1]Dalhousie University, Medical Education and Paediatrics, [2]University of New Brunswick Saint John Campus, Teaching and Learning Centre, [3]Department of Nursing; [4]Saint John Regional Hospital, Radiation Therapy-Radiation Oncology; [5]Horizon Health Network, Laboratory Medicine; [6]New Brunswick Community College, Nuclear Medicine; [7]Saint John Regional Hospital, Department of Pharmacy; [8]New Brunswick Community College, Respiratory Therapy; [9]Saint John Regional Hospital, Orthopaedics, Saint John, NB, Canada)*

This project involves the development of a musical video for interprofessional learning based on the premise that music strengthens the emotional response to an experience. In this video a group of educators from diverse health disciplines, interact with a simulated patient who has multiple medical and related issues. The patient's heart beat tracks the musical journey of interprofessional care. The disciplines involved are each represented by a musical instrument that characterizes a prevailing disciplinary stereotype. When the group is not functioning as a team, the music is played at various tempos and styles without thought for other 'instruments' or for the patient. Once the group comes together as a collaborative team, the music begins to synchronize. Towards the end of the video, the focus becomes the patient; when the patient becomes the musical conductor beautiful harmonies result. This interprofessional orchestra, which includes the conductor, demonstrates patient-centred care based upon requisite competencies found in key research on collaboration in health care. Participants will have an opportunity to discuss the development of the video and how it may be used in Interprofessional Education to demonstrate the critical element of teamwork in patient-centred care.

4D4

The Resurrectionist: A multimodal humanitistic approach to anatomy

R Hammer, T Jones, F Hussain, N Person-Rennell, R Harvey, K Bringe and J Newman* (Mayo Clinic College of Medicine, Rochester, Minnesota, USA)*

Dissection is a multi-modal experience involving sounds, smells, textures, and emotion. As medical students with multi-faceted learning styles, we sought to enhance our anatomy experience with an extracurricular humanities project. To do so, we researched the history of anatomy, reviewing topic-related film and novels, and historical documents. We wrote, directed, and performed a dramatization based on Robert Louis Stevenson's The Body Snatchers, entitled "The Resurrectionist" into which we incorporated dance, painting, instrumental and vocal performance, and creative writing. This enhanced multi-modal approach to "holistic learning" could be applied to any topic in medicine and thoroughly incorporates history, humanities, and team dynamics into the medical learning experience. In this "Fringey" performance we will discuss the method, as well as perform a short version of the play, well suited to the conference location, Scotland.

4E Short Communications: Technology and e-Learning

4E1

Podcasts to teach philosophy and sociology to medical students

J Purday[1] and C Hauskeller[2] ([1]Peninsula College of Medicine and Dentistry, Exeter; [2]University of Exeter, ESRC Centre for Genomics in Society, Exeter, UK)*

Background: Doctors need excellent knowledge, skills and attitudes. Professionalism and attitudes are difficult to teach. Philosophy, sociology and ethics can help teach students gain empathy, compassion, communication and the art of medicine.
Summary of work: We used podcasts from http://www.interiortraces.com. How do new ways of seeing the brain change how we see ourselves? These are patient histories from the past, present and future to help place medicine into its historical and social context and promote ethical debate. We gained written feedback from all students who attended.
Summary of results: The vast majority of students (79%) found the workshops interesting, relevant and important to future doctors. Comments included "The use of internet plays to cover complex messages provoked great debate in the group as we all shared different interpretations/experiences. I think sometimes students fail to see the benefits of these sessions in creating a holistic doctor. Often students are too busy with their heads in books."
Conclusions: The art of medicine can be taught to students by using pod casts. Combined teaching with doctors and ethicists/sociologists can have significant advantages.
Take-home messages: Podcasts can be used to teach medical students the essential attitudes they will need to be future doctors.

4E2

Implementing podcasts in medical education

Z Karim (E-Learning Unit, Centre for Medical and Healthcare Education, St George's University of London, UK)*

Background: The popularity of podcasting has significantly increased over the years due to the simplicity in which these can be created and deployed whilst still remaining easy to use. Podcasts offer extremely engaging and flexible resources for students providing the potential for 'anytime and anywhere' learning experiences. Podcasts are electronic audio recordings which are posted on the internet. Students can download these audio clips to their computer or portable personal audio devices and listen whenever and wherever they want.
Summary of work: In this short communication, an innovative student-led podcasting approach at St George's Medical School is presented, highlighting the emphasis on a strong student-led movement in collaboration with the University's E-learning Unit to record a range of podcast topics covering Biomedical Sciences to MBBS courses.
Summary of results: A compilation of reports on the usage of Podcasts have been gathered together with overall information on the growth of podcast since the inception of it being introduced at St George's.
Conclusions: Information on the particular arrangement of this approach is presented and explores the resource requirements needed, the administration and organisation structures that need to be embedded in order for an effective collaboration between the students, academic staff and e-learning Unit to produce purposeful educational resources in the form of podcasts.
Take-home messages: The implementation of Podcasts within Medical education requires thoughtful planning and consideration of factors which are specific to each individual institution.

4E3

Mobile Medicine: Effective learning for medical students

V Shah and D Kennedy (University of Glasgow, UK)

Background: Medical knowledge and information increase at an exponential rate, challenging the minds of medical students in new ways. In adjunct to this is an equally explosive advance in technology, which has heralded a new role for mobile devices in education. There is a strong potential for mobile technology to assist today's medical students in understanding the vastness and complexities of medicine.
Summary of work: In this paper we will present and evaluate the next generation of e-learning known as mobile-learning. Mobile or 'M-learning' can promote interactivity between students and teachers, enhance

performance support through instant information access and provide creative educational applications to aid in learning. "Edutainment" is a combination of education and entertainment and uses game simulation to promote learning that may be applied to medical education. We will preview exciting upcoming mobile learning technologies and show how select medical schools around the world have embraced M-learning as part of delivering a dynamic stimulating educational experience.

4E4

E-Learning over 4 generation wireless networks

R Costa, I Neto*, A Mendonça, A Raposo, P Sousa and R Relvas (University of Beira Interior, Health Sciences Faculty, Covilhã, Portugal)*

Background: The Health Sciences Faculty of University of Beira Interior at Covilhã, Portugal works with 4 hospitals and health units in the region where it is, covering an area with a distance up to 52 km radius from the Faculty.

Summary of work: Therefore and to face these challenges FCS/UBI has deployed the latest generation (4G) of computer wireless networks that can simultaneously handle high volumes of video-conference and VoIP, email, self-Learning material, and video images over secure, reliable, easy-to-use and highly flexible WLAN and WMAN wireless networks.

Summary of results: The main results is focus the learning process into the student and turn this interactive process into a more attractive and effective task by using multimedia and web communications tools to improve his/her permanent actualization and pleasure for study.

Conclusions: This network eases the process of teaching and learning, holding a high level of scientific and pedagogical quality established as a philosophy, resulting from the Bologna Declaration, the integration of the Portuguese Higher Education infers that most of the study must be centred into the individual work of the students, supervised by a tutor.

Take-home messages: This answers the need of students who ask for more and more access to learning materials at any place, anyway and anytime, promoting the expansion of teaching in the faculty.

4E5

iPhone Applications: An exciting new way to provide information to medical students

N F Harvey[1], A P McGovern[2] and A C Gaunt[2] ([1]Meridian Surgery, Peacehaven; [2]Brighton and Sussex Medical School, University of Sussex, Brighton, UK)*

Background: The iPhone is an unprecedented technological success, with over 42 million units sold to date. Its intuitive interface and comprehensive development environment make it the ideal technology platform to develop innovative educational software.

Summary of work: We have developed an iPhone application in collaboration with students at Brighton and Sussex Medical School and Consultants at Brighton and Sussex University Hospitals which is designed to aid medical students on their ENT rotation. It comprises a comprehensive set of tools to aid students in private study and at the bedside.

Summary of results: Feedback from medical students has been positive, who have found it to add variety and interactivity to their learning. We feel our application will show others the potential of this platform in mobile medical education.

Conclusions: Feedback from medical students has been positive, who have found it to add variety and interactivity to their learning. We feel our application will show others the potential of this platform in mobile medical education.

Take-home messages: Medical applications for the iPhone are relatively easy to develop, add interactivity to electronic resources, and are perceived as very useful by medical students. The integration of mobile devices with web 2.0 applications will allow interaction with online resources and the promotion of reflective and self monitored learning.

4E6

Is the E-book reader useful in medical education?

P G M de Jong and D A Kies (Leiden University Medical Center, Center for Innovation in Medical Education, Leiden, The Netherlands)*

Background: E-book readers are small hand held devices using an innovative screen technology, which makes reading from an E-reader screen much more pleasant than from a computer screen. In this study, we did investigate if the device really fits into the different educational settings students encounter.
Summary of work: E-book readers were provided to 15 third year medical students for a period of 2 months. Local as well as commercial learning materials were preloaded. Afterwards the usage was evaluated by a questionnaire and a focus group meeting.
Summary of results: Students used the device in half of all activities. Readability, weight and size scored high, while battery, notes and speed scored low. Students preferred reading from the device over reading from a computer screen, but still reading from paper was superior. The device is highly appreciated by students for mobile working. However, they indicated that it was of no use during intense exam preparations when mainly paper books are used.
Conclusions: Although E-book readers are wonderful for reading digital text, they are not suitable in every educational setting. Therefore we decided not to integrate E-book readers in our curriculum yet.
Take-home messages: E-book readers are not useful in every educational setting.

4F Short Communications: Assessment: Clinical

4F1

Students' opinions of bedside assessment of clinical competencies in an undergraduate medical programme
Paul Bradley, Pamela Bradley, Chris Ricketts and Lee Coombes (Peninsula College of Medicine and Dentistry, University of Plymouth, UK)*

Background: Observation and feedback on performance of history and examination has been lacking in undergraduate medical programmes. Students need support developing and applying these skills as they transfer from a protected educational to an authentic clinical environment.
Summary of work: Formative assessment of 12 such skills was introduced in Year 3 and repeated summatively in Year 4 of the 5 year programme. These are observed and marked by a clinician at the bedside. A questionnaire survey was used to collect both quantitative and qualitative data reflecting students' opinion of these assessments. We obtained a 95% response rate from the cohort (n=169).
Summary of results: Learning was enhanced by feedback and students worked harder on preparation before summative assessments. Concerns about assessor variability and the quality of some outcomes were expressed. The frequency was acceptable but in Year 4 there was concern that they might interfere with other aspects of learning. Further analysis of both quantitative and qualitative data will be presented.
Conclusions: Bedside assessment of clinical skills with feedback is valued by students. They have some concerns about the quality of some assessments.
Take-home messages: Repeated observation with feedback is feasible, but assessor training and monitoring is vital.

4F2

"Reflective log book": Evaluation of using reflective log book as a method for assessing the clinical performance of 4th year medical students on the subject of Women's Health and Disease 1-2
Prakarn Ongartboon (Phrae Medical Center, CPIRD, Ministry of Public Health, Phrae, Thailand)*

Background: The log book is important for evaluating students' clinical performance. However, a self-recorded or traditional log book apparently has some limitations. One important consideration is that it is difficult to evaluate the validity and quality of recorded information. Therefore, reflective log book has been implemented based on the idea of self assessment. The students also reflect their learning experiences. The modified log book is hypothesized that it could improve the students' learning process. This study aims to compare the reflective log book with a traditional log book in terms of improving clinical skill.
Summary of work: The 4th year medical students who were studying the subject of Women's Health and Disease in Pichit, Tak and Phrae medical centers were evaluated by different types of log book. Each type of log book was evaluated its effectiveness by comparing students' clinical skill assessed by mini-CEX (Clinical evaluation exercise) in week 2nd, 4th and 8th after completing the study course.
Summary of results: The students who were evaluated by reflective log book significantly develop their clinical skills more than those who were assessed by the traditional method. These clinical skills include

history taking, clinical judgement and medical procedures. In addition, the result of OSCE test among the group being assessed by reflective log book was better than the group with traditional log book.
Conclusions/Take-home messages: Using reflective log book for assessing the students attending the class Women's Health and Disease can improve the students' learning process.

4F3

Can a Ward Simulation Exercise be used in the final year of study as stand-alone assessment tool?

N Schembri, R Stretton, J Shaw, J Ker, G Mires and C Kellett (University of Dundee, Medical Education, Ninewells Hospital and Medical School, Dundee, UK)*

Background: A retrospective study analysing the correlation between performance in a final year ward simulation exercise (WSE) and that in Objective Structured Clinical Exams (OSCEs) was undertaken to evaluate the WSE as an assessment tool in its own right.
Summary of work: The results obtained from the WSE carried out during the academic year 2008/09 were utilised. The students that failed the WSE were identified, and their previous OSCE results from 2nd, 3rd and 4th year of study were used in the analysis.
Summary of results: Out of 165 medical students who sat the final year WSE in May 2009, 46 students failed giving a failure rate of 27.9%. The failure rates for each of the OSCE sittings were 11.2%, 1.2% and 9.9% respectively giving an average failure rate of 7.4%. Out of the 165 students who sat for the final year WSE, 46 students failed giving a 27.9% failure rate. Statistical analysis of the percentage failure rates of the two methods shows that there is a statistically significant difference.
Conclusions: Therefore there is no correlation between the two methods since they are likely to be assessing different aspects of learning.
Take-home messages: Further studies are needed to prove whether the WSE can be used as a stand-alone assessment tool.

4F4

Does a longitudinal clerkship setting offer opportunities for authentic assessment and feedback?

J Bates[1], J Konkin[2], D Pratt[1] and C Suddards[2] ([1]University of British Columbia, Centre for Health Education Scholarship, Vancouver; [2]University of Alberta, Faculty of Medicine, Edmonton, Canada)*

Background: Formative assessment and reliable and valid feedback are essential aspects of student learning in clinical settings. In longitudinal clinical clerkships students complete 6-12 months of clinical instruction in one community with a single primary preceptor. We explored how students in longitudinal clerkships experience assessment and feedback.
Summary of work: Thirteen students were recruited from integrated clerkships at two faculties of medicine in six different geographical sites across two provinces. Individual semi-structured interviews were conducted between weeks 26-36 of the year-long clerkships. The interview framework was modified periodically and transcripts were iteratively coded by team members who confirmed emergent themes.
Summary of results: Three themes emerged. First, the shared delivery of care to patients afforded daily opportunities for practice-embedded assessment and feedback that was perceived by students as authentic, valid, and meaningful. Second, the longitudinal continuity of assessment allowed students to experience preceptor assessments as truly formative. Third, students described the development of a trusting relationship with their preceptor over time, which allowed them to experience critical feedback as supportive and caring.
Conclusions: The three themes reveal features of formative assessment and feedback in longitudinal clerkships. It remains to be explored whether this leads to improved student learning.
Take-home messages: Educational continuity can enhance student experience of assessment and feedback.

4F5

Why do MBChB teachers fail to use the Mini-CEX optimally?

J Cleland and P Gangopadhyay (University of Aberdeen, Division of Medical and Dental Education, Aberdeen, UK)*

Background: Clinical assessments do not always accurately reflect medical student performance. To address this, there has been a move towards structuring performance-based skills assessment using tools such as the

mini-clinical evaluation exercise (mini-CEX). However, use of the Mini-CEX as a feedback tool is limited (Fernando et al., Medical Education 2008; 42: 89-9). What issues influence the use of the Mini-CEX?
Summary of work: We used individual interviews to explore medical educator views and experiences of using the Mini-CEX with undergraduate medical students on Psychiatric rotations. Interviews (n=8) were recorded with consent, and transcribed verbatim for analysis.
Summary of results: Results fell into several themes: attitudes towards giving negative feedback (e.g., dislike of giving negative feedback); self-efficacy (e.g., balancing the conflicting roles of educating and assessing); skills and knowledge (e.g., what standards were expected); environmental constraints (e.g., immediacy of feedback required vs clinical demands).
Conclusions/Take-home messages: Many different factors impact on using the Mini-CEX optimally. Some of the barriers identified are similar to those found in more general studies of failure to fail underperformance in medical students (Cleland et al. Medical Education 2008; 42: 800-809); others are specific to the Mini-CEX format and requirements. Insights offered in this study will inform staff training and support in Mini-CEX use.

4F6

IPE: An innovative tool of performance assessment
M Saeed, A Javaid, M Mansoor, S Moazzam, A Hussain, A Mohayuddin and Z Rabbani (Shifa College of Medicine, Islamabad, Pakistan)*

Background: Rapidly changing healthcare needs and delivery systems during past decade compelled medical schools to provide patient centered medical education by adopting integrated curricula. Shifa implemented integrated spiral curriculum in Jan 2008; however, assessment was subject based, which raised serious concerns among faculty and students. To address its negative implications, Deanery of Shifa decided to innovate performance based assessment (PBA). This lead to innovative, integrated practical examination (IPE) in Nov 2009.
Summary of work: A 15-station IPE was designed for 1st year MBBS annual exam. Each performance station was based on a clinical theme and three integrated tasks, directly observed by faculty OR simulated patients. Perceptions of students and faculty about IPE were gathered, using a semi-structured questionnaire after informed consent. Focus group interviews were done with 25-randomly selected students and 15-examiners. The students' scores of professional examination were also analyzed for descriptive statistics using ANOVA.
Summary of results: The faculty and students validated IPE as more fair, transparent and reliable (α=0.77) method of performance assessment, which relieved their fear of traditional viva voce and practical examination.
Conclusions: IPE is an innovative tool of performance assessment acceptable to students and faculty.
Take-home messages: IPE is a valid and reliable PBA; also possible in a resource constrained environment.

4G Short Communications: Empathy

4G1

When empathy is higher in senior than in first year medical students: A cross-sectional study
E Magalhães, A Salgueira and M J Costa (University of Minho, School of Health Sciences, Braga, Portugal)*

Background: International recommendations refer to the importance of fostering the development of medical students' empathy. Paradoxically, available results based on self-reported measures, reveal that student empathy declines during undergraduate medical education. Empathy is also known to be relatively higher in female vs male medical students and in patient-oriented vs technology-oriented physician specialties.
Summary of work: Our undergraduate medical curriculum emphasizes empathy in several moments and learning contexts. Students of the first (n=358) and sixth (n=121) class (3 cohorts/each) in one Portuguese medical school were surveyed with the Portuguese adaptation of the Jefferson Scale of Physician Empathy-students version (JSPE-sv-vP) and an additional questionnaire with their specialty preferences. Global JSPE-sv-vP scores were compared per class, specialty preferences (patient-oriented vs technology-oriented) and gender.
Summary of results: Empathy scores were relatively higher for medical students in the 6th year ($t(474) = -6.25$, $p<.001$), who prefer patient-oriented specialties ($t(386) = -2.17$, $p<.05$) and of the female gender ($t(474) = 2.44$, $p<.05$).

Conclusions/Take-home messages: We will discuss possible factors underlying the higher empathy levels in 6th than in 1st year students. A longitudinal study is under way to examine cohort effects. Nevertheless, judging from our results, medical schools can foster the development of students' empathy.

4G2

Against the hardening heart in medical school

F Fehr (Ruprecht Karls University, Heidelberg, Germany)*

Background: http://www.egms.de/static/en/meetings/rme2009/09rme19.shtml
Summary of work: To determine whether vicarious empathy (i.e., to have a visceral empathic response, versus role-playing empathy) increases in our program, and whether students choosing additional learning opportunities with greater patient contact maintain vicarious empathy better than do students choosing learning opportunities with less patient contact.
Summary of results: Vicarious empathy significantly decreased during medical education (P _ .001), according to Newton et.al., Acad Med. 2008; 83:244–249. We contrast the findings from the University of Arkansas for Medical Sciences with our data.
Conclusions: Choice in undergraduate medical education may be a major determinant differentially affecting the vicarious empathy of students on the basis of gender and/or specialty choice.
Take-home messages: The thriving of vicarious empathy is of concern, because empathy is crucial for a successful physician–patient relationship.

4G3

Empathy in medical school: Is it evolving in the right way?

E Nemr, N Najem, S Hlais, M Nasr and F Haddad (Saint-Joseph University Medical School, Beirut, Lebanon)*

Background: Empathy, defined as the physician's ability to recognize patient's perspectives, is an important aspect in the physician–patient relationship since it promotes patient satisfaction, may improve outcomes, and decreases the rate of lawsuits. Some studies have shown a decrease in empathy during medical studies. This study aims to measure student empathy across our medical school years (7-year curriculum, the last two years are clinical training).
Summary of work: It is a cross-sectional study at Saint-Joseph University School of Medicine, all incoming students plus each class during the first semester of the academic year were surveyed. Empathy was measured with the Davis Interpersonal Reactivity Index (DIRI), a validated 28-item self-administered questionnaire.
Summary of results: 443 students participated in the study. Male to female ratio was 53.5/46.5. Empathy did not significantly differ from the first to the sixth year. However it was the lowest in the 7th year compared to all other years ($p<0.05$), corresponding to the first year after the start of the clinical training.
Conclusions: Empathy scores were higher in preclinical years but declined during the clinical training.
Take-home messages: Once more, a decline in empathy is noted during clinical training; further studies are needed to elucidate the reasons for this negative impact.

4G4

Factors influencing decision-making among Croatian medical students and teachers

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Background: The process of making moral decisions can be regarded as an outcome of cognitive processes leading to the selection of a course of action among several alternatives. It is mostly governed by values (core beliefs/desires) that guide attitudes and actions.
Summary of work: This study was aimed to elucidate the hierarchy of values underlying decision-making among Croatian medical teachers and students. A short anonymous survey asked students (n = 773) and teachers (n = 40) to indicate on a 5-point Likert-scale the relevance of 10 factors in making important moral decisions (conscience, duty, egoism, equality, ideals, integrity, justice, law, religious beliefs, and respect). Categorical variables were compared using Fisher's exact test, Student's t-test, and one-way ANOVA.
Summary of results: Conscience, integrity, and justice were the three highly rated values in decision-making for more than 60% of all respondents. Egoism and religious beliefs were ranked as unimportant by more than

85% of participants, although more than 85% of respondents declared themselves as religious (believers). Interesting gender differences as well as generational up- and downward trends were revealed.
Conclusions: With aging, conscience, integrity, justice, and law gain importance in the process of making decisions, while the influence of egoism, duty and religious beliefs fades.
Take-home messages: Good decisions come from experience, and experience comes from bad decisions.

4G5

Comparing the effect of emergency medicine internship course on promoting interns' knowledge, attitude, skills and self-assessment in Iran

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Background: Appropriate knowledge, attitude and skills are known as the main elements in reaching high performance, where medical education is expected to lead students to. Attitude seems to be less considered in the assessment systems. We sought to compare the effect of our emergency medicine (EM) internship course on the interns' knowledge, attitude, skills and self-assessment.
Summary of work: A pretest-posttest study was conducted on a total of 85 interns before and after their one-month EM internship course. Our multi-dimensional assessment tool included a written exam, a multi-station oral exam, a self-assessment questionnaire, an EM attitude questionnaire and a professionalism questionnaire.
Summary of results: The reliability of written exam (Cronbach's α=0.72), multi-station oral exam (α=0.97), self-assessment questionnaire (α=0.93), EM attitude questionnaire (α=0.86) and professionalism attitude questionnaire (α=0.96) were high. Interns' knowledge, skills and self-assessment were significantly upgraded during the course. In contrast, interns' attitude about EM issues and their professionalism attitude had no significant improvement.
Conclusions: EM internship course seems to be unable to promote interns' attitude. Defining attitudinal goals and using attitude measurement instruments in interns' education and evaluation is suggested.
Take-home messages: While EM training improves knowledge and skills, more emphasis needs to be put on enhancing learners' attitude.

4H Short Communications: Integrating Anatomy and Clinical Teaching 2

4H1

What do doctors need to know science for?

K Mattick (Peninsula Medical School, Institute of Clinical Education, Universities of Exeter and Plymouth, UK)*

Background: Most people agree that newly qualified doctors should possess a good understanding of science but being precise about why, and what we mean by science, can be more difficult.
Summary of work: The Peninsula Medical School's ICE "Science Hub" has challenged itself to think broadly about why doctors need to know science and to create a summary document. We have: 1) tasked clinicians, medical students, biomedical and social scientists to answer the title question and to present their findings; 2) invited a multidisciplinary expert discussion panel to respond; and 3) searched the published literature.
Summary of results: The findings highlight the important roles of 'science as doing' and 'science as a framework for thinking', as well as the more traditional view of 'science as knowing'. This activity links closely to our research on the science used by practising doctors, some of which will be presented.
Conclusions: A clearer understanding of how science is applied within medical practice will help us to create doctors that are confident in their science foundations and its future applications.
Take-home messages: A healthy debate about the role of science within medical practice will enhance the quality of our existing educational provision.

4H2

Students' perceptions of body painting as a tool for learning anatomy

Gabrielle M Finn and John C McLachlan (Durham University, School of Medicine and Health, UK)*

Background: Alternative approaches to anatomy teaching are becoming popular in response to a reduction in timetabled anatomy teaching and a decline in the number of body donors. This study ascertained students' perceptions of body painting (BP) as a tool for learning anatomy.
Summary of work: 133 medical students participated in 24 focus groups (2007-09). Data analysis utilised a grounded theory approach.
Summary of results: 5 themes emerged: 1) BP as a fun learning activity, 2) BP promoting retention of knowledge, 3) factors contributing to the memorability of body painting, 4) removal from comfort zone, 5) the impact of body painting on students' future clinical practice.
Conclusions: Students perceive BP to be a fun learning activity, which aids their retention of the anatomical knowledge acquired during the session. Sensory factors, such as visual stimuli, especially colour, and the tactile nature of the activity, promote recall. Students' preference for painting or being painted is often dependent upon their learning style.
Take-home messages: BP is a useful adjunct to traditional anatomy and clinical skills teaching. The fun element involved in the delivery of this teaching defuses the formal academic context, promoting a positive learning environment. The undressing involved encouraged students to consider issues surrounding body image; this informs their attitudes towards future patients.

4H3

Students' perceptions of anatomy teaching at Universidad de los Andes Faculty of Medicine
R Rueda, D Martinez, L Leon and J Hernandez (University of Los Andes, Bogota, Colombia)*

Background: Over the last decades, anatomy teaching has been reduced in time and depth in most medical schools, without a clear plan and regardless of implications to students' learning, or their opinion.
Summary of work: Third to tenth semester medical students were asked to answer a survey on their opinion about their knowledge of anatomy and how was it taught to them.
Summary of results: Survey was completed by 200 of 258 students (77,5%). Of them, 32% considered their current knowledge good or very good, 46,5% average and 21,5% bad or insufficient. When asked if the knowledge they acquired during the anatomy course was enough for their current needs, 28% said yes, 52,5 said it was barely enough and 19,5 not enough. When stratified by semesters, the curve showed less satisfaction with their knowledge in 8th semester, coinciding with surgery and surgical specialties. When asked about dissection, 80,5% considered dissection very important in learning anatomy. Other answers showed they consider teaching time short (67, 7%), teaching was good (56,5%) depth insufficient and cadaver dissection scarce (78,4%).
Conclusions/Take-home messages: Students at our School, although satisfied with the course, consider that more time to teaching and dissection should be dedicated to anatomy. Clinical and especially surgical rotations make them aware of deficiencies

4H4

Introducing medical histories into the dissecting room
S Whiten, A Wood, J Aiton, M Ford, and D Jackson (University of St Andrews, Bute Medical School, St Andrews, UK)*

Background: Our curriculum retains full body dissection within an integrated curriculum. Over the past decade we have collected a medical history for each donor who has bequeathed their body. We encourage students to think of the cadaver as their 'first patient' and to use the history to reflect on the donor's quality of life and end of life experience.
Summary of work: To provide a framework for students' first exposure to the cadavers, we use the medical history to stimulate careful observation and reflection. Working in groups, students are asked to collate data, complete a work sheet, and write a personal reflection. The accumulated data from ten years experience of cadaveric histories will be reviewed. Results of a survey assessing the student response to this approach and the common themes which were identified in their reflective pieces will be presented.
Conclusions: Cadaveric medical histories are valuable resources which provide an appropriate introduction to anatomy, pathology and professional issues such as confidentiality, mortality and medical etiquette.
Take-home messages: Availability of the medical history allows students to consider the cadaver as their 'first patient' and also encourages observation beyond normal anatomy and biological variation to pathology and discussion of its causes.

4H5

Use of OSCE-like stations in teaching gross and applied anatomy in Faculty of Medicine, Universiti Technologi MARA, UiTM, Malaysia

R H Malik and A S Malik (UiTM, Shah Alam, Selangor, Malaysia)*

Background: In the Faculty of Medicine, UiTM the Anatomy practical demonstrations are conducted on prosected specimens, models, charts, radiographs etc. The teaching staff of surgical disciplines helps in these sessions to cope with the increasing number of students.

Summary of work: For effective teaching with limited number of teachers and learning resources it was decided to conduct the practical sessions using OSCE-style stations. The learning outcomes of each station were specified and one lecturer was made in-charge of each station. The whole class was divided into two groups; one learning gross anatomy and other surgical anatomy and radiology, which later swap and repeat the cycle. A questionnaire survey was conducted to assess students' perception for this type of practical arrangement.

Summary of results: Above 80% of the students indicated that this method fulfills the learning outcomes, provides effective supervision, provides motivation and clarifies concepts. On the other hand above 80% students found these sessions crowded and asked for additional dissected specimens.

Conclusions: Use of OSCE-like stations is an effective method to provide standardized learning of gross and applied anatomy in a setting of large class size with limited staff and teaching material.

Take-home messages: Use of OSCE-like stations is an innovative method of teaching practical anatomy in resource limited situations.

4I Short Communications: Curriculum Integration

4I1

Taming the hydra of curriculum planning

J Otsuki, G Churchward*, J Eley* and S Santen* (Emory University School of Medicine, Atlanta, GA, USA*

Background: A major challenge in undergraduate medical education is the need to craft an integrated medical curriculum that meets broad curricular objectives and accrediting body standards in an environment characterized by a siloed department whose strategic goals seldom align with those of medical education.

Summary of work: Emory University recently underwent curriculum renewal that changed the delivery of content from a subject to a systems based approach. Small groups are now taught by a cadre of clinicians from a wide variety of specialties regardless of the course being taught. Detailed planning included clinicians (specialists, generalists, and experts in evidence based medicine), and basic scientists representing the traditional departments. Planning is funded and led by the Dean's office, which serves to create a curriculum that better meets the needs of future physicians.

Summary of results: Significant gains in the clinical relevancy of content, and sharing of innovative teaching and assessment methods have occurred. Curriculum leaders can now more easily determine curriculum content to meet the educational objectives.

Conclusions: Collaboration between clinicians and basic scientists in planning the details of a new curriculum can overcome the deficiencies of a departmentally based educational system in meeting curricular competencies and objectives.

Take-home messages: Cross-disciplinary planning plays an essential role in creating an integrated curriculum.

4I2

Knocking down the wall: Integrating a pediatric curriculum

A V Naghettini[1], V R Bollela[2], N M C Campos[1], L M R Salgado[1] and F M L Silva[1] ([1]Universidade Federal de Goiás, Brazil; [2]Unicid, São Paulo, Brazil)*

Background: In 2003 our Medical School revised the curriculum in order to value integration among disciplines and to increase the clerkship from 1 to 2 years. By 2009, it was evident that the pediatrics program was still not integrated and was not following competence-based curriculum (CBC) stated by Brazilian guidelines on Medical Education (BGME).

Summary of work: The project had two phases, first to increase faculty and student awareness about these issues and then to the develop consensus on a CBC for the whole pediatrics programme (from 3rd to 6th year).

A qualitative study based on focus groups and interviews was done. After that, two workshops were conducted to draft the CBC following the steps of the Outcome Project of ACGME (2006) and BGME (2001). Students (12/100) from the 3rd to the 6th year participated in the two focus groups; 11 out of 14 (78.5%) among faculty were interviewed.
Summary of results: Their perspective about the pediatrics curriculum includes: lack of integration, inadequate knowledge of discipline goals, few opportunities for practical supervised work, and assessment focused on theoretical input. Suggestions were made to improve integration. A blueprint with competences, learning objectives and opportunities, coherent assessment proposal was developed, which includes an annual OSCE and Mini CEx being used to assess students' performance in Pediatrics clerkship.
Conclusions: The inquiry process improved the interest, which was critical to start shortening the curriculum gaps, resulting in the new Pediatrics curriculum.
Take-home messages: Increasing awareness and realizing needs is the basis for starting change.

4I3

Vertical integration in Australian medical education: The Tasmanian continuum

J Walker[1] and R Moore*[2] ([1]University of Tasmania, Brunei, Tasmania; [2]University of Tasmania and the Postgraduate Medical Education Council of Tasmania, Australia)*

Background: In Australia undergraduate medical education is the responsibility of University Medical Schools and postgraduate prevocational training is the responsibility of the Confederation of Postgraduate Medical Councils. The University of Tasmania's Rural Clinical School (RCS), has developed a vertical integration model across the medical education continuum which is producing positive workforce outcomes.
Summary of work: By vertical integration we mean a grouping of curriculum content and delivery strategies in such a way that they cross traditional boundaries to enhance the transfer of knowledge and skills between all involved in the learning process. Our target groups are Years 4 and 5 (final year) Medical Students and Interns, Resident Medical Officers and Registrars. Conjoint appointments of medical education advisers have enabled the initiative.
Summary of results: The programs are integrated through the auspices of common orientation sessions, buddy systems in the clinical setting, interprofessional health education forums, skills training in the Simulation Centre, and the use of common assessment tools. Significant workforce outcomes are emerging with 50% of the 2010 medical intern group being RCS medical graduates.
Conclusions/Take-home messages: Vertical integration in medical education through the auspices of the Rural Clinical School may contribute to greater continuity in terms of workforce and ultimately patient care.

4I4

Independent learning activities in class-room level curriculum

R Agustin and L Sulistiawaty (University of Indonesia, Faculty of Medicine, Jakarta, Indonesia)*

Background: In class room level, competency based curriculum can consist of organ-system based module. In each module of medical sciences stage, basically the activities are: lectures, laboratory activities, group discussion, basic clinical skills, and independent learning sessions. Independent learning becomes important in competency-based curriculum, because it can train student to have competency in life-long learning, such as retention and retrieving knowledge.
Summary of work: We analyzed evaluation form questionnaire of 5 modules in medical sciences stage. The frequency and average number of each activity in independent learning sessions are analyzed.
Summary of results: In all modules, searching the internet (65.4% students) and discussion with friends (69 % students) become most frequent activities in independent learning sessions and being answered as "frequent". Meanwhile, also being answered as "frequent"; searching in the library (34.2% students) and discussion with resource personnel (19.5% students) are unlikely to choose as activities.
Conclusions: Students tend to choose internet searching and discussion with friends as activities in independent learning sessions and do not spend much time to library activity and to discuss with resource persons.
Take-home messages: It is important to explain and stimulate students to maximize each opportunity in independent learning sessions for maximal result of their study.

4I5

Clinical skills learning - from the classroom to the clinical placement

D Lawrence[1], S Roscoe[1], K Boardman*[1] and D Evans*[2] ([1]St George's University of London; [2]Barts and the London, UK)*

Background: The transfer of clinical skills learning from the classroom to the clinical placement can be challenging. At St George's University of London (SGUL) we have developed an iterative spiral curriculum for clinical skills. The third turn of this spiral concentrates on guiding clinical reasoning and decision making through focused integrated clinical examinations using realistic scenarios.
Summary of work: We have developed various innovative sessions to prepare students for their clinical placements, including Medicine, General Practice and Care of the Elderly. These sessions have been specifically crafted to improve our learners' understanding of these specialties.
Summary of results: Interim evaluation (both quantitative and qualitative) of the individual sessions has been highly positive. Within this short communication we will present the rationale for the curriculum and the end of year evaluation data.
Conclusions: Maximising appropriate transfer is challenging in clinical skills teaching. Our new sessions were designed to aid this process and have been well received.
Take-home messages: Innovative approaches can help bridge the gap between traditional systems based clinical skills teaching and application to clinical practice. We hope this session will be of interest to those involved in curriculum design.

4I6

Working towards decreasing infant mortality in developing countries through changes in medical curriculum

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Background: Pakistan has one of the highest infant mortality rates in the world. Currently, issues related to infant mortality are taught disjointedly through various departments. We undertook curriculum revision to sensitize medical students to infant mortality issues and educate them about ways to reduce the same through an integrated approach.
Summary of work: Major determinants of infant mortality in underdeveloped countries were identified through literature review and the Pakistan Demographic Health Survey. An interdisciplinary maternal and child health module team was created. Curriculum was developed based on the role of identified determinants in infant mortality. Delivery was done through interactive lectures, small group discussions, role play and hands on practice. Students' knowledge, skills and attitude were assessed in IPEs, MCQs, SAQs, feedback questionnaires and focus group discussions.
Summary of results: All assessment and feedback demonstrated that students developed thorough understanding of the complexity of the factors that contribute to infant mortality. They were also knowledgeable and skillful in counseling, ante-natal care and care of newborns and infants.
Conclusions: An integrated curriculum helps sensitize and equip students to identify and address issues of infant mortality.
Take-home messages: Integrated curriculum can deal with more complex issues and may improve infant mortality at a national level.

4J Short Communications: International Medical Graduates

4J1

Work experience of international medial graduates pursuing postgraduate training in the USA

A Opalek and D W McKinley (Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, USA)*

Background: International medical graduates (IMGs) who pursue postgraduate training in the USA often take years to obtain a training position. The type of work experience they gain during this period could be valuable in their future careers.
Summary of work: Job titles reported by IMGs on their applications for the United States Medical Licensing Examination were categorized by type and location.

Summary of results: Of the 32,157 IMGs who first applied in 2007 and 2008, 9494 (29.2%) reported employment information. Of these, 2960 (31.2%) reported being employed in the USA The most common occupations reported by IMGs employed in the USA were research (37.6%), allied health professions (28.3%), and administrative/clerical positions in health or education (9.6%). IMGs outside the US most often reported being employed as residents (47.2%), physicians (35.9%), or professors (6.9%).
Conclusions: The majority of applicant IMGs employed outside the USA at the time of application to ECFMG work as physicians or residents, while those employed in the USA (who are not yet eligible to join a residency there) are much more likely to work in research environments or in clinical support roles.
Take-home messages: Many physicians who migrate to the USA for postgraduate training bring added experience in medicine, allied health professions, and research.

4J2

Integrating the CanMEDS Competencies within an International Medical Graduate (IMG) Program

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Background: The Clinician Assessment for Practice Program (CAPP), a program of the College of Physicians and Surgeons of Nova Scotia (CPSNS), assesses the readiness for family practice of International Medical Graduates (IMGs) using the CanMEDS framework of physician competencies.
Summary of work: An OSCE and a Therapeutics written exam assess candidate medical expert and communicator competencies. Successful candidates participate in a 5-day orientation and, under a defined license by the CPSNS, are mentored for12 months by an experienced family physician. During the orientation and mentorship the CanMEDS competencies of professional, collaborator, advocate, manager and scholar are emphasized. Assessment and feedback by mentors, site visits and multi-source feedback contribute further to a portfolio of CanMEDs competencies within the context of family practice in Canada.
Summary of results: While an OSCE and written exams can assess medical expert and communicator, the orientation and mentorship effectively address other CanMEDS competencies.
Conclusions: CAPP has developed and implemented an effective program to address medical care needs while maintaining an appropriate standard of physician performance using a CanMEDS framework.
Take-home messages: The CanMEDS framework can focus the design and implementation of a program to successfully integrate IMGs into Canadian practice. CAPP is willing to share its experience with other IMG programs.

4J3

Trends in clinical skills training and evaluation in International Medical Schools

Danette W McKinley[*1], Gerald P Whelan[2] and Amy Opalek[1] ([1]Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia; [2]Educational Commission for Foreign Medical Graduates (ECFMG), Philadelphia, PA, USA)*

Background: We examined the variation in clinical skills teaching and assessment methods experienced by a cohort of international medical graduates (IMGs).
Summary of work: Invitations were sent to a sample of 2,055 IMGs who were ECFMG certified between 1999 and 2008. Responses were received from 664 IMGs (response rate of 32%).
Summary of results: Clinical skills teaching methods most commonly reported by the respondents were actual patients (93.3%), observation (81%), and didactic lecture (80%). Overall, 40% of respondents indicated that standardized patients were used as part of clinical skills training, but among those who received their degrees in 2004 or later, 69% indicated that some portion of their training included the used of standardized patients. The most commonly reported assessment methods were oral exams (72%) and OSCEs (46%). OSCE use ranged from 36% among those who received degrees in 1993 or earlier to 57% for those receiving their degrees in 2004 or later.
Conclusions: The information provided by applicants indicates that a variety of methods are used in medical schools outside the USA to teach and evaluate clinical skills with use of OSCEs/Standardized Patients increasing in recent years.
Take-home messages: Internationally, standardized patients and OSCEs have shown increased use over the past 15 years for the instruction and assessment of clinical skills based on the degree years of this cohort.

4J4

Overseas doctors working in the NHS: Problems and potential solutions

J Illing, C Kergon, G Morrow and B Burford (University of Durham, Medical Education Research Team, St Hild and Bede College, Durham, UK)*

Background: The UK NHS depends heavily on overseas doctors. However figures from the General Medical Council and the National Clinical Assessment Service indicate that overseas-qualified doctors are over-represented in referrals for under performance.

Summary of work: The study aimed to identify factors that helped or hindered overseas doctors in making a successful transition to the UK. 66 overseas-qualified doctors beginning Foundation Year one (interns) were recruited. They were interviewed prior to starting work and after 4 and 12 months in post. Triangulation data was also collected from educational supervisors and the clinical teams they worked in. They were compared to a UK sample (n=64).

Summary of results: The NHS provides little, and variable, support for overseas doctors. Many overseas-qualified doctors trained using a different model of patient care and in different types of teams, while culture differences can affect communication with patients and staff.

Conclusions: Overseas doctors need to receive information about the NHS before starting work, and need ongoing support when in post.

Take-home messages: The NHS depends on overseas doctors but assumes that they can adapt readily to the NHS despite having trained in a different culture. It is possible that failure to address problems in this adaptation may leave overseas doctors at risk of later performance issues.

4K Short Communications: Student Career Choice

4K1

The experience of an undergraduate psychiatry attachment: A qualitative study exploring the effect of a psychiatry clinical attachment on student's attitudes and career choices

T Atapattu, C Archdall and L Anderson (University of Bristol, Academic Unit of Psychiatry, Bristol, UK)*

Background: In 2007-2008 we conducted a quantitative study of Bristol University third year medical students examining attitudes and career preferences towards psychiatry. Attitudes were more positive after an attachment in psychiatry but declined by the end of the year. Career preferences followed a similar trend. This study aimed to use qualitative methods to understand these changes in order to inform current strategies on managing the present recruitment crisis in psychiatry.

Summary of work: We conducted one to one semi-structured interviews with 14 medical students. Data was analysed using ATLAS software.

Summary of results: A major theme identified was the influence of a positive role model. Other key themes included stigma, notably from peers, other medical specialties and within the psychiatry profession itself and a perception of psychiatry as being different and separate from other medical specialties.

Conclusions: Role models shape a student's experience of psychiatry and can have more of an influence on career preferences than the speciality itself. Stigma affects students before and after an attachment and comes from a variety of sources. Post attachment stigma helps explain the end of year decline in attitudes and career preferences.

Take-home messages: To encourage recruitment, professionals delivering teaching need to provide positive role models and explore ongoing stigma.

4K2

Junior doctors' choice of specialty - new questions, new answers

P Dehn and B Eika* (University of Aarhus, Centre of Medical Education (MEDU), Denmark)*

Background: Studies of choice of specialty based on a rational choice approach have proved insufficient in understanding the complexity of the phenomenon choice of specialty and in helping develop useful management tools. This study applies a sociological approach, thereby opening for new questions and answers and going beyond confirmation that the content of the work and career opportunities play a role in choice of specialty.

Summary of work: Bourdieu's theory and conceptual apparatus frame the interview guide and analysis of nine structured, individual interviews with junior doctors and chief physicians in charge of education.
Summary of results: Each specialty stands out as distinct from the others. The distinctions are used as indicators to clarify which specialties represent a genuine option. Young doctors see themselves in the specialties' characteristics – norms, values and attitudes – and recognition forms an important parameter.
Conclusions: The individual doctor's choice of specialty is limited to those specialties within which a group habitus exists that are compatible with the junior doctor's individual habitus. Understanding choice of specialty therefore involves the incorporation of habitus as a determinant.
Take-home messages: Habitus forms an important determinant in choice of specialty by constraining the choice of possible specialties for the junior doctor.

4K3

Effect of financial remuneration on specialty choice by 4th year US medical students

K J DeZee, D Mauer, R Colt, W T Shimeall, R Mallory, J Powers and S J Durning (Uniformed Services University, Department of Medicine, Bethesda, MD, USA)*

Background: Fewer USA medical students are selecting primary care (PC) specialties (internal medicine, family medicine, and pediatrics). It is unclear if financial incentives could reverse this trend.
Summary of work: We conducted a cross sectional survey of all US 4th year medical students in 2009 with a military service obligation, asking students not selecting PC if a hypothetical bonus or an increase in annual PC attending physicians salary would have resulted in them selecting PC.
Summary of results: The survey response rate was 56% (447/797). Sixty-six percent of students did not apply for a PC residency. Of these, 34% would have applied for PC for a median bonus of $30,000 (Interquartile range (IQR) $20,000-$100,000) before and after residency. Forty-seven percent of students would have considered applying for PC for a median military annual salary after residency of $175,000 (IQR $150,000 - $220,000). Students who considered PC, but chose a controllable lifestyle specialty (e.g. radiology), were nearly three times more likely to list a salary than students who did not consider PC and chose a non-controllable lifestyle specialty (e.g. surgery) (70% vs. 26%, $p<0.0001$).
Conclusions: US medical students' specialty choice is sensitive to financial incentives.
Take-home messages: Improved financial remuneration for PC may result in more US students applying for PC.

4K4

Career management in medicine – AGCAS (Association of Graduate Careers Advisory Services)/Medical Careers Advisers Network (MCAN)

Christine Waddelove[1] and Joan Reid[2]* ([1]University of Liverpool, School of Medical Education, Liverpool; [2]Postgraduate Deanery for Kent, Surrey and Sussex, UK)*

Background: Modernising Medical Careers introduced a changed medical career pathway in the UK. The provision of careers information, advice and guidance is an important activity for medical schools, postgraduate deaneries and foundation schools. The Medical Careers Advisers Network is a task group of AGCAS and its members work to promote the provision of career support from undergraduate medical students through to postgraduate doctors.
Summary of work: MCAN has run a number of successful network update days enabling careers advisers working in undergraduate and postgraduate medicine to share practice and continue to develop approaches to career support which can be used within the medical education context. This update presentation will provide a summary of the key issues raised by careers advisers; outlines of the professional development activities provided by MCAN and suggest some resources which can be incorporated into your practice.
Summary of results: The results of our work will be presented together with information about the career interventions which have been developed by the first cohort to go through the Postgraduate Certificate in Managing Medical Careers, an innovative postgraduate course offered to medical educators.
Conclusions: MCAN can provide a platform to share good practice for those who provide careers support to medical students and junior doctors.
Take-home messages: There is a wide variety of information and resources to support career choice for doctors including professional development opportunities.

4K5

Medical students and career wishes

J Sandermann and B Eika (Department of Vascular Surgery, Regionshospiotalet Viborg, Denmark)*

Background: Career planning early in medical school.
Summary of work: At the end of a 6 weeks clerkship in the third semester 107 medical students answered a questionnaire concerning gender, specialties of interest - why, impact of the clerkship - why, importance of family life, balance between work and family, working hours, on call load, training requirements, reputation of specialty, research and patient contact.
Summary of results: 44 men and 63 women - 11% thought of general practice, 48% of a surgical specialty, 36% of a medical specialty, 1% others and 4% had no ideas. They expressed interest for a special organ system, particular patient groups, working hours and environment, being a detective, general interest. At the end of the clerkship many interests have been confirmed but even more have been changed. On call hours, training requirements, reputation of specialty and research were of minor importance.
Conclusions: A good introduction to the specialty and its corporation with other specialties, activation of the students, acting as good role models moves the students.
Take-home messages: Early clerkship is very encouraging, motivating and acts as a primary career planning.

4L Short Communications: Training for General Practice

4L1

Innovation in training family doctors: Preparing the personal physician for practice

P Pugno (American Academy of Family Physicians, Leawood, Kansas, USA)*

Background: Preparing the personal physician for practice (P4) is a 6-year project of careful supervision and monitoring of 14 family physician training programs that are implementing innovative teaching methods, content, delivery formats and training locations. Both trainers and students are being closely evaluated by a team of professional educators to determine if improved performance of trainees and program graduates can be achieved. The project is supervised by a steering committee of experienced family physician educators. Minimal funding was required to support the robust evaluation and supervision process.
Summary of work: Aims: 1) To advance the training of family doctors to meet current and future population needs. 2) To demonstrate the effectiveness of innovative teaching strategies. 3) To show that innovation can be implemented without compromising the training program's accreditation status.
Summary of results: Preliminary results have documented the high level of acceptance of new training formats, location and duration by students. In fact, program recruitment has improved through participation in this project. Program accreditation has not been compromised. Early data suggests that trainees are benefiting from the new formats and content as documented by improved performance on standardized testing and feedback from graduates in practice.
Conclusions: 1) Innovation in family physician education can be implemented without compromising the accreditation status of the training program. 2) Lengthened training periods are well-accepted by students when value-added is demonstrated. 3) The Patient-Centered Medical Home can be successfully integrated into family physician training.
Take-home messages: Innovation in training family doctors can result in improved graduate performance and improved preparation for practice.

4L2

How much of the curriculum walks through the door? An analysis of pilot data from the Registrar Clinical Encounters in Training (ReCEnT) Study

C Regan[1] S Morgan, P Magin, K Henderson and S Goode (General Practice Training - Valley to Coast, NSW, Australia)*

Background: In GP vocational training the curriculum can be mapped against teaching delivered but the content of clinical practice, where most learning occurs, remains a black box and may lack uniformity or comprehensiveness. The ReCEnT Study is an Australian longitudinal study which aims to identify the clinical and educational content of general practice registrar consultations.

Summary of work: The study utilizes paper-based recording of consultation data including details about reasons for encounter, problems managed and educational factors. In this pilot, 32 registrars from one regional training provider each completed 60 consecutive consultation records. There were 1919 encounters which were classified using ICPC2 plus and compared to a national data set.
Summary of results: This presentation reports on the recorded clinical content in the context of curricular expectations. Some significant differences (with curricular relevance) in demographic and clinical exposure, compared to national GP clinical data, were demonstrated.
Conclusions: This study provides hitherto unknown information about the content of training. As it is ongoing it will provide scope for further analysis and collaboration across providers.
Take-home messages: Consultation data is useful for registrars as a learning tool and for the training provider for program evaluation, quality assurance and planning.

4L3
Challenging the epistemological approach to GP training
Marion Lynch (Oxford Deanery, Oxford, UK)*

Background: This study explored strategies and educational approaches aimed at supporting GP trainees to 'connect' with patients.
Summary of work: GP Trainers in Oxford Deanery were interviewed to find out how and why they used poetry and prose to teach. The interviews and analysis formed a doctoral study that explored the dominant discourses and models at play.
Summary of results: Analysis using NVIVO software explored 1) what was used, what differed to usual practise in GP education and why, 2) the words used, the meanings and the discourses at play. Discourses, emergent themes, perceptions, and participants' ways of knowing about themselves and patients were identified. A new concept, "narrative capability" emerged at the core bringing the management of uncertainty and the patient perspective into GP education.
Conclusions: This new model recognises the limitation of a cognitive education approach and the need for a culturalist perspective. The exploration of the constituent parts of narrative capability has illuminated multiple perspectives on the disease, distress and diagnosis that form the holistic approach to care.
Take-home messages: This study recommends that GPs can show competence in the holistic approach by gaining a narrative capability. GP training needs to take into account the multiple interpretations of the patient's predicament, only by doing this can trainees hope to share understanding and decision making in a way that make sense to the patient and themselves.

4L4
Struggling to be self-directed: Paradoxical beliefs about learning among family medicine residents
M Nothnagle[1], R Goldman[1], G Anandarajah[1] and S Reis*[2] ([1]Brown University, Providence, RI, USA; [2]Technion-Israel Institute of Technology, Haifa, Israel)*

Background: Goal-setting and reflection skills are hallmarks of self-directed learning (SDL) and the basis for physician lifelong learning. Despite this, residency training does not typically emphasize SDL skills.
Summary of work: We used qualitative methods to examine our residency's learning culture and residents' understanding and application of SDL. We conducted semi structured interviews with 13 final-year family medicine residents. Four researchers conducted a qualitative analysis of the transcripts, identifying major categories and themes.
Summary of results: Several paradoxes emerged in the analysis: 1) Residents understand and value the concept of SDL, but engage in limited goal-setting and reflection and report lack of skills to manage their own learning, particularly in the clinical setting. 2) Residents are immersed in a learner-centered educational culture, yet they value traditional teacher-centered approaches. 3) Residents recognize patient care as the most powerful stimulus for SDL, but at the same time often perceive patient care and learning as competing priorities. 4) Residents desire external guidance for SDL.
Conclusions: Graduating residents lacked confidence in their SDL skills and their ability to manage their learning, especially in clinical settings.
Take-home messages: Structured training and guidance for SDL as well as changes in the learning culture may be necessary to promote SDL skills among residents.

4L5

Licensure examination for General Practice in Austria reveals need for progression of training

M Lischka (Medical University of Vienna, Department of Medical Education, Vienna, Austria)*

Background: Licensure as GP in Austria requires a mandatory 3 years postgraduate rotation, a logbook-like documentation of activities and an end-of-training examination. Up to 900 persons per year are taking the test.
Summary of work: The test comprises 25 SAQ cases. Scoring is done by an expert panel and subsequently analyzed by computer. Results were broken down for the various categories of the five-dimensions examination blueprint with respect to representation and difficulty.
Summary of results: Representation of blueprint categories was fairly well. Items referring to information gathering consistently were the most difficult in all examinations. Very difficult topics like psychiatry, neurology and ophthalmology are not compulsory in the 3 yrs rotation. The most difficult mandatory topic turned out to be pediatrics.
Conclusions: Outstanding difficulty of information gathering appears in contrast to the often claimed importance of this competence in General Practice. Other problems may be attributed in part to deficiencies in the spectrum of disciplines in postgraduate rotation. But there are characteristic weaknesses to be identified in mandatory topics as well.
Take-home messages: Evaluation of GP licensing examinations clearly reveals issues requiring remedy. Required elements are concerned as well as elective ones. A reform of postgraduate training for General Practice will have to take these deficiencies into account.

4L6

The analysis of physician-patient communication in family medicine through videotapes as an educational tool

P Vilar, I Hernández, A Hamui, Y Valencia, and A M Navarro (Universidad Nacional de Mexico, Department of Family Medicine, Mexico City, Mexico)*

Background: Specialization Course in Family Medicine for General Practitioners is done in various health institutions throughout the republic. It documented the use of video recordings in education for evaluation, modeling, and analysis.
Summary of work: Develop an instrument for the assessment of verbal and nonverbal communication that develops during the doctor's family, through analysis of video recordings of medical consultations.
Summary of results: An instrument was built consisting of 120 reagents divided into five sections: 1) sociodemographic variables, 2) oral communication, 3) nonverbal communication, 4) overall assessment of the physician-patient communication 5) comments the researcher. The assessment of verbal communication is performed during 9 stages in the consultation process: 1) start, 2) setting the agenda, 3) open forum, 4) examination conducted, 5) physical examination, 6) diagnosis, 7) negotiation therapy, 8) end of the consultation and 9) general indicators of the communication. Assessment of nonverbal communication includes gestures, posture, eye contact, facial expression, smile and so on.
Conclusions: It was a useful tool to assess physician-patient communication in family medicine through analysis of videotapes of actual medical consultation that will identify communication strengths and areas for improvement by educational strategies that may be made from Final results of this research.
Take-home messages: This technique allows delve into specific aspects of communication for which an instrument is needed to explore communication.

4M Research Papers: The Continuum of Medical Education

4M1

Is self-reported clinical experience a valid indicator of future performance in medical school and residency training?

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Introduction: Medical school admissions committees attempt to select applicants who are most likely to excel in medical school and beyond. Traditionally, the Medical College Admission Test (MCAT) and the undergraduate grade point average (GPA) are used as key indicators of future success[1]. In addition, many admissions committees look favorably upon applicants who report previous clinical experience, such as volunteer work in a hospital. Our purpose was to determine if self-reported clinical experience is an indicator of superior performance in medical school and residency training.
Methods: We collected data from seven year-groups (1993-1999; N=980) at our university. As part of the American Medical College Application Service (AMCAS) application, students listed their previous clinical experience. We operationalized performance in medical school in terms of three outcomes: cumulative GPA upon graduation and scores on a validated program director's evaluation form (post-graduate year 1) measuring professionalism and expertise[2]. To conduct our analysis, we created four groups by taking students in the extreme thirds of undergraduate GPA and cross-tabulating this variable with self-reported clinical experience (yes/no). The four groups that remained were: (1) low GPA/no clinical experience (n=92), (2) high GPA/no clinical experience (n=99), (3) low GPA/clinical experience (n=228), and (4) high GPA/clinical experience (n=217). We then compared the groups on the three performance outcomes using a one-way MANOVA.
Results: We found differences in the performance of the four groups, $F(9, 1236)=3.05$, $p \leq .001$. In all comparisons, students who reported clinical experience performed no better than those who reported no clinical experience. Further, students in the low GPA/clinical experience group had significantly lower cumulative GPAs upon graduation than any of the other groups, including those in the low GPA/no clinical experience group (Cohen's d=-0.36 for this latter comparison). There were no differences in the groups on the residency training outcomes. In short, applicants who reported clinical experience performed no better (and sometimes performed worse) in medical school and residency training than their counterparts who reported no clinical experience.
Discussion and conclusion: Medical school admissions committees often look favorably upon applicants who self-report previous clinical experience. However, our results indicate that, on some measures of performance, applicants who report previous clinical experience may actually perform worse than those who report no clinical experience. The implications of our findings are noteworthy, suggesting that medical school admissions committees may need to reconsider the validity of self-reported clinical experience as an indicator of future performance.
[1]White CB, Dey DL, Fantone JC. Analysis of factors that predict clinical performance in medical school. Adv in Health Sci Educ. 2009;14:455-64.
[2]Durning SJ, Pangaro LN, Lawrence LL, Waechter D, McManigle J, Jackson JL. The feasibility, reliability, and validity of a program director's (supervisor's) evaluation form for medical school graduates. Acad Med. 2005;80:964-68.

4M2

Characteristics of Internal Medicine Residency applicants and subsequent assessments of professionalism during Internship

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Introduction: Studies have shown that professional resident behaviors are associated with medical knowledge and clinical skills (Reed DA, JAMA, 2008), and that unprofessional resident behaviors predict disciplinary action by medical licensing boards (Papadakis MA, Ann Intern Med, 2008). However, limited research exists on using admission criteria to predict professionalism among residents. Therefore, we determined whether standard admission data in residents' Electronic Residency Application Service (ERAS) applications were associated with multi-source assessments of professionalism during internship.
Methods: ERAS applications for 94 categorical internal medicine interns at Mayo Clinic in 2005 and 2006 were reviewed by 5 raters. Variables extracted included age, medical school, advanced degrees, USMLE scores, clerkship grades, AOA membership, publications, awards, volunteer and research activities, remediation, adverse actions, and gaps in training. We also recorded the strength of comparative statements in recommendation letters (0 = no comparative statement, 1 = equal to peers, 2 = top 20%, 3 = top 10% or "best"). Medical school reputation was categorized using US News & World Report rankings. Professionalism scores for each intern, obtained from a validated instrument, were determined using the mean of all observation-based assessments of professionalism (structured on 5-point scales) submitted by peers, senior residents, faculty, and allied health professionals during internship year. Linear regression was used to

examine associations between application variables and professionalism scores. Significance level was set at 0.01 to account for multiple comparisons.
Results: The mean (SD) professionalism score was 4.15 (0.23), range 3.47 to 4.53. The mean strength of comparative statements in recommendation letters was positively associated with professionalism scores during internship (p = 0.01), and remained significant when accounting for all variables in multivariate analysis (beta = 0.13, 95% CI = 0.04 – 0.22; p = 0.004). Thus a 1-unit increase in the rating of comparative statements in recommendation letters was associated with a 0.13 increase in the professionalism score during internship. The magnitude of this regression estimate equals approximately one-half standard deviation of the professionalism scores in the sample, which is both statistically and educationally meaningful. There were no significant associations between any other ERAS application variables and professionalism scores.
Discussion and conclusion: Comparative statements in recommendation letters for applicants to internal medicine residency were associated with higher professionalism scores during internship. Alternatively, medical school reputation, AOA status, USMLE scores, scholarly activity, clerkship grades, and other variables traditionally examined when selecting residents were not associated with professionalism. These findings suggest that faculty physicians' longitudinal observations are powerful indicators of what constitutes a "best" student, and that residency program selection committees should scrutinize applicants' recommendation letters for strongly favorable comparative statements.

4M3

At the beginning of the end: A transdisciplinary, qualitative study on the transition from resident to attending physician

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Introduction: Residency training programs are altered throughout the world in order to prepare residents for a position as attending physician. The position and requirements of such a post is increasing in complexity with changing governmental regulations and altering societal demands. These developments promote the need to gain insight into the current fit between residency training and the real world as an attending in order to evaluate residency training and if needed to introduce modifications. One way to gain insight into this alignment is to investigate the transition from resident to attending. However, there is a paucity of research exploring the transition processes from resident to attending physician. This paper retrospectively investigates the question: are attending physicians prepared and trained for the tasks and duties they have to perform? This transition was investigated in order to formulate a conceptual framework applicable beyond discipline or location specific boundaries.
Methods: This grounded theory study was performed in the Netherlands, using individual semi structured interviews. A total of 14 physicians were interviewed between January and May 2009 who commenced an attending post within Internal Medicine or Gynecology and Obstetrics, between 6 months and 2 years earlier. Interviews focused on the perception of this transition, socialization within the new organization, and the degree of preparation received during residency training
Results: Most participants identified themselves as sufficiently prepared for their clinical tasks, but felt inadequately trained for the non clinical part i.e. management, leadership and supervision. The transition was perceived as both rewarding but intense at the same time. A conceptual framework emerged from the data, consisting of three interactional themes placed within a longitudinal process. This framework describes how novel disruptive elements (first theme) within tasks, role and context, between work as a resident and attending physician are perceived and acted upon (second theme), and how this could lead to the personal development of the attending (third theme).
Discussion and conclusion: This study presents the first conceptual framework on the transition from resident to attending and is supported by literature from transition psychology[1] and organizational socialization[2]. This framework provides insight into this transition and the results could be used to smooth or facilitate the intense transition from residency training to working as an attending physician.

[1]Nicholson N. A theory of work role transitions. Adm sci q 1984;29:172-91.
[2]Morrison EW. Newcomers' relationships: the role of social network ties during socialization. Acad Manage J 2002;45(6):1149-60

4M4

Development and determinants of empathy during medical education and residency. A systematic review of the literature

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Introduction: Empathy and empathic action belong to the central elements of a therapeutic relationship between patient and physician. The relevance of empathy in patient-physician communication and its positive influence on patient health outcome have been shown in many studies. However, in the last few years more and more studies (especially from the USA) show that the self-perceived empathy of medical students and residents decreases during their education. The present study gives a systematic overview of the current status of research concerning this issue.

Methods: A systematic literature research was conducted in Medline, Embase, and PsychInfo, which included all studies between 1990 and 2010, and investigated the development of empathy and its determinants during medical education and residency. Interventions studies and those of a sample of N<30 were excluded.

Results: In total we found N=16 studies: N=9 studies relating to medical students in further education and N=7 for those in residency. Three longitudinal and five cross-sectional studies observed a significant decrease in empathy during medical education period; another found only a tendency to decrease. The five longitudinal and two cross-sectional studies during residency also showed a decrease in empathy. We developed the "Model of Determinants contributing to a Decrease in Empathy during Medical Education and Residency" giving a graphical summary of the causes of empathy decline and their interrelationship, which are discussed in the reviewed studies. They show that contact with patients together with stress, produced by varying factors, seem to be the central determinants of a decrease in empathy.

Discussion and conclusion: The result of the present review not only compromises the striving for professionalism in medical education and residency, but also threatens the quality of health care. A systematic and theory-based investigation of the determinants of empathy decline, as well as an improvement of the validity of self-perception evaluation methods using the generalization theory, seem to be necessary for an evidence-based medical education research and for deriving appropriate interventions.

4N Workshop: FAIRness and the clinical attachment

Will Brooks, Philip Chan*, Rory Mackinnon, Rachel Oliver, Tissa Weeratunge (Academic Unit of Medical Education, University of Sheffield, UK)*

Background: Student learning on clinical attachments is highly variable, and does not usually take into account the students' learning needs. Teaching traditionally takes the form of a bedside interrogation, or, as groups increase in size, a classroom presentation. Students' own work and performance are not often scrutinised, and opportunities for improvement therefore pass by unused. The clinical attachment faces many challenges; including increased student numbers, increased clinical specialisation and lack of "general" clinical experience, changing roles, work patterns and attitudes of hospital junior staff and consultant teachers, and increasing expectations of students. Over many years, we have evolved a clinical attachment based on the principles of FAIRness (Harden); which are feedback, active learning, individualisation and relevance. This model has some potential to address current shortcomings and future challenges to the clinical attachment as a learning experience.

Intended outcomes: (1) To encourage reflections and exchange ideas on the current shortcomings and future challenges of the clinical attachment as a learning experience. (2) To share innovative approaches to problems with clinical teaching. (3) To consider a model of improvement, based on the underlying concept of FAIRness.

Structure: Interactive workshop. Presentation of FAIRness principles and practical programme, including variants. Q&A to student and staff involved in FAIRness programme.

Who should attend: students, clinical educators, full time clinical staff with an interest in student education, curriculum planners, administrative staff with responsibility for clinical attachments, quality assurance professionals.

Level of workshop: Intermediate.

4O Workshop: The role of open-book tests in medical curricula

M Heijne-Penninga, E A Van Akkeren* and J B M Kuks* (UMCG, Institute for Medical Education, Groningen, The Netherlands)*

Background: Paul Glasziou stated at the AMEE conference 2007 that when learning one disease a day 30 years are needed to study all knowing diseases. Although there is no need to internalize all possible diseases, this is a good illustration of the situation medical curricula have to deal with: a huge body of knowledge that stays on changing and growing. This growing body of medical knowledge implicates a change in medical curricula and, consequently, in the assessment programme. One possibility is to include open-book tests next to closed-book tests. Generally, open-book tests refer to students' use of reference sources while taking the test. The possibility to consult sources makes it most important that teachers construct questions on higher cognitive levels. In this workshop the role and construction of open-book tests in medical curricula is discussed.
Intended outcomes: More insight in the possibilities of open-book tests and the characteristics of open-book test questions.
Structure: The workshop starts with discussion and information about the role and advantages and disadvantages of open-book tests. After that the construction of open-book tests will be discussed and practiced.
Who should attend: Teachers and educationalists who are involved in assessment and construction of tests.
Level of workshop: Intermediate.

4P Workshop: The Morbidity And Mortality Conference in medical education: Learning from our mistakes

Larrie Greenberg[1], T J tenCate*[2] and Benjamin Blatt*[1] ([1]George Washington University School of Medicine, Washington, DC, USA; [2]Center for Research and Development of Education, University Medical Center Utrecht, The Netherlands)*

Background: In medical education, as in clinical medicine, outcomes are sometimes less than ideal. To address mishaps, clinicians use the Mortality and Morbidity (M&M) conference to analyze what went wrong and to prevent future occurrences. No such approach is regularly used in medical education, though the M&M concept is congruent with educational experiential learning theory (experience - reflection - synthesis of new approaches for improved performance). In this workshop we will provide participants with the experience necessary to conduct Educational M&M conferences in their home institutions. They will learn to explore educational malfunctions using Action Learning-- a technique utilized in industry which encourages collaborative problem-solving through the use of special questioning methods.
Intended outcomes: By the end of the workshop, participants will be able to conduct a Mortality and Morbidity Conference using Action Learning to diagnose and treat an educational malfunction.
Structure: 1. Presentation: How to use action learning to conduct an education M&M conference ; 2. Small Group Practice: Participants in 2 small groups, rotate through 2 M&M stations: leaders present educational malfunction cases for them to analyze at each station; 3. Discussion.
Who should attend: Medical educators.
Level of workshop: Intermediate.

4Q Workshop: Inspiration through creation! Using creative approaches to enhance emotional intelligence in the medical curriculum

T Thompson, L Younie* and C Lamont-Robinson (University of Bristol, Academic Unit of Primary Care, Bristol, UK)*

Background: For several years we have been creating opportunities for Bristol students to engage in arts-based creative activities. This offers them the chance to explore narrative, develop self-awareness and enhance their capacity to reflect maturely. The workshop will deal with the practicalities of facilitating this sort of creative engagement. See www.outofourheads.net.
Intended outcomes: Participants will a) see examples of how creative approaches are used b) understand the rationale for such approaches c) consider their own institutional opportunities and barriers and d) have a chance to experience the inspiration of creativity for themselves!

Structure: 1) Display of work, introductions and short (<10m) description of Bristol approach. 2) Presentation of art works that relate directly to student experiences in consultation. 3) Simple, shared, exercise in creative writing using Haiku poetry. 4) An invitation to share responses to the piece(s). What do they evoke personally, professionally and in us as educators? 5) What "ways of knowing" are made possible through such engagement and how does this contrast with typical clinical narratives and case- observations? 6) Working in smaller groups, consideration of one possible arts-based curricular innovation, and barriers to its implementation. 7) Practical session on best-practice in the assessment of artistic work.
Who should attend: Any educationalist interested in facilitating the development of emotionally intelligent graduates.
Level of workshop: Intermediate.

4R Workshop: Making sense of academic underachievement: A self-regulated learning approach

J Sandars[1] and Patricia K Kokotailo[2]* ([1]University of Leeds, Medical Education Unit, Leeds, UK; [2]University of Wisconsin School of Medicine and Public Health, Madison WI, USA)*

Background: Some medical students underachieve and do not achieve their full potential. Research with children and young people, and more recently medical students, has recently identified the importance of self-regulated learning in academic underachievement. A self-regulated learning model considers the importance of "will" and "skill" within a wider social context. The "will" aspect includes self-attribution beliefs and motivational factors. The "skill" aspect includes goal setting, choice of strategy, self-monitoring, self-adjustment and reflection.
Intended outcomes: This workshop will cover: 1) What is underachievement in academic performance ? 2) The self-regulated learning model; 3) A practical approach to the use of the self-regulated learning model to identify underachieving medical students; 4) How to apply the approach to the participant's context.
Structure: In this workshop, participants will be introduced to a practical approach for the use of the self-regulated learning model to identify underachieving medical students. Participants will have the opportunity to practice the model and to consider how they can apply it to their own context.
Who should attend: All who are interested in how to approach the structured identification and remediation of underachieving medical students.
Level of workshop: Advanced.

4S Workshop: How to design and facilitate focus groups for educational research

J Tipping[1] and L Manchul*[2] ([1]Continuing Education and Professional Development, Faculty of Medicine, University of Toronto; [2]Department of Radiation Oncology, Princess Margaret Hospital, University of Toronto, Canada)*

Background: Focus groups are a valuable tool to gather information for educational development, needs assessment, program evaluation, formative feedback and educational research. As a qualitative method, they can provide invaluable information as to why people think the way they do, as well as determine barriers that interfere with learning. Information that is difficult to ascertain through the use of standard quantitative methodologies can be determined through focus groups. Based on requests from participants registered in the AMEE 2009 pre-conference workshop session on needs assessment, this workshop aims to provide the tools necessary for conducting effective focus groups.
Intended outcomes: In this practical and interactive workshop, through discussion and role-playing exercises, participants will: 1) Determine the importance of focus groups in educational development, research and evaluation. 2)Practice the skills of interview design. 3) Practice the skills and techniques of focus group facilitation.
Structure: The workshop agenda includes: Introduction of participants and short demonstration, rationale for focus groups with a practical example, developing the questions, planning and running the focus group, summarizing findings and wrap-up.

Who should attend: Medical educators, medical education researchers and evaluators, faculty development and continuing medical education professionals.
Level of workshop: Intermediate.

4U Posters: Planning and Implementing Assessment and Feedback

4U1

The five questions on assessment answered

N Al Wardy (Medical Education Unit, College of Medicine and Health Sciences, Sultan Qaboos University, Oman)*

Background: To assist in designing a programme on assessment in the CoM&HS, SQU, 5 questions were answered: why assess, what to assess, how to assess, who will assess and when to assess.
Summary of work: The 5 questions answered: 1) Why assess? The purpose of assessment, whether promotion and certification or diagnosis and feedback was identified. Assessment modalities with weighting according to their validity and measured reliability were identified. 2) What to assess? The outcomes of the curriculum were defined in terms of knowledge, skills and behaviours and appropriate assessment tools were selected. However, the assessment of professional behaviour remains challenging. 3) How to assess? A variety of assessment tools based on their validity and reliability were selected. Student training in the different assessment methods was an important part of the assessment programme. 4) Who will assess? Policies about selection of examiners were created and a hierarchy of bodies that govern the assessment programme was installed and their responsibilities defined. These bodies included the dean, College Board, College examinations Committee, Departmental examinations committees and course coordinators and tutors. 5) When to assess? The assessment programme was designed on the principle that the final grade of a student will be based on continuous assessment of the course objectives. This continuous assessment was both intra and inter module.

4U2

Assessment planned for teachers and students

R Lugarinho (Universidade Federal do Estado do Rio de Janeiro – UNIRIO, Brazil)*

Background: The discipline of genetics is taught in the 3rd period of medical school and has, on average, 70 students enrolled. One of the assessments is called Lost Marathon and consists of oral presentation of ten groups in four hours. This assessment aims to stimulate the active search for knowledge and skills in planning and communication.
Summary of work: For the planning the class was divided in three groups of about twenty students. Each group chose discussion leader, time manager, member to take notes and reporter and “Grove Game Plan” was used. The groups presented their production and the final planning was collective involving students and teachers. The evaluation criteria were agreed in the planning. The ten groups formed for the presentations received a motivating theme to study: scientific paper or magazine/newspaper report. It was agreed that the students would search for additional bibliography and the presentations would be free form, with stimulus to creativity.
Summary of results: The activity was performed as planned. Well-conducted studies were presented, with creativity and on time. Teachers of genetics and other disciplines evaluated the presentations. Students and teachers evaluated Lost Marathon itself. Sheets of paper were placed in the room with titles: “How nice!” “What a pity!” and “What if?” for participants to register their opinions. The students emphasized have liked to plan his own assessment, to exercise their creativity and considered to have learned more than with traditional tests.
Conclusions: The student participation in the planning of all stages of evaluation was considered motivating, especially in relation to the stimulus for freedom of choice of presentation of the theme.
Take-home messages: Assessment is an important formative component of education and it is relevant to consider the student involvement in planning this own assessments. The selection of topics published in lay literature, closer to everyday reality, can motivate the study.

4U3

A pilot study investigating students' understanding of marking criteria and its influence on learning

S Annetts and U Jones (Cardiff University, School of Healthcare Studies, Cardiff, UK)*

Background: Activities that engage students with marking criteria appear to enhance learning (Rust et al, 2003). The aim of this study was to investigate whether a change in students' understanding of marking criteria influences learning.
Summary of work: Undergraduate students (n = 87) were asked to rate a statement regarding how much they understood each of four sections of assignment marking criteria when writing their first assignment. The process was repeated for their second assignment, which was similar in structure to the first although different in content.
Summary of results: There was a statistically significant improvement in: a) students' perceived understanding of all sections of the marking criteria for the second assignment ($p < 0.001$). b) grade for the "Referencing" and "Grammar and Presentation" sections of the second assignment ($p < 0.001$ and 0.035 respectively). There was no statistically significant improvement in sections relating to content, analysis or synthesis.
Conclusions: Explicit engagement with marking criteria during assignment writing improves student understanding of the criteria. This may lead to enhancement of generic writing skills particularly referencing, grammar and presentation.
Take-home messages: Improved understanding of marking criteria appears to enhance learning of generic writing skills.

4U4

One assessment program for an undergraduate veterinary master curriculum

A D C Jaarsma, G J Bok, L F H Theyse, N J Rietbroek, H Brommer, C P M van der Vleuten and P Van Beukelen (Faculty of Veterinary Medicine, Utrecht University, The Netherlands)*

Background: Over the years, assessment literature has mainly focused on individual measurement instruments and their psychometric properties. More recently, a shift can be seen towards designing assessment programs, in which a purposeful arrangement of instruments is required for measuring medical competence as a whole.
Summary of work: A taskforce designed a competency-based assessment program for the newly developed undergraduate veterinary master curriculum at the Faculty of Veterinary Medicine, Utrecht University, which will start September 2010. Different measurement instruments (e.g. Mini-CEX, MSF, DOPS) will be used giving information rich feedback to the individual student. These instruments will be uploaded into an e-portfolio. The e-portfolio as a whole will be assessed twice a year by a committee based on the aggregation of the different instruments. The development of criteria for assessing the portfolio is in progress.
Summary of results: Important first steps are made towards an integrative assessment program. Because of early involvement of stakeholders and policymakers, the outline of the assessment program until thus far meets acceptability. When in action, monitoring, evaluation and improving the program are essential.
Conclusions/Take-home messages: When designing a new assessment program, think revolution will be more exciting than evolution!

4U5

Performance of the final year medical students at Universiti Malaysia Sabah in the end surgical senior posting (SSP) examination

Basim A M H Almothafar and Chee Fong Tyng* (Department of Surgery, School of Medicine, Universiti Malaysia Sabah, Malaysia)*

Background: Senior surgical posting is an intensive eight weeks attachment with overall surgical revision. The students are attached to the general surgical department for five weeks, then to each of the emergency and neurosurgical and paediatrics departments for one week together with that, the students will spend time in the theatre and surgical clinic. At the end of this period, the students will sit for the end posting examination.
Summary of work: Retrospective data collected and analysed from the end SSP examination for the final year medical students for academic years 2008-2009 and 2009-2010 (105 students). The passing mark is 65 of 100, and passing the clinical section is mandatory. In order to simplify the analysis, both log book viva and the two

handwritten case reports data were put under one category called continuous assessment. The means for the three major components (theory, clinical and continuous assessment), were compared. The analysis was carried out with the help of SPSS Version 17.
Summary of results: Mean score of the MCQs component for academic year 2008-2009 is higher than academic year 2009-2010, but for MEQs the mean score for academic year 2008-2009 was lower than academic year 2009-2010. The performance of 2009-2010 students in short cases and OSCE is higher than 2008-2009 students. However, essay questions and long cases examination showed no significant difference ($p>0.05$). The performance of the students in the theory part of the examination were weak in comparison to the other two parts (clinical & continuous assessment).
Conclusions/Take-home messages: The continuous assessment have strong effect on the final results of the students, the students have defect in theory back ground reflected by their poor MCQs performance, the mode of UMS students learning is more towards the deep approach, and the psychological impact could play role in the performance of the students.

4U6

Do mid-unit and final test correlate?
Chonthicha Chantivas (Hatyai Hospital, Hatyai Medical Education Center, Songkhla, Thailand)*

Background: Basic Rhino-otolaryngology is part of ambulatory course during the 4th academic year of Hatyai medical curriculum. In order to stimulate self-directed learning and to identify the borderline students, the mid-unit test was administered at the beginning of the 3rd week of the 5-week course. It consists of 7 MCQ and 13 short-answer questions.
Summary of work: Objective: to determine the correlation between the mid-unit and the final test in otolaryngology. Method: forty-eight, 4th year medical students of 2006 and 2007 academic year, compulsorily took a formative mid-unit test and were given the correct answers afterwards. Results were reported as percentages correct and compared to average score. The correlation of the mid-unit and the final test were analyzed by Spearman rank.
Summary of results: The mid-unit average score is 45.97% while the final is 70.44%. Sensitivity and specificity of mid-unit test are 69.57% and 76.00% in orderly. Spearman rho coefficient between mid-unit and final score is 0.78.
Conclusions: The assessment enhances self-directed learning but paradoxically, the high correlation between mid-unit and final test was a little disappointing. It might be fall as the students realized from the areas of deficiency and rectified these before the final exam.
Take-home messages: The mid-unit test can detect borderline students who have persistent learning problems.

4U7

OSCE assessment: Correlation between OSCEs, multiple choice questions (MCQ) and practical clerkship exam (PCE) ratings
Sáez Méndez Lourdes and Sáez García Mª José (Internal Medicine, Hospital General de Albacete, UCLM, Albacete, Spain)*

Background: In 2001, the first Standardized Patient Programme in a Spanish Medical University began. Medical students are evaluated by different kind of methods: MCQ, PCE and OSCEs. At the moment, three degree course have finished their medical studies.
Summary of work: To report our experience with measurements of the OSCE and its correlation with other exams in the student group who have finished their studies. 198 students have been evaluated at the end of each clinical year. We used the p in univariate analysis, Cronbach´s alpha, Pearson´s coefficient tests and contingence tables for measuring concordance.
Summary of results: At the third year, 7,552, Pearson´s coefficient test between OSCE and MCQ was 0,309 and between OSCE and PCE was 0,266. At the fourth year, Pearson´s coefficient test between OSCE and MCQ was 0,424 and between OSCE and PCE was 0,410. At the fifth year, Pearson´s coefficient test between OSCE and MCQ was 0,509 and between OSCE and PCE was 0,398. And, sixth year, Pearson´s coeficient test between OSCE and MCQ was 0,483 and between OSCE and PCE was 0,468. The difference (p) between exams was significant in all years.
Conclusions: OSCEs, MCQ and PCE had a good concordance between them.

Take-home messages: The successful implementation of the OSCE in our University is relevant to stimulate others Universities to face the new challenges of medical education.

4U8

The use of the Angoff method in course-level standard setting: We can make it reliable

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Background: Though the Angoff method has been used in end-of-phase examinations of our undergraduate medical curriculum for 5 years, end-of-course assessments are still norm-based. In 2009, the policy to decentralise the role of the item review committee to each department was launched. We took this opportunity to implement the Angoff method into Pharmacology, RS2 and CVS2 courses.
Summary of work: We ran 3 workshops to introduce the Angoff method to the judges in 3 courses. They were either course committees or recent graduates. At the end of the standard setting process, questionnaires were distributed to study their acceptability. Their ratings were analysed using the G-String II, version 4.1.0 to determine the G-coefficients.
Summary of results: Of the 15 respondents, only eight supported the use of the Angoff method in other courses. Some had concerns for their own bias and personal qualities. However, the G-coefficients of their ratings in 3 courses were 0.86 (8 judges, 0.85 (9 judges) and 0.83 13 judges). The variance attributable to 'items' was much greater than the variance attributable to 'judges' in all courses.
Conclusions: In spite of some judges' reluctance, the minimal passing levels of these 3 courses could be established with confidence.
Take-home messages: We can use the Angoff method in course-level standard setting.

4U9

Standard setting for Thai National OSCE: Fairness with compensatory approach

Samkaew Wanvarie (Department of Community Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand)*

Background: The objective structured clinical examination (OSCE) is one of the step-3 licensing examinations for medical students or physicians certifying to practice in Thailand.
Summary of work: Results of Ramathibodi medical students sitting the OSCE were analyzed. Different standard settings were applied to obtain failure rates.
Summary of results: The failure rates were highest using non-compensatory approach (criteria of passing every station category). Using only total pass mark above minimum passing level (MPL) resulted in highest pass rates.
Conclusions: Compensatory approach (no criteria of passing every station category) seemed to be fairer to examinees due to possible sampling error of stations and examiner stringency/leniency behavior.
Take-home messages: Standard setting of OSCE in the Thai licensing examination should consider the additional total passing score criteria with borderline group method (establishing MPL with SEM).

4U10

Minimal passing score setting on Objective Structured Clinical Examination

Panuwong Sansomranjai (Chonburi Medical Education Center, Thailand)*

Background: Since performance-based tests in medicine, such as the objective structured clinical examination (OSCE), are designed to measure specific, tightly defined competencies. Standards are best set in relation to actual examinee performance. This study was designed to demonstrate the impact of item-based standard-setting procedure on OSCE. Objective: To compare item-based and performance-based standard-setting procedures for an OSCE.
Summary of work: A 15-station OSCE was administered to 20 students in the final (sixth) year medical classes of 2009 at Chonburi hospital. Item-based (Angoff method) and performance-based (Contrasting method) standard-setting procedures were applied to the data to establish a cutoff score for a pass/fail decision.
Summary of results: The average passing score of Angoff and contrasting methods are 73.7% and 62.8% resulted in a failure rate of 49.66% and 18.66% respectively.

Conclusions: Item-based standard-setting procedures like Angoff may lead to unrealistically high failure rates.
Take-home messages: Item-based standard-setting procedure may not be appropriate to measure performance-based test.

4U11

Standard setting for a pre-internship OSCE: Tehran University of Medical Sciences experience

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Background: We determined a minimum pass level for a Pre-internship OSCE in Tehran University of Medical Sciences using Angoff method. This is a 14-station examination which was held in March 2010 for 105 medical students.
Summary of work: We used a modified Angoff method to set the standard for this exam. Fifteen judges were involved in the process. In a one-day workshop, judges were briefed on the standard setting method. Discussion was held by judges to reach an understanding of the concept of borderline candidate. Two sample stations were used as practice. Judges were then asked to estimate the probability of a borderline candidate passing each station. Group discussion was held and judges were allowed to modify their score if they wished.
Summary of results: Minimum pass level for each station was calculated and the mean for all stations was used as the standard for the exam. A score of 49.7 was determined as the minimum pass level. According to this score, the passing percentage was 65.7%.
Conclusions/ Take-home messages: To the best of our knowledge, this is the first time a formal standard setting is used in our country. Most standards are arbitrary and based on the pre-determined fixed score of 60%. We showed that standards can be set for a performance exam using modified Angoff method.

4U12

A critical analysis of assessment tool in surgical education

Tosan Okoro and David Brigden (School of Medical Sciences, Bangor, Gwynedd, UK)*

Background: New assessment tools are emerging, focusing on technical competency which could reliably measure surgical skills. A system that can provide unbiased and objective measurement of surgical precision could help training, complement knowledge based examination, and provide a benchmark for certification.
Summary of work: Review of the literature was performed to assess the pertinent features that are necessary for surgical assessment tools. The available tools were then analysed as well the contexts in which they are most applicable with regards to surgical training.
Summary of results: Reliability, validity, equitability and fairness are the ideal characteristics of a surgical assessment tool. A plethora of tools abound and the 2 most topical in the UK are the PBA (procedure based assessment) and DOPs (Direct Observation of Procedural Skills) tools in view of the reduction in trainee hours and increased pressure on clinical surgical practise. Both tools have the aim of facilitating learning and in collating PBAs, global issues with a trainee can be identified. DOPs have the limitation of being appropriate for the 'level of training' and therefore cannot be collated to produce a global picture of progression.
Conclusions: Surgical assessment tools are an important component of the future training of junior surgeons. Continued research into the new methods currently being employed in the UK will help to consolidate training and education in the current climate of reduced working hours due to the European Working Time Directive.
Take-home messages: Unbiased and objective measurement, reliability, validity, equitability, fairness, and procedural based assessment.

4U13

Consultants' views on competency-based assessments

P McKavanagh, A Smyth* and U Carabine (Royal Victoria Hospital, Belfast, UK)*

Background: With the introduction of Modernising Medical Careers, competency-based curricula were implemented for junior doctors. However, debate and scepticism exists in relation to this method of assessment.
Summary of work: The method for this study was a questionnaire that was sent to all consultants within a NHS trust. The questionnaire used both Likert scale and open-ended questions, giving both quantitative and qualitative data.

Summary of results: A number of different themes emerged including the view that assessments are not standardised, and that competency-based training does not compensate for the reduced hours that the European Working Time Directive enforces. Respondents did not think that the marks obtained should be used in career progression and that completion of competency-based assessments does not make a trainee ready to be a consultant. Consultants do not feel that they are adequately compensated for their role as assessors. Trainees are not prepared or enthusiastic about assessments which can lead to de-motivation and minimally acceptable standards of competency.
Conclusions: The respondents in this study do not think that trainees and trainers take competency-based assessments seriously and do not consider that the results are standardised.
Take-home messages: Overall, there was the belief that competency-based assessments are not suitable for the purpose they are being used.

4U14

Learning Basic Life Support: Effects of video-feedback on training basic life support

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Background: Training Basic Life Support is essential in qualifying people for emergency situations. The emphasis is on training the practical performance of external chest compressions (ECC) within Basic Life Support (BLS). Objective was to evaluate effects of "individual Video-feedback" used in training BLS.
Summary of work: Laypersons were randomized and either trained using the standard method a 4-Step-Approach (C: n=32) or using a modified 4-Step-Approach with individual video-feedback (S: n=36). All were tested on a manikin in cardiac arrest mock scenario prior to BLS-course, after one week and after six months with each time 2 min of continuous ECC.
Summary of results: Subjects reached after six months >80% correct compression depth (C: 46.9% vs S: 88.9%) and >80% of BLS-algorithm (C: 34.4% vs S: 50.0%) noticeable better in study group. The mean compression rate/min were in group c=111,3 and s=113,5 and mean compressions/min (absolute number) c=75,3 vs s=78,8.
Conclusions: Using individual video-feedback in training BLS leads to comparable retention of skills after six months and is able to improve compression depth and adherence to guidelines algorithm.
Take-home messages: Using Video-feedback in Training BLS is a useful method to improve the skills from laypersons. The training method increases the compression depth and the performance of the algorithm.

4U15

Do students benefit from including a feedback station in an (formative) OSCE? Results of a test round

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Background: Our formative OSCE includes a questionnaire feedback station about physical examination in the previous station. We investigated whether feedback provides additional learning effects in OSCE.
Summary of work: A quasi-experimental pre-post design was used including 116 seventh-semester medical students. Performances at the research stations before and after the questionnaire feedback were evaluated by one observer from video. Observer rated a subjective overall mark and a standardised, three part evaluation checklist: A) Physical examination, B) Examination technique, C) Handling the patient. Data was analysed using the Wilcoxon test and Cohen`s d.
Summary of results: Results for physical examination were significantly higher after the feedback station (median = 21) than before (median = 15, $T = 705.50$, $p < 0.001$. Effect size was -0.48. Results in B increased significantly ($T = 680.50$, $p = 0.011$, but effect size was small ($r = -0.17$). C results showed a non-significant decrease ($T = 481.0$, $p = 0.484$). Subjective overall grading improved non-significantly ($T = 678.0$, $p = 0.912$).
Conclusions: The results show a significant effect of the questionnaire feedback on students' performance consistent with earlier findings (1). This implies that questionnaire feedback stations increase the learning effect in formative OSCEs.
Take-home messages: We will include feedback stations in our formative OSCE in Frankfurt.

4U16

Learning to give feedback: Using filmed vignettes to promote effective practice

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Background: Providing effective feedback is key to learning. It is important that clinical teachers across health professions have the opportunity to practice and refine their skills in identifying feedback opportunities and responding constructively within teaching episodes and workplace settings.
Summary of work: Research with clinical teachers identified common and challenging situations in giving feedback. Using scripts based on these real-life scenarios, a DVD was created to reflect the challenges in medicine, nursing and radiography in both workplace and class teaching situations. The short film clips include the self critical yet competent student, the brusque and the insensitive trainee together with examples of different ways of giving feedback. The DVD was evaluated with different professional groups. An on-line package with suggestions for a workshop structure now exists for staff developers.
Summary of results: Outcomes from the evaluation were that the DVD was accessible, realistic and easy to use. The vignettes promoted valuable discussion and comparison of professional roles, and provided an opportunity to examine ways of giving feedback in difficult or uncomfortable situations in a 'safe' environment.
Conclusions/Take-home messages: This on-line package provides a useful resource for staff developers in enhancing feedback practice by presenting authentic teaching episodes as a stimulus for discussion.

4U17

A study to explore the effect of peer feedback on OSCE performance

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Background: It has been established from educational literature that feedback improves student satisfaction as well as learning outcomes. In medical education, peer feedback is playing an increasing role, as it is understood that peers share perspectives and common problems on assessments. However, what are the views of the students with regards to peer feedback? Do they feel it is beneficial for their learning outcomes? This study aims to look at the role of peer feedback and its impact on student's OSCE performance.
Summary of work: Theoretical uses of both feedback and peer feedback were elucidated via a literature review and by seeking the views and opinions of experts within Barts and The London. Focus groups will explore and understand the beliefs and attitudes of medical students. Respondent validation will confirm the accuracy of the focus groups and a qualitative questionnaire will further investigate the themes established from the focus groups.
Summary of results: The data addresses the precise role of peer feedback and its impact on students' OSCE performance. The results will enable the institute to review and critique the existing purpose of peer feedback.
Conclusions/ Take-home messages: Medical educators seem not to be fully aware of the positive effects peer feedback can potentially have on students' OSCE performance.

4U18

The video clip as a feedback teaching tool during the pediatrics clerkship

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Background: It is very important for students to learn the basic clinical skills during the clerkship.
Summary of work: The students' performances were taken by digital camera when they took history and performed general and neurological examinations in both the ward and outpatient clinic (after the consent of parents). That afternoon, the video clip was reviewed as a feedback and the questionnaire survey was done.
Summary of results: The video clip of student's performance stimulated the academic interest and bridged the gap between knowledge and clinical practice performance in all students. This assisted students practically, improving the clinical competence and provided time for the introspection on their clinical competence however, this was less effective from the point of the confidence when seeing patients. Most of the students wanted a more opportunities.

Conclusions/Take-home messages: The video clip as a feedback material is an effective tool for the improvement of clinical skill performance by the stimulation of academic motivation and the linkage between gap between knowledge and clinical practice.

4U19

Have we made an impact? An exploration of written feedback to pharmacists after submission of a significant event analysis [SEA]

Morven Mellan[1], Fiona McMillan[2] and Ailsa Power[2] ([1]Pharmacy, NHS Education for Scotland; [2]University of Strathclyde, Glasgow, UK)*

Background: To encourage reflection and the identification of learning needs Pharmacists in Scotland are encouraged to submit a Significant Event Analysis (SEA) which are reviewed by independent peer reviewers and feedback provided.
Summary of work: The pharmacists' perception of written feedback received following submission of a SEA and to investigate if the provision of feedback had led to a change in behaviour, attitude or practice. Views for improvement for the provision of feedback were also obtained. An interpretivist approach was taken. Semi-structured telephone interviews were undertaken with development of themes. The results were critically reviewed.
Summary of results: Interviewees agreed that receiving SEA feedback was a positive experience. There was debate over the most valuable way to deliver feedback. The majority of pharmacists indicated they would welcome the opportunity to discuss any issues raised in their feedback.
Conclusions: Writing a SEA has a positive impact on pharmacists' practice. The current provision of feedback was viewed as a positive experience. Further research is needed to allow for appropriate and practical modification to the feedback process.
Take-home messages: Pharmacists find analysis of significant events a rewarding reflective experience. However, there is scope to improve the method for the provision of feedback to influence the pharmacist's behaviour, attitude and practice.

4U20

Supervised feedback for dental skills training

Gina Singh and Abi M Thomas (Department of Dentistry, Christian Medical College, Ludhiana, India)*

Background: Dental education is highly skilled based and involves learning a number of practical skills by the learners. Unlike medical education, dental education in India still does not use assessment methods to provide feedback to the learners.
Summary of work: A modified m CEX format was employed to provide feedback to the learners during their final year posting in Periodontia. The standard form developed by Norcini et al was modified to include points related to motivating the patient, performance of clinical and surgical procedures and treatment planning. Brief faculty training preceded the intervention. Feedback was collected from the learners and supervising faculty.
Summary of results: Forty students went through the exercise. There was satisfaction from the process and acceptability was good. Students mentioned objectivity and immediacy as the most important aspects of the process. Faculty accepted the process but felt the need for more training.
Conclusions: Assessment methods used in mainstream medical education can be used for dental education. Faculty training and student acceptance may hold the key.
Take-home messages: Dental education in India must explore using contemporary assessment methods.

4U21

The development and evaluation of a multi-dimensional toolkit designed to inform student assessment: preliminary findings

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Background: Medical students in years 4/5 at Dundee University are assessed against 12 Scottish Doctor Curriculum Outcomes for each of 7-10 blocks per year. In the GP Block a numerical outcome scoring system

incorporating an overall global score was perceived as lacking objectivity with inconsistent overall marks and outcome weightings. It proved difficult to standardise. Feedback opportunities were limited.
Summary of work: A new GP assessment package introduced in 2009/10 using a set of tools to aid tutors gather necessary information to inform outcome grades comprised: 1) Mini-cex. 2) Case Based Discussion. 3) Professionalism proforma. 4) Feedback summary sheet. Staff development with calibration sessions supported the introduction.
Summary of results: In the first year over 250 students placed in over 50 practices will have been assessed using this toolkit. Preliminary evaluation has verified the practicability of the tools used and indicates a high level of tutor satisfaction. Student feedback has been positive with regular opportunities for good quality feedback being highly valued.
Conclusions: This new assessment package has proved acceptable to students and tutors and practical to use. Staff development and calibration allows greater standardisation. Feedback opportunities are built in.
Take-home messages: Key elements to assessment of GP attachments are: Practicability, flexibility, and standardisation, with built in feedback opportunities.

4V Posters: Selection

4V1

Predictive validity of a medical school entrance exam at the University of Ghana

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Background: All medical school applicants in Ghana take the Senior Secondary School Certificate Examination (SSSCE). It has not been determined whether SSSCE performance is predictive of performance in medical school.
Summary of work: We collected demographic data, SSSCE results, and results of examinations during medical school for students admitted into the University of Ghana between 2004 and 2008. Spearman correlation coefficients were used to compare SSSSCE scores with each independent outcome. Cronbach's alpha was calculated for the aggregate of 6 basic science examinations and 6 clinical sciences rotations. Multivariate analyses were calculated between the SSSCE and the aggregate basic science score and clinical science score.
Summary of results: Performance on the SSSCE was significantly negatively correlated with age, but with no other outcomes.
Conclusions: These results show that those who score well on the SSSCE do not necessarily fare better in medical school. Although students from rural areas and underperforming secondary schools often do not fare as well on the SSSCE, they may be preferred matriculants as they are considered more likely to return to underserved rural areas.
Take-home messages: Admissions policies should consider that entrance examinations may not reflect success in medical school for Ghanaian students.

4V2

Widening access to medical education in the UK

T Crocker-Buque (University of Nottingham, Queens Medical Centre, Nottingham, UK)*

Background: The demographics of medical students in the UK show a shocking imbalance in favour of higher-socio economic and certain ethnic groups. This lack of opportunity to access the professions has been highlighted by recent government report. Tacking this problem is a significant challenge.
Summary of work: A literature review was undertaken of the strategies employed by Universities across the world to improve access to courses by underrepresented student groups. This paper looks in detail at the barriers students from lower socio-economic and under-represented ethnic groups face when applying to medical schools in the UK.
Summary of results: The barriers these students face when applying to medical school, include educational, financial and motivational difficulties. Yet successful strategies to widen access have been identified from institutions in the UK and abroad. This paper presents best practice and evidence based recommendations of how to widen access to medical education.

Conclusions: The medical profession in the UK is not sufficiently representative of the UK population, and certain groups of students are excluded, yet there are simple, low-cost and effective strategies are available to reduce the barriers these students face.
Take-home messages: Simple, effective strategies are available to ensure equitable access to medical education, whatever a students' background.

4V3

Is there a relationship between attainment in the UK clinical aptitude test and approach to learning in first year medical students?

K High and G J Prescott (University of Aberdeen, Division of Dental and Medical Education, Aberdeen, UK)*

Background: The UK Clinical Aptitude Test (UKCAT) was introduced as a medical schools admissions test in the UK in 2006. There is ongoing research exploring its relationship with achievement in medical school, but its relationship to student approach to learning is not known.
Summary of work: First year medical students at the University of Aberdeen were asked to complete the Approaches to Study Skills Inventory for Students (ASSIST). The results were then compared with scores achieved in the UKCAT prior to medical school selection.
Summary of results: 99 of 180 students completed the ASSIST. There were negative correlations between the UKCAT total scores and percentiles and a strategic approach to learning. A high score in the abstract reasoning domain of the UKCAT was negatively correlated with deep and strategic approaches to learning.
Conclusions: If there is a tendency for the UKCAT to select against deep and strategic learners, as shown in this study, it may be that the weighting or use of the abstract reasoning domain of the test should be reconsidered.
Take-home messages: Given the positive relationship between strategic learning and achievement in medical school, and deep and strategic learning and knowledge gained from clinical experiences in medical school, the abstract reasoning section of the UKCAT may need to be changed.

4V4

Reviewer themes in the medical school admissions process

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Background: Individual admissions committee members must summarize applicant information prior to presentation to the full committee. Our purpose was to identify which themes and relative frequencies were cited.
Summary of work: Prior to matriculation each applicant's admission packet is reviewed by three committee members. Over seven academic years, we categorized each utterance (n=9299) and coded it as positive, neutral, or negative for matriculants (n=1023). Inter- and intra-rater reliabilities were determined.
Summary of results: Themes, in order of frequency, were overall statements, academics, standardized testing, motivation, interviews, recommendation letters, military experience, medical experience, personal traits, written statements, extracurricular activities, maturity, leadership, and community service. Within each theme, positive utterances were most common followed by negative and then neutral. Intra-rater reliability coefficients ranged from 0.902 to (mean=0.9834). Inter-rater reliability ranged from 0.545 to 1.00 (mean=0.941) for the first rater and -0.077 to 1.00 (mean=0.904) for the second.
Conclusions: The relative frequencies of themes are unexpected and may influence the content of an admissions packet (e.g. recommendation letters and written statements accounted for <1% utterances). Forthcoming work is planned to determine the extent to which such themes predict medical school and future clinical performance.
Take-home messages: Themes can be identified in reviewer summaries with excellent inter- and intra-rater reliabilities.

4V5

Impact on preclinical study success from experience obtained through a medical related career prior to medical university education

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Background: We wanted to identify the influence of a medical related career prior to studying medicine at university. Specific interest was focused on preclinical disciplines, e.g. anatomy (3 classes), biochemistry, biology (2 classes), chemistry and physics.
Summary of work: Medical students (N=341, out of 421) starting in October 2008 participated in this study. We analysed the success rates of two groups: group 1-with knowledge from medical related careers, group 2-without such knowledge. As success we defined the pass-rates in regular examinations in preclinical disciplines.
Summary of results: Students with initial preclinical knowledge performed better in anatomy examinations but worse in other disciplines particularly chemistry and biochemistry.
Conclusions: Students with knowledge from initial medical related careers seem to have better success in early anatomy classes, however, in disciplines with higher abstraction levels, these students failed significantly more often.
Take-home messages: Job experience in careers in the health sector is no predictor for success in advanced disciplines of the preclinical medical university education.

4V6

Reflective writing as a tool to assess humanized health care characters for medical student selection
J Budkaew (Khon Kaen Medical Education Center, Khon Kaen Hospital, Khon Kaen, Thailand)*

Background: Selection of student into medical school should not focus only on academic competency but also on appropriate humanity characters. The concept of humanized health care (HHC) was introduced to a group of candidates in student selection process using various activities. Reflective writing was used to assess HHC characters of these candidates. We would like to compare HHC characters between candidates who passed and failed student selection.
Summary of work: Forty-two high school students participated in 2-days of activities to introduce the HHC concept before sitting an admission examination. They were assigned to write their experience after visiting real patient under topic "When I talk to the patient". These essays were scored by two independent members of staff based on modified humanity scoring system. The HHC characters included empathy, respect to human, and introspection. The HHC characters were compared between students who passed and failed the admission examination.
Summary of results: Students who were admitted to medical school showed higher HHC scores (7-9) than students who failed the examination (4-7.) Empathy and introspection were the most outstanding characters among passed students. Introspection was scored low (0-1) in students who failed the examination. Reflective writing ability correlated to academic competency in both groups.
Conclusions: Students with high academic achievement tended to have higher scores in reflective writing and showed more empathy and introspective characters. Reflective writing was useful in identification HHC characters. It can be used as additional tool for student selection.
Take-home messages: Although students who passed admission examination showed outstanding HHC characters, longitudinal assessment in medical school should be followed.

4V7

Not Slytherin! Student selection at Witten/Herdecke: Evaluating the evaluators
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Background: At the Private University Witten/Herdecke (UWH, Germany, selection of medical students consists of a two-stage process: Evaluation of detailed questionnaires (by academic staff, clinical physicians, or alumni) followed by interviews for selected applicants.
Summary of work: Factors biasing the selection process were analyzed.
Summary of results: In 2007, 508 prospective medical students applied at UWH, of whom 198 were invited to a selection weekend. While academic staff and alumni deemed only ~35% of applicants suitable for personal interview, clinical staff selected ~50% of their share of applicants. Difference between groups on the committee is significant (chi-square=10.8, p=.004, but disappears as the selection process progresses. Best statistic predictors for an invitation to personal interviews was good A-Level results, receiving stronger correlation from academic staff (r=.47, having graduated longer ago (r=.21 by alumni) and knowledge of

foreign languages (r=.27) plus time spent abroad (r=.22) by clinical staff. 78 applicants (48 female, 30 male, aged 21.6±2.6) were accepted, independent of the selection committee grouping (chi-square=3.7, p=.16).
Conclusions: It seems that experts on the selection committee differ in their weighting of applicants to medical school depending on the context of their own work.
Take-home messages: Qualitative experts' interviews will evaluate implied requirements for "good doctors" for future use in selection interviews at UWH.

4V8

The return of the sorting hat – student selection at Witten/Herdecke: Qualitative evaluation of interviewers' views

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Background: For over 20 years, medical students at the University of Witten/Herdecke have been successfully elected by an interview-based selection process.
Summary of work: This process will be evaluated and revised over the next four terms using qualitative and quantitative methods. Thus, by means of modern quality measures external transparency and internal consistency of profiling should be increased. During spring 2010, qualitative expert interviews with 20 experienced assessors will be carried out as part of a requirement analysis. The interview questions will address topics such as satisfaction with the current system, the characteristics of an ideal candidate / a good doctor and the special attributes of the University of Witten/Herdecke. In a second step, the criteria derived from analysis of the qualitative material will be used to develop a rating scale for evaluations and for the systematic observation of various assessors.
Conclusions/Take-home messages: This reform process serves for developing semi-standardized interview guidelines for the students´ selection process with the objective of increasing the effectiveness and transparency of the interview-based student selection process. The results could serve as a model for other universities applying interview-based selection processes.

4V9

Re-looking at the criteria for the selection of medical students

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Background: Due to the changing of the evaluation systems used for grade 12 students in South African schools, universities were forced to start looking into other criteria for the selection process of medical students such as the HSPTs. The aim of this study was to assess the relationship between the HSPT's, school performance and academic performance during the first two years of study at the UFS.
Summary of work: The study was a quantitative, analytical, retrospective cohort study. The study population was first year medical students of 2004 and 2005 and second year medical students during 2005 and 2006 of the UFS. Several aspects were covered in the collection of data and were statistically analysed to detect associations.
Summary of results: Of the school-leaving subjects included, only Biology and to a lesser extent, English appear to have any meaningful relationships with academic performance for the modules included in the analysis. Mathematics and Science showed no meaningful relationship with academic performance for the modules included in the analysis. The HSPTs are consistently more strongly related to academic performance than are their cognate Matric subjects.
Conclusions: It is clear from the statistical analysis shown that the HSPT's give a good indication of potential and seems to be showing a much better correlation with performance in the years 1 and 2 of the UFS medical programme than the individual school marks of the student.
Take-home messages: Other indicators for good performance during medical studies still need to be researched.

4V10

Study success of graduate entry medical students

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Background: As a part of a graduate entry programme in the Medical faculty of the University of Turku, Finland, study success of these students was followed. Graduate entry students were admitted after graduation from a polytechnic and three years of working in heath care.
Summary of work: Study success, assessed by examination grades of core studies, of 139 medical students, including 21 graduate entry students, was followed in the preclinical and clinical phase throughout a 6-year curriculum. Study marks between graduate entry and other students in the course were compared. Grades in five disciplines, including internal medicine, surgery, psychiatry, obstetrics and gynaecology and family medicine, were assessed.
Summary of results: Data indicate that total mean grades in the preclinical years were equal between the two groups of students. In the clinical phase, there was a trend towards higher mean grades in gynaecology and lower grades in psychiatry of graduate entry students, compared to other students, but no significant differences were found.
Conclusions/Take-home messages: Graduate entry medical students seem to succeed equally with other students in theoretical and clinical core studies, assessed by grades. Evaluation of clinical skills of graduate entry students would be important for the possible modification of their studies.

4V11

Situational judgement tests for selecting surgical trainees: How effective are they as a selection method?

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Background: A recent study funded by the UK Department of Health indicated that a Situational Judgement Test (SJT) designed specifically for selecting candidates into surgical training showed encouraging reliability and criterion-related validity, in terms of correlation with professional surgical examinations.
Summary of work: We report on a follow-up study. Items developed by trained subject matter experts to assess key non-clinical selection criteria (integrity, judgement under pressure, leadership, decision making) were used to create two 40-item SJTs (60 minutes testing time). A total of 386 candidates from 9 UK regions completed the pilot 180 Version 1, 206 Version 2) alongside live selection.
Summary of results: Test and item analysis results will be presented on internal reliability, item quality and fairness. Criterion-related and incremental validity will be explored in terms of relationships with live selection data. All candidates were asked to complete an evaluation form.
Conclusions: This study builds on previous results and will also explore where SJTs are best positioned within the selection system.
Take-home messages: Previous evidence from surgery and other specialties (e.g. UK General Practice) suggests that SJTs may prove effective selection instruments for postgraduate training across a range of specialties, especially for assessing non-clinical domains.

4V12

Is a situational judgment test valid and reliable in selection to anaesthesia and acute care common stem programmes in England?

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Background: A 2009 Department of Health funded pilot study showed a bespoke Situational Judgement Test (SJT) applied to applicants for acute specialty jobs to be fair with good internal reliability and criterion validity.
Summary of work: In early 2010, shortlisted applicants to Core Training in Anaesthesia and Acute Care Common Stem at seven of fourteen English deaneries were consented to take a refined SJT. Participation and test score had no bearing on selection. The 45-item test was mapped to key domains of professional behaviour identified by job analysis and expert consensus. Candidate perceptions and demographic data were captured for analysis of reactions to and fairness of the test. Shortlisting and interview scores are being collected for correlation with test scores.
Summary of results: The SJT was taken by 261 applicants. Results will be presented on internal reliability, face validity, fairness and construct validity in relation to current selection procedures.

Conclusions: Previous work from our group and in other specialties has shown that a SJT offers incremental validity over other selection methods. This study will demonstrate how a more mature test performs with a larger applicant population pool than reported previously.
Take-home messages: A Situational Judgement Test may be useful in selection to training posts in acute hospital based specialties.

4V13

The influence of personality on performance at GP selection

Melody Rhydderch, Phil Matthews and Mary Beech (School of Postgraduate Medical and Dental Education, Cardiff University, Cardiff, UK)*

Background: Assessment centres are used to select doctors for UK GP training. In exploring the use of personality profiling in this context, one of our aims is to discover what this might tell us about high achievers in each of the three selection exercises currently used.
Summary of work: Our sample included 250 applicants to GP training in Wales. The assessment centre used a simulated consultation, group exercise and a written exercise. Applicants also completed a personality profiler called NEO-PI-R. This measures Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness.
Summary of results: Extraversion, openness to experience and agreeableness correlated significantly with high performance in the group exercise and simulated consultation, whilst neuroticism and conscientiousness did not correlate with performance in any of the exercises.
Conclusions: Our results suggest that personality profiling may in some way add value to GP training recruitment processes.
Take-home messages: Further study is needed to explore how and to explore the possibility that it may have a later role in informing the training process.

4V14

Ethical OSCE for resident selection

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Background: There is no consensus on the suitable tools for resident selection. The most popular method is the interview. Ethical OSCE was used as an additional test for the first time at Khon Kaen Hospital. The objective of this study was to evaluate the ethical OSCE as additional resident selection tool.
Summary of work: 28 candidates, resident trainees from five departments (Obstetrics and Gynecology, Surgery, Medicine, Pediatric and Orthopedic, were tested with 12 Ethical OSCE stations. The OSCE consisted of 10 VCD and 2 simulated patients (SP) stations. They were 2 assessors for each station. The scores were given according to candidates' response to situations showed in VCD and candidates' performance when facing with challenging situations in SP stations. The proportion of OSCE scores were up to 30% for total scores of 100%.
Summary of results: All examinees passed the ethical OSCE with the mean score of 64.61% (±13.2) but the ethical OSCE scores did not predict resident acceptance. Assessors and examinees were satisfied with Ethical OSCE. The OSCE provided opportunity for assessors to evaluate candidates' attitudes in medical ethics.
Conclusions: Ethical OSCE may be used as additional tools for resident selection to assess attitudes in medical ethics and communication skills.
Take-home messages: Ethical OSCE may be used as additional tools for resident selection.

4W Posters: Peer assisted learning and peer/self assessment

4W1

Does peer teaching and feedback have a more positive effect on self efficacy than teaching and feedback by faculty?

L Kafaei and J Fuller (Centre of Medical Education, Barts and The London, Queen Mary University of London, UK)*

Background: Most studies examining the effect of feedback on self-efficacy and students learning have emphasised that feedback has a great influence on students' learning. There has been little research on comparison of peer versus faculty feedback and teaching. Peer feedback can be a valuable tool for formative learning and formation of professional behaviours. One study suggested that structured observation is done for only 7-23% of students. Hence using peer feedback can be a valuable and effective way of providing students with constructive feedback. Bandura defines self-efficacy as an individual's belief regarding their capabilities to execute behaviour in order to achieve the desired outcome. Some literature suggests that positive feedback and encouragement empowers students to perform better and therefore increases their self-efficacy.
Summary of work: Questionnaires and focus groups are used to assess students' perception of effectiveness of peer feedback and teaching versus faculties' and their self-efficacy after receiving feedback.
Summary of results: Our qualitative data examines the effect of peer feedback and faculties' on students' self-efficacy. The results are analysed and common themes looked for.
Conclusions/Take-home messages: Peer teaching is now an important part of medical courses in most of the world. This study directly compares peer feedback and faculty feedback and its effect on the recipients.

4W2

Peer assisted learning at a problem based and split-campus medical school

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Background: Peer Assisted Learning (PAL) is increasingly seen as a useful tool for developing the 'appropriate teaching skills' that the GMC requires of medical undergraduates in Tomorrow's Doctors. However, little has been written about its deployment in a split campus environment.
Summary of work: We employed a near-peer model in which students from the 4th and 5th years of the undergraduate course provided revision sessions for core theory and clinical skills components for 1st year students sequentially at both campuses of the Hull York Medical School. Eight sessions were delivered by ten volunteer students.
Summary of results: 99% of students agreed or strongly agreed that student led sessions were at least as effective as staff led sessions, 91% strongly agreeing that sessions were enjoyable and 91% strongly agreeing that sessions were worthwhile. There was very little inter-campus variation. Peer tutors reported increased confidence, self awareness and interest in teaching in the future.
Conclusions: Sessions were highly valued by both students delivering and receiving the sessions. Peer Tutors may be as effective as staff in some circumstances.
Take-home messages: Peer assisted learning is an effective tool for building confidence in teaching ability amongst senior students and can readily be deployed in a cross campus medical school.

4W3

The peer teaching programme: A two year review

S Keat and R Mackinnon (University of Sheffield, Academic Unit of Medical Education, Sheffield, UK)*

Background: Peer teaching is teaching designed, delivered and appraised by individuals within a peer group. The popularity of student-led teaching programmes is increasing, alongside an emphasis on doctors' roles as teachers.
Summary of work: The University of Sheffield (UK) Medical School's Peer Teaching Society (PTS) has been running for two years. Teaching delivery varies from didactic to practical sessions, in small and large group settings. An optional teaching course - Student Gateway to Medical Education - is also provided. This study will review the progress of the society over the past two years, assessing its successes and failures.
Summary of results: Students have readily accepted peer teaching, participation has risen exponentially since inception and 104 students attended the bi-annual teaching course (completion rate of 89.4%). Whilst the majority of feedback has been positive, some areas have been highlighted for improvement. Problems were reported from both tutors and tutees, relating to parts of the programme's structure, content and participation.
Conclusions: The first year was hugely successful. However, the second year brought new challenges, including the tutor to tutee ratio engendering over-burdened tutees and despondent tutors.

Take-home messages: The success of such initiatives is dependent on the provision of adequate teaching opportunities without saturating target tutees.

4W4

PBL tutored by sixth-year medical students got higher evaluation compared with faculty tutor

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Background: To evaluate the effectiveness of PBL tutored by sixth (final)-year medical students by using junior students' rating and questionnaire.
Summary of work: Cross sectional survey was conducted in PBL curriculum at Saga Medical School (SMS) in 2009. SMS has two-year PBL curriculum in third and fourth year. From April to September, 29 sixth-year students and 75 faculty members tutored fourth year students' PBL. Eighty nine, fourth year students evaluated tutors every week by 5-point Likert scale. A five item questionnaire about student-tutor was completed at the end of the academic year.
Summary of results: A total of 1819 rating for tutors were analyzed. Overall average score was 4.77. Significant difference among tutor's background (ANOVA, $p<0.0001$) was noted. Student-tutor was the highest (4.89+/-3.56) being followed by content expert clinician (4.81+/-0.45) and basic scientist (4.72+/-0.56). Non content expert clinician (4.67+/-0.73) was the lowest. In the questionnaire, 88% of students answered student-tutor creates a more comfortable atmosphere to discuss, but 75% students did not want to increase student-tutor any more.
Conclusions: The fourth-year students being familiar with PBL method rated student-tutor higher because of comfortable atmosphere. Further research is needed to know the reason why students didn't want more student-tutor.
Take-home messages: Students can be better tutors than unmotivated faculty.

4W5

Motivational benefits of peer-assisted learning (PAL)

E J R Hill and J A Giles* (The University of Manchester, UK)*

Background: Selection for the role of PAL tutor is competitive, with over six students applying for each place. This study aimed to explore possible reasons for students' motivation to become peer-tutors. Maslow's famous sequential hierarchy of needs provides a conceptual framework to explain why human beings act as they do. This framework may be applied to explain the voluntary behaviour exhibited by students applying to the PAL scheme.
Summary of work: Questionnaires were administered to 258 students who were applying to become peer-tutors at Manchester. Students were asked why they wanted to become a PAL tutor. Focus groups and interviews were undertaken with twelve peer-tutors. Thematic analysis was carried out, grouped according to the needs in Maslow's hierarchy.
Summary of results: One-third of respondents reported helping other students as a motivation for becoming a PAL tutor. They felt volunteering for the scheme would have benefits for their own learning and clinical skills. Students also cited the importance of achieving the 'teacher-status', drawing parallels with self-esteem.
Conclusions: Students' motivations for becoming a PAL tutor are numerous and inter-related. They may be mapped against the framework of Maslow's hierarchy.
Take-home messages: Understanding student motivation to become a PAL tutor may assist in the running of PAL schemes and selection of PAL tutors.

4W6

Peer Assisted Learning improves academic success

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Background: Anticipating Bologna curriculum reform at Faculty of Medicine Maribor a nonobligatory peer guidance system for Year-1 medical students has been initiated. Small groups led by two peer tutors (PT) were expected to meet once a month.
Summary of work: We applied a three-partite approach for PAL evaluation. PT reported monthly students' attendance, before the second exam period their perception of PAL usefulness was assessed and finally students' achievements were reviewed.

Summary of results: Students averagely visited 3.5 PAL sessions in a seven-month period (SD=2.3). However, there was important attendance decline during the second semester (p=0.002). Reviewing academic success: 30% of those who visited PT less than four times failed to advance to the second year. Compared to only 13% of more frequent attendees failing, the difference is significant (p=0.0247). Additionally, PAL usefulness was graded 1.4 (SD=0.8) on scale -2 to +2 and 49% of students stated they are more successful due to PAL.
Conclusions: Less than average PAL attendance is a poor prognostic sign for academic success. Three different approaches showed our PAL scheme to be beneficial for majority of Year-1 students. Improvements undertaken resulted in major increase in students' attendance this year.
Take-home messages: PAL improves students' academic performance. Optimal PAL evaluation should be based on several aspects.

4W7

Peer assisted learning: The effect of contrasting tutor approaches in a skills lab-environment

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Background: Peer Assisted Learning (PAL) has proved to be successful in medical education (Krych et al. 2005, Weyrich et al., 2009). While processes are crucial, process-oriented PAL-research remains scarce. Therefore, a quasi-experimental study was performed at the Faculty of Medicine, KU Leuven, to investigate the influence of contrasting tutor approaches on students' learning.
Summary of work: A PAL-program was implemented in 2010 to support 5th year students practicing for their OSCE. 33 students were recruited as peer tutors, 17 of them were trained to act facilitative, 16 to act directive. The effects of these tutor approaches on students' learning were assessed by means of a pretest-posttest questionnaire. Also the effect on students' OSCE-results was examined. Furthermore, focus group interviews shed light on the perceptions of both students and tutors.
Summary of results: Differences in self-efficacy beliefs and self-regulating behaviour are being hypothesized in favor of the facilitative approach. However, perceptions of students seem to give support for the directive approach. More results will be available at conference.
Conclusions Take-home messages: This research offers important insights for the training of tutors in order for PAL to be as successful as possible.

4W8

Establishing a peer-assisted vertical study program (VESPA) for medical students

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Background: Although Monash University employs a vertically-integrated curriculum, opportunities for knowledge exchange between junior and senior students occur infrequently. Based on the experience of structured pre-clinical revision sessions, we established a voluntary Vertical Study Program (VESPA) using the principles of Peer-Assisted Learning (PAL).
Summary of work: After a successful pilot, a Working Group organised five two-hour VESPA sessions. Each was case-based and study materials were provided. Participants were allocated to groups of 10-12, within which all five year levels were represented and pre-interns acted as facilitators. We evaluated each of the sessions using a 10-question survey.
Summary of results: Participant numbers ranged from 79 – 182 per session and 647 evaluation surveys were completed overall. Of these, 624 (96%) agreed case materials were easy to follow and 562 (87%) believed they allowed students from all year levels to contribute. 552 (85%) felt VESPA helped them understand curriculum content. There were no significant differences between sessions.
Conclusions: VESPA has proved successful. We suggest it represents an effective model of PAL with potential benefits including academic revision, the development of mentoring relationships and the application of teaching and facilitation skills.
Take-home messages: VESPA might be an appropriate structured revision program to implement in other settings with vertically-integrated curricula.

4W9

On-line delivery of case material to peer-led student groups in stage 4 of the MBBS curriculum: can innovative delivery improve satisfaction?

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Background: For the first 12 weeks of Stage 4 students undertake a course in Clinical Sciences and Investigative Medicine. The material is presented in the context of on-line clinical scenarios which are accessed by peer-led groups of students working in a modified PBL style. Initial feedback from this course indicated poor student engagement with the on-line case material.
Summary of work: To promote active interaction of the group with the scenarios we introduced on-line formative assessment questions which are completed as each group works through the cases and immediate feedback is given. Throughout the course a league table of group performance is maintained. Subsequently the on-line cases were developed from being predominantly text based to having a more sophisticated multimedia approach. The impact of those approaches was evaluated using on-line questionnaires.
Summary of results: The addition of a 'competitive' element drove up student satisfaction scores and promoted engagement. The use of multimedia in the on-line cases resulted in a drop in student satisfaction of up to 60%.
Conclusions: We conclude that innovation is not always educationally beneficial and that students were able to perceive the case development as technology for its own sake and could discern no educational benefit.
Take-home messages: Technological innovation without appropriate pedagogy may be counterproductive.

4W10

Exploring the impact of secondary-school alcohol health education and the curriculum for excellence

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Background: In response to increasing evidence that pupils preferred peer-directed and interactive learning, the Curriculum for Excellence was implemented in Scottish schools. The aims were to have the pupils critique the alcohol health education (HE) outcomes and to assess pupils' current knowledge of the outcomes.
Summary of work: The study used one class from each year group in a Glasgow secondary school: S2 (n=12, S3 (n=17, S4 (n=14, S5 (n=20, S6 (n=38). These classes were used as focus groups to review a particular HE outcome, in which they designed a lesson to teach the outcome to their peers. They were also provided with a questionnaire to assess their current knowledge.
Summary of results: Pupil reviews of the outcomes highlighted that interactive, peer-directed sessions involving real-life experiences and shock tactics were preferred. Pupils had a good knowledge of all their alcohol HE outcomes with the exception of safe levels of alcohol consumption.
Conclusions: Implementation of the Curriculum for Excellence is supported by these findings however, pupils require more information regarding safe drinking levels.
Take-home messages: The Curriculum for Excellence's design suits the learning styles of the pupils, but more emphasis needs to be placed on safe levels of alcohol.

4W11

Reliability of a peer checklist for performance setting spinal anesthesia and Bird's ventilator: Objective Structured Clinical Examination (OSCE)

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Background: To study the reliability of a peer-built checklist for Bird ventilator setting and spinal block OSCE.
Summary of work: All tutors in the department created the OSCE checklists. The spinal block checklist had 22 items, the Bird ventilator-setting checklist had 9. The checklists were reviewed for their ability to evaluate thoroughness of understanding then approved by all tutors. Each student was evaluated for each skill by two tutors assigned by simple randomization. Each tutor scored the student according to the checklist, unaware of the score their fellow tutor gave. The inter-rater agreement presented as a weighted kappa coefficient (κ) in each item and intra-class correlation in each part.
Summary of results: Thirty medical students were included. In the spinal block checklist, each item had κ between 0.22 and 1.0 and the intra-class correlation coefficient was 0.78. In the checklist for setting the Bird ventilator, each item had κ between 0.28 and 1.0 and the intra-class correlation coefficient was 0.65.

Conclusions: The checklist for our OSCE evaluation of skill was unreliable. The problem seems to be with the checklist itself and the tutors' varied interpretation of the items. Therefore, a more stable-response eliciting checklist needs to be developed and tested for reliability and validity.
Take-home messages: The development and validation of OSCE checklist required to improved skill assessment.

4W12

Familiarity affects peer assessment in communicating skills, team working but not medical knowledge
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Background: Peer assessment can predict future academic performance and provide reliable feedback about professionalism. It is controversial whether familiarity with your assessor will influences the results of peer assessment. The authors investigated the relationship between familiarity and what types of peer feedback students remember to what transformations students experience as a result of peer assessment.
Summary of work: From September 2008 to March 2009, the authors invited medical students from the year seven (n = 153) classes to provide narratives about how peer assessment affected their personal and professional development. All students had participated in peer assessment, during which required, formative comprehensive assessments. The authors analyzed responses.
Summary of results: Students recalling their peer assessment were both positive and negative. Familiarity affects scores in communicating skills, team working but not medical knowledge. Change was more likely when feedback was specific and highlighted areas for improvement. Extremely negative responses in the peer assessment were rare.
Conclusions: Peer assessment can be a powerful tool to assess and encourage formation of professional behaviors, particularly the interpersonal relationship. A specific and constructive feedback seems to be an effective and powerful in providing behavior change.
Take-home messages: Peer assessment on communicating and team working could be influenced by familiarity. Target specific feedback might have more impact on behavior change.

4W13

Correlation between OSCE scores and self-assessment competency among medical students at Naresuan University
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Background: We are a new university so should work about improving our student specific competency. In general, the self-assessment is for undergraduate student competency evaluation but we interest in studying the specific competency (genetic counselling). Objective: 1) To study the correlation between OSCE scores and competency, and progressive competency self-assessment. 2) To assess the effect of sex and grade point average on OSCE scores and competency self-assessment.
Summary of work: The 5th year medical students were divided into 3 rotation groups to study 1 hour by lecture and discussion and 30 minutes for acting role play in Thalassemia in Pregnancy. Self-administered questionnaires were used to assess their competency, and progressive self- assessment competency. The OSCE was used to assess their performance in laboratory skills when they studying in the 6th year.
Summary of results: There is no correlation between OSCE scores and self-assessment competency (R= 0.0176, p value = 0.509) and progressive competency (R= 0.002, p value= 0.825). Further analysis shows neither sex nor grade point average affect on the OSCE scores or the self - assessment competency.
Conclusions: Further study needed to increase number of sample size and modify the questionnaire contents is suggested
Take-home messages: Self-assessment competency is somewhat important for improve student professional development.

4W14

Student self-assessment score in problem-base learning skill: Compared to facilitator's score
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Background: Our faculty has introduced PBL to medical students since preclinical year and monitoring this process performance is needed. Student self-assessment together with facilitator's assessment has to be done serially.
Summary of work: Aims: To study the improvement of students' PBL skill, and to compare these results with those from facilitators Method: 17 groups of 2nd year medical students assessed their PBL skill at the start and end of each semester. The assessment was done in scoring system, range 1-10, 1 represented poor and 10 represented best result. Similar assessment was also done by one facilitator who took care of each group of students throughout the year. The change in score was analyzed by anova and the differences between the result of students' self-assessment and facilitators' were done by T-test.
Summary of results: Students and facilitators recognized of students' better skill (students' score, 6.11 ±1.51, midyear 7.17±1.15, final 7.92 ± 1.02: facilitators' score, 6.81±1.08, midyear 7.82 ± 1.04, final 8.41 ± 1.09). The students' scores were lower than those from facilitators' ($p = 0.000$).
Conclusions: The PBL skill improved significantly during one year of this process without plateau. Students under-evaluated their performance.
Take-home messages: Process of PBL should continue in order to improve learning skill. The evaluation should not rely on students' self-assessment only.

4W15

Improving written communication using a self-assessment process

J Francois (University of Manitoba, Department of Medical Education, Winnipeg, Canada)*

Background: Although competency in written communication is an essential skill, most physicians have not received any training or feedback about their letters they write. Surveys of communication skills programmes show that written communication is seldom the focus of formal instruction in medical education. The objective of this study was to implement a self-assessment strategy to assist learners improve their letter writing skills and then to evaluate its feasibility, reliability and potential educational value.
Summary of work: Eight first-year family medicine residents from two teaching sites completing a six month family medicine rotation utilized a self-assessment process which included a self-study module and an assessment tool for letters. Each resident applied the self-assessment tool to eight to ten consecutive consult or referral request letters. Participants submitted initial and redrafted letters for independent rating.
Summary of results: Analysis of the content, style and global ratings of the initial 77 draft letters showed multiple deficiencies in the content of the letters. It was confirmed that while using the self-assessment tool, residents were able to reliably assess the quality of their letters. Residents' assessments and those of the expert closely correlated (Pearson correlation 0.861, $p<0.0001$).
Conclusions: This study demonstrates that a self-assessment process of written communication significantly improves the quality and completeness of routine consultation and referral request letters.
Take-home messages: A self-study module and self-assessment tool is an effective 'just-in-time" form of learning which can help learners improve their writing skills.

4W16

How well do students self assess in a final year ward simulation exercise?

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Background: The Final Year Ward Simulation Exercise is a standardised simulated clinical exercise in which the student acts as a Foundation Year 1 doctor. Students are assessed using global scoring on overall performance and across seven domains on a 7-point Likert scale.
Summary of work: Prior to the students receiving the tutor assessment, students were asked to watch their performance and self assess using the same scales as the tutor. The results were correlated with the tutor assessments.
Summary of results: 84.8% of students (140/165) had matched data that allowed comparison. 29.3% (41/140) self assessed with the same overall global score as the tutor, 35.7% scored themselves one point below and only 4.3% self assessed more than one point above their tutor assessment. Within the domains the students self assessment was, on average, 0.6 points lower than the tutor (range 0.4-0.7).
Conclusions: For overall performance, the majority of students assessed themselves either the same or one point lower than they were assessed by the tutor. Very few students self assessed more than one point higher than the tutor. Within domains students averaged around half a point lower than the tutor assessment.

Take-home messages: Students can reasonably accurately self assess themselves in a simulated workplace but they tend to score slightly lower.

4W17

Trainee self assessment and subsequent performance in examinations

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Background: The CSA examination is one of three assessments which are used to license doctors for the specialism of Family Medicine in the UK. It is normally undertaken in the final year of a three year training programme. Although there is provision for multiple attempts, failure to pass this examination can have significant effects on a trainee's progress and self-confidence.
Summary of work: We provided a three day course on communication skills, part of which was a 6-patient simulated surgery. Teaching faculty and role players were asked to complete a short questionnaire aimed at identifying trainees about whom there were concerns. We also asked trainees to self-assess. Once the CSA results were available we compared the course ratings with performance in the exam.
Summary of results: Faculty and role players' ratings were able to predict performance at the CSA. Trainees themselves were unable to accurately self assess and this applied equally to trainees who performed well at the exam and those who failed.
Conclusions: Self-assessment is a vital part of the professional development of doctors in general and Family Physicians in particular. This poor ability of trainees to self-evaluate has implications for professional development as well as for pedagogy.
Take-home messages: The ability of trainees to self-evaluate is poor and this has implications for professional development and pedagogy.

4W18

Investigating the effective factors on learning and self-evaluation of medical students in Shiraz Medical School

Farnaz Sadat Javanmardi, Parastoo Nematollahi, Mohammad Esmaieel Ghorbani Nejad and Mitra Amini (Shiraz University of Medical Sciences, Faculty of Medicine, Shiraz, Iran)*

Background: Since, learning the presented matters is an important factor in the process of medical education, we decided to investigate the factors which have an effective role in learning.
Summary of work: This study was accomplished for investigating the effective factors in the learning process of medical students in Shiraz medical school. 45 students were selected randomly and related information was collected through a questionnaire. The data were analyzed via SPSS-15 software.
Summary of results: The students participating in this research were 26 women and 19 men, their age average was 19. Results showed 80% of them consider the purpose of learning as "learning necessary knowledge for job in future". 28.9% of the students believe that the professor of the university should explain all the written matters in the reference book, and 24.4% believe that the professor should compel the students to think independently. Also, 37.2% of students evaluate their information through comparing it with others
Conclusions/Take-home messages: The purpose of learning and professors' specification have an important role in learning. Also in self-evaluation comparing the student's information with others are considered.

4W19

Peer Assisted Learning – an innovative approach for Dentistry

Donald Cameron, Andrea Sherriff, Vivian Binnie (Dental School, Faculty of Medicine, University of Glasgow, UK)

Background: Peer assisted learning has been used within the undergraduate medical curriculum, but little use of this approach has been made within dentistry. This innovative study used peer assisted learning in the development of two aspects of manual skills for 92 year 1 dental undergraduates. Year 5 students volunteered as peer-tutors for the delivery of the tasks.
Summary of work: A randomised controlled trial compared staff-led (SL) versus peer assisted teaching (PT) for one clinical and one laboratory task. Tutor/student ratios were 1 peer to 4 students; 1 staff to 12 students. For the clinical task; taking an alginate impressions of a dentate mouth, there was little difference between the groups with regards to clarity of teaching (PT 80% v 87%SL), useful feedback (PT 71% v 57%) and

recommendation of approach (PT 80% V 78%). More students felt comfortable asking questions of the peers (61% v 26% of staff).
Summary of results: Students were more comfortable and less intimidated asking for further information from senior students than staff.
Conclusions: Students were more comfortable and less intimidated asking for further information from senior students than staff.
Take-home messages: A useful approach within dental education as junior students find it easier to interact with peer trainers rather than staff.

4W20

Medical student assessment of self performance in small groups predicts performance on standardized examinations

R Steckelberg, R Wadhera, J Juskewitch, M Buskirk, R Nemgar, E Wilkinson-Cozine and J Grande (Mayo Medical School, Rochester, Minnesota, USA)*

Background: The relationship between self-perception of performance in medical school and standardized examinations has not been previously studied. The aim of this study was to determine if a relationship exists between student perception of self-performance in small groups and standardized examination performance in medical school.
Summary of work: Fifty medical students were invited to volunteer for the study, forty-three responded (86% response rate). A self-assessment questionnaire was used to measure the students' perception of their performance within small-group sessions as part of a medical pathology course. Response options to the survey questions were scaled 1 to 5 [1]-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree, with a higher total survey score reflecting a more positive self-evaluation of performance. Students' performance was then formally assessed with a standardized National Board of Medical Examiners (NBME) Exam.
Summary of results: Self-assessment questionnaire results were categorically divided into four quartiles based on total score. Linear regression analysis was conducted to assess the relationship between total survey score on the self-assessment questionnaire (using the lowest quartile as a reference group) and results of the NBME pathology/immunology exam. Students in a higher quartile on the self-assessment questionnaire had an increased likelihood of performing better on the standardized NBME examination ($p = 0.017$, $r2$ value = 0.228).
Conclusions: Medical students' self-assessment of their performance correlates with their performance on standardized NBME exams and may be an indicator for overall performance on standardized exams.
Take-home messages: Self-assessment surveys may identify students that could benefit from early assistance to help enhance performance on examinations.

4X Posters: Critical Thinking

4X1

Checking for contextual bias in script concordance test: An analytical lesson learnt

R Arora and D Arora (Lampang Medical Education Center, CPIRD, Lampang, Thailand)*

Background: The script concordance (SC) test is renowned for assessment of clinical reasoning. Lampang Hospital (LPH) is the first medical school in Thailand using SC test. This is the report of first pilot group with an objective to determine any contextual bias in SC test.
Summary of work: Thirty Interns who attended Ob-Gyn block at LPH were assessed with SC test. Each test contained 40 items from 10 clinical vignettes. Expert panels are 10 Ob-Gyn specialists, 5 from LPH and 5 from Naresuan University (NU).
Summary of results: The test reliability (Cronbach's alpha) was 0.77. Mean score of Interns who graduated from Chiang Mai University (the affiliated university of LPH) was less than the other (p-value 0.020). Interestingly, the scores were significantly different when comparing among the answers of panel from both institute, NU and LPH (p-value < 0.001).
Conclusions: This study showed no contextual benefit of graduates being from affiliated university. It also rejected the hypothesis that Interns should score more from the answers of LPH staff since they have been working together.

Take-home messages: SC test is still shown to be a good tool in assessing clinical reasoning with power to discriminate and no contextual bias.

4X2

Medical students' disposition for critical thinking

R Fewtrell and H M O'Sullivan (School of Medical Education, University of Liverpool, UK)

Background: California Critical Thinking Disposition Index (CCTDI) questionnaire was developed by Facione and Facione to measure a person's internal motivation to make decision and solve problems using critical thinking. The CCTDI consists of a total score with seven sub-scales: truth seeking, open-mindedness, analyticity, systematicity, critical thinking-self confidence, inquisitiveness, and maturity.
Summary of work: The data is part of a wider study looking at how a newly introduced intervention affects first year students' critical and reflective thinking skills. Data was collected from first and second year self selecting medical student volunteers. The first and second year results were analysed for significant differences. This data was then compared with data provided for university entry level students.
Summary of results: Questionnaires were completed by 22 first year students and 23 second year students. The results from the questionnaire were banded into negative, ambivalent and positive dispositions.
Conclusions: The first year students scored significantly higher on the inquisitiveness sub-scale than the second year students. First and second years all scored higher than the provided data for entry level students.
Take-home messages: The significant difference found between the first and second year students were on the inquisitiveness sub-scale where the first years scores higher.

4X3

A comparative study between blended educational method and face to face (classical) educational method in cognitive impact of undergraduate students

Leili Mosalanejad (Department of Nursing, Jahrom University of Medical Sciences, Jahrom, Iran)*

Background: Blended learning, which is a mixture of various learning strategies and delivery methods, to optimize the learning experience of the user, has been a proposed option with increasing acceptance amongst educational institutes. The objective of this study was to compare a designed blended educational method with classical face to face method in the cognitive effect of the program on the students' critical thinking.
Summary of work: A comparative study was conducted amongst 41 first year students of Jahrom Medical Sciences University who participated in the course of mental diseases in 2008–2009. The students were randomly divided into two groups of face to face (classical - 20 students) and blended educational methods (21 students). Standardized model and strategies were used for designing the blended program. The Watson Glazer test was used for assessment of critical thinking (form A). The data were analyzed using Willcoxon and Mann Witney Test.
Summary of results: There was a significant increase in students' critical thinking skills in both groups after conducting the course. The mean of final scores of the students who participated in the blended educational group was significantly more than that of those who participated in face to face teaching approach.
Conclusions/Take-home messages: The use of blended educational method is recommended for teaching in medical and para-medical sciences.

4X4

Do clinical reasoning models which are used to teach medical students consider diagnostic safety?

P Lockwood (Undergraduate Community Medical Education, University of Dundee, UK)*

Background: Diagnostic errors are the most frequent form of error, have a proportionally higher morbidity than other types of medical errors and have been found to be less preventable than those associated with other causes. One potential source of diagnostic error is the failure of the clinician to consider the rarer causes for certain symptoms. It is important that the models which are used to teach medical students clinical reasoning skills reduce the risk of this error.
Summary of work: A literature review of the current models of clinical reasoning was conducted and they were critiqued for their ability to consider the rarer causes for symptoms (diagnostic safety) and their ability to be used in practice.

Conclusions: There are many clinical reasoning models which have been evaluated for their accuracy but not for diagnostic safety. 1) Some of them may actually adversely affect diagnostic safety including Bayesian reasoning. 2) Some of the reasoning models are difficult to use in practice.
Take-home messages: Using a combination of reasoning processes would help to reduce the risk of misdiagnosis which occurs as a result of not considering a potential but rare cause for a patient's set of symptoms and signs.

4X5

SNAPPS: Expression of student uncertainties can drive the quantity and types of teaching during case presentations to preceptors

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Background: Medical students using the SNAPPS technique for case presentations, express uncertainties more often than those doing usual-customary presentations. What is the nature of uncertainties expressed by students? How do preceptors respond?
Summary of work: This is a secondary analysis of a randomized comparison group trial study published in Acad. Med (2009). Audiotapes of student case presentations to family medicine preceptors were transcribed and coded: 1) type of student uncertainties, 2) preceptor response, 3) alignment of response with uncertainty type, 4) expansion of response beyond answering uncertainty.
Summary of results: 19 SNAPPS, 22 comparison, 19 usual-customary presentations were coded. SNAPPS students expressed uncertainties in nearly twice as many case presentations (100% vs 54% vs 53%, p=.002). Uncertainties were more frequently about diagnostic reasoning and clinical signs/ symptoms compared to other study groups (p=.01). When students in any group expressed uncertainties, preceptors responded with aligned teaching responses. SNAPPS students received aligned teaching more than twice as often (100% vs. 45% vs. 42%, P=.002). Preceptors expanded 42% of responses beyond answering students' questions.
Conclusions: SNAPPS students expressed more uncertainties and focused questions on diagnostic reasoning and clinical signs/symptoms. They received more teaching, aligned with types of questions asked.
Take-home messages: SNAPPS students expressed more uncertainties and focused questions on diagnostic reasoning and clinical signs/symptoms. They received more teaching, aligned with types of questions asked. Preceptors respond to requests for teaching when students express uncertainties during case presentations. Students can drive quantity and types of teaching they receive, based on uncertainties they express.

4X6

Quality of reflection on learning determines learning outcomes

M Tagawa* and K Ikeda (Center for Innovation in Medical and Dental Education, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan)

Background: To evaluate students' reflection, that which facilitates learning outcomes should be qualified.
Summary of work: Nine hundred and sixty-seven reports written by 85 4th-year medical students in Kagoshima University, during an interview and clinical skills course were classified into 6 categories of reflection, originally devised by the University of Dundee (Am J Obs Gyn, 2008). Students were divided into 4 groups based on the scores of OSCE or CBT, less than -1SD, -1SD to the mean, the mean to 1SD, and higher than 1SD. Score groups and the number of reports in each category were analyzed by ANOVA.
Summary of results: Students' reports were evaluated as class 1 to 5, but not class 6. Numbers of class (1+2) reports were significantly higher in the low score group of OSCE and CBT. Numbers of class 4 and (4+5) reports were significantly higher in the high score group of OSCE and CBT.
Conclusions: Students' reflection categorized as classes 4 (reasoned discussion well-supported with examples) and 5 (analyzes experience-based factors that contribute to progress) might facilitate new knowledge and skill acquisition.
Take-home messages: The quality of reflection determines learning outcomes. Effective reflection is an important learning skill and behavior.

4X7

How can we help students become physician-scientists? Initial explorative study

H Nishigori[1], M R Kano[2], H Onishi[1] and K Kitamura[1] (The University of Tokyo, [1]International Research Center for Medical Education; [2]Medical Scientist Training Program, Tokyo, Japan)*

Background: Physicians who do research as their main professional activity play a unique and critical role in medical research. The number of these "physician-scientists" is declining and there has been very little discussion about how to structure medical education to cultivate interest in research among medical students.
Summary of work: In 2008 and 2009 we held faculty development programs at the University of Tokyo to help medical educators build and maintain interest in research among their students. We held workshops in which the participants shared their ideas about how to accomplish those goals. To organize and analyze those ideas, we used the K-J method which is one of the qualitative data analysis methods.
Summary of results: Themes emerged from the workshops: 1) experience of success as researchers (evaluation), 2) role models (teaching methods), 3) basic infrastructure for researchers (learning environment), and 4) scientific thinking (teaching content).
Conclusions: We identified elements needed to develop curricula aimed at cultivating physician-scientists. As the data was not saturated, further research is necessary.
Take-home messages: To promote research in medical education, we need to develop curricula with clear learning outcomes (such as "physician-scientists", and with proper teaching methods, assessment, and learning environments.

4X8

Survey methods for medical students

B Morgan, J Weeks* and M E Lovell (Dept of Orthopaedics, University Hospital South Manchester, UK)*

Background: Medical students may take part in audits and surveys. We compared postal with verbal survey methods.
Summary of work: Students contacted 200 patients who were more than 12 months post-surgery after either a total hip or total knee replacement. 100 patients who had undergone a total hip replacement were contacted by telephone and asked to complete an Oxford hip score and give their overall level of satisfaction with their new joint, 100 patients who had undergone a total knee replacement were asked the same questions, but were sent the questions using the post.
Summary of results: The results showed that a greater level of response was received by the telephone interviews with a response rate of 66%, compared to a 62% response rate to the postal questionnaires at 12 weeks. (chi-squared p=0.521 NS). The telephone interviews took considerably longer to perform but gave instantaneous results compared to the shorter time to prepare the postal questionnaires, with a longer wait to receive an adequate level of response. A patient scoring system revealed a 84.6% happiness level about being contacted by telephone compared with 68.6% happiness at being contacted by the postal questionnaire.
Conclusions: Either method can work quite well and patients do not seem to be upset with cold calling.
Take-home messages: Phone surveys may get better results and be better for patients. Each method works.

4X9

Doctors' views about making clinical decisions effectively: An interview study

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Background: There is limited research evidence on methods to facilitate clinical decision making processes amongst doctors. The aim of this study was to explore doctors' views and experiences of the clinical decision making process.
Summary of work: A purposive sample of 16 doctors from a range of clinical specialties and experience levels were interviewed. Thematic framework analysis was used to extract the main themes from the transcripts.
Summary of results: The following themes emerged, 1) lack of clarity in defining good decisions: Doctors struggled to articulate an ideal process of decision making. 2) Novice and expert differences: Novices rely upon guidelines and pneumonics to follow exact procedures at work, experienced doctors described decision making as automatic and "like a sixth sense". 3) Development of decision making skills: All participants agreed that decision making skills were primarily developed at the workplace. 4) Factors influencing decision making:

Participants readily identified factors that could affect their decision making but there was little awareness of how these could lead to biased decisions.
Conclusions: The results suggest that doctors have limited explicit understanding of their own decision making processes.
Take-home messages: Further research is necessary to determine whether explicit awareness of the decision making process is associated with better decision making.

4X10

Students' perceptions of educational environment in a medical school experiencing curricular transition in United Arab Emirates

S I Shehnaz and S Jayadevan (Gulf Medical University, Ajman, UAE)*

Background: In the context of a curricular change from a discipline-based to an organ system- based integrated curriculum in Gulf Medical College, United Arab Emirates, the present study compared students' perceptions of the educational environment in the two curricula.
Summary of work: Data was collected from second year students (Group 1) in discipline- based curriculum and in the subsequent year from second year students in integrated curriculum (Group 2) using Dundee Ready Education Environment Measure (DREEM). Scores were compared using Wilcoxon Rank Sum test. Data from second, third and fourth year students in discipline- based curriculum gave the total DREEM score for the school.
Summary of results: Total DREEM score was significantly higher ($p<0.001$) for Group 2 (135/200) when compared to Group 1 (116/200). Both groups unanimously perceived a positive educational environment. Although Group 2 showed significantly more satisfaction, they perceived an over-emphasis of factual learning and a problem of cheating. Total DREEM score for the school was 120/200.
Conclusions: The study shows that the organ system- based integrated curriculum is perceived to provide better educational environment than the discipline based curriculum. However, areas like curriculum load and assessment strategies still require further fine tuning.
Take-home messages: Organ system-based integrated curriculum changed the students' perceptions of educational environment for the better.

4X11

Investigation of educational climate in obstetrics and gynecology wards in Iran University of medical sciences (IUMS) based on DREEM model

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Background: This study measures the educational environment in obstetrics and gynecology wards at university affiliated teaching hospitals by using DREEM model and explored the opinions of medical staff.
Summary of work: This is a cross sectional study, using DREEM Questionnaire that is modified by national culture in 5 subscales including: perception of learning, perception of course organizers, academic self-perception, social self perceptions and perception of atmosphere. The obstetrics- gynecology wards in 3 different hospitals affiliated to Iran University of Medical Sciences (IUMS) were chosen. 80 medical students and 32 academic staffs responded the questionnaires by simple random sampling.
Summary of results: Total scores of obstetrics-gynecology wards in the view of academic staff were in More Positive than Negative (81/140, 95% CI 76.8% to 86.8%) state. Total scores of Obstetrics- Gynecology wards in view of students were in more positive than negative 106.2/200, 95% CI 101.8% to 112.8%) state.
Conclusions/Take-home messages: The overall educational environment score of obstetrics and gynecology wards for students and academic staff is more positive than negative that needs reform in teaching-learning activities. A curricular change seems mandatory.

4X12

Measuring students' perceptions on educational environment at Saraburi Regional Hospital using DREEM Questionnaires

Panida Mukdeeprom and Wanpen Buathong (Saraburi Medical Education Centre, Saraburi Regional Hospital, Thailand)*

Background: The quality of educational environment is important for effective learning. This study measures the educational environment in year 3-6 medical students at Saraburi Regional Hospital by using DREEM (Dundee Ready Education environment measure) model.
Summary of work: This is a cross sectional study, using a Thai version of DREEM, questionnaires comprised of 50 statements relating to education environment on clinical year 4-6 medical students to respond by using a 5 point Likert-type scale. The data were analyzed in percentage, mean, SD and comparison of each year's perception by one way analysis or variance.
Summary of results: There are 30 students in each year, eighty two of 90 returned the q questionnaires (91.10%), thirty from year 4 (10%), 25 from year 5 (83.33%) and 27 from year 6 (90%). The 50-item DREEM Thai version was highly reliable with an alpha coefficient of 0.9. The mean DREEM score for all three years was 126.85 (63.43%). The subscale with the highest mean score was on "Academic Self-Perceptions" 22.43 (70.09%). The lowest mean score was "Perceptions of Atmosphere" 27.96 (58.25%). The scores were found to be highest (129.32) for year 5 students and lowest (124.3) for year 4.
Conclusions: Students' perception on educational environment at Saraburi Regional Hospital was good and there is no significant different in perception between the three clinical years.
Take-home messages: DREEM can be used to identify strengths and weaknesses of the education environment to help improving and enhancing effective learning.

4X13

Do dental school students perceive their educational environment differently than the medical school ones?

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Background: The Dundee Ready Education Environment Measure (DREEM), used in several countries and in many health profession institutions, has been translated and validated in Greek. The aim of this study was to apply DREEM to undergraduate dental school students in Greece and to compare their perceptions with those of Greek medical students.
Summary of work: The validated Greek version was distributed to 323 students of Athens dental school for all but the first two semesters (64% of the total population). The results were compared with data previously collected from 487 undergraduate medical students.
Summary of results: The overall mean scores for the medical students (54%) and the dental students (56%) were in the "more positive than negative" zone, slightly above the ambivalence 50%. The lowest score in all schools was for students' perceptions of "learning" (47%, 53% respectively), and the highest for "teachers" (58%, medical students) or "academic self-perceptions" (60%, dental students). In both administrations, internal consistency was high (Cronbach alpha 0.90 and 0.93 respectively), while factor analysis produced factors not coinciding with the original subscales.
Conclusions: There are many similarities in the way Greek dental and medical students perceive their educational environment.
Take-home messages: Close collaboration and appropriate interventions are needed in both schools for curricula improvements.

4X14

A qualitative study of the educational culture in a surgical department

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Background: In collaboration, surgical department and CKA have performed a qualitative study aimed at describing the implementation of national educational training systems for surgeons. Trained students in ethnology made field studies, photos, walking conversations, focus groups interviews, transcription of interviews and the preliminary analyses of the results. The surgical department consists of two cultures on two different hospitals. Both parts of the department were included in the study.
Summary of work: Four main results have given reason to further reflection. 1) The complexities in the role of a young trainee. 2) Learning situations and concepts as the influence of social and work relations, duty, operation room, conferences etc. 3) Continuity/discontinuity in the education but also in the daily working time and finally 4)the use of evaluation tools, the bureaucracy of national evaluation systems of competencies and young trainees´ own learning strategies.

Summary of results: The results indicate that trainees´ own learning strategies have to be integrated in the national systems if implementation should succeed. The training must be integrated in the daily work and the constant discontinuity in the daily work minimized. The qualitative research made it possible to describe the daily life of the young trainee.

4Y Posters: Interprofessional Education

4Y1

The health care team challenge: An 'Extracurricular' solution to integrating interprofessional education into medical curricula

C Newton and Bainbridge (University of British Columbia, Vancouver, Canada)*

Background: Evidence shows that collaborative practice improves health care delivery. Interprofessional education (IPE) is an essential first step to interprofessional collaborative practice (ICP). Academic institutions have been tasked with embedding IPE in the health discipline curricula. While evidence points to the necessity of IPE for ICP it falls short in outlining how this should be accomplished. Documented barriers of IPE for ICP are many but focus on mismatched timetabling and clinical placements. Creative IPE modules are needed to meet these challenges.
Summary of work: In response, the College of Health Disciplines at the University of British Columbia (UBC) designed the Health Care Team Challenge (HCTC, an 'extracurricular' IPE initiative that provides teams of students from different disciplines an opportunity to learn with, from and about each other in developing and presenting a patient care plan.
Summary of results: Now integrated internationally as an IPE module for entry level health professional students, the HCTC can be overlaid on existing programs without major curriculum redesign, is fiscally sustainable, and can anticipate and facilitate curricular evolution.
Conclusions: The HCTC offers one solution to integrating IPE for ICP into medical curricula.
Take-home messages: The HCTC provides an adaptable and sustainable module to integrate IPE into medical curricula.

4Y2

An interprofessional ward based learning experience

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Background: The modern healthcare environment requires all health and social care professionals to collaborate as they learn and work together (Department of Health, 2001). These requirements challenge the use of traditional educational approaches in delivering education for the health professions. In response to these challenges, NHS Fife and the University of St Andrews have collaborated to develop an interprofessional clinical programme, aimed to influence the ethos of teamwork, communication and collaborative practice at undergraduate level.
Summary of work: The programme consists of four modules to allow for flexibility in the content delivery. Students participate in small group, patient centred activities within the clinical setting. They interact with patients and practise the core clinical skills.
Summary of results: Evaluation of the programme provides positive feedback. Students develop an understanding and appreciation of the core competencies they share with professional colleagues in order to provide effective care.
Conclusions: This programme provides students with the confidence to learn together, link theory to practise and enhance collaborative practice.
Take-home messages: Engaging undergraduate students in an interprofessional learning experience within a real clinical setting develops confidence and capability in skills relating to teamwork, communication and collaborative practice.

4Y3

Discordance in an undergraduate interprofessional learning (IPL) environment regarding roles of midwives and obstetricians

M Vogiatzi[1], H Wightman[2], D Fraser[2], R Dennick[3], D Hay[1] ([1]Obstetrics and Gynaecology; [2]Midwifery; [3]Medical Education, University of Nottingham, Nottingham, UK)*

Background: Undergraduate interprofessional learning is a method of promoting multi-professional approach in maternity care.
Summary of work: During IPL involving midwifery (N=27) and medical students (N=50) on their obstetric attachment we studied their views of each other's roles by use of a questionnaire. Each question posed a situation regarding the care of pregnant women. Responses were recorded on a nominal scale as Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. The faculty consisting of 4 Midwives and 4 Obstetricians were also sampled. There were 33 questions broken down into domains of current practises, old school practises, controversies.
Summary of results: We found discordance in the views expressed in all three domains in 13 of the scenarios.
Conclusions: The reasons behind this include experience and length of training. There also seems to be an element of identity that students wish to preserve within their disciplines. The ranges were tighter within the midwifery group suggesting a greater cohesion. Ranges were broad in all 33 responses made by the medical students suggesting a more formative stage. The concordance study shows agreement between the two groups on each others' roles in 20 out of 33 scenarios.
Take-home messages: We are planning to use this information to develop objectives and educational strategies to strengthen IPL between our faculties.

4Y4

The doctor and nurse as teacher: A student's perspective

N Woodley, L Megahy* and S Booth (Medical Student, University of Dundee, UK)*

Background: This novel inter-professional four week project was designed to develop medical and nursing students' professional attributes, attitudes, knowledge and skill of being a competent teacher. Students taught in primary schools to meet GMC and NMC professional requirements whilst supporting the School's 'Curriculum for Excellence'.
Summary of work: Lesson plans were prepared and taught: 'healthy eating', 'blood and guts' or 'how my body works.' Assessment: Self reflection essay, pupil/school feedback and a presentation.
Evaluation: By students and schools via questionnaire.
Summary of results: Students reported that they valued: 1) working with children outside of the hospital environment, 2) inter-professional learning, 3) the development of skills which can be transferred to patient care e.g. teamwork, health promotion and communication, 4) being able to appreciate a holistic view of the child. Schools reported that the students: 1) were better qualified than school staff to answer questions about the subject. 2) were wonderful role models especially for pupils considering possible future careers in medicine or nursing. 3) brought the learning to life and the children were highly motivated and engaged.
Conclusions/Take-home messages: The opportunity to experience inter-professional learning, develop transferable skills and gain a new-found appreciation of the doctor and nurse as role models were greatly valued by the students involved.

4Y5

Inter-professional teaching of volunteer interpreters and 3rd year medical students using experiential learning approaches

A V Anstey, E Cowie, K Hawthorne, S Khot and E Webb (Division of Medical Education, School of Medicine, Cardiff University, Cardiff UK)*

Background: Good medical practice requires effective use of interpreters when working in a multi-ethnic setting.
Summary of work: Teaching sessions with volunteer interpreters and 3rd year medical students were established to teach both groups together. Role-plays with medical students as doctor and trainee interpreters as patient and interpreter were used in four contrasting scenarios

Summary of results: More than 95% of medical students and volunteer interpreters were positive about these combined, multi-professional learning sessions. More than 30% of medical students requested more role plays for this session. Initially, case scenarios for role-play were scripted, however, students and interpreters were more comfortable with a looser more spontaneous format.
Conclusions: Education of volunteer interpreters and 3rd year medical students using role play and group reflection on specific issues was popular with both groups. Analysis of case scenarios allowed students and volunteer interpreters to identify potential conflicts of interest and inappropriate situations, thereby learning together about the interpreter code of practice and the limitations of interpreted consultations.
Take-home messages: We conclude that inter-professional education using experiential learning is an interesting and effective way to teach professional issues concerning interpreters in clinical medicine. Furthermore, both groups were positive about the synergy achieved by this shared learning experience.

4Y6

The show MUST go on!

J Bezuidenhout, J Dempers, A Louw, H Strijdom, S Beukes, B van Heerden, M van Heusden, M de Villiers and C Cilliers (Stellenbosch University, Cape Town, South Africa)*

Background: In 2008 we launched an Interprofessional first year for medical, physiotherapy, occupational therapy and dietetics programmes. The modules emphasise basic concepts and principles: Personal and Professional Development (PPD) - communications skills, academic reading/writing, speaking/listening skills in a 3rd language, self-management, Life forms and Function, Chemistry and Health in Context (HC) - psychosocial perspectives on health, health promotion, risk factors for disease, biostatistics, basic computer skills, ethics and health services and professions.
Summary of work: To demonstrate the relevance of these modules, the intentionality of lecturers and the potential of generic skills transfer, a short play written and produced by lecturers and senior management in the faculty, emphasizing the necessity of various skills, knowledge and interprofessionalism was performed in class by the lecturers at the start of the first year. Students then had to discuss and link aspects of the play with specific outcomes.
Summary of results: Feedback from focus groups indicates that the innovation had a positive impact on the students' understanding of the relevance of this Phase and they appreciated the lecturers' commitment.
Conclusions/Take-home messages: A SHOW may be necessary to keep the show on the road.

4Y7

Guidelines International Network Kindergarten: A comprehensive educational programme for undergraduate medical students

R Licenik, K Ivanova, M Faix, P Kurfürst, M Tomoszek, J Precek, D Osinova, E Dorazilova, D Jarosova, T Kuhn, A Michalcova, J Potomkova and K Cervena (Palacky University, Olomouc, Czech Republic)*

Background: The Centre for Clinical Practice Guidelines of the Faculty of Medicine and Dentistry, Palacky University is concerned with issues of clinical practice guidelines as viewed from different perspectives. Although there are many CPG implementation strategies, CPGs are rarely incorporated into medical education. A new comprehensive educational programme (CEP) has been developed to disseminate information about CPGs.
Summary of work: We have developed a CEP focused on various aspects of CPGs. As a part of the CEP, and after a pilot version of the educational sessions in 2008/2009, a series of lectures for final year medical students were listed in the standard curriculum in 2009/2010. An interprofessional medico-legal problem-based learning programme (M-L PBL) focused on the legal aspects of CPGs was developed for both medical and law students and held in November 2009.
Summary of results: Lectures focused on CPGs, a compulsory subject for final year medical students in 2009/2010. Interprofessional M-L PBL, an optional subject in 2010/2011.
Conclusions: One of the best CPG implementation strategies is to provide information about the basic principles of their development, implementation, evaluation and efficient use to their potential users/clinicians at the undergraduate level of their medical education.
Take-home messages: Early start of learning focused on CPGs is very efficient guidelines implementation strategy.

4Y8

How to realize interprofessional education in a Faculty of Medicine and Health Sciences

A Derese, D Selis and J De Maeseneer (Ghent University, Faculty of Medicine and Health Sciences, Ghent, Belgium)*

Background: Interprofessional education is of utmost importance to prepare students for interdisciplinary cooperation in health care, prevention and research. Earlier attempts to realize interprofessional education have stranded on incompatibility of timetables, differences in learning objectives and inappropriate attitudes of teachers. How can effective and efficient interprofessional education be implemented in a Faculty of health sciences with 7 educational programs?
Summary of work: A working group composed of the chairpersons of the educational committees and their curriculum managers are working on a shared vision text, on defining the best time frame and on developing the right attitudes in teachers.
Summary of results: Most likely the first week of the second semester in the last bachelor or first master year of every curriculum will be reserved for interprofessional education. Educational formats may be: an interdisciplinary team meeting, shared examination of a real patient, a joint prevention project, several bachelor or master students working together on parallel assignments or master thesises. Cooperation with bachelor programs in colleges for higher professional education will be sought.
Conclusions: Solutions have been found which sound feasible in all educational programs. Apart from the logistic problem, a culture of cooperation has to be established.
Take-home messages: The realization of interprofessional education requires a joint effort of programs taking into account all academic, attitudinal and logistic considerations.

4Y9

Cross-cultural adaptation of interprofessional education assessed with DREEM and RIPLS

Juhana Hallikainen[1,2], Leila Niemi-Murola[1], Sari Ponzer[2] and Maaret Castren*[2] ([1]Department of Anaesthesiology and Intensive Care Medicine, Helsinki University Hospital, Helsinki, Finland; [2]Department of Clinical Science and Education, Karolinska Institutet, Stockholm, Sweden)*

Background: Finland and Sweden are both Scandinavian countries, and they share both ancient governmental history and cultural inheritance. However, implementation of educational programmes originating from the neighbouring country will be challenging (1, 2, 3).
Summary of work: A programme of Emergency medicine from Helsinki University, Finland, was introduced to Karolinska Institut, Stockholm, Sweden. RIPLS (2) and DREEM (3) questionnaires were distributed to 13 medical and 13 paramedic students in Finland and a similar group of Swedish students (N = 11). The students answered using 7-point Likert scale (RIPLS) and 5-point Likert-scale (DREEM). Cronbach's alphas of the questionnaires were 0.66 and 0.84, respectively. Students were also tested for their practical skills before and after the course, and these results will be presented.
Summary of results: The students in both universities had very positive attitudes towards interprofessional learning (RIPLS) and there were no statistically significant differences. Both groups were satisfied with the course, but the Swedish students significantly graded higher in DREEM scale compared to the Finnish group.
Conclusions: A cross-cultural adaptation of interprofessional emergency medicine programme was successfully imported from Finland to Sweden, assessed with DREEM and RIPLS.
Take home message: Successful adaptation of interprofessional education between neighbouring countries will be presented.

4Y10

The University of Toronto health care team challenge: A social-demic interprofessional education experience

L Di Loreto[1], S J Wagner*[2] and T Jarvis[1] ([1]Canadian Memorial Chiropractic College; [2]University of Toronto, Centre for Interprofessional Education and Department of Speech-Language Pathology Toronto, Ontario, Canada)*

Background: The Health Care Team Challenge (HCTC)™ was initially created at the University of British Columbia as a unique interprofessional learning opportunity. Through the University of Toronto (UT) the concept was refined and developed as a challenge across the province of Ontario.

Summary of work: A challenge was held at the UT with three teams composed of six students across 11 health science professions. Each team was provided a clinical case and developed a collaborative interprofessional plan of management. Student teams presented their plans to an audience and were judged by a panel on quality and collaboration. Through this process, a bridge was built between the social and academic realms so that students socialize and learn simultaneously.
Summary of results: Evaluation of the session by students revealed positive feedback regarding the learning opportunity. In addition, student pre- and post-self-assessment of learning, utilizing global rating scales linked to UT interprofessional competencies, indicated perceptions improved.
Conclusions: Students must be equipped to work collaboratively if they are to provide their patient/clients with what they expect, best possible care. The HCTC™ is an interprofessional education activity that promotes teamwork and collaboration amongst students.
Take-home messages: The HCTC™ provides students with the opportunity to walk the talk because as we all know practice makes perfect.

4Y11

Developing the future leaders in emergency care education

T Williamson[1], M Cooke[2] and M Hammick[3] ([1]University Hospitals of Leicester; [2]University of Warwick, Medical School, Coventry; [3]Birmingham City University, Birmingham, UK)*

Background: The Society of Trauma, Emergency medicine/nursing and Pre-hospital care UK (STEPUK) is a new innovation in inter-professional education. It aims to provide opportunities for students to experience working as part of a national project to support interprofessional learning in trauma, emergency and pre hospital care.
Summary of work: Students are supported by a 'National Advisory Body' of acclaimed specialists in emergency care and medical education. They forge interprofessional links with colleagues and arrange learning events for fellow students.
Summary of results: Presently six UK universities are involved in STEPUK. Students from these universities have been supported in arranging lectures, pre-hospital events with local fire services and voluntary aid services, presenting their work to other students, developing interprofessional research and directing a STEPUK group at university and regional levels.
Conclusions: STEPUK is an opportunity to provide potential future education leaders with the springboard to develop skills based directly on emergency care whilst being overseen by leading figures.
Take-home messages: STEPUK is the first and only national undergraduate emergency care society in the UK. It aims to ensure that a strong interprofessional collaboration for trauma, emergency and pre hospital care is built and is committed to enhancing knowledge and skills of leadership and education in these care professions.

4Y12

Developing veterinary interprofessional teaching resources

T Kinnison, P Welsh, R Lumbis, H Orpet, S Gregory and S Baillie (The Royal Veterinary College, University of London, UK)*

Background: Interprofessional Education (IPE) aims to bring students from different disciplines together to learn with, about and from each other. Despite veterinary surgeons (VSs) and veterinary nurses (VNs) working closely in practice, IPE is largely unused.
Summary of work: Focus groups with student and practicing VSs and VNs highlighted concerns regarding working with other professions, stereotypical views, misconceptions and the importance of an effective team. Resources were developed around these issues: 'Talking Walls' (Parsell, Gibbs and Bligh, 1998) – to improve understanding of roles, 'Communication Skills Scenario' – to recognise and address interprofessional issues and 'Emergency Case Role Play' – to improve teamwork. Feedback from pilot studies with interprofessional groups of students was gathered via questionnaires.
Summary of results: Analysis on pre- and post-questionnaires indicated changes in views on IPE, e.g. students were more in favour of teamwork and collaboration. General feedback was positive: "I feel that vets and nurses have a wall between them, this creates problems. This session really helped get issues out in the open".
Conclusions: VS and VN students are keen to learn interprofessionally. The resources developed allowed students to mix and changed their attitudes towards IPE.

Take-home messages: Teaching resources were developed that encouraged students of veterinary disciplines to learn together in enjoyable and effective ways.

4Y13

Developing an interdisciplinary training course in acute paediatric situations – using a 10 key approach

Anja Poulsen, Winnie Dahm*, Thorkild Jacobsen, Torsten Lauritsen and Jette Led Sørensen (The Juliane Marie Centre, The University Hospital of Copenhagen, Denmark)*

Background: The Department of Paediatrics, Paediatric Surgery, Anaestesiology, and Neonatology at the University Hospital in Copenhagen do have many acute and complicated clinical situations. For newly employed physicians and nurses these can be a challenge to handle, and it is important to react adequate in an acute situation and be able to collaborate. A need for a course in acute paediatric was identified.
Summary of work: R Harden's model 1 of "10 questions to ask" was used: 1) Needs, 2) Aims and objectives, 3) Content, 4)Organization of content, 5) Educational strategies, 6) Teaching methods, 7) Assessment, 8) Communication, 9) Educational environment, 10) Process. An interdisciplinary one-day course for all newly employed nurses and physicians was developed. The focus was both on communication and clinical skills.
Summary of results: All departments collaborated in the process. Both nurses and doctors report better self-confidence after completion of the course. On a scale form 1-5 the median self-confidence improved from 3 to 4, where 5 is the best.
Conclusions: The results show it is possible to develop a course in a complex set-up using the model. The participants were more confident in handling an acute situation after the course.
Take-home messages: Using the 10 key approach, a training model that seems adequate to implement in most paediatric wards was developed.

4Y14

Preparing clinical teachers to teach interprofessional concepts to learners: A small group approach

A Walsh[1], H Armson[2], T Elmslie[3], W Leadbetter[3], D Marshall[1], L Sadownik[4], K Stobbe[1] and J Wakefield [3] ([1]McMaster University; [2]University of Calgary; [3]Foundation for Medical Practice Education; [4]University of British Columbia, Canada)*

Background: Busy clinical teachers have difficulty accessing traditional faculty/staff development activities, and are particularly challenged in preparing learners to work in our increasingly interprofessional clinical settings. An interactive locally accessible method would be helpful. PBSG-ED (Practice Based Small Group Education) is a series of paper modules on common topics in clinical teaching. The most recent module focuses on interprofessional education (IPE).
Methods: Printed modules are developed on key topics in teacher-learner interactions, and include teacher-learner "cases", based are real situations, with summaries of relevant literature and tools for integrating new teaching strategies into practice. Small groups of teachers meet to discuss their own teaching experience using the module to provide evidence on best practices as well as resources and tools to facilitate incorporation of new strategies into teaching practice. The steps in preparing the newest module in the series "Working Together — Interprofessional Education and Collaboration among Health Professionals" will be described as an example.
Take-home message: A low tech, convenient method for clinical teachers to access teacher training materials at a time and location of their convenience is described, using the example of a module in interprofessional education.

SESSION 5

5A Plenary: Building a Curriculum for the Future: Perspectives from a new Australian medical school

Elizabeth Farmer (University of Wollongong, Australia)

Building a new school from scratch provides unique and exciting opportunities to innovate. This presentation will address various aspects of curriculum design and delivery at the new University of Wollongong Graduate School of Medicine including an outcomes-based design linked to electronic curriculum mapping and clinical e-portfolios and longitudinal models for community-based education focusing on continuity of care and integration of students into all facets of the local health care system in geographically diverse locations.

5B Plenary: Educating Physicians for the Future: A call for reform from The Carnegie Foundation for the Advancement of Teaching

David Irby (University of California, San Francisco, USA)

Twice over the past one hundred years The Carnegie Foundation for the Advancement of Teaching has called for the reform of medical education: in 1910 Abraham Flexner stressed the importance of scientific research and educational excellence, and today a new report (Cooke M, Irby DM, O'Brien B. Educating Physicians: A Call for Reform. San Francisco: Jossey-Bass Publishers, 2010) calls for additional reforms: use of competency-based assessments to standardize learning outcomes and allow the pace of learning to be individualized; integrate clinical experience and science learning, including early clinical immersion; promote habits of inquiry and improvement as a means of achieving excellence and continuously advancing the field; and focus on identity formation and professional development of learners.

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SESSION 6

6A Symposium: Medical student education in the 21st Century – a new Flexnerian era?

Panel: Paul Hemmer (Uniformed Services University of the Health Sciences, USA) (Chair); David Irby (University of California, San Francisco, USA); Elizabeth Farmer (University of Wollongong, Australia; Jack Boulet (ECFMG, Philadelphia, USA); Bill Burdick (FAIMER, Philadelphia, USA); Nic Busing (The Association of Faculties of Medicine of Canada, Ottawa); Jim McKillop (University of Glasgow, UK); Robbert Duvivier (University of Maastricht, Netherlands)

As we mark the 100th anniversary of the Flexner Report which revolutionized the process of medical education, there is again concern that we face a critical need for change in the process of medical education in order to meet the needs of learners, teachers, and patients. In this session we will discuss the forces that are shaping the current debate surrounding medical education, with a focus on proposed solutions.

6B Symposium: The student-teacher relationship in the 21st Century: customer or partner in learning? Implications for the way teachers teach and the way students learn in the 21st century

Panel: Matthew C E Gwee (National University of Singapore, Singapore) (Chair); Carol Elam (University of Kentucky College of Medicine, USA); Raphael Buttigieg (Student, Germany)

In the teaching-learning process, the primary role of the teacher is to teach and that of the student is to learn. However, how this seemingly simple and straightforward *student-teacher relationship* (S-T R) is perceived by students and teachers, can have a profound impact on how teachers teach and, therefore, on how students learn. A common perception of the S-T R is that the *student* is a *customer* (or *client*) of the teacher, whereas a less commonly held view is that the *student* is a *partner-in-learning* with the teacher. Adopting the viewpoint of the student as a ***customer*** of the teacher in the teaching-learning process will imply that the teacher is essentially a *service provider*, offering expert services to students because of his or her content expertise and mainly through the delivery of instruction. Such a viewpoint is more consistent with a *business-like* or *commercial transaction* in which the "*customer is King*" or the "*customer is Always Right*" because the student, as a customer of the teacher, pays fees for the services rendered and, therefore, expects to receive "efficient" service as the customer. However, if the student is perceived as a ***partner-in-learning*** with the teacher in the S-T R, then this will imply that, both, the student and the teacher (as '*partners*') have a *shared responsibility* in the teaching-learning process. In this *pedagogical model* of the S-T R, both, the teacher and the student will need to ensure the successful outcome of their educational venture.

The Symposium will critically examine the implications of how the two contrasting views of the S-T R will impact on the way teachers teach and the way students learn in the context of 21st century medical education. The Symposium will also offer insights into how best to nurture and develop a S-T R which will firmly support and sustain the role of the student as a *partner-in-learning with the teacher* in the teaching-learning process. The expected *value-added educational outcomes* from this pedagogical model of the S-T R will also be discussed.

6C Short Communications: Interprofessional Education 1

6C1

It takes a village to train a resident: Qualitatively investigating how interprofessional education contributes to the development of resident competencies

L Varpio, P Hall, C Kuziemsky, L Casimiro, A Brasset-Latulippe, E Bidlake, S Brajtman and S Humphrey-Murto (Academy for Innovation in Medical Education and Bruyère Continuing Care at University of Ottawa, Telfer School of Management, Ottawa, Canada)*

Background: Research has contributed to the development of interprofessional education (IPE). However, IPE research tends to focus on undergraduate interventions. Gaps remain in our understanding of IPE at the postgraduate medical education (PGME) level. This study asks: 1) How is IPE currently experienced at the PGME level? and 2) Are there qualitative differences distinguishing PGME IPE when it is delivered by different healthcare professions?
Summary of work: 284 hours of non-participant observations were conducted in three clinical. More than 40 residents (years 1 through 5) were observed. Observations recorded resident interactions with a wide range of professional collaborators including: Huberman and Miles's analysis process (1994) of 1) data reduction, 2) data display and 3) conclusion drawing / verification was used to analyze data.
Summary of results: PGME experiences of IPE are predominantly informal. In this informal delivery of IPE, different healthcare professions emphasized different competencies. While physician educators tended to focus on the medical knowledge/expert competency, nurses tended to emphasize communication and collaboration competencies.
Conclusions: Training for the breadth of competencies described in the CanMEDS roles is currently being provided, in part, through informal IPE.
Take-home messages: Findings from this study can inform how academic health centres structure the teaching and evaluation of resident competency.

6C2

Health-professional students' early exposure and reflection to interprofessional problem-based learning

C Newton[1], L Eccott[2], W Hal[3], A Greig[1], M Lee[1] and V Wood* (University of British Columbia, [1]Faculty of Medicine; [2]Pharmaceutical Sciences; [3]Nursing Sciences, Vancouver, BC, Canada)*

Background: Inter-professional education for collaborative practice has been described as one solution to improve health care delivery. However, at the University of British Columbia, few health professional programs provide students with inter-professional (IP) educational opportunities. Literature also demonstrates that early IP learning reduces negative professional stereotyping while improving IP knowledge translation.
Summary of work: A multi-professional group of faculty at the University of British Columbia designed, implemented, and evaluated a pilot inter-professional problem-based learning (IP-PBL) module. We exposed health service students (medicine, pharmacy, nursing, physical therapy and occupational therapy) to the pilot module; and through a mixed methods study evaluated the impact of this educational module on their inter-professional knowledge, skills and attitudes.
Summary of results: The IP-PBL module including a case (that centers around a new mother with low back pain and post-partum depression), objectives, facilitator manual, reference guide, evaluation tools, and pilot data will be presented.
Conclusions: Providing health professional students with structured IP educational opportunities will ensure that they gain the necessary knowledge and skills to work collaboratively within our evolving health care system.
Take-home messages: IP-PBL provides a structured interprofessional learning opportunity that results in improved knowledge and attitudes for collaborative practice.

6C3

Exploring the longer-term outcomes of an IPE Faculty/Staff Development Program
K Leslie, L Baker, E Egan-Lee, M Andrews, P Burns, T Martimianakis, D Richardson, J Shaver, B Simmons, S Wagner, I Silver* and S Reeves (Centre for Faculty Development, University of Toronto at St Michael's Hospital Toronto, Canada)*

Background: Effective interprofessional education (IPE) is seen as key to enhancing collaboration and patient care. However, there has been little attention paid to preparing faculty to deliver this form of education or evaluating their effects over time.
Summary of work: A case study approach was adopted to explore the processes and outcomes of a faculty development (FD) program to expand the cohort of educators able to develop, implement and evaluate IPE. 31 learners representing 14 health professions participated in interviews and online discussions.
Summary of results: Analysis of interview data revealed program aspects that were beneficial to participants' success in delivering IPE programs, as well as barriers they encountered. Findings also suggest that while the blended learning approach helped to increase collaboration during the program, this sense of community did not endure after one year.
Conclusions: This study offered a rare understanding of the longer-term outcomes related to the delivery of an IPE FD program as well as issues which may enable or impede faculty in developing their own IPE initiatives.
Take-home messages: Faculty developers should consider the use of blended learning environments to enhance community formation among participants. Further research needs to be undertaken to better understand the longer term outcomes of such programs on faculty and organizations.

6C4

Values in the Flinders University School of Medicine: An interprofessional approach
Helena Ward (Flinders University, Health Professional Education, Adelaide, Australia)*

Background: The Flinders University School of Medicine (SOM) offers a range of health professional programs, including medicine, speech pathology, dietetics and nutrition, disability studies and paramedic courses. A consultation process was conducted to develop a values statement that reflects the interdisciplinary nature of the SOM.
Summary of work: The theoretical basis for this project was the symbiotic curriculum which describes the importance of clinical, institutional, social and personal relationships in developing community based medical education. Semi-structured interviews and focus groups were conducted with staff, students, graduates, community groups and health service providers.
Summary of results: Responses showed a need for health professional programs that included reflection, patient-centred care, cultural awareness and lifelong learning. Underpinning these values were the concepts of social accountability and inter-professional practice.

Conclusions: A comprehensive values consultation process across a range of health disciplines has revealed a number of common values. These provide the basis for curriculum development, assessment and evaluation to embed these values in the SOM (e.g. by mapping values against course aims and learning outcomes).
Take-home messages: Across a wide range of stakeholders there is a commonality in the values expected of health professional graduates. This can be used to develop curricula across health professional programs, with a common focus on social accountability and interprofessional practice.

6C5

Developing a new approach for investigating students' experiences of learning in an Interprofessional context

H Lachmann[1], S Ponzer[1], U-B Johansson[2] and K Karlgren[3] ([1]Department of Clinical Science and Education, Södersjukhuset; [2]Department of Clinical Sciences, Danderyd Hospital, Sophiahemmet; [3]Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden)*

Background: An Interprofessional Training Ward (ITW) provides medical, nursing, occupational therapy and physiotherapy students a 2-week clinical course with the goal to enhance their interprofessional collaboration. There is a need to better understand their experience of interprofessional activities. Post-course questionnaires are generally used for this purpose - with the weakness of having to generalise in retrospect instead of reporting about their learning as it occurs.
Summary of work: To achieve a high ecological validity when investigating learning and working practices, data was collected five times a day while students were engaged in their everyday clinical activities. This study used the Contextual Activity Sampling System (CASS) as method/tool to collect data at an ITW using mobile phones. The ITW environment has specific challenges - it can be difficult to stop an activity to respond questions using a mobile phone.
Summary of results: Students reported that CASS was easy to use and that it gave them opportunity for reflection, helped to plan their day and to evaluate why, with whom and how well they were collaborating.
Conclusions: The CASS method makes it possible to investigate participants' on-going activities and provides detailed data about students' experiences.
Take-home messages: CASS is a novel method for further understanding how learning occurs in detail – in context.

6C6

The development and implementation of a comprehensive interprofessional education program

Sheree Aston (Western University of Health Sciences, Pomona, USA)*

Background: An important study by the Institute of Medicine recommended interprofessional training for health professional students. Patients would benefit from coordinated, collaborative care.
Summary of work: Western University of Health Sciences, one of the largest private graduate health science universities in the United States, has developed a broad-based three phase model for comprehensive interprofessional education program. The model, designed to support collaborative learning and practice, includes rigorous evaluation strategies.
Summary of results: A three phase IPE model for students from our nine health professional programs was developed. After two years of planning and testing, the first phase was launched in 2009 with a new case based course required for all first year entry level health professional students. This course consists of 850 students working in a total of 94 small groups (9 students and 1 faculty facilitator) on clinically based cases. The second and third phases (team based simulation course/activities and clinical care respectively) will initially launch in the 2010-2011 academic year.
Conclusions: Interprofessional education generates awareness and appreciation for the scope of practice of other health professions.
Take-home messages: Successful planning and implementation strategies such as development approach, permanent infrastructure, faculty time, workload, research and training are needed to implement and maintain an IPE program.

6C7

The development and implementation of the Interprofessional Objective Structured Clinical Examination (IOSCE) assessment tool

B Simmons[1, 3], S J Wagner*[1, 3], M Esdaile[2], E Egan-Lee[4], L Baker[4] and S Reeves[4, 6] ([1]The Centre for IPE; [2]Sunnybrook (SHSC); [3]Faculty of Medicine; [4]CFD, SMH; [5]The Wilson Centre, University of Toronto; [6]Li Ka Shing Knowledge Institute, Toronto, Canada)*

Background: The link between interprofessional education (IPE) and collaboration (IPC) equipping students with competences for entry to practice has been made for several years. Despite the broad adoption of IPE across a number of educational institutions, there continues to be little focus on the development and implementation of assessment strategies.
Summary of work: Interprofessional leaders in the health sciences faculties in the IPE program at the University of Toronto (UT; n=24) were invited to participate in a modified Delphi. Through this process, consensus was reached on scenarios suitable for development into interprofessional objective structured clinical examination (iOSCE). Three workshops using the data generated from the Delphi developed a blueprint for the iOSCE. The iOSCE consisted of three stations each of 45 minutes duration. Students (n=30) from the IPE program at UT (10 faculties and departments) were recruited for the pilots to include an orientation, the three 45 minute stations, a debriefing and focus group.
Summary of results: The assessment of the first pilots based on the UT competency framework and evaluation of the development process will be discussed.
Conclusions/Take-home messages: This low-fidelity team simulation has the potential for use as both a formative or summative assessment tool for entry to practice of health care teams

6C8

Interprofessional student-led wards

L d'Avray (St George's, University of London, Centre for Medical & Healthcare Education, London, UK)*

Background: Since 2004, mixed teams of students from St George's, Kingston and Brunel Universities have provided care for patients on the Interprofessional Practice Placement (IPP) in Southwest London. Positive evaluation from the original rehabilitation ward has led to extending the IPP to the hospice setting and further sites.
Summary of work: This communication will explain how the IPP works, has been developed, sustained and extended. Six times a year the in-patient unit becomes a student-led ward with teams of final year students from nursing, medicine, physiotherapy and occupational therapy, under close supervision, taking responsibility for patients' personal care and contributing to the functioning of the ward.
Summary of results: Students work together, learning with, from and about each other (CAIPE 2007) as they perform their daily work with patients. Working over a whole shift enables them to practise real communication, give accurate handovers and observe how staff on the ward interact interprofessionally.
Conclusions: Medical students engage in therapeutic relationships with patients and appreciate nursing and therapy students and their work. Nursing and therapy students learn aspects of medical treatment and gain confidence leading student teams and presenting cases.
Take-home messages: This authentic experience provides a better understanding about the way healthcare is actually delivered (Freeth et al 2001).

6D Short Communications: Simulation

6D1

Longitudinal assessment of performance using computer enhanced manikin simulation: Use of a Bayesian approach a novel model

K Khan (Manchester Medical School, Lancashire Teaching Hospitals Foundation Trust, Preston, UK)*

Background: 'Educational Governance' requires a definition of 'Best Practice' in the use of simulation in assessments. To the best of our knowledge this is the first paper addressing this issue by reviewing the literature on the conventional and contemporary frameworks of assessment.

Summary of work: A comprehensive review of the literature was done to define the gold standards for an ideal assessment tool. Simulation was mapped against these standards, to define the 'Best Practice' for the use of simulation in assessment and provide this as a framework for future developments.
Summary of results: While simulation is being used both as a formative and summative assessment tool, there is a lack of the definition of 'best practice' in the current literature. Based on our work we recommend simulation to be used in a 'Longitudinal Assessment of Performance' using a 'Bayesian' model for summative purposes. This marks a shift from the current application of psychometric model of assessment to simulation.
Conclusions: Formative assessments drive learning and a series of such assessments on simulators can be used in a probabilistic model to predict future performance. This will overcome the problems of application of psychometric model to summative assessments using simulators.
Take-home messages: Bayesian model provides a viable alternative to Psychometric model of assessments on simulators.

6D2

The NUS Tummy Dummy: Using an abdominal simulator to teach the abdominal examination
Erle C H Lim, Shariff Mahaboob, Lian-Kiat Lim, Ng Chew-Lip Ng, Quan-Yao Ho and Raymond CS Seet (Division of Neurology, National University of Singapore, Singapore)*

Background: Simulators may be used to provide adequate exposure to learning experiences that allow clinical skills to develop. To date, simulators have been developed for trainees to perform cardiac and respiratory examinations, deliver a baby and perform surgical and endoscopic procedures. Interestingly, simulator use to perform the abdominal examination has not been described in the literature.
Summary of work: We describe the creation of the NUS Tummy Dummy (NUS-TD), a low-cost, portable abdominal simulator. The NUS-TD consists of a torso, into which fake abdominal organs of various sizes are fitted, and then covered with a realistic silicon skin. Students can then palpate (and ballot) the various abdominal viscera. We also created a simulator to simulate the experience of performing "shifting dullness" to indicate the presence of ascites. During the H1N1 outbreak in Singapore, we conducted a pilot module, using the NUS-TD to teach a group of 44 medical students to perform the abdominal examination. We elicited their feedback on their attitudes to the use of the NUS-TD.
Summary of results: Feedback was positive, 93.2% opining that the NUS-TD was useful and 79.6% that it increased their confidence in performing the steps of the abdominal examination.
Conclusions: We have since elected to further develop the NUS-TD, collaborating with the School of Industrial Design to produce Tummy Dummies to simulate adult, paediatric and neonatal simulators
Take-home messages: The abdominal simulator can be used to teach medical students to perform the abdominal examination.

6D3

"I simulated, therefore I can - I reflected, therefore I know - I acted as a patient, therefore I feel"
H Selberg[1], J Hovedskov*[2] and J Holtzmann[2] ([1]Metropolitan University College, Copenhagen, Denmark; [2]Glostrup University Hospital, Copenhagen, Denmark)*

Background: The study integrates a dynamic simulation learning model as described by Dr Roger Kneebone into a Danish hospital setting enabling students and staff to provide better care.
Summary of work: Real-life scenarios were embedded in the authentic clinical setting, interactive role-play and hands-on training in addition to sessions with combined theory and simulation. Interactive relationships between clinical experts and educators emerged. The study comprised 39 doctors, 50 nurses and 34 students.
Summary of results: Transfer of operational skills, experiencing self-efficacy, and enhanced understanding of the patient's perspective were identified as learning outcomes.
Conclusions: The real-life scenarios contributed to the learning environment in a safe and appreciative manner, changing the culture around patient-safety and interprofessional collaboration.
Take-home messages: The interaction between simulation and the authentic clinical setting enhances the transfer. Collaboration between project leader, clinical experts and educators was crucial in order to create an appreciative and safe learning environment. The personal physical experience both in relation to hands-on and patient acting brought about a more lasting learning experience than traditionally education. It is necessary to allocate funds to project lead, simulation equipment and educating facilitators.

6D4

Male catheterisation: Integrating clinical and communication skills teaching for medical undergraduates

K Joekes, K Boardman*, J Brown, D Evans, A Spatz, J Dearnaley, S Roscoe and D Lawrence (St George's, University of London, Centre for Medical and Healthcare Education, London, UK)*

Background: Catheterisation, a core competency for UK medical graduates, is technically complex and requires advanced communication skills. "Hybrid simulation" (a simulated patient attached to a manikin) (Higham et al., 2007) has been used for catheterisation (Kneebone et al., 2002), however, to our knowledge, not with large groups of medical undergraduates.
Summary of work: Following a pilot, two catheterisation teaching mornings were run (total: 278 students), via 1-hour workshops with 6-7 students per group, in a simulated ward. Clinical and Communication Skills tutors co-facilitated a hybrid simulation role-play. Students had structured tasks, with one performing the catheterization. Participants completed evaluation forms comprising 5-point Likert ratings and free-text.
Summary of results: Interim analysis shows students (n=125/137) rated the first session as "excellent" or "good" (54% and 40%, respectively). Those performing catheterisation rated it more highly (Chi-squared (df=1) 14.1, p<.001). All students reported an intention to seek opportunities to perform catheterisation on clinical placements. Qualitative themes and examples will also be presented.
Conclusions: The workshop was achievable with approximately 140 students per session and positively evaluated. The sessions were expensive and logistically challenging. Future assessment of added value in terms of learning needs consideration.
Take-home messages: Hybrid simulation is feasible with large numbers and was a positive experience.

6D5

Video teaching material brings synergetic effects in simulation training

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Background: In recent years, simulation education, like ACLS, achieved great educational effectiveness. On the other hand, there is few training model which improve skills for dealing with sudden changes in patient's conditions.
Summary of work: We constructed a course consisted with video teaching materials for preparations and a half day training course by using advanced patient simulators. All of the participants were 1st or 2nd degree residents. The students were randomly divided into two groups, in one of which students watched the videos ahead of the simulation trainings. And we analyzed the capacities to deal with sudden changes. The capacities to deal with sudden changes in patients' conditions which were evaluated by a check list to check each skills or knowledge for dealing with unstable patients and elapsed time to rescue those patients.
Summary of results: Students watching video materials for preparations significantly got high scores and take short time to rescue the unstable patients.
Conclusions: In conclusion, video materials and simulation training programs had synergistic effects. And video material played important roles for medical simulation training programs. Some of established simple simulation training programs followed by a course had a synergistic effect.
Take-home messages: Video materials ahead of the simulation trainings play important roles for medical educational programs.

6D6

Simulator-based cardiac auscultation instruction improves diagnostic accuracy and resource utilization among family medicine trainees

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Background: High-fidelity cardiopulmonary simulation training in improving diagnostic accuracy and resource utilization has not been studied in family practice trainees.
Summary of work: A half-day curriculum was offered to family practice residents addressing common valvular pathologies through combined didactic and simulator exposure. Ability to describe and diagnose murmurs was assessed using standardized scoring before the teaching session, and 2-3 weeks after. The effect of the

session on echocardiography use by residents was also assessed, as was subjective confidence in cardiac diagnostic skill.
Summary of results: Diagnostic accuracy improved in 19/20 participants (p=0.0001); mean number of correctly identified murmurs, and mean descriptive scores, both significantly increased (p=0.0004 and p=0.044, respectively). For pathological murmurs, the number of echocardiograms recommended did not change, whereas for the non-pathological murmur, 16 residents who recommended echocardiography initially no longer did post-session (p=0.0002). Mean confidence in clinical skills increased from 2.3 to 3.7 on a 5-point Likert scale (p=0.0004). Mean participant satisfaction was high (4.9/5), and all residents recommended the session be offered again.
Conclusions/Take-home messages: A didactic and simulator-based session on cardiac auscultation was very well-received by family practice residents. It significantly improved description and diagnosis of murmurs, and reduced unnecessary echocardiogram use without affecting appropriate use.

6D7

Early development of a Canadian national curriculum for healthcare simulation educators
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Background: As simulation becomes an increasingly used strategy in global healthcare education, there exists tremendous variation in the training and quality of instructors/educators. In Canada, there is an unmet need to develop a standardized national educators' curriculum.
Summary of work: An interdisciplinary open needs-assessment workshop was convened at the RCPSC-Simulation Summit 2009. Four main domains were highlighted: benefits and drawbacks of a national curriculum; essential content; funding strategies and "next-steps".
Summary of results: Stakeholder representatives from Medicine, Nursing, Allied-Healthcare, Education and Industry endorsed the establishment of a national standard. Issues of leadership, portability, quality and collaboration outweighed "one size does not fit all". Content should include (but not limited to) education theory, instructional design, scenario development incorporating standardized patients, CRM and CANMEDS roles, and assessment including effective debriefing. Individual programs should lead to instructor certificates, fellowships and Masters degrees. Funding sources should include universities and colleges, government, industry and self-funding.
Conclusions: There exists a national consensus to develop a standardized curriculum for simulation educators. Strategic directions were defined to form the framework for this ongoing initiative.
Take-home messages: The need for interdisciplinary national "buy-in" for the establishment of a national standardized curriculum for healthcare simulation educators.

6D8

"I don't believe it!" – How realistic is high-fidelity simulation? A questionnaire survey
M Moneypenny[1], K Glennon*[1], H O'Sullivan[1] and A Guha[2] ([1]University of Liverpool, School of Medical Education; [2]Cheshire and Merseyside Simulation Centre, Liverpool, UK)*

Background: Simulated scenarios are used as a teaching method, assessment tool and for research purposes. We postulate that an assumption may be made that the lessons learned or conclusions drawn from such work can be directly extrapolated to the clinical situation.
Summary of work: A retrospective study of 645 feedback questionnaires from high-fidelity simulation courses over 1 year (March 2009-10) relating to realism of the scenario and transferability of skills to the workplace. A five point Likert scale was used to grade answers. Free text comments were extracted and analysed for further evidence.
Summary of results: 93% of participants rated the realism of the simulation as excellent/good. 98% strongly agreed/agreed that they would be able to transfer their new skills to the workplace. Common themes emerging from free text analysis included "as close to reality as it gets", removal of risk to patients, issues surrounding mannequin fidelity and real-time practise.
Conclusions: A significant majority of participants found the scenarios excellent or good in terms of realism and transferability of skills. Free text analysis resulted in a richer understanding of the reasoning behind these beliefs.

Take-home messages: Participants in high-fidelity simulation believe the scenarios to be realistic and believe the skills they acquire in the simulator are transferable to the workplace.

6E Short Communications: e-Learning Case Studies: Undergraduate

6E1

Teaching veterinary neurology: Experience with an interfaculty e-learning elective course

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Background: The University of Veterinary Medicine Hannover and the Vetsuisse Faculty of Bern arranged a collaborative pilot project "Neuroimmunology" as an elective course for students. In neurology classes neuroimmunology is not taught intensively and interested students should be stimulated to learn more details.
Summary of work: Three case studies describing the different reaction models of the immune system in the nervous system were chosen and were presented with videos, laboratory findings, neuropathology and pathogenesis using the CASUS®-system. Students were encouraged to find the diagnosis in an interactive way. In three weeks the cases could be studied independently on the internet. In between discussions took place in synchronous online-meetings in a virtual classroom. The evaluation of the course was accomplished with a questionnaire. Furthermore data of the CASUS®-database (study time and success rate) were collected.
Summary of results: Altogether 38 students from Hannover and Bern took part in the course. The evaluation results show a great acceptance from the students for the new course format (likert scale, rates from 1 = yes, good to 6 = no, bad). The course received grades from 1,0 – 1,6; the cooperation between students and teachers of different universities was accepted.
Conclusions: In conclusion, CASUS seems to be a very efficient tool to stimulate students to self learning. Success rate is evaluated electronically and therefore not time consuming for teachers.
Take-home messages: e-Learning is an ideal supplement to classroom education.

6E2

Preparing medical students to peer facilitate online discussions

Isobel Braidman and Maria Regan (University of Manchester Medical School, Manchester, UK)*

Background: Dispersing learners over different clinical sites is an obstacle to sharing reflective practice with peers. We therefore introduced online reflective discussion forums on clearly defined subjects with suitable resources. They were peer facilitated by students.
Summary of work: Students volunteered as facilitators and in 2006-07 were trained in generic facilitating skills. In 2007-08, training also included moderating online discussions, using practical examples. To determine whether this impacted on online discussions, texts from randomly selected groups (n=20 from 63) from each year were compared using Garrison's Community of Inquiry Model, which analyses online reflective learning by cognitive, social and tutor parameters. Contributions by gender and by quality were also determined
Summary of results: Discussions at higher cognitive levels and those showing group collaboration in social and tutor parameters increased in 2007/2008 ($p<0.001$, $p<0.01$ and $p<0.05$ respectively). Participation by males also rose from 73% in 2006/2007 to 91% of men in 2007/2008 ($p= 0.010$). Content analysis of postings showed more untrained participants, as well as facilitators, facilitated discussions in the second year ($p<0.008$).
Conclusions: The content of facilitator training affects cognitive development, participation and group interaction in online discussions.
Take-home messages: Students can be trained to moderate online discussions effectively. Appropriate training content is essential for introducing e-learning activities.

6E3

Development of an electronic OSCE examination of five e-stations for assessment of clinical skills in medical education

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Background: Clinical competency is poorly measured by knowledge based written examinations. An alternative proposal as a students' evaluation method is the development of OSCE stations (Objective Structured Clinical Examination) and is used test clinical skill performance and competence.
Summary of work: The current piece of work aims to present the design and implementation of an OSCE examination that involves five stations in electronic format. Two programs, complementary to each other were used for the design of this e-OSCE examination; VUE, for the design of the logical path, and Open Labyrinth, as a modeling system for the educational interactive activity.
Summary of results: This e-OSCE examination, through the interactive web pages developed which are enriched with media material, is aimed to be used to assess applied medical knowledge in the context of basic clinical skills. Students are rated on their ability to manage physical and psychological issues involved in these clinical procedures with regard to patients' safety and comfort.
Conclusions: This pilot electronic OSCE examination offers the opportunity to assess students for decision taking and clinical competence in a risk free educational environment. Candidates' theoretical and practical knowledge in clinical skills is evaluated before exposure in real patients.
Take-home messages: Organizing and setting up real OSCE station is time, money and effort consuming. The development of this e-OSCE offers the potentiality to assess decision taking and professional attitudes.

6E4

'An online education portal the way users want it' - Developing a fit-for-purpose communications solution based on user needs

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Background: Excellent teaching is irrelevant if the process linking teachers with learners fails; communication and timetabling are fundamental. Despite available technology, our busy teaching hospital uses paper timetabling and email to coordinate undergraduate teaching. Internet tools often fail to meet expectations. We sought to develop a fit-for-purpose tool by responding to local need rather than imposing preconceived solutions. We asked potential users whether the current system met their needs. We explored their confidence in using existing software and potential use of an online portal.
Summary of work: We questioned Year 3 medical students (119/148), Foundation doctors (36/88) and their consultants (5/12) with anonymous piloted questionnaires, including 5-point Likert scales. Consultant data was supported by semi-structured interviews.
Summary of results: Students (3.1/5) are more negative than consultants (3.7/5) about the current system. Over 10 weeks, students identified 8 missed teaching sessions due to communication problems. Students are as confident using Facebook (4.1/5) as email and Microsoft Word. Learners were positive about an online portal, especially for finding information (4.2/5). Consultants saw no need. Foundation doctors pictured a feedback mechanism. Students envisaged an organisational system.
Conclusions: This will inform the development of a solution designed and owned by its users. Differing user expectations are a challenge.
Take-home messages: User needs are crucial.

6E5

Online learning in paediatrics: A student led web-based learning modality for medical students studying paediatrics

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Background: Undergraduate medical education is shifting away from traditional didactic methods toward a more self-directed learning environment. E-learning has emerged as a vital learning modality that allows students to apply key principles to practical scenarios in a truly personalized approach.
Summary of work: PedsCases (http://www.pedscases.com) is a student-generated open-access website that contains questions, multi-step cases, podcasts, clinical videos and links to clinical practice guidelines targeted to the competency-based paediatric curriculum. Content is student-generated and peer-reviewed by staff paediatricians to ensure validity, accuracy and usefulness. Select material is submitted to AAMC's

MedEdPORTAL for peer revision. A prospective study involving clinical medical students is collecting feedback about PedsCases.
Summary of results: PedsCases contains 216 questions, 39 cases, 11 podcasts (iTunes) and 2 clinical videos (YouTube). After 2 years, there have been 3,861 unique visitors from 96 different countries, 10,012 podcast downloads and all 7 MedEdPORTAL submissions have been published.
Conclusions: PedsCases is a collaborative resource created for and by medical students that provides an opportunity for active learning while disseminating knowledge in an evidence-based and interactive fashion. PedsCases encourages students to take an active role in their education and drive education in response to the evolving curriculum.
Take-home messages: As medical education shifts, student-led educational tools such as PedsCases have emerged as essential resources for students.

6E6

Psych-e: Redesigning e-learning content for undergraduate psychiatry

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Background: The current Imperial College undergraduate psychiatry e-learning site, whilst popular with students, may privilege knowledge acquisition above improving skills and attitudes necessary for assessing mental health. We describe the process of adapting e-learning content to fit with competencies expected for newly qualified doctors in terms of assessing and managing psychiatric disorders.
Summary of work: The current site was extensively examined. The Learning Technology department at Imperial College was consulted to gauge how appropriate changes could be made. A student focus group was run to canvas views on current content and proposed changes.
Summary of results: The focus group revealed that students were unanimously against introducing 'symptom-driven' interactive case-histories at the expense of factual psychiatric information but were happy to consider a combination of the two. Examining other e-learning models, it was decided to introduce video-recorded case vignettes based on presenting complaints rather than diagnoses without losing factual content.
Conclusions: The process above highlights a collaboration between clinical teachers, students and learning technologists to develop an e-learning site fit for purpose in terms of mental health assessment for newly qualifying doctors.
Take-home messages: Skill and attitudinal learning in psychiatry is paramount. E-learning is an effective way to combine knowledge acquisition with improving skills in assessing mental health problems.

6E7

A web-based module to teach patient-centered approaches to third year medical students

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Background: Medical students must learn to care for patients from many cultures who speak various languages, have diverse socioeconomic backgrounds and levels of cultural assimilation, and unique ways of understanding and experiencing illness and health. Effective physician–patient communication enhances patient satisfaction, safety, adherence with medical regimens, and health outcomes.
Summary of work: In our primary care clerkship, third year students spend five weeks at one of 22 practices. We designed a module requiring students to: apply US guidelines for hypercholesterolemia management to web-based cases; conduct a sociocultural interview with one clinic patient to explore beliefs about cholesterol; and submit a reflective essay based on this interview. Essays were electronically shared with two faculties and a senior student who gave feedback.
Summary of results: We determined project effectiveness through course ratings, student self-assessments and essays. Our data demonstrated student satisfaction, self-reflection, and learning with this modality.
Conclusions: Our intervention integrated simulated online experiences with real clinical experiences. Most students reported positive feedback, increased self-rated competence on sociocultural awareness; and discussions with faculty and senior students about what they learned from their patients to formulate patient-centered management plans.

Take-home messages: Web-based education is an effective method to teach patient-centered approaches of medicine in a clinical clerkship taught at diverse sites.

6E8

From fantasy to reality – Authentic capture of longitudinal care through virtual learning communities

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Background: In reality, longitudinal care is an important aspect of medical management. However, it is fantasy to think that many student attachments reflect this, due to short placement rotations and 'snap shot' clinical experiences.
Summary of work: We have developed a pilot interactive virtual learning community (VLC). This includes evolving patient narratives, presented through clinical records, audiovisual media and linked tutor-endorsed learning resources. Students will explore patient journeys in depth, with technology enhanced peer and tutor communication.
Summary of results: Focus groups endorsed an interactive, evolving VLC. They valued the concept of being able to follow patient journeys. They wanted an increasing complexity of narrative as they progressed through the course. Accessibility and communication were highlighted as important to support learning in different settings.
Conclusions: We have developed our concept to address the gap between 'snap shot' experience and reality. Our VLC embraces longitudinal care; we wish to demonstrate our interactive virtual learning community to the audience.
Take-home messages: Virtual learning communities have the potential to authentically capture longitudinal care for students and tutors.

6F Short Communications: Written Assessment

6F1

Script Concordance Tests: Choosing the most effective panel of experts

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Background: Script Concordance Tests (SCTs) offer an alternative and effective method of assessing undergraduate students' clinical reasoning skills. The literature suggests that SCTs are relatively easy to construct. However, little information exists in relation to the attributes required by the scoring panel of experts, particularly in relation to disciplines such as General Medicine. For example, should panels be comprised of generalists (GPs), general physicians, specialists or a combination of all three groups?
Summary of work: The School of Medicine Fremantle (SoMF) is currently conducting a pilot study whereby 90 students will complete a 50 item General Medicine SCT paper. Students' scores will be derived from the four different panel configurations. Students' scores derived from the mixed panel will then be compared to the scores derived from the other three configurations (e.g., GPs, physicians, specialists).
Summary of results: This presentation will report the comparison of the students' performance derived from the different panel configurations. Psychometric properties of the SCT scores in terms of reliability and inter-correlation between the four different sets of student scores will also be reported.
Conclusions: Results from this pilot will be available at the beginning of April and presented at AMEE 2010.
Take-home messages: The configuration of expert panels in scoring SCTs may affect the item's construct validity.

6F2

What makes a good question? Developing the MCQ/Written paper in postgraduate examination in Oman

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Background: The MRCGP (INT) Oman started in 2001 and over the years we have incorporated multiple choice questions (MCQ) to the existing modified essay questions (MEQs) and the critical reading paper (CRQ). The MCQs are now exclusively A-type MCQs of applied knowledge format. The MEQs and CRQs have also evolved into a more focused format.
Summary of work: The questions are sampled based on a blueprint that covers the core topics in the curriculum for postgraduate training in family medicine, which is overseen by the Oman Medical Specialty Board (OMSB). The passing score is decided by Angoff procedure augmented by Hofstee procedure. Item writing has improved over time making use of item analysis.
Summary of results: Item analysis of our MCQ paper for last three years will be presented to demonstrate what makes a good question.
Conclusions: Item analysis provides the necessary feedback to item writers to improve their question writing skills. Use of other data such as gender, ethnicity, etc may help to improve the fairness of the paper. Clarity of the blueprint helps to address the core topics of the curriculum and enables better focus of questions
Take-home messages: Blueprinting, standard setting and item analysis helps in improving the quality of the MCQ/ Written paper.

6F3

How do item writing flaws (IWF), cognitive level and re-use of items (RI) affect the quality of multiple choice questions (MCQ) and the students' performance?

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Background: End-of-the-year examinations delivered in 2008 to the first four year classes were analysed as part of an ongoing quality control.
Summary of work: Among 460 MCQs, each item was examined for IWFs, cognitive level (memorizing versus reasoning/understanding) and RI. Outcome measures were item difficulty (i.e. the proportion of students with correct answer) and discrimination index (DI; ability of an item to distinguish less well from well performing students) as well as percent mean test scores (MTS). Adjusted R2 analyses were applied to assess how IWFs, level of cognition and RI predicted item difficulty and DI. We finally performed post-hoc analyses of MTS stratified by RI.
Summary of results: IWFs, cognitive level and RI explained 0%, 1% and 8% of the variance of item difficulty, respectively. The corresponding values for DI were 0%, 1% and 7%. MTS was 91.9% for re-used items, compared with 76.0% for new items.
Conclusions: While IWFs and cognitive level had little effect on the students' performance, RI influenced the results significantly. In the latter case, students had significantly higher scores in re-used than in new items.
Take-home messages: Increasing the question bank or avoiding RI is important in order to maintain high quality of MCQ-examinations.

6F4

Use of patient video clips that demonstrate Neurologic findings in computer-based testing in medical school

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Background: Studies have shown the use of video clips in cases developed for medical students has advantages over text cases. One benefit is improved critical thinking processes. Learner identified advantages include: 1) More authentic representation of clinical findings 2) Increased identification of the learner in a clinical situation 3) Improvement of long-term recall. If video clips are used in instruction, it follows that they should be utilized in assessment.
Summary of work: Reports of the use of video clips of patients with neurologic findings in computerized multiple-choice (MCQ) examinations were reviewed.
Summary of results: Although there is a paucity of reported studies using video clips of neurologic findings on computerized examinations, these demonstrate the utility of such questions. The key steps for the development of items include: 1) Mapping of exam questions to the concepts and conditions used in instruction. 2) Selection of clips by expert neurologists that demonstrate typical and clear findings. 3) Application of principles of MCQ question construction. 4) Post-test analysis of item reliability and discrimination. 5) Revision of poorly performing items.

Conclusions: The use of video clips that demonstrate neurologic findings in MCQ examinations is feasible and offers advantages over text descriptions.
Take-home messages: Video clips with neurologic findings can be successfully used on MCQ examinations.

6F5

The impact of an oral exam with multiple clinical cases and examiners on the certification of Obstetricians & Gynecologists in Brazil

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Background: The certification for Brazilian Obstetricians and Gynecologists was based on a 200-items MCQ for 1100 candidates/year. A new examination combined 120 items MCQ (first phase), and 12 projected clinical vignettes supporting three short oral answers to 12 different examiners. Candidates with at least 50% correct answers on phase 1 were approved for phase 2; but final certification requested 60% for both.
Summary of work: Score means for both phases, scores for Obstetric (Ob) and Gynecology (Gyn), and reliability of each phase were calculated. The impact of adding phase 2 to the specialist exam was evaluated.
Summary of results: The reliability was 0.865 for MCQs , and 0.75 for the oral exam. The mean score was lower for phase 1 (6.48, SD=1.03), than phase 2 (7.6, SD=0.93). Scores were higher for Ob on MCQs, but similar to Gyn on clinical cases. Among the 470 candidates, 66 did not scored ≥60% for phases 1 and 2 combined, but 130 would be reproved if the criteria was based on phase 1 score < 60% exclusively.
Conclusions: Adding an oral exam with multiple examiners helped to qualify the clinical assessment for the certification of Obstetricians and Gynecologists in Brazil.
Take-home messages: The logistics and costs of the combined exam must be contrasted with the educational impact on specialist training, validity and reliability of the certification process.

6F6

Effect of structured item analysis feedback to teachers on quality of multiple choice examinations

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Background: In order to allow a meaningful interpretation of assessment data, multiple choice (MC) examinations have to disclose high validity and measure with high reliability. The aim of this study was to evaluate the effect of structured item analysis feedback provided by assessment experts on validity and reliability of subsequent examinations.
Summary of work: This feedback to almost all teachers was introduced into the 3rd year of undergraduate medical training at the University of Zurich in 2007. Various validity and reliability criteria (relevance of content, taxonomic level, psychometric characteristics) of all end of term examinations within one year before and after this intervention were compared. Other factors such as objectivity and representativeness were kept constant.
Summary of results: After the introduction of structured item analysis feedback the multiple choice questions revealed a trend towards higher relevance. Taxonomic levels remained unchanged. However selectivity and reliability coefficients increased significantly and the number of items eliminated from examination scoring due to insufficient psychometric properties decreased.
Conclusions: Structured item analysis feedback by assessment experts to teachers is a valuable tool for quality improvement of MC examinations in particular regarding reliability.
Take-home messages: Structured item analysis feedback by assessment experts to teachers is a valuable tool for quality improvement of MC examinations in particular regarding reliability.

6F7

Effect of non-functioning distracters on psychometrics of A-type Multiple Choice Questions

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Background: An ideal A-type multiple choice question (MCQ) requires fully functional distracters. However, psychometric analysis reveals varying degree of non-functionality of distracters. We examined the incidence and impact of non-functionality of distracters in 5-option items used in clinical disciplines.
Summary of work: Item response statistics of 1115 MCQs from 15 summative assessments was used and the items were classified in five groups by their number of non-functioning distracters (NFDs). The effect of varying degree of non-functionality was analyzed.
Summary of results: The non-functionality of distracters inversely affects the test reliability and quality of items in a predictable manner. The NFDs significantly made the items easier and lowered discrimination index. The cRPB revealed that the items with 3 functional options were psychometrically as effective as 5-option items. About 42.9% items with distracter non-functionality had acceptable cRPB (≥0.20).
Conclusions: The items with less number of functioning options had significantly lower test reliability and lower psychometric adequacy. An MCQ with 3 functional options provides lower most limit of item format that has adequate psychometric property.
Take-home messages: The distracter non-functionality of an MCQ should be determined by psychometric analysis and the same should be removed after judgmental analysis.

6F8

The need for combining judgment analysis with item analysis for improving quality of MCQs

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Background: Item analysis is increasingly used for judging the items. Our Examination Center caters to scoring all MCQ based assessments and reporting item analysis. The report includes reliability of the test (KR 20), list of items with extreme difficulty level, and items with zero or negative discrimination index. Though found useful, this did not address the 'flaws' in item writing, non-functional distracters, content validity or its value in facilitating learning, especially in a formative assessment setting.
Summary of work: We introduced judgment analysis, building on the concept of pre-validation. A pilot test was conducted to determine the feasibility. A 14 point checklist was used to detect flaws and rate the quality of items. We stressed this concept during our faculty development workshops and reinforced the same during meetings with course coordinators, our change agents.
Summary of results: The preliminary data showed a decline in the item flaws in the departments which introduced judgment analysis. It was well received by the participants our workshops as shown their feedback. Its long term impact needs to be evaluated.
Conclusions: Combining judgmental analysis helps in addressing both reliability and validity of items. Faculty development plays a key role.
Take-home messages: Combining judgment analysis with item analysis is not a luxury, but a necessity.

6G Short Communications: Outcome-based Education: Undergraduate Curriculum

6G1

What is a "Good Doctor"? A conjoint analysis of medical students' preferences

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Background: The purpose of this study is to consider the attributes that determine the "good doctor" to medical students.
Summary of work: A research considering the rankings for the types of doctors by asking the students' preference was carried out. The eighteen types of doctors comprise the combination of each of the seven attributes of a medical professional; Relationship with Patients, Thoughtful Explanation, Morals and Ethics, Basic Medical Knowledge, Updating of Knowledge, Diagnostic ability, and Therapeutic capability, and each of the three levels; good, average, and bad. Conjoint analysis was used to determine the relative importance of each attribute. Respondents were assigned to groups based on whether students before (Lower grade) or during (Upper grade) clinical clerkship. Medical doctors' preference was also considered.

Summary of results: One hundred and twenty-nine students and twenty-two doctors replied. Across all responders, Therapeutic capability (27%) was the most important attribute. Diagnosability (18.2%), Morals (13.5%) were the next most. Students were more concerned about Relationship (11.7%) than doctors (6.0%). Knowledge Update was the least important for students.
Conclusions: Clinical clerkship affects insignificantly to the relative importance of attributes. The least important attributes differed between students and doctors.
Take-home messages: The attributes that determine the "good doctor" differs between medical students and doctors.

6G2

Readiness of final year medical students for Lifelong Learning

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Background: The importance of preparing medical students to become lifelong learners during their undergraduate studies has been clearly evident. Commitment to learn throughout professional life is also described as an essential element of 'professionalism'. Focusing on the role of medical school, this study evaluated how ready final year medical students are to learn lifelong.
Summary of work: A questionnaire which includes 2 parts with 10 Likert type questions (4 point scale) in each part was conducted to 192 (77% percent of 250 total graduating students) final year medical students. The first part mainly consisted of questions to see how motivated they were for lifelong learning. And with the second part we tried to evaluate if they were equipped enough to carry on learning lifelong.
Summary of results: Final year medical students seemed to be motivated for lifelong learning which can be accepted as a success of our program. On the other hand, their self-initiation and info-seeking skills needed to be developed.
Conclusions: While accepting "lifelong learning" to be indispensable component of tomorrow's doctors skills; we should never forget to be sure if our graduates are equipped to do so. Any scale or study to evaluate those skills would be beneficial.
Take-home messages: Recent graduates are really conscious about their responsibilities as medical doctors but that should be sometimes questionable if medical schools are aware of their roles.

6G3

Using the Institute for Healthcare Improvement (IHI) Knowledge Domains to help analyze medical school curriculum, contents and shortcomings: A blueprint for change

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Background: When changing medical school curriculum one of the questions that should arise is whether the curriculum is ready to change and if we manage to teach students "relevant" subjects, relevant in view of changing social needs without diminishing exposure to the necessary attitude, knowledge and skills. How does one construct a curriculum that takes this into consideration with the ever increasing demands to include new knowledge in students' learning environment of medical schools?
Summary of work: 1998 IHI introduced its "Knowledge domains for health professional students seeking competency in the continual improvement & innovation of health care".
Summary of results: Medical Faculty of Iceland 2005 – 2010

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Customer knowledge	x	x	x	x	x	x
Healthcare as a system	x		x	x	x	
Variation and measurement	x	x	x	x	x	x
Leading and making changes					x	
Collaboration	x	x	x	x	x	x
Developing new, local knowledge			x	x	x	
Social context	x	x	x	x	x	x
Professional subject matter	x	x	x	x	x	x

Conclusions: We have found this publication very helpful when seeking guidance for restructuring curriculum and when applied to the curriculum as a whole. It has turned out to be much more instructive and helpful that e.g. rather large seminars held to answer such questions as "What is a good doctor and what should he

know?!" This has also been very helpful in the subsequent discussions about where emphasis should be modified as well as in the discussion of a subjects time "modification".
Take-home messages: The Institute for Healthcare Improvement (IHI) Knowledge Domains is a helpful tool to help analyze medical school curriculum, contents and shortcomings.

6G4

Ready or not? Expectations of faculty and medical students for clerkship skills preparation

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Background: While increasing attention focuses on preclerkship clinical-skills training, the extent to which preclinical faculty, clerkship faculty, and medical students agree on expectations for clinical-skills preparation for clerkships is unknown. Similar expectations would facilitate integrated and seamless student transitions to clerkships.
Summary of work: This study assessed the comparative expectations of preclinical faculty, clerkship faculty, and medical students concerning clinical-skills preparation for basic clerkships at a large medical school with a strong focus on preclerkship skills preparation. Investigators surveyed preclinical and clerkship faculty and students early in clerkships. Survey questions asked about basic and advanced skills that students need for clerkships.
Summary of results: Preclinical faculty and students had higher expectations than clerkship faculty for preparation in most basic skills. Students had higher expectations than both faculty groups for training in advanced skills for clerkships.
Conclusions: In a setting with a strong focus on clinical-skills development before clerkships, there are discongruent understandings of what clinical-skills preparation students should receive for clerkships.
Take-home messages: Preclerkship clinical-skills training programs should communicate and collaborate with clerkship faculty in setting expectations for clinical-skills preparation in order to establish common goals and increase integration of student learning. Communicating expectations to students could alleviate student anxiety about clerkships.

6G5

Implementing task-based learning in an objective based curriculum at the Medical Education Centre (MEC) at Maharaj Hospital, Nakhon Si Thammarat, Thailand

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Background: Task-based learning (TBL) has been used as a strategy for integrating problem-based learning in clinical years. The focus of this learning is on the tasks that healthcare professionals perform in daily practice. The aim of this study was to evaluate whether TBL could be of any benefit in an objective-based curriculum.
Summary of work: The Maharaj Medical Education Centre in Thailand decided in the academic year 2009, to implement TBL in year five medical students during the six-week surgery rotation. There were forty-six clinical tasks. The MEC used course aims and objectives to specify each task. A grid was built to illustrate objectives, learning opportunities and the role of staff for each task. Study guides were provided to students to assist their learning. Student assessment was done through MCQ, MEQ, OSCE and performance-based assessment. At the end of a rotation, a group interview with students was carried out and the five-point Likert scale was applied to explore any issues that students had about TBL.
Summary of results: Students acknowledged that TBL helped them achieve a broader view of need-to-know tasks, which related clinical learning to clinical practice. Furthermore, TBL promoted their professionalism.
Conclusions: TBL could be applied in practice in an objective-based curriculum.
Take-home messages: TBL has a role in an objective-based curriculum.

6G6

Integrating competencies and competency based assessment into an enterprise e-learning architecture, TUSK

Susan Albright, Isarin Sathitruangsak and Minhthe Nguyen (Tufts University, Boston, MA, USA)*

Background: Competency-based education involves clearly defined published competencies, mapped to the curriculum with assessment process matched to competencies. (Ron Harden, Medical Teacher 2002). Tufts University is working with Medbiquitous to define a standard for competency. At the same time TUSK, Tufts University Sciences Knowledgebase, an enterprise architecture for teaching and learning, is building tools to assist curriculum leaders to publish and map competencies and provide tools to assess then providing student feedback in clinical settings.
Summary of work: The planning process involved detailed analysis with clerkship leaders how the current assessment workflow would be reinterpreted in an electronic environment, and a series of successive approximations of mock-up screens showed how these tools would be used. TUSK staff applied the emerging Medbiquitous competency standard in the background.
Summary of results: The draft standard, planning process, tools created and initial results will be described.
Conclusions: Integrating competency assessment into a digital comprehensive system for teaching and learning provides access to competencies showing their connection to courses and content and then matched to tools to assess integrated in the clerkship workflow.
Take-home messages: Integrating competencies into the workflow of an enterprise system for teaching and learning with careful planning facilitates adoption and brings the promise of competency-based education a step closer to reality.

6G7
Miller's triangle and cutpoints in a competency based assessment programme at a new medical school
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Background: The international trend to competency-based assessment, with an emphasis on learning in the workplace, guided programme development at a new medical school. With a mission to address workforce shortage in regional and rural Australia, we aimed to foster and recognise a high level of clinical competency achievement. This was reflected in coordinated planning of the curriculum and competency-based assessment programme.
Summary of work: An instructional design approach was applied at the programme level, and innovative features introduced. Miller's triangle, a hierarchical framework to define expected achievement levels for course learning outcomes, was modified with the addition of a higher level to reflect expectation for demonstrated effective performance of core competencies in the workplace, by the end of the course. The Angoff procedure was used in a novel way to determine both the excellent and satisfactory cut points in the integrated written tests.
Summary of results: Following initial training and several years of experience with standard setting the Phase 1 written assessments, 'novice standard setters' have achieved greater consensus with setting both cut points. Student performance suggests that they respond well to the explicit expectations of the level of competence required in this process.
Conclusions: Novel approaches to defining achievement expectations and standard setting in a competency based assessment programme can potentially enhance and identify high levels of student achievement during the medical course.
Take-home messages: When expectations of achievement are clear and assessment methods align, student learning responds.

6H Short Communications: Clinical Reasoning

6H1
Think as a Doctor since the very first day. A new extracurricular course
D Montemayor-Flores, N Fernández-Garza and D Saldívar-Rodríguez (Universidad Autónoma de Nuevo León, Medical School, Monterrey, NL, México)*

Background: We have a Clinical Reasoning based curriculum, all subjects, clinical and preclinical, are oriented to get the diagnosis. The challenge is to teach students to solve clinical problems since the preclinical years.
Summary of work: We developed a methodological approach, to face clinical problems using cognitive skills, to be used in the course 'Think as a doctor since the very first day'. This consists of a one hour discussion

sessions twice a week, directed at medical students, no matter the grade they are in. In each session a clinical case is discussed using the methodology designed by the authors, with a specialist as moderator.
Summary of results: Twenty clinical cases were discussed, two from each of the following: Development Anatomy, Physiology, Biochemistry, Anatomy, Genetics, Pediatrics, Cardiology, Endocrinology, Surgery and Gynecology. Thirty students were regular attendants of the session. At the end all agreed the course was useful because through it they had learned a methodology to solve clinical cases.
Conclusions: This course allows students to learn a methodology to solve clinical cases no matter the grade they are in.
Take-home messages: Medicine students should have the opportunity to solve clinical cases since the first day they go into the medical school.

6H2

Unravelling students' educational needs for clinical reasoning in first clerkships

T T Wingelaar, J M Wagter and A E R Arnold (Foreest Medical School at the Medical Centre Alkmaar, The Netherlands)*

Background: Clinical reasoning early in medical education is important. However, research to uncover students' needs in education to promote clinical reasoning in early clerkships is limited. The aim of our study was to investigate these needs.
Summary of work: Following the methods of 'inductive analysis', semi-structured focus group discussions with an independent moderator were conducted. Students were included directly after 10 weeks of clerkships. The (verbatim) transcripts were coded manually and discussed by the authors until consensus was reached.
Summary of results: Saturation was reached after 3 focus groups, including 18 students in total. After a consistency and redundancy check in ATLAS.ti, 79 codes could be identified. These could be grouped into seven key themes: 'transition to the clinical phase', 'teaching methods', 'learning climate', 'student', 'teacher', 'patient' and 'strategies for clinical reasoning'.
Conclusions: Students can adequately describe their needs; of the seven key themes relevant to clinical reasoning five are in line with literature. The remaining two (patient factors and the need for strategy in clinical reasoning) have not been identified before.
Take-home messages: Students' opinions are relevant and important when designing education to promote clinical reasoning. Education in clinical reasoning can be improved by taking patient factors and the need for strategy into account.

6H3

Remediation of clinical reasoning difficulties: Where do we stand?

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Background: Recent articles have presented various theoretical clinical reasoning approaches and their consequences on teaching and clinical reasoning evaluation. However, very little is known about the detection of clinical reasoning difficulties and their remediation. It is essential to better understand the difficulties in order to provide targeted and effective avenues of solution.
Summary of work: Based on a literature review that explore the MEDLINE and PubMed databases for the 1995-2008 period, we present a synthesis of the data relating to the identification of the CR difficulties and the various remediation methods that have been developed and experimented.
Summary of results: Accordingly, we describe elements interfering with the identification of CR difficulties, such as their delayed identification, and the lack of conceptualization of these difficulties in a way useful for clinical teachers.
Conclusions: We will emphasize the winning conditions that are needed to remediate these CR difficulties, both from the standpoint of the process and the specific strategies. We will close by presenting avenues on which we are working to address these issues.
Take-home messages: We need to develop an integrated approach (specifically the development of tools, faculty processes and teacher training) for an effective remediation of the clinical reasoning difficulties.

6H4

Students' responses to the use of Venndiag to learn clinical reasoning

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Background: Venndiag is a tool developed to teach and learn clinical reasoning skills. The study is to explore medical students' response to Venndiag.
Summary of work: A workshop to use Venndiag was done to 115 fourth year medical students. A questionnaire consists of 6 questions using 5-Likert scale (0=strongly disagree, 4=strongly agree) and 2 open ended questions were distributed after the workshop.
Summary of results: Respectively, the six questions asking students if Venndiag method: 1) helps to learn clinical reasoning, 2) helps to apply theory into practice, 3) stimulates to diagnose based on literatures, 4) stimulates to think the course of disease, 5) is easy to be learnt, 6) is easy to be applied. The response rate is 100%. The response's mean are 3.10 (SD= .57), 3.06 (SD= .53), 3.12 (SD= .51), 3.13 (SD= .58), 2.80 (SD=.65), 2.5 (SD= .64) respectively. What the students most like about Venndiag is being systematic, structured, comprehensive and easy. All the students say that Venndiag need to be taught earlier.
Conclusions: Venndiag may be used to teach and learn clinical reasoning.
Take-home messages: Clinical reasoning may be taught in a systematic way.

6H5

Assessing clinical reasoning skills in nursing using Virtual Patients

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Background: Clinical reasoning (CR) in nursing covers many aspects of problem solving and decision making regarding well-being and care of patients. CR is seldom a specific topic in nursing curricula and is different from medicine. Besides a different vocabulary, CR in nursing is seldom focused on physical exams, laboratory/imaging data or medical therapy, but more on the caring process and well-being of the patient. There are problems finding good methods for assessing nursing students' clinical reasoning skills.
Summary of work: Virtual patients (VPs) were introduced as an assessment tool for CR in three different nursing courses at two universities comprising 80 students in total. Students' opinions about this assessment method were investigated using questionnaires regarding students' acceptance, adaptation to nursing procedures and the potential of the VP-based assessment as a learning experience.
Summary of results: Most students liked the assessment method. Many students thought that the VP cases were well adapted to nursing, but some wanted the VP system to be less "medical" and asked for more focus on nursing. Almost all students identified the VP-based assessment as a good learning experience.
Conclusions: A vast majority of the nursing students reported positive attitudes to VP-based assessment.
Take-home messages: Virtual Patients can be a good method to assess CR in nursing.

6H6

The best MCQ to assess Clinical Reasoning in a written examination

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Background: Our curriculum is based on Clinical Reasoning and we use for assessment MCQ because of the large number of students we have, therefore our challenge is to find a MCQ which structure allows us to assess Clinical Reasoning.
Summary of work: We developed the item MCQ based on clinical cases with or without image interpretation. Its structure includes the patient vignette followed by a Lead-In regarding diagnosis, treatment, prevention, prediction, prognosis or rehabilitation and three to five options. When required, an image is added. A known characteristic of this item is that the examinee must always know the diagnosis, even if he/she is not asked about it.
Summary of results: By using these items it has been possible to evaluate the examinee's ability to integrate information from the clinical history, diagnosis studies, treatment, etc, and therefore he/she's ability to solve a

clinical problem applying his/her knowledge. Its acceptance has been so much that it was used in a national examination.
Conclusions: The use of MCQ based on clinical cases with or without image interpretation assures the assessment of Clinical Reasoning.
Take-home messages: Assessment must be always oriented to evaluate higher order skills implied in Clinical Reasoning.

6H7
An integrated approach to assessment of clinical reasoning in early undergraduate medical students
A Linn, A Tonkin, C Gannon and H Kildea (Medicine Learning and Teaching Unit, University of Adelaide, Australia)*

Background: The University of Adelaide provides a six year undergraduate medical curriculum, strongly focused on integration of knowledge and reasoning. Examination of students' clinical reasoning is an important part of the assessment process, and an examination format is required that must be valid, reliable, cover depth and breadth of clinical scenarios, and also be practical given increasing numbers of medical students.
Summary of work: Integrated multi-modal clinical reasoning examinations were created for assessment of second and third year medical students at the University of Adelaide, including modified extended-matching questions, highly structured long case analysis questions, and script concordance questions. Each examination was 90 minutes in duration.
Summary of results: Total examination score correlated strongly with an examiner's "blinded" subjective measure of clinical reasoning (year two $r = 0.81$, year three $r = 0.81$). Cronbach's alpha reliability scores were year two $\alpha = 0.76$ and year three $\alpha = 0.72$.
Conclusions: A clinical reasoning examination containing integrated assessment modalities was successfully created and implemented to early medical undergraduates. Reliability and face validity were high.
Take-home messages: An integrated clinical reasoning examination can provide insight into the depth and breadth of students' clinical reasoning whilst still being practical to administer.

6H8
Clinical reasoning development in undergraduate medical education: Validation of a new clinical reasoning test
A L Da Silva, N Baylem and R Dennick (Medical School, University of Nottingham, UK)*

Background: Clinical Reasoning is one of the most important skills of a clinician. A systematic literature search shows that there is a scarcity of studies dedicated to the identification of the factors affecting the development of clinical reasoning in undergraduate medical education. Research also shows a lack of objective instruments for assessing clinical reasoning at this level able to be used with large samples.
Summary of work: We developed a simple theory-driven instrument (Clinical Reasoning Test-CRT) aimed at evaluating the clinical reasoning strategies used by medical undergraduates. The CRT addresses conceptual categories described in the medical literature as phases/steps of the resolution of clinical cases.
Summary of results: We have performed a CRT validation study based on a review by experts, a pilot study (validity and reliability) and a feasibility study (ideal number of items in the final CRT, time of response per item, ideal environment of response).
Conclusions/Take-home messages: We propose that CRT can become a useful tool to research and assess clinical reasoning. Further research into clinical reasoning development and assessment in undergraduate Medical Education is necessary.

6I Short Communications: Curriculum Planning

6I1
New medical schools, regional campuses: Post-Flexner medical education
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Background: The United States and Canada are experiencing growth in the numbers of medical schools and regional campuses. These schools are developing novel and unique curricular approaches, accompanied by different approaches to the development and governance of the curriculum, and organization of the educational program. In each case, the goal of the school is to deliver a medical school curriculum that truly prepares physicians for practice in the 21st century.
Summary of work: Information has been collected from consortia of new and developing medical schools, regional campuses, and all accredited USA and Canadian medical schools, and regional campuses. This information is being made widely available. The information will be used by schools to determine what works, mistakes to avoid, how to implement new programs.
Summary of results: Educational programs are using distributed medical education, incorporating social justice, avatars, simulation, interprofessional training, competency-based education, and "pushing the envelope" of curriculum design.
Conclusions: Educational programs are delivered outside of the University and have shifted to focus on the social mission, patient-centered care, using innovation and sharing their approaches.
Take-home messages: Flexner's University based educational model is no longer viable. Medical education is in a post-Flexner era and there has been significant change.

6I2

Putting Abraham Flexner's heritage into a proper perspective

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Background: During the century that has passed since the publication of the Flexner Report, the status of its author, Abraham Flexner, has assumed almost mythical proportions. Yet, especially in Europe, his aims and views have often been misinterpreted.
Summary of work: Flexner has often been credited for inventing the curriculum that bears his name – featured by separate preclinical and clinical phases – and held responsible for the predominance of the lecture format and for strict compartmentalisation. In addition, he has mistakenly been viewed as a representative of the American government who forced sub-standard medical schools to close and as someone who had no eye for the role of ethics in medical education.
Summary of results: In contrast to these common beliefs, however, Flexner held a very explicit but relatively complicated view of medical education and in many of his ideas he was far ahead of his time. For example, he was an early proponent of what we now call student-centered learning ("professional education is self-education").
Conclusions: Flexner and his work will have to be placed into a broader educational context and perspective, to allow for better understanding of his views and his contribution to medical education.
Take-home messages: Ensure you understand Flexner's views and his role in the development of medical education if you refer to his work.

6I3

Using a Clinical Presentation Curriculum in veterinary education: Vomiting dog

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Background: There is an obvious gap between veterinary education and professional expectations (outcomes) encountered by recent veterinary medicine graduates. One of the most important reasons of this discrepancy is the conventional curricula, which rely on hypothetical-deductive reasoning model (backward reasoning or disease-centered veterinary education).
Summary of work: The aim of this study was to construct a module of CPC which would serve as an appropriate educational model for veterinary medicine in 21st century. The current educational direction is from the disease to manifestations while experts start from clinical presentation and go forward using key predictors to discriminate major categories, subcategories, disease classes and differentials in most instances. In a research project a vomiting dog was chosen as a module.
Summary of results: All relevant data was extracted from reference books and the initial scheme was designed based on physiological and pathophysiological mechanisms. Five major mechanisms causing

vomiting were chosen as visceral, vestibular, cortical, metabolic and chemical causes. Three series of focused questions were answered and the prototypes in different levels of scheme were chosen
Conclusions/ Take-home messages: In general less diagnosis time, integration of basic and clinical sciences and strengthen the mentor-student relationship are the advantages of CPC.

6I4

Using action research to improve an undergraduate paediatric teaching programme

T Bindal (Alexandra Hospital, Department of Paediatrics, Worcestershire, UK)*

Background: Increasing UK medical student numbers has impacted on providing adequate hospital teaching. In this study, Warwick Medical School used Action Research (AR) to find the most effective way of delivering the paediatric teaching programme (PTP).
Summary of work: The AR pre-step explored teaching problems. Implementation of the AR cycle incorporated planning, action, observing and reflection. Fundamental to AR was teaching faculty and students' direct engagement as co-research participants.
Summary of results: The pre-step stage identified three key educational themes; curriculum delivery, patient access and addressing learning objectives. Several change options were considered in the planning stage. Taken forward was the option of student placements at one hospital instead of at both a teaching and district general hospital. PTP changes, including extra community placements and alternative teaching methodologies, were viewed positively. The principal researcher made both student and faculty observations during the PTP. Faculty and students' reflections completed the AR cycle. Students appreciated new teaching activities but requested more traditional bedside teaching.
Conclusions: Capacity issues were addressed by abandoning the traditional 'Hub and Spoke' model with teaching delivered at one hospital site. Ongoing AR cycles are needed to continue to develop community-based learning.
Take-home messages: AR was an effective tool in the management of training placements for increasing student numbers.

6I5

1001 nights.....the impact of Arabic/Islamic civilization on medical education

A Alhussaini, O Alhussain and A Junaidi (Sultan Qaboos University, College of Medicine, Muscat, Sultanate of Oman)*

Background: This is a review of the impact of Arabic/Islamic civilization on medical education from the time before Islam until the fall of the Abbasid Empire mid of the thirteenth century A.D.
Summary of work: Reviewing the different important aspects of medical education at that time and drawing similarities with the current modern trends.
Summary of results: Great emphasis on the importance of communication skills, ethics, licensing and attitudes towards patients and basis of research. One example, of many, mentioned in the presentation, is that the first licensing process was established in Baghdad during the Caliph Almuqtadar reign at the end of the 10th century.
Conclusions: Many of the current trends in medical education basis where laid down many centuries back by the so called Hakeem, an Arabic word meaning the wise, knowledgeable and experienced chief physician.
Take-home messages: Our ancestors have played a major role in setting up the current trends and practice in medical education.

6I6

The process of evaluation of programme outcomes of the veterinary curriculum

Peter van Beukelen[1] and Hellen van der Maazen[2] (Utrecht University, Faculty of Veterinary Medicine, [1]Quality Improvement in Veterinary Education; [2]Education and Student Affairs/Office for International Cooperation Utrecht, The Netherlands)*

Background: In 2006 Programme Outcomes of the Veterinary Curriculum, Utrecht University have been described, from general profile to detailed lists of skills and of diseases and syndromes. It was decided to evaluate the lists biannually. The evaluation process is described.

Summary of work: In 2008 an evaluation committee was installed, which draw up a detailed scheme for this process. Broad consultation of veterinary practitioners and faculty staff was incorporated in the process. Consultants were asked which items should be added, altered or removed from either of the lists, which adaptation of competency and knowledge levels should be made, and why.
Summary of results: Consultation of 22 veterinary practitioners and 91 faculty staff resulted in 89 respondents (79%). All recommendations were judged and elaborated by pairs of committee members per organ system. 4 committee members made a final uniform assessment of the adjustments. The 89 responders received the proposal for adjustments, with specific questions to comment on distinct omissions and inconsistencies. 13 consultants replied concerning content. The final version was drawn up and decided on in 2009.
Conclusions: This process lead to broadly supported, adjusted outcomes.
Take-home messages: In order to obtain state of the art Programme Outcomes and achieve commitment broad, structured consultation of alumni and teaching staff is recommended.

6I7
Impact of student choice on academic performance
M J Murphy, O J Remers, R De A Seneviratne and M H Davis (University of Dundee, UK)*

Background: Student choice has been an explicit strand within the undergraduate curriculum since 1993. In practice, the degree of student choice actually exercised varies; matching of allocations to preferences is rarely perfect. Some medical schools also allow students to design their own SSC modules thus giving student choice its fullest expression. It is not clear if student choice affects academic performance.
Summary of work: We studied students who entered medical school in 2004 and categorised them into those who in second and/or third year designed at least one of their own SSCs ('self-proposed'), and those who did not. We used chi-squared goodness-of-fit test to compare the two groups longitudinally from years one through four in terms of academic performance in standard-set examinations. We hypothesised that those who self-proposed might acquire skills associated with better academic performance.
Summary of results: Students who self-proposed did better in first year (chi-square 28.3, $p<0.0001$), and in second- (chi-square 10.6, $p=0.014$) and third-year (chi-square 20.2, $p=0.0002$) OSCE examinations, and fourth-year written examinations (chi-square 10.73, $p=0.013$). Performance in other examinations was similar.
Conclusions: Our findings do not provide convincing evidence that self-proposal affects academic performance. It seems more likely that better students self-propose.
Take-home messages: We found little evidence that student choice affects academic performance.

6J Short Communications: Patient Safety

6J1
Patient safety: Creating an undergraduate spiral curriculum
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Background: The first step in improving patient safety is a reform of medical education, embedding a safety culture into undergraduate practice. At Leeds Medical School patient safety sits at the heart of the newly developed curriculum.
Summary of work: The patient safety curriculum review team (comprising of nurses, primary care and secondary care physicians) designed an innovative programme integrating core patient safety theory into clinical practice, spiralling, with increasing complexity, throughout the undergraduate curriculum; including clinical placements and medicines management. Links into regional postgraduate training were created.
Summary of results: Novel OSCE assessments for MBChB finals are already in place and validated, assessing patient safety skills essential for professional practice (e.g. handover, decision making, management of deteriorating patients). Formative assessments via an e-portfolio are planned. A validated student questionnaire will assess attitudes to patient safety. Measuring the impact on clinical practice is more challenging, but plans to assess cultural changes to patient safety in foundation doctors are in place.

Conclusions: It is vital to integrate safety culture throughout undergraduate training, although measuring the subsequent impact on professional practice is a challenge.
Take-home messages: Key to an effective undergraduate patient safety curriculum: 1) A local multidisciplinary curriculum development team, 2) Integration throughout the curriculum using a spiral process, 3) Training the facilitators.

6J2

Necessity to introduce 2nd year medical students to communications and teamwork for patient safety: SBAR

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Background: SBAR as an innovative way to give communication framework at undergraduate medical students before their clerkship and hand-off activities.
Summary of work: Before a 90 minutes simulation learning activity, medical errors from poor communications are introduced to 2nd year medical students in a reflective manner: a real life article to reflect on, as preliminary homework. The workshop starts with a hypoglycaemic simulation demanding a respond in teams. Afterwards, a live interactive touch-pad survey is conducted about issues of communications and attitudes with results juxtaposed with the purpose of introducing SBAR. After information about SBAR is provided, and a opportunity to practice with a simulated patient follow up scenario and hand-off is held. The survey is repeated.
Summary of results: Our work and 2 surveys are presented for discussion.
Conclusions: We believe that 2nd year medical students need to appreciate that communications is important to conduct their professional affairs including team work, motivating them for improvement in knowledge and practice in this area.
Take-home messages: SBAR is included in our curriculum to improve teamwork and patient safety.

6J3

Students' perceptions about patient safety during the transition from undergraduate to postgraduate training: An activity theory analysis

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Background: The importance of patient safety in the undergraduate curriculum is widely understood. Students in a transition phase from undergraduate to postgraduate education will increasingly encounter, and be aware of, problems concerning patient safety. Existing research on learning about patient safety in this phase is limited with regards to the use of work based learning theories.
Summary of work: The aim of this study was to gain an in-depth theoretical understanding of what problems concerning patient safety students encounter during clinical practice. We carried out a qualitative study of 34 final year undergraduate students, using focus groups. We used a constant comparative analysis to identify the most important themes and used activity theory to interpret the results.
Summary of results: Eight general themes were identified: building up trust, taking responsibility, indicating boundaries, receiving responsibility, relation with a supervisor, balance between training and patient safety and organization of the hospital. All themes were interrelated and influenced each other. The use of activity theory enhanced the understanding of the complexities of learning patient safety in clinical practice.
Conclusions/Take-home messages: The use of activity theory analysis revealed several difficulties that students are confronted with while learning about patient safety in this transition phase. Knowledge about the complexities of learning patient safety is essential to improve education about patient safety.

6J4

In-role simulation for real clinical teams: Human factors training

N Jenkins, N Gardiner*, M Piper and S Corbett (Northumbria Healthcare NHS Foundation Trust, Tyne and Wear, UK)*

Background: Our Patient Safety Simulation Group (PSSG) is delivering real team, in-role simulation exercises to promote Human Factors and Non-Technical Skills in hospital medicine.

Summary of work: The group consists of a nurse practitioner and an Occupational Psychologist, supported by senior clinicians. The Safety Days consist of activities to promote an understanding of human factors and encourage change in team behaviours. In-role simulations developed with the clinical teams are used to develop a team development action plan. Prior to the Safety Days the PSSG team visits the clinical team to discuss patient safety issues and perform a Safety Attitude Questionnaire (SAQ). The groups are visited 4-6 weeks after the Safety Day, the SAQ is repeated and the implementation of the action plan is reviewed.
Summary of results: Results of six Safety Days are presented. The SAQ data is reviewed alongside action plans and event feedback. Barriers to fulfilling the action plans are reviewed.
Conclusions: Changing group behaviours through learning events requires not only effective course content and delivery but an understanding of the factors that promote transfer of the behaviours to the clinical arena.
Take-home messages: Teams that work together should train together. Everyone is motivated to improve patient safety. Education in patient safety must be part of the organisational strategy.

6J5

Ensuring patient safety during medical student clinical attachments

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Background: The most recent edition of Tomorrow's Doctors emphasises the role of medical schools in ensuring the protection of patients and minimising the risk of harm as a result of the training of medical students (Tomorrow's Doctors 2009)
Summary of work: Following a major curriculum review, first year medical students at the University of Aberdeen undertake a hospital ward attachment. Hospital clinical staff had not previously met these students in clinical settings. The opportunity was taken to review existing systems to ensure that risks to patients are minimised whilst providing a high quality learning experience for students.
Summary of results: The systems and required communications were not always explicit, did not necessarily include the multidisciplinary team and relied on the close relationships between clinical educational supervisors and curriculum leaders. Whilst in the past concerns had readily and appropriately been communicated it was felt that the system was not robust and it was therefore redesigned. We will report on the system changes and the results of student, staff and patient evaluation after one year.
Conclusions: A comprehensive system has been developed which has been positively received and will be rolled out throughout the curriculum
Take-home messages: Ensuring patient safety and the best learning environment requires clear communication regarding responsibilities of staff.

6J6

The WHO checklist is vital, but staff theatre etiquette skills may be as important in reducing errors in arthroplasty theatre

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Background: WHO guidelines reduce, but do not prevent errors. We studied errors commonly occurring in Orthopaedic theatres.
Summary of work: Two independent observers studied compliance of WHO checklists and theatre etiquette, for one surgical team. All Personnel were observed. Data was categorised into errors with WHO checklists or theatre etiquette.
Summary of results: 12 arthroplasty cases were observed with 66% compliance with WHO checklists. The most common errors related to implant availability and displaying imaging. In total, 102 errors occurred, the majority being breaches of theatre etiquette. Only 6% were attributable to the consultant surgeon and 7% to the consultant anesthetist. 22% of errors were made by inexperienced assistants and 23% by scrub nurses. Floor staff created the most at 30%.
Conclusions: The majority of cases were WHO compliant. The most frequent theatre etiquette errors were by inexperienced scrubbed personnel and floor staff. Traditionally, medical personnel are not taught theatre etiquette.
Take-home messages: WHO checklists do not prevent errors. The majority of errors are breaches of theatre etiquette, which are infection control issues in arthroplasty procedures. Standardised teaching of theatre etiquette may reduce these risks.

6J7

Use of an online problem-based radiology referral module improves safe radiological referral

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Background: Poor quality radiology referrals result in: potentially incorrect examination on the wrong part or wrong patient. Workflow inefficiencies due to poor radiology referrals (RR) are a common problem. Informal 'on the job' training in referral occurs during the intern year, which is clearly non-uniform and time inefficient
Summary of work: To establish competency in our institution an audit of intern radiology referral (RR) slips was performed. We compared RR from new interns (first month in intern year) with RR in eighth month. An online e-learning module was chosen to avoid detracting from time in small group teaching/film box tutorials. Pre and post-module assessment was performed.
Summary of results: There was a marginal improvement in overall test scores in the second audit period Mean score: 51% improved to 82% (p=<0.001). Interns performed far better in the clinical aspects of RR. Practical elements were poorly done and there was minimal improvement over the 8 months. The radiology referral module (RRM) effectively improved general and practical skills, demonstrated an improvement in the medical student skill base that exceeded the results of 8 months of intern experience.
Conclusions: The inclusion of an online radiology module has highlighted important referral issues to medical students in a structured manner and prior to entering employment. A 12 week module was more effective than 8 months on-the-job training in improving referrals.
Take-home messages: Use of a problem-based online radiology module can significantly improve undergraduate knowledge and proficiency in radiology referral.

6K Short Communications: Student Characteristics

6K1

Relations among well-being, commitment and satisfaction in Finnish medical schools

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Background: We measured medical students' commitment to studying in relation to their well-being and perception of their learning environment. It was also of interest, whether students in a problem-based environment differed from other students.
Summary of work: Medical students from three Finnish medical schools (N=622) answered the MED NORD questionnaire. Commitment to studying and satisfaction were correlated with exhaustion, stress, anxiety, feedback, workload, worrying, disengagement, optimism, task avoidance, and lack of self-regulation.
Summary of results: Commitment correlated positively with optimism, and negatively with anxiety, task avoidance, lack of self-regulation, exhaustion, stress, and disengagement. Satisfaction correlated with feedback and optimism, and negatively with disengagement, high workload, and worrying. The PBL students experienced significantly more exhaustion and stress than students in traditional curricula, but PBL students were more optimistic and experienced getting more feedback.
Conclusions: Optimism appeared to be important for both commitment and satisfaction. Commitment was related to experience of well-being. Satisfaction was related to the positive perception of the learning environment. PBL students were more stressed and exhausted, but this did not appear to have an impact on their positive attitude. This was interpreted as a constructive friction between the students and the PBL learning environment, where the students were challenged to develop.
Take-home messages: Positive perception of the learning environment may significantly contribute to satisfaction and compensate experiences of stress and exhaustion.

6K2

Emotional Intelligence and academic performance in medical students

James Herron[1], Phillip Evans[1], Elizabeth Austin[2], Guy Coady[1], Jonathan O'Hare[1] and John Magill[1] ([1]University of Glasgow; [2]University of Edinburgh, UK)*

Background: Emotional Intelligence is related to academic performance in medical students. The aim of this Student Selected Component was to investigate this relationship.
Summary of work: Medical students completed a modified validated 41-item questionnaire, measuring EI, empathy and the 'Big 5' personality traits. A total of 94 students correctly completed the questionnaire. Data was blinded maintaining confidentiality and impartiality. EI, empathy and the 5-traits were then analysed in relation to academic results from written examinations, coursework and MILE (medical independent learning exercise). The data was processed and analysed for correlations (Pearson), significance, reliability and differences.
Summary of results: The questionnaire measured the constructs well with internal reliabilities for each greater than 0.7 – openness 0.7, neuroticism 0.71, extroversion 0.82, agreeableness 0.75, conscientiousness 0.7, emotional intelligence 0.88 and empathy 0.91.
Conclusions: The data shows that conscientiousness is significantly linked to performance in the MILE and in coursework. None of the other 'Big 5' traits, EI or empathy were found to have a statistically significant correlation with academic performance. EI was found to be significantly positively correlated with empathy, agreeableness, openness, extroversion and conscientiousness. Neuroticism was found to be significantly negatively correlated with EI.
Take-home messages: 1) Conscientiousness is a significant predictor of academic success. 2) This may suggest that the current medical curriculum rewards conscientiousness whilst neglecting other desirable traits such as openness and agreeableness. 3) More investigation is required to determine possible correlations between EI and its associated constructs and the more clinical aspects of medical training.

6K3

Measures of creativity and response pattern to adversity: Missing attributes in medical education assessment

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Background: Study medicine requires remarkable mental effort and tolerance toward stress. Despite that, thinking skills and response pattern to adversity are attributes rarely assessed. This study aims to develop questionnaires measuring Creativity and Response Pattern to Adversity (RPA) in medical students and to examine their relationship with academic year, GPAX, and gender.
Summary of work: The questionnaires were developed based on Guilford and Stoltz's works. Content was validated by experts and constructs by factor analysis. Creativity consisted of Elaboration; Fluency/speed; and Innovation subscales with alpha value of .78, .75, and .75, respectively. RPA consisted of Perceived Control/Responsibility (PCR) and Emotional Tolerance (ET) with alpha value of .83 and .81, respectively. 655 medical students completed the questionnaires. Relationships between each Creativity and RPA subscales and academic years, GPAX, and gender were examined.
Summary of results: Clinical year, compared to Pre-clinical, was likely to increase Creativity in all subscales adjusted for other variables (p-value .06 to <.001). The higher the GPAX, the more likelihood of an increased Fluency/speed and Innovation subscale (p-value <.01 to <.001). Being female increased ET subscale (p-value=.01).
Conclusions: Creativity and RPA were developed and tested. Patterns of relationship between academic year, GPAX, and gender and Creativity and RPA subscales varied.
Take-home messages: Creativity and Response Pattern to Adversity are attributes that can be systematically measured. Some subscales are related to academic year, academic achievement, and gender.

6K4

Both male and female students include work-life balance in their ideal future: An analysis of an open question

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Background: With a gender shift in medicine, worries have been raised for a change in work attitudes and a shortage of full-time working physicians. There is conflicting evidence on whether the priority of work-life balance is gendered or not. We explored the contents and gendered patterns of medical students' future life expectations.
Summary of work: The study was cross-sectional and conducted in Sweden. Eight classes of medical students answered an open question about their ideal future. Recurring phrases were clustered into categories. We then compared the proportions of the categories between male and female, first and last term, students.
Summary of results: Work-life balance was a common consideration among both male and female students, however, women at last term were the most career-oriented and the most family-oriented among the students. One group of male last term students was more oriented towards leisure at the expense of work.
Conclusions: Our results support a generational and not a gendered shift in the desire for work-life balance.
Take-home messages: If the desire for work-life balance is not exclusive for women, then the challenge lies in treating men and women who want work-life balance equally.

6K5

The World Health Organisation Quality of Life Questionnaire: Usefulness for medical education

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Background: To measure the notion of quality of life, an abbreviated version of the World Health Organization Quality of Life Questionnaire, the WHOQOL-BREF, was developed which encompasses the physical, psychological, social relationships and environment domains.
Summary of work: The aim of the study was to appraise the usefulness of this instrument in measuring medical students' quality of life. In 2009, quality of life of fourth and fifth year medical students at the Auckland Medical School in New Zealand were measured using the WHOQOL-BREF.
Summary of results: Normative data has been generated and several psychometric techniques have been applied to the data. The Cronbach statistics revealed reasonable reliability measures for each of the 4 domains: Physical (0.76), Psychological (0.79), Social (0.74), and Environmental (0.75). Correlations with self-efficacy (a comparison measure) included Physical (0.31), Psychological (0.27), Social (0.15), and Environmental (0.23) – all were significant at the $p<0.05$ level. A factor analysis was also implemented to investigate the factor loadings.
Conclusions: The WHOQOL-BREF is a self-report system that has many advantages, namely access to norms from diverse communities, good research profile, cost effective and time efficient.
Take-home messages: 1) Future research needs to develop more students' norms so that comparison across university populations can be made. 2) Quality of life (QOL) is an important facet of medical education and the WHOQOL-BREF is useful information for assessing medical students' QOL but reliance on self-report systems has inherent problems. 3) How do we measure QOL and how can we discern whether medical students have a good quality of life or not?

6K6

Raising a family while earning a medical degree? A study on supporting factors to the career-family-life balance of the medical education in Germany

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Background: Considering the difficulty of combining a career in the medical profession with starting a family and the increasing rate of involuntary childlessness of academic women a new approach to career-family balance including the stage of medical education is needed.
Summary of work: By collecting qualitative and quantitative data of studying parents at five Medical Schools in Germany in 2009/2010 the living and study experience of the students is analyzed while being able to contrast supporting and hindering factors at individual as well as university level.
Summary of results: Our study aims to reduce the educational disadvantage of students deciding to start a family while earning a medical degree. By examining the individual factors and the university support that enables a successful study performance while raising children it is shown how universities can assist the students by providing them with the necessary resources.

Conclusions: Gaining a better understanding of the specific experiences of studying parents within the medical education will help implement a support structure at the universities and thereby raising the study performance and well-being of studying parents.
Take-home messages: Increased career-family life balance for studying parents can enhance the students' satisfaction and provide universities with a valuable competitive edge.

6K7

Use of a parallel process PBL case to induce behavioural change in first semester medical students
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Background: Medical students may not recognize defects in their study habits, under-utilize student support services and frequently disregard faculty study and wellness recommendations until they fail exams. We designed a parallel process PBL case to increase student awareness of these issues.
Summary of work: All first semester students participated in a PBL case involving a failing, sleep-deprived, drug-using student who finally presents at the academic counseling center. The case requires research into various learning theories, evidence on how sleep, alcohol and drugs affect learning and self-reflection on academic performance and behaviors. Anonymous surveys were administered to 544 students and 42 facilitators, focusing on the effect of the case on student behaviours.
Summary of results: This semester's survey results will be combined with those of the next cohort for presentation at the conference. Anecdotally, a number of students commented that the case brought to mind their own study habits and self-medicating behaviors and several students self-referred to the academic success program as a result of studying the case.
Conclusions/Take-home messages: Offering students an opportunity to discuss and reflect on a fictional peer in a familiar situation may help them to adjust their behaviours and seek assistance early enough to prevent failure.

6L Short Communications: Standard Setting and G Theory

6L1

Minimum Performance Level (MPL) vs Minimum Danger Level (MDL) in a high stake OSCE
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Background: A physician's first duty is to do no harm to a patient. If a candidate's score equals or exceeds the MPL, the candidate is declared competent. However, a candidate score maybe above the MPL yet inflict harm to patient(s). The purpose of this study was to examine the frequency competent candidate's inflicted harm to patients in a high stakes OSCE.
Summary of work: In 2006-2009, a 20-station OSCE was administered to a total of 161 physicians. Of the 20 stations, 3 are deemed critical – where inappropriate management could harm the patient - a score below the MDL. There were 2 observers within the critical stations and one in non-critical stations.
Summary of results: Of 161 candidates that took the exam, 26 (16.1%) displayed performance below both the MPL and MDL, 14 (8.7%) were below the MPL and above the MDL, and 99 (61.5%) were above both. Of note concern was the 22 (13.7%) who were above the MPL but inflict harm to one or more simulated patients.
Conclusions: In subspecialties where harm can be inflicted onto patients, it is recommended that OSCEs have both a MPL and MDL. A significant number of candidates 121 (75.2%) were found to be above the MPL yet 22 (13.7%) performed manoeuvres that harmed a patient(s).
Take-home messages: MPLs and MDLs may be needed to identify physician competence in subspecial licensure examinations.

6L2

Choosing an appropriate standard setting method for undergraduate surgical examinations
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Background: There are many standard setting methods involving various types of decisions from teachers to get estimates of probability that a borderline examinee would answer an item correctly. Researchers investigated which method surgical teachers could determine probability estimates that corresponded with actual item difficulty levels (p-value) from examinations.
Summary of work: Surgical teachers employed four methods of standard setting: acceptability index (AI), Ebel, Nedelsky, and modified Angoff. Over a two year period, teachers from one surgical department developed, reviewed, and set passing standards for 260 and 141 items for fourth- and fifth-year medical students, respectively. We examined Pearson correlations between the probability estimates and p-values for all items.
Summary of results: Correlations between p-values and probability estimates obtained from AI, Ebel, Nedelsky, and modified Angoff methods were 0.26 ($p < 0.05$), 0.32 ($p < 0.05$), 0.15 ($p < 0.05$), and 0.02 (p = ns).
Conclusions: Modified Angoff method worked well for items in general, vascular, head-neck, and trauma surgery. Ebel method worked well for items in urology, neurosurgery, and cardiothoracic surgery.
Take-home messages: Ebel method provided surgical teachers with a framework to determine a passing standard that correlated with item difficulty the most, especially in highly specialized content. However, in certain content areas, modified Angoff method worked well.

6L3

How to use absolute and norm-referenced standard setting techniques to award classified Honours degrees
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Background: Students at the Bute Medical School graduate with a BSc Honours Degree (Medicine) before completing their clinical training at partner medical schools. This programme meets the University requirements of a Honours degree while providing training appropriate for clinical practice.
Summary of work: Assessment methods need to measure both absolute competency in clinical skills whilst permitting academic discrimination necessary for a classified Honours degree in all of the 5 modules whose grades are aggregated to determine the Honours classification.
Summary of results: In the Honours modules the Angoff method of absolute standard setting is used to determine the boundary between Honours and non-Honours performance (i.e. the cutpoint for competency and progression). The subsequent boundaries between the different degree classifications are determined by norm-referenced methods using a statistical analysis of the exam results obtained. The mean mark ±1 standard deviation provides a guideline for the degree class boundaries. Moderation of these cutpoints is carried out in consultation with our External Examiners. Credit-weighted module grades are used to calculate the Honours degree classification using the University algorithm.
Conclusions: Mixed methods of standard setting can be used to satisfy the requirements of both a B.Sc Honours and traditional M.B. Ch.B degree.
Take-home messages: Standard setting can be used to classify Honours Degrees.

6L4

Do examiners favour their own kind? A study of examiners' grades by their own and their candidates' gender, ethnicity and background
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Background: UK examinations are mindful of their duty in law "to promote fairness" across defined population groups (e.g. by gender and ethnicity). There is pressure to appoint examiners who mirror the candidature's demographics. Some examining bodies report very different pass rates between such sub-groups in clinical examinations. We wished to ascertain whether examiners behave dispassionately or "favour their own kind".
Summary of work: There were 2792 'takes' of the 13-station (12 + 1 pilot) MRCGP Clinical Skills OSCE Assessment (CSA) in 2009. All provided information on their gender and country of primary medical training, and 99% on their ethnic background. 257 examiners were involved: the gender, ethnicity and country of primary medical training of all were ascertained. We analysed the marks given in 36,296 case encounters according to candidate/examiner pairings of ethnicity, gender and location of undergraduate training.

Summary of results: There was no consistent tendency for the examiners to favour their own find – by gender, ethnic group, or as a foreign- (vs UK-) trained doctor.
Conclusions: RCGP examiners were behaving dispassionately and not acting in an unfairly discriminatory way.
Take-home messages: It may be less important than has been suggested to recruit examiners who exactly mirror the candidates' demographics—which is very difficult if demographic patterns change rapidly.

6L5

G-Theory: Applications and outcomes in a modern medical school

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Background: Generalisability (G) Theory provides the statistical framework for exploring sources of measurement error in assessment. It can be used to examine the reliability of assessment and the impact of potential changes to the assessment format.
Summary of work: We will examine the areas in which G can best be utilised and look at the type of information it can provide. This will be done by reviewing its extensive use throughout Peninsula Medical School (UK), what we find when we use G-theory with each assessment, and the effect of changes to our own assessment system.
Summary of results: Data will be presented that demonstrates that G can provide a good estimate of reliability for progress testing of applied medical knowledge, clinical examinations, professionalism judgements and other areas of assessment. We will also examine the potential impact of changes in those assessments and how it can inform best practice.
Conclusions: G-Theory can provide a reliability estimate without the underlying assumptions that can confound more widely accepted reliability measures. It provides the basis for answering questions both about existing reliability, and the reliability of hypothetical changes in the assessment structure.
Take-home messages: G-Theory is a powerful tool with many uses that should be in every medical school's assessment toolbox.

6M Research Papers: The Teacher

6M1

Validating a questionnaire for evaluating veterinary clinical teachers' supervisory skills during clinical rotations

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Introduction: Clinical teachers need feedback to help them reflect on their supervisory skills and improve their clinical teaching. Based on the cognitive apprenticeship model for student learning during clinical rotations the Maastricht Clinical Teacher Questionnaire (MCTQ) was developed (Stalmeijer 2008). The MCTQ is filled out by students and is aimed at measuring the extent to which individual clinical supervisors can be provided with feedback about their supervisory skills. The research question was: Is the MCTQ valid and reliable in a veterinary context with rotations where clinical teachers supervise students for shorter periods, with a minimum of one to two days?
Methods: When validating an instrument a broad range of validity evidence should be pursued (Beckman, 2005). Four sources of validity evidence were investigated: content, response process, internal structure and relations to other variables. Content validity was ensured because the tool was based on the Cognitive Apprenticeship model. A pilot study was conducted to explore the response process. In total 1190 MCTQ-questionnaires evaluating 110 teachers were used. A confirmatory factor analysis was conducted and correlations were computed between the MTCQ and overall satisfaction with the rotation. A generalizability study was performed to test the reliability of the instrument.
Results: The pilot study led to small changes in wording and four extra questions measuring the influence of the specific teaching context. Statistical analyses demonstrated that a five-factor model comprising 15 items fitted the data well: learning climate, modelling, coaching, articulation and exploration. Correlations between

the five factors and the overall score varied between .39 and .53. Ten to twelve questionnaires per teacher led to reliable factor scores.

Discussion and conclusion: Four sources of validity evidence were taken into account in this study. The results demonstrated that the MCTQ is a valid and reliable instrument to evaluate teachers in the short veterinary rotations. A fifth source of validity evidence was not explored: consequences. Future research should address the impact of using the MCTQ for faculty development purposes on the teachers' behaviour. For example, what is the clinical teachers' perception about the usefulness of this feedback and do clinical teachers really improve their behaviour based on the feedback?

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6M2

A faculty development programme for teachers has been assessed as effective

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Introduction: Faculty development in education aimed at improving teaching is nowadays frequent in many countries. In Sweden teaching courses with national learning outcomes comprising 10 weeks are compulsory for positions and tenure since 2002. Lund University, Faculty of Medicine, has a ten week education programme in three progressive steps (two, three and five weeks respectively). By 2008 about 460 teachers (including tenured teachers, clinical professionals, post-docs and PhD-students) from several health professions had participated in the first course in the program. A systematic review of the effectiveness of similar initiatives has recently been published[1]. The purpose of the present study was to provide an external evaluation of the functioning of mentioned program as support for development of the desired learning outcomes, and to identify and suggest areas of improvement.

Methods: A questionnaire was designed for self-assessment by participants on reaction, learning, transfer and results[2]. The questionnaire involved 4-point Likert scales items, and was distributed electronically to the 467 participants. Homogenous focus group interviews were performed with PhD-students, undergraduate education directors and faculty developers. The empirical material was analysed with respect to both numbers and contents.

Results: The response rate was 50%. Several participants had taken part in more than one course in the program. Respondents were pleased with the design of the courses (90% 3-4), they had learned new knowledge (2.9-3), skills (2.7-3.2) and changed attitudes (3.1-3.3). They assessed changes in their own teaching (2.8-3.0) and also in the quality of the teaching in their settings (2.5-2.7). Results from focus groups indicated that there is a need for more training in facilitation and feedback and a need for a continued development of the competence of the teachers after the courses.

Discussion and conclusion: The course programme was assessed as well designed and effective. The interviews indicate that other interventions than improvement of the courses could be more cost-effective if the ultimate goal is quality improvement of the education of the students. These include selection of participants, reception of participants after the courses and systematic evaluation of the teaching and its results. A system of continuing education for interested teachers and a system for rewards for those teachers were also considered beneficiary toward the same end.

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6M3

Clinical teachers as role models in different specialties and across residency years: The SETQ Study

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Introduction: Medical educational reform should include enhancing role modeling of clinical teachers. This requires that faculty be aware of their role model status and performance. This study has 3 objectives: (i) to examine if teaching qualities of faculty and being a specialist role model for residents are related, (ii) to

explore if residents across specialties and residency years perceive clinical educators as specialist role models equally, and (iii) to quantify the contribution of teaching qualities to between-faculty differences in being seen as role models by residents.
Methods: The System for Evaluation of Teaching Qualities (SETQ) was developed to generate individualized feedback on teaching qualities for clinical educators. Residents of (non-) academic teaching hospitals were invited to assess the teaching qualities of faculty and their role model status for residents as future medical specialists. Statistical analyses included (i) Pearson's correlation coefficients to indicate the strength of the associations between being seen as a specialist role model and each five previously defined teaching qualities (learning climate, professional attitude towards residents, communication of learning goals, feedback and evaluation), (ii) cross-classified hierarchical linear regression modeling to estimate the impact of the teaching qualities on 'being seen as a specialist role model' and (iii) outcome variance decomposition analysis to investigate the between-faculty variance in being regarded a role model.
Results: 407 residents (74.1% response rate) completed a total of 4123 evaluations of 662 faculty. Main findings are: (i) All teaching qualities were positively correlated with faculty being seen as role models by residents, with 'evaluation of residents' showing the lowest and 'learning climate' the highest correlations. (ii) Faculty most likely to be seen as good role models are those rated highly on the teaching qualities 'giving feedback', 'creating a positive learning climate' and 'a professional attitude'. Residents' views with regards to the relative importance assigned to the teaching qualities do not seem to vary much across residency years but do vary across specialties. (iii) Among residents, about 70.5% of between-faculty differences in their being seen as specialist role models could be explained by their teaching qualities. This explained percentage was consistently higher among senior (years 4 to 6) than junior (years 1 to 3) residents, being as high as 84% among fourth-year residents.
Discussion and conclusion: Good clinical educators are more likely to be seen as specialist role models for most residents. Many of the predictors of being seen as a role model are clinical teaching skills that can be acquired.
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6M4

A cross-sectional study on preceptors' attitudes toward Lifelong Learning at the workplace
T Frada, P Aguiar, A P Salgueira and M J Costa (Medical Education Unit, School of Health Sciences, University of Minho, Braga, Portugal)*

Introduction: Lifelong learning (LL) requires a commitment to autonomous improvement of physician's competence. At the clinical workplace learning is mostly "experience-based". Therefore, it is likely that preceptors' attitudes toward LL will impact students. A study in North America revealed that commitment to LL varies according to specialties being lowest for primary care physicians. As undergraduate medical education increasingly migrates into community-based family medicine settings, this is a disturbing conclusion. This study evaluates orientation toward LL of attending physicians at 5 hospitals (n=284) and 15 primary health care centres (n=220) in Portugal and explores associations of current attitude and self-reported awareness toward LL as undergraduates. Research Question: Do physician attitudes toward lifelong learning vary between specialties and workplaces? Do physicians who self-report strongest undergraduate awareness toward LL actually show higher orientations to LL in clinical practice?
Methods: 507 physicians (59% response rate) filled the validated Portuguese adaptation of the Jefferson Scale of Physician Lifelong Learning (JSPLL-vP) (1) and marked their level of agreement with the statement: "I consider/believe my undergraduate program has raised my awareness toward LL" (1= strongly disagree, 2=disagree, 3=agree, 4=strongly agree). Mean score differences by specialty and type of institution were calculated. Correlations were determined between JSPLL-vP scores and: i) age; ii) self-reported undergraduate awareness to lifelong learning.
Results: Significant differences in attitudes to LL were found between specialties ($F(10, 496)=5.65$, $p<.001$). The highest scores were registered for paediatricians ($M=64.4$; $SD = 5.9$), cardiologists ($M=63.3$; $SD=5.9$). The lowest were found for radiologists ($M=56.0$; $SD=7.7$), family doctors ($M=57.7$; $SD=6.2$). Physicians working in hospitals scored higher than those working in primary health care centres ($M=61.4$, $SD=7.4$ vs $M=57.9$, $SD=6.4$) - $F(1, 502)=30.19$, $p<.001$. This study also exposed a decline in LL scores as age increases, $r(491)=-.28$; $p<.001$, and a significant positive correlation between self-reported undergraduate awareness to LL and JSPLL-vP scores in professional life, $F(2, 499)=15.88$, $p<.001$.

Discussion and conclusion: Significant variations were found on attitudes toward LL between specialties and also between institutions. Family doctors were among the specialties least oriented to LL. The similarities between this multicentre study in Portugal and the previous report from North America, provide the first empirical evidence for cross-cultural patterns of LL variation. Specialists who self-reported the strongest undergraduate awareness show the strongest attitudes to LL, suggesting that medical schools may play an important role in the development of graduates' positive attitudes toward LL.

(1) Salgueira AP, et. al. 2009. Acta Med Port.;22:247-256.

6M5

FReLe-Q: Development and validation of an instrument to assess teachers' qualities in reflective teaching

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Introduction: In recent years the development of professional behaviour has become a vital part of medical education. A prerequisite to develop professional behaviour is the ability to reflect on experiences and on one's own behaviour in a professional work situation. 1 An effective method to facilitate this learning process is practising reflection in small groups. Since this kind of reflection requires elaborating on personal experiences, the small group setting needs to be trustworthy and safe. In addition, reflecting is a complex skill. The combination of these two facts implies that the facilitators of these groups need specific teaching qualities. 2 To be able to determine and improve these specific qualities, assessment of teacher performance is needed. We developed and validated a questionnaire to measure teaching qualities of teachers in small groups to Facilitate Reflective Learning (FReLe-Q).
Methods: The co-authors screened an initial list of 241 quality items derived from literature and practical experiences on face validity. After reducing this initial list to 80 items, teachers of professional development courses (N=17) rated the items' relevance, which resulted in a further reduction to 47 items. Then medical and speech & language therapy students (N=679) rated their own teachers. Principal Components Analysis with varimax rotation was applied to investigate the internal structure of the instrument.
Results: The FreLe-Q was completed by 463 students (68%). The PCA yielded three components: supporting self insight, encouraging self regulation and creating a safe environment, explaining 44.3 percent of the variance. Eliminating items loading on more than one component and items with non-significant loadings did neither change the classification of items nor the interpretation of the scales. The final 36-item FReLe-Q displayed high reliability with alphas of 0.95 for the scale, and 0.91, 0.86 and 0.86 for the respective subscales.
Discussion and conclusion: The three FReLe-Q factors corresponded closely with educational theories, which present three educational functions as vital to achieving high-quality learning. The fact that the FReLe-Q covers these essential aspects supports the validity of our instrument. In addition, the FReLe-Q addresses those teaching qualities highlighted in reflection literature as important. The FReLe-Q can be recommended as a practical and valid tool in small group settings to examine which teaching qualities need improvement or change to optimize reflective learning of students. Future research should focus on the applicability of FReLe-Q in contexts in which students are taught individually in reflective learning.

1 Stern, D.T. 2006. Measuring Medical professionalism. Oxford University Press.
2 Harden RM & Crosby J. The good teacher is more than a lecturer – twelve roles of the teacher. Medical Teacher 2000;22:334–347.

6N Workshop: Young medical educator workshop: How to frame a clear research question

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Background: Medical educators new to the field often struggle establishing research projects. One of the most difficult and important tasks is framing a clear research question. This workshop is focused on strategies and criteria for people relatively new to medical education to define their own clear research questions.
Intended outcomes: At the end of the workshop participants will be able to critically review and optimize their own research questions.

Structure: A short introduction on criteria of well defined research questions will be given presented. Participants will work with their own ideas for research questions. Some examples of research questions from participants will be discussed with the facilitators and the audience to verify that established criteria are being met. Next, participants will be asked to review their own research questions in pairs. The results will be shared and feedback provided.
Who should attend: Young medical educators interested in starting research in medical education.
Level of workshop: Beginner.

6O Workshop: Dundee Poly-professionalism Inventories: A method to teach and self-assess healthcare professionalism in undergraduate contexts

S Roff[1], M Chandratilake*[1], S McAleer*[1] ([1]Centre for Medical Education, University of Dundee, UK)*

Background: The regulators of healthcare professionals around the world have recommended incorporating professionalism into undergraduate curricula. Healthcare professional educators and fitness to practice committees face the challenge of developing teaching and assessment methods which take in to account the consensus standards of professionalism in a given context and acceptable cost-effectiveness for use in large student cohorts. The Dundee Poly-professionalism Inventories I and II were developed to assist with some of these challenges.
Intended outcomes: At the end of this workshop, participants should be able to: conceptualise professionalism in relation to undergraduate education; identify the main features of the Poly-professionalism inventories; evaluate the usefulness of these inventories for their own contexts; and develop skills to use them.
Structure: The workshop will begin with conceptualising professionalism in relation to undergraduate education, and an introduction to the two inventories. Subsequently, participants will engage in hands-on experience of both inventories. This will be followed by a discussion during which participants' queries will be answered. The workshop will be concluded with a session in which the resource persons share their views with participants on maximising the usefulness of these inventories in different contexts.
Who should attend: Academics who are interested teaching and assessment of healthcare professionalism in undergraduate context.
Level of workshop: Intermediate.

6P Workshop: Teaching CanMEDS at the bedside

L Snell and S Razack* (The Royal College of Physicians and Surgeons of Canada, Ottawa, ON, Canada)*

Background: The CanMEDS framework has been adopted in many jurisdictions, at all learner levels. Clinical teachers need to match CanMEDS competencies with effective teaching and learning strategies in the clinical context. This workshop will demystify CanMEDS (What is CanMEDS, how it developed, what are the roles, why they are important); discuss teaching/learning strategies used to foster the development of the competencies; outline how to teach more than one competency during the same clinical encounter; and practice the strategies.
Intended outcomes: Define & describe the CanMEDS framework, competencies & roles; Outline effective strategies for teaching and learning the CanMEDS competencies; Discuss teaching the competencies in an integrated manner (integrated with each other & into a clinical encounter); Demonstrate how the roles can best be taught in the clinical context.
Structure: • Introduction of participants, goals ; • Interactive lecture: CanMEDS framework; • Discussion: teaching strategies useful for each role; •Small groups (using worksheets): - Observation of bedside teaching 'vignettes' - Identify 'teachable moments' specific to each CanMEDS role - Discuss strategies to enhance learning from these teachable moments -Practice teaching with group feedback; • Discussion on integrating multiple competency teaching in same clinical encounter.
Who should attend: Clinical Teachers Curriculum Planners Faculty Developers.
Level of workshop: Intermediate.

6Q Workshop: Addressing unethical behaviours

R Hays[1] and R Worthington*[2] ([1]Bond University, Faculty of Health Sciences and Medicine, Gold Coast, Queensland, Australia; [2]Keele University, School of Medicine, Stoke-on-Trent, UK)*

Background: The workshop leaders have been researching this topic for several years, and a poster presentation of preliminary findings at Ottawa 2008 (Melbourne) marked the start of an international dialogue. This is 'work in progress', and with additional partners at Yale University, the intention is to share best practice and compare approaches to unprofessional behaviours from different perspectives, considering how UG and immediate PG schools and institutions approach similar problems in different countries.
Intended outcomes: 1. Raised awareness about behavioural issues that can arise during undergraduate and immediate postgraduate medical training, including how such problems might be handled. 2. Informed judgment that can be applied in similar cases featuring serious, non-academically related professional concerns.
Structure: After a short introduction delegates will work in small groups to review some composite cases. A feedback session will enable delegates to share their responses with the larger group, giving them the chance to share any concerns, and to clarify take-home messages applicable to their home institution or professional body.
Who should attend: Staff with fitness to practise responsibilities; personal and professional development leads; students interested in professional behaviours; clinicians in training and leadership roles; medical regulators.
Level of workshop: Intermediate.

6R Workshop: Constructing problem-based learning cases: hands-on training

Samy A. Azer (King Saud University, Professor of Medical Education, Medical Education Unit, College of Medicine, Riyadh, Saudi Arabia)

Background: Although training medical students and tutors is important for successful implementation of a PBL program, constructing authentic, engaging and integrated cases is vital. This workshop will provide participants with key elements of a PBL template, and principles for developing authentic, and integrated cases.
Intended outcomes: Participants will have a greater understanding of key elements of successful cases; how to use the criteria/principles discussed in assessing cases, and designing new cases that address the intended learning objectives.
Structure: Participants' previous experience of writing PBL cases will be briefly explored. There will be then two short presentations on key elements of PBL template and principles for constructing educationally effective cases. Participants will then be divided into groups and asked to use the principles learnt in developing the educational objectives, a trigger and an outline of a PBL case. Outcomes will be brought together in a plenary session at the end.
Who should attend: Medical and health educators, directors of medical and/or health units, PBL authors.
Level of workshop: Intermediate.

6S Workshop: Introduction to Team Based Learning

R Kamei, J Puthucheary and S Cook (Duke-NUS Graduate Medical School, Singapore)*

Background: Duke-NUS (DNUS) opened in 2007 and is modeled after the Duke University School of Medicine curriculum in the US. Unique to DNUS however, is the use of Team-Based Learning (TBL) to deliver its one year pre-clinical curriculum. Initial results using this strategy has demonstrated that DNUS students performed as well as US students on the NBME-CBSE in half the curricular time and scored significantly higher after an equivalent amount of time after matriculation.
Intended outcomes: Participants will understand the basic instructional strategy of TBL, describe the different components of the TBL process, and understand the differences (including advantages and disadvantages) between TBL and Problem-Based Learning. They will consider whether this approach might be useful for their teaching.

Structure: The workshop will begin with a 10 minute introduction to the reasons why DNUS decided to use TBL to present the pre-clinical curriculum to its students. The use and development of TBL at DNUS will be described. Participants will then experience the TBL strategy. The workshop will end with a final discussion involving attendees' perception of the barriers to implementing a similar program at their own institution.
Who should attend: Faculty, educational administrators.
Level of workshop: Beginner

6U Posters: Staff Development

6U1

Implementing formative course-based assessment in a faculty development course

S Maha Ibrahim[1], M Fouad Ahmad[2] and Uno GH Fors[3] ([1]Medical Research Institute, Alexandria University; [2]National Tempus Office-Cairo; [3]Virtual Patients Lab, Department of LIME, Karolinska Institutet, Stockholm, Sweden)*

Background: Formative course-based assessment continues throughout the period of learning and aims at learning enhancement. This research investigates the reactions of faculty members to such assessment's activities.
Summary of work: A faculty development course about designing online courses and which has different formative assessments strategies was developed and offered over the past few years to an average of 20 participants per offering. The course drew participants from seven Egyptian medical schools. Extensive assessment statistics were collected and instantly presented for participants' discussions.
Summary of results: Participants' responses to the course's formative assessment activities were positive. 88% gave high rating for pre and post quizzes as content understanding strategies. Participants were asked to assess the course's modules and discuss possible teaching and assessments improvements. 83% agreed that such discussions enhanced their understanding of the course content and encouraged deep thinking. 71% agreed that peer assessments enhanced motivation by making assessments collaborative activities.
Conclusions: Learning enhancement throughout the course was observed as the average scores for post quizzes were about double that of the pre quizzes. Participants unanimously agreed that the course stimulated their desire to learn.
Take-home messages: The additional effort for formative assessment is worth investing in view of enhancing learning and adjusting the teaching process to accommodate participants' needs.

6U2

The whole is greater than the sum of its parts: Collaborative delivery of a course designed to surpass regulatory standards

H McNeill[1], A Jones*[2] and J Cochrane*[1] ([1]Edge Hill University, Faculty of Education, Ormskirk; [2]North Western Deanery, UK)*

Background: In order to meet the requirements of PMETB the North Western Deanery commissioned Edge Hill University to jointly develop and deliver a PGCert in Workplace Based Postgraduate Medical Education.
Summary of work: The course consists of three modules delivered by blended online and face-to-face delivery. The modules are sequentially planned to prepare Clinical Supervisors, Educational Supervisors and Educational Leads and utilise a variety of bespoke teaching materials and learning activities. The course, whilst compulsory, is designed to be highly flexible to accommodate the demands of balancing work and study. A distinctive feature is the close collaboration between academic and clinical tutors during both the development and delivery of the course.
Summary of results: 120 Specialty Trainees along with a small number of consultants and NCCGs commenced module 1 in Sept 2009. A further cohort of 140 commenced in March 2010. Data will be presented that illustrates the extent of participant engagement with the course and will include an initial assessment of the online group interactions and informal participant feedback.
Conclusions: The majority of participants engaged despite attendance being compulsory. Work is ongoing to establish the impact on long term educator behaviour.
Take-home messages: Joint clinical academic work using a model which allows delivery to large numbers is feasible.

6U3

Summative assessment at the course "Art of Medical Education"

M Vrcic-Keglevic, G Pavlekovic, S Kukolja-Taradi, A Smaljcelj, M Lovric-Bencic and D Anticevic ("A Stampar" School of Public Health, University of Zagreb, Croatia)*

Background: The main activity of the Croatian Association for Medical Education is to organize courses for further development of medical teachers: formal, designed for young teachers and thematic workshops for experienced teachers. The main aim of formal course is to acquire basic principles of medical education (knowledge, skills and attitudes).
Summary of work: Several assessment methods, pre-course, formative and summative, are used. During a pre-course assessment participants should submit an essay with motivation and expectation from the course. Formal assessment includes pre-test (MCQ, self-assessment and peer-assessment methods. Final assessment is provided in three ways: a) short essay about the participants' achievements during the course written by the teachers (experience, motivation, participation, constructiveness, strengths and weaknesses), b) assessment of project work - educational module prepared in written form, according to predefined criteria, c) assessment of the oral presentation of educational module in front of the teachers, according to predefined criteria.
Summary of results: The participants receive a formal certificate and a written essay including the teacher's opinion about their strengths and weaknesses, with the recommendations for the future advancement.
Conclusions: The assessment methods used in the teachers' training courses for the purpose of certification should be carefully selected.
Take-home messages: The assessment methods used in the teachers' training courses should reflect future professional development.

6U4

Cascading faculty development: A new approach to educating clinical supervisors

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Background: Most hospital doctors are clinical supervisors (CS). Few receive training for this role. PMETB now requires all CS in the UK to be trained. Given the numbers involved this is proving challenging. Does a 'cascade' model for faculty development work?
Summary of work: The East of England Deanery worked with the University of Bedfordshire to design a faculty development model based on 'community of practice' principles to ensure access to training for CS across our region. 2 experienced medical trainers from each hospital took part in a 2 day preparatory course and were encouraged to adapt a new 1 day CS course (focussing on learning-needs analysis, questioning skills, feedback, workplace based assessment and trainees in difficulty) to meet local needs.
Summary of results: Quantitative analysis of evaluation data of central courses suggests high levels of satisfaction with the training. Qualitative thematic analysis identified how delegates valued courses, satisfied their personal development needs as CS, and felt equipped to run local courses. Evaluations of local courses will also be presented.
Conclusions: Faculty prepared to run local courses for CS were successfully recruited and engaged fully in the experience-based model of training. Local courses are now running across the region and initial feedback is positive
Take-home messages: Preliminary analysis suggests that a cascade model for faculty development of CS is effective.

6U5

Forging ahead: Experiences of collaborative working to develop an innovative educator development programme

Kathy Duffy[1] and Cathy Sherratt*[2] ([1]North Western Deanery, Manchester, [2]Edge Hill University, Ormskirk, UK)*

Background: Postgraduate deaneries in England are responsible for ensuring that doctors who deliver and assess medical education are fit for purpose and meet regulatory (PMETB) Trainer Standards. We will describe the innovative collaborative approach taken by the North Western Deanery to achieve this.

Summary of work: The Deanery aimed to facilitate a pathway for trainers to develop expertise as medical educators and to support their career development. A detailed specification was developed for an innovative modular postgraduate programme mapped to educator roles: Clinical Supervisor, Educational Supervisor and Educational lead. A key feature of the specification was active collaboration with a university, to ensure credibility of the programme and facilitate ongoing flexibility. Edge Hill University was commissioned to work with the deanery.
Summary of results: The joint programme team, comprising colleagues from the deanery and university, collaborates on curriculum development, delivery, programme administration and evaluation. The first cohort commenced in September 2009. The authors will present key experiences of inter-institutional joint working.
Conclusions/Take-home messages: 1) Benefits of partnership: enhanced learning experience for participants (benefiting from both clinical and academic input), development of deanery educator team. 2) Lessons learned: respecting organisational cultural differences, establishing clear responsibilities, open communication, regular process review.

6U6

Psychopedagogical support to the residents: Space of activation to integral practices in health
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Background: This is meeting space, reflection, support and guidance to individuals involved in the process of teaching and learning by developing pedagogic advice for residents and preceptors.
Summary of work: Construction of spaces activation of integral practices, allowing (re) think about ways to learn/teach and do in health. Hosting, support and guidance in individual or group, guided by the continuing education and national curriculum guidelines, pivot clinical, educational and institutional.
Summary of results: Identification of partnerships, awareness of the common problems of residency programs, approach to education and teaching methods, reaffirming the need for reflection on training, teaching methods and work process, reconstruction of the identity of the preceptor, development of dialogical relations between preceptor and resident, strategy as tutoring, rescue the role of residence in shaping attitudes and values of residents and improve the assessment instruments.
Conclusions: Locus that performs its activities in line with the proposal to teach by doing and thinking critically, enabling care, integration, interdisciplinary assessment and process of tutoring and work, enabling constant learning process activation change in the formation of professional.
Take-home messages: Preceptors and institution involved in this process, not as supporting roles, but partners in a chain of actions, manufacturers of educational opportunities and encouraging civic practices.

6U7

The personal, relational and contextual - key factors in health professional educators' academic identity
S Lieff, L Baker, B Mori, K Chin and S Reeves (Centre for Faculty Development at St Michael's, University of Toronto, Canada)*

Background: Professional identity is a dynamic construct that encompasses how individuals understand themselves, interpret experiences and are recognized. For health professional educators, their 'academic' identity is situated within their academic community and may play a role in well being and productivity. The literature offers limited insight into its formation. This study aims to understand the factors that contribute to academic identity within the context of a development program for health professional educators.
Summary of work: Using a case study approach, we explored three cohorts of a two-year faculty development program through written reflection papers (115) and semi-structured focus group interviews (10). Data were analyzed for emerging issues and themes related to academic identity.
Summary of results: A number of inter-related factors emerged as salient to the formation of academic identity. We grouped these factors into three domains: personal (individual cognitive and emotional factors), relational (connections and interactions with others), and contextual (the broader environment).
Conclusions: We conceptualize these domains as the 'target model of academic identity formation'. Our findings suggest that faculty development initiatives not only develop competence, but also can fundamentally influence academic identity formation.
Take-home messages: Faculty developers need to consider this model in their design and evaluation in order to better meet participant and organizational needs.

6U8

Capacity building in the Faculty of Health Sciences, University of the Free State in a parallel-medium and multicultural working environment

J Bezuidenhout (University of the Free State, Bloemfontein, Free State, South Africa)*

Background: Staff development sessions that are offered address the particular needs of staff as identified through deliberation within the Faculty. The needs of staff differ and are unique in nature as they are directly applicable in their area of work. An evaluation questionnaire was handed out at all sessions attended. Through the questionnaire one can ascertain if the needs identified are addressed and if any changes need to be made. Lecturers were evaluated using a evaluation questionnaire in order to improve the quality of lectures offered and to build capacity amongst lecturing staff.
Summary of work: Quantitative and qualitative responses were obtained from all staff who attended staff development sessions from 2006 to 2009. Qualitative responses indicated whether changes in the sessions offered needed to be brought about, and any other comments were also collected as answerable to qualitative methodology. Lecturer assessments focused on the quality of the lectures offered in a parallel medium and multicultural environment in order focus on quality of presentations delivered and to build capacity.
Summary of results: Staff needs as identified are addressed in building capacity. Quality improvement and planning to better future sessions was addressed through quality of staff development. Lecturer assessments were experienced positively and aspects of lecture improvement were addressed.
Conclusions: Staff development and lecturer adds value and assists in building capacity within a parallel medium and multicultural working environment to address aspects of quality within the Faculty of Health Sciences.
Take-home messages: Striving towards excellence through capacity building.

6U9

Does a 'Teaching Genetics' course change the way clinicians teach?

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Background: Genetics impacts on clinical practice for many healthcare professionals (HCPs). Education in genetics is therefore important at all stages of training. In the UK, specialist genetics staff (doctors and genetic counsellors) provide genetics education for a wide range of HCPs but their training in teaching varies.
Summary of work: In 2008, the NHS National Genetics Education and Development Centre set up a three-day 'Teaching Genetics' course for genetics specialists which has run seven times. The course covers basic educational theory and practical topics including engaging participants, setting learning outcomes, designing a teaching session, teaching different sized groups and evaluation. Participants receive peer-feedback on their delivery of a scenario-based presentation and a report on a teaching session.
Summary of results: Feedback forms were analysed. The 48 participants from the first three courses made 190 comments on changing their teaching practice. Key themes included: improvements to personal teaching and presentation skills, improving planning and structuring sessions, using external resources, making sessions relevant to audiences, encouraging active learning, using cases or scenarios for relevance and engagement.
Conclusions: The course has had an impact on how specialist clinicians teach genetics for non-specialist HCPs. A longer term evaluation will also be reported.
Take-home messages: Appropriate teaching courses can change clinicians' teaching practice.

6U10

Needs for self-development of supporting staff at the medical education centers in Thailand

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Background: The Collaborative Project to Increase Rural Doctor Production (CPIRD) of the Ministry of Public Health Thailand makes use of a number of supporting staff in facilitating medical teachers delivering clinical teaching at the Medical Education Centers (MECs). This study aimed to explore the need for self development of the MEC supporting staff.

Summary of work: Postal questionnaires were sent to all CPIRD's Medical Education Centers (MECs) for 136 supporting staffs in 2009 and 101 (74.3%) replied. Data analysis was performed using t-test and one way analysis of variance.
Summary of results: The academic qualifications of the respondents were diverse. Their need for self-development in medical education was high in all aspects as follows: educational quality assurance system, teaching and learning administration, assessment and evaluation, research, curriculum development, and information technology. The differences in age, educational background, working experience and training experience show no statistically significant difference in the need for self-development ($p > .05$).
Conclusions: Needs for self-development in medical education of the MEC supporting staff were individualized.
Take-home messages: A survey of the needs for self-development could be useful for effective individual development plan.

6U11

An introductory course on teaching and training for diabetes health care professionals in Grampian 2006-9

H Robertson, A Cadzow, A Keen and K C McHardy* (Diabetes Centre, Woolmanhill, Aberdeen, UK)*

Background: Releasing the potential for diabetes self-management can be optimised by the skills of health care professionals (HCP) to successfully educate patients. The course was designed to enable a small class of diabetes HCP from a variety of backgrounds to increase their understanding and confidence in providing patient education.
Summary of work: During 3 days over 6 weeks, a class of up to 12 HCP attended workshops run by 3 experienced clinical educators with commitments in clinical diabetes. Formats including discussion and facilitated and unfacilitated group-work were used in conjunction with various media (DVD, role-play and Conversation maps, and allowed the faculty to address and model a variety of educational issues and techniques. Theoretical topics such as experiential learning, giving feedback and preferred learning styles supported practical sessions.
Summary of results: It has been completed by 44 diabetes HCP including, 8 dieticians, 8 podiatrists, 15 nurses, 11 doctors (5 consultant diabetologists) a fitness instructor and a pharmacist.
Evaluation showed that delegates increased their awareness of teaching skills and methods consequently encouraging many to reflect on and modify their practice.
Conclusions/Take-home messages: Investment in training health care professionals in the facilitation and support of patient education has considerable potential for enhancing patient care and self-management.

6U12

Master's degree and fellowships in health practitioner teacher education: Examples of academic creativity in action

Helen P Batty, Abbas Ghavam-Rassoul, Shirley Lee and Lynn Wilson (University of Toronto, Department of Family and Community Medicine, Toronto, Canada)*

Background: This innovative Graduate School program in Clinical Education stimulates clinicians with scientific training to explore new personal modes of academic communication and dissemination.
Summary of work: Samples of student work will be provided showing a critical approach to pedagogy employing academic methods from the humanities as encouraged and supported by the curriculum, and implemented using Glassick's criteria design for evaluating scholarly activity.
Summary of results: Outcomes include water colour paintings, book reviews, personal professional portfolios, interactive workshop designs and games for students and patients. Clear goals, adequate preparation, appropriate methods, significant results, effective presentation and reflective critique are all demonstrated.
Conclusions: Appropriately designing Graduate School, Fellowship work and Faculty Development programs can be a major strategy to enrich and validate clinician teachers' inherent humanism and creativity.
Take-home messages: Clinicians benefit from and enjoy education programs stimulating artistic expression and reflective critique.

6U13

Teaching psychology of learning in a medical education masters program, based on an historical structure set in classical Greek roots and philosophical/psychological offshoots

F Michael Seefeldt, Andleeb Arshad and Mohi Eldin Magzoub (College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia)*

Background: KSAU-HS initiated its highly student-centered Masters in Medical Education in 2007 (AMEE2008). Taught by 12 faculty with over 125 years experience in 15 countries, it emphasizes educational theory, practice, research and leadership, over ten core blocks in four semesters, including a masters project.
Summary of work: This presentation features how the second block, Learning Theory, is perhaps unique in all of medical education, establishing its roots in classical Greco-European thought, from Heraclitus, Socrates, Plato, and Aristotle, through Baconian empiricism, Descartian rationalism, 18th century British Empiricism, German Enlightenment, Wundt's experimental psychology, etc. Hence it moves to behaviorism, Gestalt psychology, cognitivism and constructivism, all centered in time-honored basic questions: nature vs nurture, noumena vs phenomena and empirical vs rational knowledge. It analytically explores where the great learning theories of the past century place their philosophical and methodological emphases, and surveys their varied contributions to the understanding of human learning from those respective positions.
Summary of results: Though the course is very difficult and covers much new material for Saudi students, evaluations are typically very high. These includes quantitative data and qualitative, for example comments pertaining to the historical core-lineage underlying the block.
Conclusions/Take-home messages: Learning issues are not isolated, but part of a centuries-long continuum of disputation, across cultures, disciplines, and eras.

6U14

Outcomes of staff development program in a clinical training hospital

K Sriruksa (Khon Kaen Hospital, The Ministry of Public Health, Thailand)*

Background: Many new medical education centers were established in general hospitals as clinical training sites for medical students. A practical staff development program was needed to ensure the training quality.
Summary of work: A hospital-wide questionnaire survey was done as need analysis before designing the content and activities of the program. There were 2 types of activities to accommodate the time-constrain among teaching staffs: luncheon meeting and in-house workshops. The timing and topics of the workshops were tailored to individual department requirement. The program evaluation was done by questionnaire at the end of academic year.
Summary of results: There were 17 luncheon meetings and 3 in-house workshops included 70 (45%) staff. Fifty percent of these had never attended medical education. Up to 100% of departmental staff attended the workshops. The most frequent teaching skills used in practice were written examination, clinical teaching and assessment. These were the most frequent taught topics in the program. Staff who did not attend the program were less confident with their teaching skills. All staff wanted to participate but the barriers were lack of time and not receiving information.
Conclusions: The staff development program was successful because all participants made use of the skills taught. Effective program advertisement may attract more participants.
Take-home messages: Need analysis is essential in designing staff development program to fit the faculty requirement.

6U15

Potential new examiners for the Clinical Skills Assessment Examination: Where do they go wrong?

P Foreman and M L Denney (RCGP Exam Dept, London UK)*

Background: The Royal College of GPs operates a rigorous selection process for the appointment of new examiners. Potential new examiners (PNEs) must pass an Applied Knowledge test before being invited to attend a selection day at the college. During the selection day PNEs take part in a number of group exercises designed to look at specific behaviours such as team working and problem solving. PNEs are also assessed on their ability to rank order and accept feedback on their performance.
Summary of work: The outcome of 5 selection days over a 12-month period from 2007 to 2008 was investigated. The reason for each PNEs lack of success was established.
Summary of results: 55 PNEs attended the selection days. 21 PNEs were unsuccessful. Inability to demonstrate adequate problem solving and team working skills on the selection day were the 2 commonest reasons cited for failure.

Conclusions: Team working and problem solving were cited more commonly as a cause of PNE failure than problems with marking.
Take-home messages: The CSA examination requires high levels of team working and problem solving skills in order for the group calibration of cases to be successful.

6U16

Reflective practice: Its application in Faculty Development

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Background: Reflective practice is a continuous process of learning from experience. Combined with evaluation, this can be an effective strategy for faculty development characterized by continuous planning, implementation, reflection and evaluation.
Summary of work: We developed a framework for reflection of four faculty development workshops. The criteria were: to what extent the objectives had been clarified, the content was relevant, the workshop was interactive, resource materials were adequate, the faculty was effective, the time management was good, the venue and physical facilities were optimum and the workshop objectives had been attained. Against each criterion, we used qualitative analysis to record participants' observations and our reflections. The 'gaps', between them led to recommendations and practical guidelines for planning future programs.
Summary of results: The programs required advance notification to solicit 'right' participants, lessening of didactic elements, meticulous planning of group work, optimum utilization of time, and evaluation of impact on the participants' practice. Previous programs were useful but needed diversification. This implied capacity building, incentives, organizational support and leadership.
Conclusions: Reflective practice provides a practical tool for stock taking and charting future growth. Subjectivity can be overcome by dispassionate and neutral attitude of the researcher.
Take-home messages: Reflective practice combined with program evaluation, can be useful exercise in faculty development.

6U17

How to enhance faculty development through on-line discussion with email

Alessandra Vitorino Naghettini[1], Cristiane Barelli[2], Antonio Amorim[3], Ieda Aleluia[4], Paulo Marcondes Carvalho Junior* and Edna Regina Silva Pereira ([1]Universidade Federal de Goias, Goiania; [2]Universidade de Passo Fundo, Passo Fundo; [3]Universidade Federal do Mato Grosso, Mato Grosso; [4]Escola Bahiana de Medicina e Saude Publica, Salvador, Brazil)*

Background: In Brazil there is a national initiative for faculty development. This program has a monthly on-line discussion on medical education themes.
Summary of work: The process of discussion consists on specific tasks during the month. On the first week participants received a paper on the subject and then they need to answer an electronic survey. For those who answered the survey, two articles were sent by direct email. On the second and third weeks participants discussed the survey and articles using the listserv. The responsible group for the discussion made a qualitative and quantitative analysis of the results and discussion. There are ghost-busters to stimulated group participation.
Summary of results: 41% of all participants had answered the survey. At the end participants and the responsible group felt they had learnt during the month discussion. Splitting the discussion on phases helped the process. Ghost-busters could increase even more participants' discussion.
Conclusions: It was a very important experience for the responsible group. The results obtained were shared with all participants and the discussion was rich, with deep group reflection.
Take-home messages: The on-line discussion can be an important tool to improve faculty development and email can be used to do so.

6U18

Evaluating doctors as teachers and educators (DATE): Does doing DATE as a student make a difference to teaching practice after qualification?

M F Anwar, V Cook, J H Fuller and Sukhi Dhariwal (Barts and The London, Queen Mary School of Medicine and Dentistry, Institute of Health Sciences Education, London, UK)*

Background: The Doctors as Teachers and Educators (DATE) programme was set up in 2007 at Barts and the London in response to the GMC's recommendations requiring undergraduate medical students to 'learn about teaching'. It is a 2-day programme that is largely practical and offers final year students an introduction to educational theory and teaching skills and prepares them for their future teaching role as junior doctors.
Summary of work: Research was carried out to ascertain the impact of DATE on the later teaching practices and perceptions of junior doctors i.e. does the programme influence the way they teach those who are junior to themselves? The research used questionnaires and focus groups to evaluate this impact. A proportion of junior doctors in the north-east Thames Foundation Programme are Barts and the London graduates who have undertaken the DATE programme. The study invited all foundation year doctors at various sites within local Trusts to take part in the questionnaire. Subsequently, samples of doctors were selected for focus groups to compare approaches to teaching between DATE graduates and those with no formal background in education.
Summary of results: This presentation reports on the findings of this study.

6U19

Evaluating the efficacy of a finals revision course developed and delivered by foundation trainees: Should junior doctors teach medical students?

M S Rashid, D Gore and O Sobowale (Stockport NHS Foundation Trust, Royal Lancaster Infirmary and Salford Royal NHS Foundation Trust, UK)*

Background: The General Medical Council outlines that teaching doctors and students is important for the care of patients. Our aim was to deliver a structured teaching programme to final year medical students and to evaluate the efficacy of teaching given by junior doctors.
Summary of work: We developed a revision package for University of Manchester final year medical students sitting the Objective Structured Clinical Examination (OSCE). This consisted of lectures and small group seminars delivered exclusively by foundation doctors. Topics taught covered the core areas of medicine and surgery with a focus on specific OSCE station examples. Students were asked to complete a feedback questionnaire.
Summary of results: 121 completed feedback questionnaires were analysed. 100% stated that the content covered was relevant to their revision. 88.7% stated that the seminars gave them more confidence on those topics covered. 73.2% stated that junior doctors delivered teaching that is comparable to that of consultant-led teaching. 97.9% stated the revision course had a positive influence on their learning.
Conclusions: Our study showed that foundation doctors provide a unique perspective to exam preparation that was very well received by our student cohort.
Take-home messages: The role of junior doctors teaching medical students in a formal structured environment is very valuable and should be encouraged.

6U20

Developing teaching skills in postgraduate students

M Castro, C M Peres, M F A Colares, J F C Figueiredo, M L V Rodrigues and L E A Troncon (University of São Paulo, Ribeirão Preto, Brazil)*

Background: Proficiency in teaching skills is important for graduate students seeking academic positions at the university, but has not received attention in the masters and doctoral programs, which are very focused on science education and research.
S**ummary of work:** We introduce a training program elective for students of graduate teachers in our institution, consisting of workshops on educational processes and innovative teaching methods, interactions interprofessional learning experience, evaluation of student and course evaluation. Perceptions about this experience has been evaluated using a structured questionnaire on various aspects of the program (5- Likert scale from "very bad "to" very good ") with an open comments section.
Summary of results: The dropout rate among the 83 subscribers decreased 47% (2006) to 16% (2009). Most of the 83 respondents rated the program as very good (72% ± 4.5). The point of criticism was the short duration of the program (12% fair/poor) and bibliography (6% fair/poor). This perception was confirmed by many positive comments open.
Conclusions: Perception of the student on the program suggested that the program of teacher - meet their learning expectations, which seemed to be as valued as proficiency in the scientific field of expertise.

Take-home message: Training in teaching techniques can effectively contribute to the professional development of graduate students.

6U21

Systematic reviews of education research: Challenges, triumphs, and evidence

Tanya Horsley (The Royal College of Physicians and Surgeons of Canada, The Centre for Learning in Practice, Ottawa, ON, Canada)*

Background: Research methods, guidelines for conducting and tools for preparing systematic reviews (SR) are now widely available, particularly in the area of clinical effectiveness. Although we have seen a substantial increase in research methods and guideline development, there remains a deficit of information for other content areas, more specifically, SRs of educational research. Where there is information, it is often difficult for researchers to find. The presentation covers (1) shortcomings of SRs of education research, (2) strategies and/or tools for addressing common challenges of SRs of education research and (3) information for where to find guidelines/tools for SRs of education research.

6V Posters: Approaches to Teaching and Learning

6V1

Medical students' opinions on learning tools in pediatrics

Densriwiwat Meijinee and Sudhorm Kosa (Pediatric Department, Buddhachinnaraj Medical Education Center, Phitsanulok, Thailand)*

Background: Many learning tools have been used in medical education to maximized achievement for students. Simultaneously there were still different outcomes in each other despite they learned by the same learning tools.
Summary of work: A cross-sectional study was conducted in 2009–2010 to evaluate the favorite and unflavored learning tools in pediatric education and to determine factors affecting students'opinions. All medical students of 4th, 5th and 6th year were enrolled to answer the questionnaire that asked about personal data and opinions in all learning tools used in pediatric education.
Summary of results: 133 students responded (71.5% response rate). The lecture was the most preferred tools in all 3 years, 25.9% 39.1% and 31.0% in 4th, 5th and 6th year while the least preferred was portfolio in all 3 years for 34.5% 54.3% and 31.0% in order. Factors that influence interesting in learning tools were gender, learning achievement level and clinical year of students.
Conclusions: Lecture was the preferred and portfolio was the least preferred learning tools in all 3 years students. Interesting in learning tools had affected by multiple factors.
Take-home messages: There are different opinions on different learning tools vary by multiple student factors.

6V2

Learning styles and language proficiency does not affect format preference of lecture delivery - a study of online voice-over lecture vs traditional didactic lecture

Tp Yeow, Km Tan and Lc Loh (Penang Medical College, Dept of Medicine, Penang, Malaysia)*

Background: Voice over lecture (VoL) consisting of an online PowerPointTM slideshow with voice-over narration, coupled with a 30-minute interactive session has been compared to traditional didactic lecture in our institution with varying acceptance. We set to establish if this is influenced by learning styles and proficiency of instructional language (English).
Summary of work: Students who participated in a randomized, crossover trial comparing VoL with traditional lecture were asked to fill in perception questionnaires pertaining to the format preference and subjective proficiency in English. Qualitative data was obtained from free text. Learning styles were assessed with Index of Learning style (ILS).
Summary of results: VoL is preferred because it allows repeated study of the lecture content at the students' own pace while qualitative data revealed that vivid animation during traditional didactic lecture enhances

retention of knowledge. Although 24% students rated themselves to have limited working proficiency in English, this is not associated with preference for VoL. Learning style scores are not associated with format preference.
Conclusions/Take-home messages: Preferred format of lecture delivery is variable among undergraduate students and is not related to learning styles or proficiency in instructional language.

6V3

Interactive lectures: View of students and teachers

Ye Turgunov, T Igimbayev, D Kaliyeva and D Matyushko (Karaganda State Medical University, Karaganda, Kazakhstan)*

Background: Since 2008 we have introduced interactive lectures in Surgery. The interactive voting methods were applied by "Keypad Interactive" equipment and "Turning Point" software.
Summary of work: 184 students and 68 teachers participated in the survey. The questionnaire included the following questions: "Are there advantages of interactive lectures over traditional?" "If yes, what are they?", "What are basic disadvantages of interactive lectures?" Furthermore, in the questionnaire, it was suggested to evaluate the lectures on the basis of the six criteria on the scale of 1 to 5.
Summary of results: According to results of the survey, main advantages of interactive lectures are: better demonstration level – 35,1%, direct feedback with the audience – 27%, audience activity – 13,5%, emphasizing most important things – 9,9%, higher level of control during the lecture – 9%, revision of discipline's prerequisites – 3,7%, motivation to independent problem analysis – 1,8%. 90% of respondents granted interactive lectures from 4 to 5 points in all suggested criteria. Respondents attributed need for acquiring interactive voting equipment to disadvantages of interactive lectures.
Conclusions: Analysis of the survey demonstrates that interactive lectures have a number of advantages over traditional lectures. The most significant advantages are direct feedback with the audience and high activity of listeners.
Take-home messages: According to students and teachers' opinion, interactive lectures are more effective than traditional lectures.

6V4

Improving lecture skills: The development of a time-efficient 10-step consultation method for medical teachers of healthcare professions

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Background: Faculty development initiatives proposed over the past few decades have, for the most part, suggested training environments such as workshops, short courses and seminar series to realize change. However, for many healthcare professionals, lecturing constitutes an ancillary activity, and a full-time occupation in the healthcare industry makes participation in such time-consuming programs difficult to envision.
Summary of work: To develop a time-efficient consultation method for improving lecture skills, the medical education literature was: 1) reviewed for factors known to facilitate successful consultations, and 2) analysed to select quality-assessment criteria of effective lecturing. The result of this research was used to define the procedure and content of a consultation methodology.
Summary of results: A consultation method was developed based on specific methodological components. Eight experienced lecturers tested the method, which served to assess potential outcomes by evaluating three dimensions of good lecturing: 1) the structure and organisation of the lecture, 2) the active involvement of students, and 3) the presentation techniques. These trial runs indicated the time-efficiency and effectiveness of the method.
Conclusions/Take-home messages: The consultation method helps teachers to improve their lecture skills and is a feasible model which can be easily adopted by medical educators to support faculty development activities.

6V5

Strong relationship between performance and seating position in class room

A Kondo, M Hayashi, S Kim, H Ishimoto and S Izumi (Obstetrics and Gynaecology, Tokai University School of Medicine, Kanagawa, Japan)*

Background: There is a report of the relationship between performance and seating position in university students. In our medical school, it is very important for us to know who is doing poorly in the classroom to follow them up during medical school.
Summary of work: To assess this relationship between performance and seating position, we chose 5th year students (n=106) and followed their seating position and the examination scores for two years. The ranking of scores from 3 examinations (A: comprehensive exam and B: Obstetrics exam in 5th year and C: the comprehensive exam in 3rd year) of the same students were analysed statistically by Mann-Whitney rank sum test.
Summary of results: The performance and seating position are related strongly as we expected in every examinations. Students who took a seat in the front showed better performance than students who took a seat in the rear. In addition, performance has not changed in 2 years (A versus C p=0.004).
Conclusions: The seating position indicates performance accurately. It is good support for teachers to pay attention to the students who might need some help to make progress.
Take-home messages: The next step will be considering how to use this information effectively from the beginning of medical school education.

6V6

Comparison of the two methods in general pathology teaching on medical students' learning

F Khajeh, B Miladpoor and M Meshkibaf (Fasa Medical University of Medical Sciences, Fasa Medical School, Fasa, Iran)*

Background: Nowadays various methods have been developed to improve medical education. In this study, we present a new teaching approach.
Summary of work: 32 medical students were divided in two similar groups based on the mean of the average scores. According to the teaching methods, we named the usual method as 1st group, and the new method as 2nd group. We prepared some papers which consisted of the titles of the lectures, definitions, classifications of the subjects, tables, and algorithms as partially completed forms. These papers were available to students taking part to fill out. Then students participated in a test. The mean of the average scores were compared. Statistical analysis of the data was performed by SPSS software and t-test.
Summary of results: The mean of average score in the 1st group was 63 from 100, and in the 2nd group was 84 from 100. There are significant differences between means of the average scores of the two groups p value=0.035.
Conclusions/Take-home messages: Use of partially completed forms which require to be completed during lecture time by the students improve the educational and learning levels in medical students.

6V7

Interaction in class activity on metabolic regulation: Evaluating the educational impact

D Afonso, F Rodrigues, F Marques, L Pinto, A Salgueira, M J Costa and P Ludovico (School of Health Sciences, University of Minho, Braga, Portugal)*

Background: Interactive approaches in metabolic biochemistry are expected to improve students' learning but actual evidence of impact on learning is scarce.
Summary of work: We used an in-class activity to teach metabolic integration and regulation to 1st year medical students (N=119) which requires students to explore physiologic conditions by drawing the connections between major metabolic pathways and discuss their regulation. We measured student's learning gains with a pre/post diagnostic test and collected student's perceptions.
Summary of results: The average normalized gains <g> (<%post>-<%pre>)/^{1}00-<%pre>) and individual maximum gain were, respectively, 0.33 and 0.86. Cohen's "effect size" (d, the means and standard deviations of two groups (class average of pretest, <%pre>=42.00, sdpre=14.80 and posttest, <%post>=61.00, sdpost=14.60, was 1.30, showing a strong difference in performances between the two moments. Students have positive perceptions of the activity's impact on reactivation of knowledge (71%, integration of metabolism (76.8%) and sharing of knowledge (79.5%).
Conclusions: The activity results in immediate impact on student's learning as assessed by the learning gains of one cohort of students.

Take-home messages: This interactive in class activity promotes student's motivation and learning of metabolic biochemistry.

6V8

Use of an interactive board-game to develop clinical reasoning skills

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Background: In a systems based curriculum it can be difficult for students to integrate, synthesise and transfer their knowledge across systems and specialties. It can also be difficult for undergraduates to practice different clinical reasoning strategies safely.
Summary of work: This pilot project used an interactive board-game based on clinical reasoning as a means of encouraging students to integrate and apply their knowledge across the entire curriculum. It uses a constructivist, student-centred approach and can be applied to virtually any group of learners. An online single player version has also been developed.
Summary of results: The game was very favourably evaluated in terms of its educational impact, playability, ease of use and utility.
Conclusions: The simple, inexpensive format of this game could be widely adopted in a variety of healthcare settings.
Take-home messages: Board-games can be used to stimulate learners to share, apply and reflect on their knowledge and skills.

6V9

Electronic book or printed one: Which one do students prefer?

M Ketola[1], P Mustonen[1], J P Turunen*[1] and L Niemi-Murola[2] ([1]Finnish Medical Society Duodecim; [2]Department of Anaesthesiology and Intensive Care Medicine, Helsinki University Hospital, Helsinki, Finland)*

Background: There is a Finnish textbook in Anaesthesiology containing 1000 pages. We need a book for undergraduate students, and an electronic book would be a modern solution.
Summary of work: An electronic survey was delivered to 1700, third – sixth year medical students in the five medical schools of Finland.
Summary of results: 680 students (38%) answered the questionnaire, 28,8% of them male and 79,4% female. There were no differences between different study years or medical schools. Final year students were more interested in electronic book than the junior students ($p<0.01$, but 81.2% of the students preferred a printed book. Twenty percent of the participants had used free links in their studies, 36.6% had found free electronic material as useful and 76,8% would be interested to use these links if a list was provided for them. Twenty percent would prefer only links without a text-book.
Conclusions: The students would pay 26 – 75 € for the printed book (mean) and 5 – 25 € (mean) for the electronic book. Half of the participants would buy a licensure for a year if they had also access to ten other e-books.
Take-home messages: The students prefer a condensed version of the existing textbook. However, they would appreciate figures, charts and algorithms.

6V10

Are logbooks used as they are intended: A students' perspective

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Background: Medical schools have used logbooks to ensure student participation while on clinical placements and claim that it provides students with a structure to their learning. This 'multi-purpose' use of the logbook has been widely accepted by literature and teachers. However, what are the views of the students with regards to the uses of a logbook? Do they feel it structures their learning while on clinical firms? Is it a useful study guide for students?
Summary of work: To understand the uses of student logbooks while on clinical placements from the perspective of the student. The theoretical uses of the logbook are elucidated via a literature review and by seeking the views and opinions of experts within the medical schools being studied. Questionnaires and focus

groups are carried out to understand in depth the practical uses and application of the student logbook by students.
Summary of results: The results of this study will enable the medical schools within the study to review and critique the existing purpose and use of the current model of the student logbook.
Conclusions/ Take-home messages: The study will assist the medical schools in carrying out a thorough evaluation of the current logbook to ensure fulfillment of desired outcomes.

6V11
The use of art in training medical professionals
Sangeetha Govinda Rajoo (Queens Hospital Burton, Burton-on-Trent, Staffordshire, UK)*

Background: The contribution of art towards medicine in various areas is recognised. One aspect which is gaining momentum is the use of art in training medical professionals.
Summary of work: This paper discussed the results of a literature review exploring the role of art in training medical professionals. The review describes the various clinical skills which can be developed with the use of art, and it evaluates the effectiveness and validity of this teaching method.
Summary of results: There is evidence to support the use of art to develop clinical skills which include observational skills, communication skills, diagnostic and decision making skills and in developing cultural sensitivity.
Conclusions: The use of art in developing clinical skills is an important and fast-developing area in medical education.
Take-home messages: There are various teaching methods used to develop skills needed to be a doctor. The arts should be recognised as an effective and fun method in addressing these teaching needs.

6V12
Using movies in medical education to reflect upon relationship with the patient: The film The Sunchaser
L Garrino, A Gargano and V Dimonte (Department of Public Health and Microbiology, University of Turin, Italy)*

Background: Using movies can be considered as an effective tool for medical education, alternating with or used as support during traditional lessons.
Summary of work: With the purpose of stimulating reflection upon the relationship with the patient, the use of some film clips from "The Sunchaser" (Michael Cimino, 1996) was proposed during elective at the Undergraduate Nursing Course of Turin University. At the end of the projection, students were invited to reflect upon relevant events presented by those clips.
Summary of results: Several considerations emerged for the participants, 1) to examine our actions in the present and to modify our behaviour is a caring sign to others and is the beginning of a trusting relationship, 2) the complex process of sharing the experience of illness contributes step by step to building a trusting relationship, 3) the outcomes of the events concerning the trusting relationship lead to changing attitudes towards ourselves, the profession and the caring relationship.
Conclusions: Building a therapeutic relationship based on trust is a complex process that requires the engagement of revising our own self-attitudes constantly.
Take-home messages: Using movies in medical education enables the development of personal skills in a caring relationship.

6V13
Using motion capture and 3D animation for teaching equine gaits
R Malinowski (Michigan State University, College of Veterinary Medicine, East Lansing, Michigan, USA)*

Background: This study was designed to explore the uses of three-dimensional animations derived from motion capture data for teaching equine gaits. While motion capture technology has become increasingly popular, its potential for educational applications has barely been explored.
Summary of work: A quasi-experimental, nonequivalent control group design was used. Data was analyzed using one-way analysis of covariance with the pretest score used as the covariate.
Summary of results: The 3D treatment group had an overall higher adjusted mean post-test score, but this difference was not statistically significant. Written and verbal feedback from participants indicated the three-dimensional materials were highly engaging and more enjoyable. Further analysis of the data is needed to

determine if there was a significant performance difference between the groups based on question type (gait identification, gait description, gait interpretation).
Conclusions: Results from this pilot study indicate that 3D teaching tools are at least as effective as their traditional counterparts. More research is needed to determine how such resources can be best used.
Take-home messages: Motion capture technology and animation may prove to be powerful tools for teaching concepts that are difficult to convey using traditional static media.

6V14

Video-based analysis of questioning technique during medical classes: Perception vs reality

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Background: The aim of this study is compare the observational data to teachers' awareness of the questioning technique during medical classes and to investigate students' responses about the technique.
Summary of work: Perceptions data were collected with self-questionnaire for faculties (n=33) and the second year students (n=100). Recorded video tapes were used for observing on teachers' questioning skills during the second semester, 2008.
Summary of results: The majority of the teachers utilized some sort of questioning skills in 74.7% of total lectures, preferred open questions, agreed the importance of questioning, and also showed positive opinions to the effect of questioning. They perceived that their usual wait-time is about 10 seconds compared to only 2.5 seconds on video analysis. More lecture-experienced teachers tended to ask more questions in a class. Most of students agreed that questioning was useful to maintain classroom control, motivate students to pay attention, and provide repetition.
Conclusions: There were some discrepancies regarding using questioning technique between the teachers' perceptions and reality, although both teachers and students show positive opinions using the technique. Therefore questioning skills during a lecture must be emphasized to teachers.
Take-home messages: Questioning skills needs to be improved by about 10 seconds wait-time.

6V15

Central venous catheterization skill acquisition - Does method of instruction matter?

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Background: Central venous catheterization (CVC) is a multistep procedure. Our study assessed the effect of two instructional methods on skill acquisition.
Summary of work: After pre-training performance of CVC, 22 residents were randomized into two groups. Group A (n=12) was taught in part: instruction on venous access, followed by practice, then instruction on catheter insertion, followed by practice. Group B (n=10) was taught the whole procedure, followed by practice. For this group, sequence of practice was observed. Performances were re-evaluated post-training and at one month. All videotaped performances were reviewed by two attendings, using validated checklist and global rating scale (GRS).
Summary of results: Analysis revealed significant group effect (Checklist $F=4.37$, $P=0.05$, GRS $F=8.27$, $P=0.01$) and test effect (Checklist $F=90.6$, $P<0.0001$, GRS $F=30.5$, $P<0.0001$). Group A performed better than group B on all three tests. Both groups improved from pre- test to post-test, with no significant deterioration at one month. Interaction between group and test was not significant (Checklist $F=0$, $P=1.0$, GRS $F=0.85$, $P=0.44$). Of those taught in whole, only 30% practiced in whole.
Conclusions: Baseline performance differences and lack of interaction between group and test suggest that method of instruction did not influence learner performance. For those taught in whole, most chose to practice in part.

Take-home messages: Method of instruction may not be as influential in skill acquisition as method of practice.

6V16

It's not what you do, it's the way that you do it: Skills teaching and reflective practice in obstetric simulation for medical students

Philip Banfield, Stephanie Jenkins* and David Brigden (Director of Learning and Teaching, School of Medical Sciences, Bangor, UK)*

Background: Simulation and skills training is very much part of postgraduate education.
Summary of work: In obstetrics, two papers report the outcome of skills training in the management of shoulder dystocia with contrasting outcomes. Draycott et al report an improvement in management with a reduction in adverse neonatal outcome whilst MacKenzie et al from Oxford reported a rise in shoulder dystocia, neonatal asphyxia and brachial plexus injury over a time period when an increase in the use of the McRobert's manoeuvre taught in such drills. A prospective study is being planned.
Summary of results: Reflective practice has been widely adopted in nursing education, but the exact role in the undergraduate curriculum is unclear on clinical placements since so few clinical consultants have formal training in educational theory. At Glan Clwyd Hospital, trainers on medical emergency courses are generally recommended for their teaching potential and undergo a 2 day Generic Instructors Course eg. Management of Obstetric Emergencies and Trauma (MOET) – for senior obstetric anaesthetists and obstetricians.
Conclusions: In collaboration between the School of Medical Sciences at Bangor University and the North Wales Clinical School, we present the findings of challenging students in this way as they progress from passive recidivists to active learners.
Take-home messages: Curriculum, teaching and learning, simulation, obstetrics and gynaecology, medical students.

6V17

An instructional programme design experience for anesthesia technicianship: Analysis

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Background: This study covers analysis stage of a four-lesson instructional programme called Anesthesia Techniques intended for Marmara University Vocational School of Health Related Professions Department of Anesthesia.
Summary of work: At the analysis stage, based on Smith and Ragan instructional design model, task, learner, existing programme were analyzed. Task analysis was performed by five academicians from Department of Anesthesia. Vermunt's "Inventory of Learning Styles in Higher Education" was used to determine the learning styles of anesthesia students (n=97). Finally, content analysis of existing programme was carried out.
Summary of results: As a result of task analysis, the anesthesia technician's tasks are gathered under nine groups. Concrete processing from cognitive strategies, external regulation from regulation strategies, vocational orientation and personal interest from learning orientation became prominent as a result of learner analysis. It is also detected that 62,9% of students were ambivalent in terms of learning orientation, 62,9% of students had problems related to regulation strategies. In consequence of content analysis, it is determined that some topics are repeated unnecessarily and important problems arise from integration between lessons.
Conclusions/Take-home messages: Results acquired from task, learner, and content analyses present important evidence for instructional programme to be restructured as more integrated and student centered.

6W Posters: Problem Based Learning, Team Based Learning and Theories of Learning

6W1

Comparison of a viva for assessing PBL skills with student performance in knowledge based written exams

Remi Zvauya, Angela Priestman, Christine Wright, Trudy Knight, Yong Xu and Bev Merricks (College of Medical and Dental Sciences, University of Birmingham, UK)*

Background: The University of Birmingham runs a four year MBChB Graduate Entry Programme (GEC) for life science graduates, which uses problem-based learning as its central pedagogic approach. An integrated multidisciplinary curriculum is delivered through weekly problem scenarios which help direct student's own learning. PBL groups comprise 8-10 students and are supported by a facilitator. At the end of the first year GEC students are integrated with the principal (5 year course) students.
Summary of work: GEC students are assessed by a variety of methods including short answer questions, multiple choice questions and extended matching sets. In addition, an oral exam aims to assess PBL process and communication skills. Data from early cohorts indicated a strong correlation between student's performance in knowledge based and oral exams such that students who did well in written knowledge based exams also did well in the oral exam and vice versa. In some cases this ran contrary to informal facilitator assessment of student performance in the PBL, whereby students assessed as having well developed PBL skills did not necessarily achieve high scores in the oral exam intended to measure PBL based skills. Consequently, a new oral exam was devised (the cognitive skills viva) where students are given an unseen clinical scenario and asked to write learning objectives before discussion with the examiner of issues relating to the scenario.
Summary of results: Data from three cohorts undertaking the new cognitive skills viva indicate reduced correlation between performance in written knowledge based exams and the cognitive viva. Possible explanations for this change in correlation are discussed in the context of the challenge of assessing PBL process skills through examination.

6W2

Successful new modified problem based learning (PBL) curriculum design for undergraduate clinical phase
B M Aljarallah[1], M Aslam[1], A M Eldeib[1], S Khalil[1], M AboAli[1], HP Batty[2] and M S Hassan[1] ([1]College of medicine, Qassim University, Qassim, Saudi Arabia; [2]University of Toronto, Canada)*

Background: Application of classic PBL in Clerkship phase is challenging.
Summary of work: Case based curricular design using adult and experiential education a principle was introduced in undergraduate medicine course at Qassim University.
Summary of results: Typical week includes five daily morning reports for acute management of admitted cases, three bedside teaching for demonstrating physical signs, two clinical reasoning sessions to address chronic management, and five clinical self oriented sessions to observe common daily investigations and procedures, all case based.
Conclusions: New program design strengthened by Knowles's principles.
Take-home messages: Application of PBL principle in clinical teaching without extra resources proved feasible.

6W3

Views by PBL-facilitators on how they were introduced to the role
E Persson and A Hoppe (Uppsala University, Uppsala, Sweden)*

Background: In Uppsala, PBL was introduced into the medical school curriculum in 2006. Facilitator training started in 2004 as a 3-day course, presenting PBL and giving practical training. As quality assurance, we wanted to evaluate how the teachers experienced the introduction to the role as facilitator.
Summary of work: 250 facilitators active in January 2010, were asked to answer a web-based questionnaire (three open-ended questions and three on scale 1-6).
Summary of results: 100 facilitators (40%) answered, 47% women and 53% men. The length and extent of experience varied widely. The 3-day course was rated as preparing well for the role as facilitator by all but two respondents. No gender differences were found. After the course, the most valuable tools for improvement were feedback from students (61%) and written course material (44%). Several comments showed a lack of feedback from colleagues and course directors. A possibility to observe experienced facilitators was requested.
Conclusions: The 3-day course and written material for PBL-facilitators are appreciated, and student feedback is valuable for facilitator improvement while other types of support need to be developed.
Take-home messages: High quality practical training is crucial for proper facilitator preparation and the facilitators should be encouraged to use group session evaluations as a tool for continuous professional development.

6W4

A 3 year experience teaching clinical thought with a problem based learning course in Spain

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Background: European schools of medicine have to adapt their methods in line with the Bologna process.
Summary of work: We have developed a Problem Based Learning (PBL) course (Pre-Clinical Medicine) on the second year of our Medical School. Our aim was to introduce students early into the clinically oriented way of thinking, with the hope of shifting their approach from a memorization oriented to a clinically oriented one.
Summary of results: The qualitative feedback from the lecturers was excellent. Students' evaluation of the course showed a course rating of 9.097 over 10. The influence, they thought the course would have over the rest of their medical degree was 8.36 over 10. When asked whether they would recommend this course to their colleges, they scored it as 9.375 over 10.
Conclusions: PBL is not only a valid method for teaching clinical medical thought in second year of Medical School, but it is also a user-friendly way of doing it. The handicap is the complexity of the organization and the big numbers of trained physicians required. It is important to be aware of these difficulties, before starting it.
Take-home messages "Pre-clinical medicine" at Navarra medical school is a successful example of PBL applied innovative teaching.

6W5

When PBL sessions are held in front of the observers' eyes: A new experience in MUMS

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Background: Barrows and Tamblyn (1980) define problem-based learning (PBL) as the learning that results from the process of working toward the understanding or resolution of a problem. Authentic PBL requires students to go through the same activities during learning that are valued in the real world (Barrows, 2000). The intent is to challenge students with high impact problems that they will encounter in practice.
Summary of work: In this case, 8 tutorials were held in front of the eyes of observers, 30 faculty member and medical education students, who were invited to learn what is PBL, its steps and how PBL tutorials work, i.e. the "PROBLEM" should be solved was "PBL". In other words we decided to solve the enigma of PBL in our university via this strategy. A handout was prepared for observers by tutors as a big picture of each session and all of the tutorials were recorded on video-tapes. The tutorial group, especially the tutor had to involve to observers' questions during and after the sessions .They had several informal sessions before and after tutorial sessions for coordination and evaluation of sessions respectively, therefore planning and conducting such project lasted 8-9 months.
Summary of results: It seems both participants and observers were encouraged to participate in tutorials. Participants developed their knowledge and experiences throughout continuous searching data and sharing them.
Conclusions/Take-home messages: Observers are expected to apply PBL method in their classes or clinical settings after completing the tutor training workshops who were registered for it after tutorials sessions.

6W6

Team-based learning in pediatric department, Buddhachinaraj Medical Education Center: 2 years comparative study

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Background: Team-based learning was integrated into pediatric course, Bud.Med.Ed.Center since 2006. The study is aimed to compare learning outcomes and students' attitude towards TBL in academic year 2007 and 2008.
Summary of work: 66, 43, 4th year medical students in the year 2007 and 2008 studied the topic "Seizure Disorders" by TBL method under the same instructor and RAT. The questionnaires were conducted to evaluate their attitudes about TBL. Using chi-square test analyzed with significant level at 0.05.
Summary of results: IRAT scores of students in year 2007 were significant higher than year 2008. But GRAT, application of knowledge, peer evaluation and total score were not different. The attitudes about TBL process were more than 4 from 5 and not different in both years. The pre-class preparation of the year 2007 was

significant higher than the year 2008 and corresponded with IRAT scores. Information supported from instructor got highest scores.
Conclusions: This study demonstrates that learning outcomes of TBL in the 2 groups were not different although one group had lower pre-class preparation scores and lower IRAT scores. After group process, the students yielded good results and their attitudes were good.
Take-home messages: Team Based Learning is very beneficial to students.

6W7

Team-Based Learning (TBL) for clinical reasoning in students with Problem-Based Learning tutorial (PBL) experiences

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Background: Our students study basic science, basic medicine, and clinical medicine through a hybrid of lectures, PBL, and practical training in the first 4 years. We strategically integrated TBL for the 4th year students to determine whether this would improve students' clinical reasoning ability.
Summary of work: In 2008 and 2009, 4th year students participated in 2 TBL courses. Individual scores were calculated based on results of the IRAT and GRAT scores and compared with several examination scores. In addition, computer-based test (CBT) scores, a test designed by the Japanese Common Achievement Test Organization, were compared among students with or without TBL activity. Students' comments were also analyzed.
Summary of results: Many students gave positive comments on TBL evaluation of gradual settings in clinical problem-solving, inter-group discussions, and quick feedbacks by instructors. Individual TBL scores were not correlated with CBT, tutorials, paper examinations, or our original problem-solving ability test scores. CBT scores for clinical reasoning ability in students who engaged in TBL courses did not differ from those who did not.
Conclusions: Although two TBL courses were not enough to show a significant difference in clinical reasoning ability, the 4th year students were well-motivated in preparations and discussions of TBL.
Take-home messages: Students with rich PBL experience had no difficulty in adopting and utilizing TBL effectively. Establishing an educational system and faculty development which further explores the strategy of TBL will help to enrich the outcome.

6W8

Practical team-based learning clinical case sessions as a tool for more effective learning

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Background: Ross University School of Medicine developed the Progressive Academic Education program, as a self-directed learning option, that utilizes the Team Based Learning (TBL) format and principles. Hands on clinical application sessions were implemented using real patient scenarios, standardized patients, simulators, and Web SP.
Summary of work: TBL groups consisted of six students, randomly assigned to perform one of six clinical tasks. Faculty members evaluated students and awarded points for clinical tasks based on a standardized checklist. Pass marks for tasks were computed using the borderline regression method. Students' checklists were returned with written comments and a final score. Each TBL group met to discuss clinical findings, order laboratory tests/special studies, and answer a multiple choice question (MCQ) regarding diagnosis. TBL groups reconvened to answer MCQs regarding complications, treatment and complete individual surveys.
Summary of results: Qualitative survey results showed increased satisfaction with the "hands-on" clinical cases compared to written clinical cases. Preliminary quantitative data suggest that students performed better on subsequent examinations.
Conclusions: Preliminary data supports research which shows greater learning when students are engaged in active learning or "hands-on" activities.
Take-home messages: Practical clinical case application sessions provide students opportunities to improve clinical skills and apply knowledge to diagnose and treat patients in a cost effective manner.

6W9

Medical students' learning outcomes between team based learning and lecture based learning in radiology

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Background: Although team based learning (TBL) has been applied to various courses in medical school, a void in the literature exists regarding the impact of TBL in radiology. This study determined learning outcomes of TBL compared to lecture based learning (LBL).
Summary of work: Forty-eight 4th year medical students in Buddhachinaraj Hospital, School of Medicine were stratified randomly assigned to either TBL (n=23) or to the LBL (n=25). Each group was tested with posttest that designed as a combined multiple-choice (MCQ) and constructed response question (CRQ). The scores were compared between two groups.
Summary of results: This comparison showed no difference between the students in the study group and those in the control group (TBL: 10.70±1.94, LBL: 9.76±2.65, p=0.17). In MCQ category, there was no difference between two groups (TBL: 6.91±1.31, LBL: 7.24±1.94, p=0.50). In CRQ category, there was a statistically significant difference between two groups (TBL: 3.78±1.20, LBL: 2.56±1.19, p=0.001).
Conclusions: Analysis of the results of both groups revealed similar scores in overall questions and MCQ category, whereas study group had tendency towards higher scores than control group in CRQ category.
Take-home messages: TBL does not lead to disadvantage concerning students' knowledge as measured by a combination of MCQ and CRQ.

6W10

Faculty and student attitudes toward a modified approach to the readiness assurance process of team based learning

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Background: Duke-NUS Graduate Medical School uses a team-based learning (TBL) approach in its first year preclinical curriculum. We introduced a modified version of our original TBL implementation to promote greater student involvement in class discussion.
Summary of work: We modified our traditional approach to assure student readiness for class discussion (MTRAP) halfway through a 20-week course. We administered a 13 question survey to students at the end of the course to assess their opinions regarding the traditional versus the modified approach. We are currently surveying faculty regarding their thoughts about the modification.
Summary of results: Overall, students preferred MTRAP to the original approach to TeamLEAD. 65% of students indicated that MTRAP was more effective and 75% of students indicated that MTRAP resulted in more discussion during class. The poster will also report on the faculty's perceptions.
Conclusions: Students felt that MTRAP was more effective than the original approach to TeamLEAD.
Take-home messages: The modified approach to the readiness assurance process of Team Based Learning encourages deeper discussion of course material and is more effective than original approach.

6W11

Teaching bacterial infection diagnosis: A guided discovery approach

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Background: Traditional bacterial infection diagnosis is taught with a set of independent protocols which fail to simulate the real workflow.
Summary of work: We developed a series of "Guided discovery" laboratory sessions. Students are required to choose the techniques to perform and reach a diagnosis. Each group of three students is given a biological sample containing bacteria from a hypothetical patient. Along four practical sessions, each group performs staining procedures, metabolic and antibiotic sensitivity tests they considered relevant. The final assignment is a descriptive report with the relevant steps for the identification of their bacterial species, their characteristics and the likelihood of that bacterial species being the cause of the infection.
Summary of results: In 2010, the approach was tested with 92 preclinical medical students. The instructors observed that: 1) the quality of student responses and questions in class increased significantly, 2) the

commitment of students was unusually high, 3) the recommended bibliography was used as never before in laboratory sessions, 4) suggestions for adequate complementary tests were recurrently advanced by students.
Conclusions/Take-home messages: Alike other "Guided discovery" approaches, we found very positive impacts on student motivation and learning. Student evaluations will be presented.

6W12

Key-points from a critical review of literature about the Perry scheme of cognitive development, illustrated with medical students' ideas about 'what I know, and how'

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Background: The General Medical Council's Tomorrow's Doctors (2009) recommendations focused on the doctor as 'scholar and scientist', 'practitioner', and 'professional' - concepts that beg 'thinking about thinking'. The Perry scheme of cognitive development described how university students progress in perceiving 'what they know, and how' (personal epistemology).
Summary of work: Aim, to explore how the Perry scheme illuminates learning and tutoring in (undergraduate medical) education. The search strategy sought English language peer-reviewed articles to date (re: theory, practice, or evidence about the Perry scheme and personal epistemology) from electronic databases and other sources, ultimately focusing on medical students. Survey of Year 1 and Year 5 medical students (problem-based curriculum).
Summary of results: Key-points from the literature: Were illustrated by medical students' open-ended comments about their knowledge-base (versus their Perry position). Included: how to measure the scheme and apply it to promote relativistic thinking, its strengths and weaknesses, some empirical evidence (but few medical education examples).
Conclusions: This established scheme has much potential for conceptualizing and improving medical students' learning, yet appears underused.
Take-home messages: Such a thinking skills framework should help to make sense of and support students' progress in 'scholarly', 'scientific', and 'professional' thinking, in medical school, about uncertainties.

6W13

Concept mapping assessment in basic life support education for medical students

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Background: Concept mapping is an educational tool that encourages meaningful learning through assimilation into existing concept and knowledge frameworks. Also it is an evaluation tool measuring aspects of evolving knowledge framework. American Heart Association (AHA) Basic life support (BLS) course provides the psychomotor skills. In this article, we measured the knowledge frameworks of medical students during AHA BLS health care provider course and compared the map scores of more experienced residents.
Summary of work: A total of 18 medical students drew a preinstruction concept map about BLS, completed a AHA BLS course, and then drew a postinstruction concept map. 6 emergency medicine residents drew a BLS concept map. Two different raters independently scored each map using the structural scoring method. We compared preinstructional with postinstructional map scores and compared the postinstructional map scores of students with concept map scores of more experienced residents.
Summary of results: The mean score increased from a preinstruction map of 220.7±56.8 to a postinstruction map of 292.1±67.9 (p=0.008) after BLS course. The mean score of residents was significantly higher than mean score of students' postinstruction map (346±35.6 vs 292.1±67.9, p=0.002). Interrater correlation of map scoring ranged from moderate to strong for the preinstruction map (r=0.76) and the postinstruction map (r=0.86) of medical students and strong for the map of more experienced residents (r=0.92).
Conclusions/Take-home messages: These data suggest that AHA BLS course developed the knowledge frameworks of medical students. In addition to BLS course, other education tools may be needed for more well-structured knowledge framework of BLS for medical students such as concept mapping.

6W14

Connecting transformative learning theory and medical education: Suggestions based on a focused literature review

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Background: Transformative learning theory suggests that individuals can be transformed through critical reflection on experience. The concept of reflection is popular in medical education literature and transformative learning theory may have applications for medical education.
Summary of work: A focused literature review was performed to find connections between transformative learning theory and medical education. Key themes from the literature review were analyzed to create a picture of existing theories, and to propose ideas for future work.
Summary of results: 17 papers connecting transformative learning theory and medical education were found. The connection between transformative learning theory and medical education has been explored in reference to the following areas: experiences in medical education, reflection in learners, professional development and faculty development. Further analysis of these links suggests transformative learning theory could be used to enhance learning by building on narratives and reflection. The small number of papers suggests that although this theory is associated with reflection, it has only been explored superficially.
Conclusions: Existing literature links transformative learning theory to medical education, and significant opportunities exist to research the translation of this connection into practical applications.
Take-home messages: Transformative learning theory is a promising focus for further research in medical education.

6W15

A Heuristic Key for learning health and human rights: A visual tool for promoting personal agency among health professionals

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Background: Developing a golden thread of human rights education through the undergraduate medical curriculum has been a core objective in the reformed programme in the Health Sciences Faculty at the University of Cape Town. In women's health and human rights workshops with 4th year students over the past 3 years, a new innovative visual teaching tool has facilitated learning.
Summary of work: The Heuristic Key developed through an iterative process. By drawing on the practical everyday metaphor of a key as a simple physical object of utility, students' learn about human rights. The visual model of the Key enables students to understand abstract human rights concepts and to make meaningful links between complex human rights legal instruments and daily clinical practice.
Summary of results: By sequentially developing and discussing the different parts of the Key, students are guided in their critical reflective thinking, so that abstract principles are entrenched as they draw upon their own different experiences and perspectives.
Conclusions: The Key facilitates transformative learning and assists students to make human rights relevant in their future medical practice. By unlocking a toolbox of opportunities, the Key promotes deep understanding of their advocacy roles and advances respect for social justice and equity.
Take-home messages: Visual tools enhance learning.

6W16

Evaluation of Shiraz University medical students' opinions about using PBL

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Background: Studies show that the PBL method increases motivation and performance in students. In this study we evaluated advantages and disadvantages of two different educational methods, "PBL" and "lecture based learning" methods.
Summary of work: This study was done on 40 medical students in the psychiatry ward of Shiraz Medical School. Two topics were chosen to be taught to students, one topic was taught by the PBL method, the other was taught by "lecture based learning" method. Professors and teaching circumstances were the same for both teaching methods. Evaluation of students' opinions was done with a valid and reliable questionnaire (α = 0.82). The acquired data was statistically analyzed by SPSS.16 software
Summary of results: In this study 90.33% of students preferred PBL method. These students noted that reasons which dominate PBL method are: Improved interactive learning skill (87.09%), improved critical thinking level (83.87%), improved motivation for learning (80.64%) and improved analyzing skill (80.64%). On the other hand disadvantages of PBL method were noted to be: Insufficient required facilities (67.74%) and its

long time duration (85.06%). Students noted these reasons for making PBL a successful method: Active tutor appearances (83.87%) and sufficient informational references (70.96%). A significant difference was seen in comparison of students` satisfaction from PBL method and "lecture based" one (p=0.00).
Conclusions/ Take-home messages: PBL method is student-oriented. In this study, students pointed to their satisfaction from PBL method and also their improved skills, however, this method requires specific facilitations and essential requirements.

6W17

Assess for progress: an assessment of problem-based learning facilitators' training needs
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Background: The University of Khartoum, School of Medicine adopted a new curriculum in 2007, which incorporates problem based learning [PBL] sessions. However, the system was not supported by recruiting new staff who were trained and familiar with PBL. Designing the new curriculum was possible, but there was doubt about maintaining the new concept without recruitment and without any PBL facilitation training for inexperienced existing staff.
Summary of work: The Questionnaire: We identified four aspects of PBL group facilitation and prepared 21 questions to cover those areas. We chose a 5-response choice Likert scale format which asked the respondent to rate how often they felt they displayed each of the specific behaviours listed. The response options and their associated scores were - never 1, hardly 2, sometimes 3, frequently 4, always 5.
Summary of results: Respondents were relatively confident about the learning process and their facilitation skills, but less so about knowledge of the subject matter and managing the group process.
Conclusions: The results suggest that the PBL group process is the most challenging aspect for group facilitators. This is followed, specifically, by uncertainty about the assessment process linked to the new system. The design of the training course will focus on these important aspects at the beginning and introduce further issues later on.
Take-home messages: Faculty training should be tailored according to their own needs.

6W18

The impact of teaching medical students the theory and research underpinning Problem Based Learning (PBL) on student report outcomes
Ryckie G Wade and Samuel J Leinster (University of East Anglia, Norwich, UK)*

Background: PBL features in numerous health care training programmes globally. Most students enjoy and engage in PBL, however some doubt its efficacy because they do not understand the underpinning theory and research, which reduces compliance and satisfaction.
Methods: Two Year 2 PBL groups containing nine medical students were compared on three successive weeks (week1=baseline, week2=intervention, week3=follow-up), using a questionnaire containing 6 Visual Analogue Scales (VAS) regarding PBL perceptions. On week2, the Lecture Group received a 10 minute presentation regarding the theories and research underpinning PBL, whereas controls did not.
Results: At Intervention, the Lecture Group reported greater VAS scores for perceived usefulness (p=0.007), relevance (p=0.021), underpinning research & theory (p=0.003) and non-medical knowledge acquired (p=0.015), compared to controls. At follow-up the Lecture Group reported increased perceived relevance of PBL in medical training (6.1cm to 8.3cm, p=0.046) compared to baseline and greater enjoyment (p=0.005), perceived underpinning research & theory (p=0.008), usefulness (p=0.001) and relevance (p=0.029) as compared to controls. All 6 reported outcomes in the Lecture group increased from baseline and persisted to follow-up. Reported outcomes for the Control Group remained unchanged.
Conclusions: Teaching medical students the educational theories and research underpinning PBL gives them significantly greater confidence in PBL, allowing greater enjoyment and engagement.

6X Posters: International Dimensions

6X1

An international physician density prediction equation

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Background: Physician density has direct impacts on quality of healthcare. The number of physicians per population is determined by multiple factors such as medical student enrollment, number of international foreign graduates permitted to practice and retirement from the profession. Unfortunately, there is no gold standard reflecting the optimal number of physicians required within a country, nor is there a gold standard reflective of the number of specialists or subspecialists that are needed.
Summary of work: Can physician density (PD) for any country be accurately predicted using health related variables?
Summary of results: Data on PD and 13 predictor variables were extracted from 230 countries for the years of 2004- 2006. Multiple stepwise linear regression was used to predict PD. To prevent multicollinearity, eight variables were finally included for analyses. A split-sample cross-validation was performed to assess the generalizability of the results. 100 countries had complete data, and were then divided into the training and validation sets of 50 countries each. The R2s were virtually identical in both sets. The shrinkage coefficient was 1.6%, indicating a high level of model generalizability. The PD prediction model: (PD = 1.751 – 0.075 proportion under age 15 years + 0.048 life expectancy + 0.025 hospital beds) 2. The three variables account for R2 of 84.6%.
Conclusions/ Take-home messages: A comparison was made between the idealized/predicted and actual PDs for each country. Several African and Asian countries were found to be below international PD standards.

6X2

A UK consensus statement on core global health teaching for medical students

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Background: Over the last decade, global health has increasingly been recognised as an important component of medical training. The discipline is relevant to underserved communities in both developed and developing countries. Appropriate undergraduate teaching will therefore serve to bring tangible benefits to the NHS and its patients, as well as contributing to the UK's commitment to tackling health inequalities abroad. It will also prepare for practice those students who choose to work overseas once qualified as doctors.
Summary of work: The student group Medsin-UK's Global Health Education Project (GHEP) chaired a working group of global health academics and key stakeholdes to develop a UK Consensus Statement on Core Global Health Teaching. The group analysed the General Medical Council's (GMC) recently updated Tomorrow's Doctors, published in 2009, guidance in order to identify which core undergraduate medical competencies require global health teaching. A global health curriculum was drafted and the document opened for consultation.
Summary of results: The Statement demonstrates the need for increased medical student teaching in essential clinical, public health, social science, legal and cultural global health topics.
Conclusions/Take-home messages: A broad consensus is emerging on the need for, and scope of, global health teaching as part of the core undergraduate curriculum.

6X3

Cultural differences between American and Israeli medical students regarding their perceptions of the medical profession and satisfaction with studies

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Background: Cultural differences have been discussed as potential factors influencing students' perception and motivation towards their studies. At the Sackler Faculty of Medicine, Tel-Aviv University, two separate programs coexist for American and Israeli medical students. Both are taught at the same sites and by the same faculty, thus enabling cultural comparisons.
Summary of work: Our aims were to examine the differences of two medical student groups, American and Israeli, regarding their satisfaction with studies, view of the educational workload, and their perception of

physician characteristics. During the academic year 2007-2008 we administered an anonymous questionnaire to the students immediately after their first clinical clerkship in Internal Medicine. The response rate was 82% (90 out of 110) for the Israelis and 93% (53 out of 57) for the Americans.
Summary of results: Americans, compared to Israelis, are significantly more satisfied with their medical studies, consider fewer alternatives to future careers in clinical medicine, feel less of a workload, and hold a more positive opinion of physician characteristics.
Conclusions: Cultural differences affect students' perception of their studies, mentors and future careers in medicine.
Take-home messages: Medical educators should be sensitive to the effects of students' background which influence academic and professional attitudes and find ways to strengthen their commitment to the profession.

6X4

Improving social accountability of international health experiences

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Background: The CanMEDS framework has been suggested to guide the structuring of International Health Experiences (IHEs)[1]. Engaging host communities in trainee assessment and program evaluation are traditionally not considered in this process.
Summary of work: The University of British Columbia (UBC) has developed a partnership with a community South African hospital. From the outset, we explored the implications of using participatory approaches regarding the enhancement of social accountability[2].
Summary of results: Participatory approaches helped ensure an alignment of program objectives between UBC and our South African partners, who indicated that their interests were respected. Participating residents indicated greater confidence that their participation reached beyond personal development, into a larger social accountability framework.
Conclusions: Consulting all participants in IHE project development, ensures transparent, socially responsible approaches to international engagement, and helps to facilitate mutual capacity building.
Take-home messages: Participatory and collaborative approaches to planning, implementation and evaluation are more likely to result in successful, socially accountable IHEs.

[1]Goecke et al. Using CanMEDS to guide international health electives: An enriching experience in Uganda defined for a Canadian surgery resident. Can J Surg 2008, 514:289-295. [2]Boelen B, Woollard B, Social accountability and accreditation: a new frontier for educational institutions. Med Educ 2009, 43:887-894.

6X5

"To lead or not to lead" challenges of leadership in a global health setting

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Background: University Hospital of South Manchester established a Global Health Partnership with Gulu University, Gulu School of Medicine and Gulu Regional Referral Hospital in Gulu, Northern Uganda in 2008. Northern Uganda is a post conflict zone and in the early stages of recovery.
Summary of work: Teams of health and admin professionals delivering education, service delivery and management programmes. Programmes delivered twice yearly different team members, different disciplines, communicating the different aspects of the programme to the group. Coming to an agreement and consensus within short timeframe maintaining morale while teams are in Uganda and out of their “comfort zone”.
Summary of results: Questionnaire to team members before and after programmes and semi structured interviews. Define leadership and management. Based on their own responses indicate situations where either or both styles were demonstrated. Ask which style is most appropriate in a global health setting? What qualities do you think a team member needs to make the team successful in its objective?
Conclusions: Use the results of the team questionnaire to evaluate the leadership of the programmes. Reflect on the difficulties that arose during the programmes.
Take-home messages: Develop policies and procedures to help eliminate the difficulties recurring. The importance of pre trip training programmes and post trip debrief.

6X6

Canadian pediatric residency experience for non-Canadians

E AL-Selahi and M Ogborn (University of Manitoba, Winnipeg, Canada)*

Background: Twenty to 25 per cent of pediatric residents in Canada are sponsored foreign medical graduates who face many challenges which may affect quality of care. This study documents perceptions of these challenges within Canadian Pediatric training programs.
Summary of work: A survey was distributed to all pediatric residents within English language training Canadian University in the 2007-2008 academic year. Responses were compared between Non Canadian (NC) and Canadian (C) residents, and C residents of immigrant origin.
Summary of results: NC residents were more likely to be older, male and married. More than half of 230 of all pediatric residents perceived discrimination based upon appearance or language and nearly half of NC residents reported personal experience of discrimination. Both had similar perceptions of education and service in their programs and reported similar access to mentors. NC residents experienced greater sense of separation from family and friends during holidays. Most NC residents did not receive any prior orientation to Canadian medical culture.
Conclusions: Hospitals should make greater efforts to educate staff, residents, patients and their families about the cultures of the international trainee pool. Linking mentors to residents. Focused orientation prior to coming to Canada.
Take-home messages: To be aware of the difference between learners from different back ground.

6X7

The HERMES (Harmonised Education in Respiratory Medicine for European Specialists) Initiative

J L Noel and T Severin (Educational Activities Department, Luce, Lausanne, Switzerland)*

Background: By providing free access for European medical specialists to the European job market via two relevant directives (issued in 1975 and 2005), the European Union has effected an automatic recognition of the diplomas and certificates of qualification in medicine in all member countries. This is only acceptable on the basis of harmonised training standards across the entire European Union.
Summary of work: It is mandatory to work towards such harmonised standards in all medical specialities. Since 2006, the HERMES project used consensus methods and worked with experts in producing educational standards: syllabus, curriculum, European examination and accreditation of training centres for Adult Respiratory Medicine.
Summary of results: The Paediatric HERMES task force produced a syllabus, a curriculum and European examination for Paediatric Respiratory Medicine. The European Spirometry Driving License project began with a comprehensive review of the current spirometry training programmes in Europe and producing standards of training. Several specific subspecialties in respiratory medicine have followed suit: HERMES Sleep, HERMES Intensive Care and HERMES Physiotherapy.
Conclusions: The principles, methodology, and phasing of the HERMES initiative have spread to other respiratory specialties.
Take-home messages: The challenging task of harmonising education in respiratory medicine for European specialists is addressed by the HERMES Initiative of the European Respiratory Society.

6X8

Good medical practice Canada: Why not use another country's document

M I Bowmer, S Lefebvre and FA Lefebvre (Medical Council of Canada and Federation of Medical Regulatory Authorities, Ottawa, Canada)*

Background: Medical Council of Canada (MCC) and the Federation of Medical Regulatory Authorities of Canada (FMRAC) are developing a Good Medical Practice Canada.
Summary of work: Using documents from Australia, New Zealand, the UK and the USA this study determined if critical elements were included in one document and not in the others.
Summary of results: Compassion, trustworthiness, accountability, service to patients and community with integrity and respect were common themes throughout all document. However, each document has elements which are unique to the country and different from the others. The UK describes the taking on and ending appointments whereas the Australian document focuses on closing the practice. The UK and Australia focus on working within the system, while the US document focuses on systems based practice and the physician

effect on the larger system. Professional behaviors are labeled in three documents and integrated in the other. Access to care is prominent in the US document while others list integrity and safety. The US document includes the patient's perspective.
Conclusions: These and other differences will be discussed. The documents demonstrate that while modeled on the UK document each country developed additional content and nuanced wording that meets their country's profession's expectations.
Take-home messages: Canada needs to develop its perspective. One expectation of the working group is to present language that the public can use in their discussion with the profession.

6X9

Flemish/English translation effects in the international foundations of medicine examination

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Background: This study of Flemish/English translation effects was conducted in conjunction with development of the International Foundations of Medicine Examination program. This collaborative effort involving the National Board of Medical Examiners and schools in Belgium, Italy, Portugal, the US, and other countries is designed to facilitate the interchange of students and mobility of graduates internationally.
Summary of work: One-hundred basic science items recently retired from USMLE were translated into Flemish and divided into two 50-item blocks. 201 bilingual students from Katholieke Universiteit Leuven were randomly assigned to four groups, each group took a web-based test consisting of one 50-item block in English and one in Flemish, with counterbalancing of block content, order and language. Performance was analyzed to determine effects of language on item difficulty and response times.
Summary of results: Mean scores on items presented in Flemish were 1% higher than when the same items were presented in English, three additional seconds were required to respond to items in English. The true (disattenuated) correlation between scores by language was 1.0, correlations between item difficulties and durations by language were 0.93 and 0.97, respectively. Issues in item translation were identified for a few items.
Conclusions: Pending replication, it appears feasible to develop comparable forms of basic science examinations in Flemish and English starting with USMLE material.
Take-home messages: With care in translation, the effects of language on test performance can be small.

6X10

Professionalism in context

K M Browne[1], C Doody[2], B Butler[2] G MacCarrick[3] and A D K Hill[1] (The Royal College of Surgeons in Ireland, [1]Department of Surgery; [2]Department of E-learning; [3]Department of Medical Education, Dublin, Ireland)*

Background: We aimed to create a culturally specific discussion point through the medium of a virtual patient scenario. The scenario detailed the working life of an intern on a busy surgical service and how medical errors, professional and patient relationships were handled.
Summary of work: A virtual patient scenario was constructed using an Irish context based upon the theme of professionalism. Four moderated focus groups were conducted with a total of forty people. Participants were drawn from Irish, Malaysian, English, North American and Middle-Eastern communities. The produced virtual patient scenario was screened and a moderated discussion followed. Language barriers, cultural norms, fatigue, handover and ethical responsibilities to patients were discussed as well as disclosure and liability.
Summary of results: Concerns were held by all groups regarding liability and disclosure of medical errors. Many had experiences negative situations while on clinical rotations with respect to disclosure of test results, error and liability. Those with English as a first language tended to find the cultural contextualisation more helpful and amenable than those who did not have English as a first language
Conclusions: All of the groups found the cultural contextualisation of professionalism and the ensuing discussion beneficial. Each participant felt that the experience of discussing medical error using the local virtual patient example was more helpful than group discussion alone. Examples of the discussion regarding professionalism and cultural contextualisation will follow.

Take-home messages: Cultural contextualisation of professionalism is an important factor in allowing students to engage and reflect in professionalism education.

6X11

Existing social conflicts in faculty members and the Thai population after an international program for medicine was firstly introduced in Thailand

S Wattanasirichaigoon, V Mahasitthiwat, N Laoopugsin, K Chansiri, P Sriyabhaya, J Sirirattanapan and S Rungruanghiranya (Srinakharinwirot University, (MEDSWU), Wattana, Bangkok, Thailand)*

Background: To abolish shortage of doctors in rural areas, all Thai medical graduates are legally required to work in public hospitals for 3 years or pay back to the government. Since 2009, the MEDSWU has proposed an international medical program which was approved by Thai Medical Council. This has caused conflicts not only in the university, but also cross-country outcries from the National Health Institution, Office of the Consumer Protection Board of 46 provinces and the Rural Doctor Society.
Summary of work: A survey of 199 faculty members in August 2009 and the national polls among civilians in February 2010 showed that only 8.3% of the Thai population was informed about the international program.
Summary of results: It is noted that 85.9% of the faculty members do not oppose this program and 66.7% of this group is willing to teach the curriculum. Regarding Thai population, 77.1% agrees with the establishing the program, while 11.9% disagrees.
Conclusions: The effects of globalization are well known by the faculty staffs and the Thai population, but the introduction of the international medical program is still challenging in Thailand.
Take-home messages: To establish policies and determine the direction to improve the quality of medical graduates, global medicine needs to take social aspects into consideration.

6X12

International graduates in geriatric departments in Denmark

E A Holm[1], M M Mørch*[2] and J U Rosholm[3] ([1]Roskilde Hospital; [2]Aarhus University Hospital; [3]Odense University Hospital, Denmark)*

Background: In Danish geriatric departments a substantial proportion of physicians in postgraduate training are international graduates. This may pose some special opportunities and challenges.
Summary of work: An electronic questionnaire with items concerning educational environment, perception of difficulties in communication, and perception of personal learning needs was mailed to 52 Danish and 30 non-Danish physicians in postgraduate training in geriatric departments. Results were discussed in a workshop joined by educational responsible consultants (ERC) from all geriatric departments in Denmark.
Summary of results: 40 Danish (76%) and 15 non-Danish (50%) physicians answered the questionnaire. Mean of years since graduation was 16 for non-Danish and 7 for Danish ($p<0.01$). Learning environment was perceived as very positive overall and there were no significant differences between the 2 groups. Non Danish physicians perceived significant more learning needs in language and communication, whereas Danish physicians perceived significant more learning needs in the medical expert area.
Conclusions: The ERC workshop resulted in a catalogue of practical ideas. Of fundamental importance is clarity of communication in all professional conversations and conferences including educational and tutoring sessions.
Take-home messages: International graduates in geriatric medicine constitute an opportunity and a challenge that should be handled consciously and actively.

6X13

International medical graduates seeking postgraduate training opportunities in Canada

J Boone, S Banner and A McKiver (Canadian Resident Matching Service, Ottawa, ON, Canada)*

Background: CaRMS was established as a non profit organization in 1982. In its infancy CaRMS ran one main PGY-1 match. Over the past 28 years CaRMS has established its services within the Canadian medical education communities and thus expanded significantly. Currently, CaRMS runs four match types and has others on the forefront of development.
Summary of work: Due to the expansion of CaRMS operations and the influx of applicants, in 2009 CaRMS began the immense task of re-modeling the limited structure of its current online software and matching

system. This new development project is currently a year into its development and aims to be released in 2011.
Summary of results: The new project is transitioning CaRMS' current closed vacuole model to a continuum structure, where applicants will register with CaRMS early in their medical education years and build a repository of information. Furthermore, international medical schools will have access to an undergraduate secure portal, allowing them to log on to the CaRMS system and upload student data and track students' match results.
Conclusions: CaRMS will demonstrate how it is meeting the ever-expanding needs of its stakeholder community by creating a state-of-the-art system.
Take-home messages: CaRMS will demonstrate a sophisticated user/content/technical model that can be adopted by other countries faced with similar challenges.

6X14

Learning from international medical graduates: An exploratory study

J Hamilton, Charlotte Rhodes and Wil Fleisher (Department of Medical Education, University of Manitoba, Winnipeg, Canada)*

Background: In 1997, International medical graduates (IMGs) represented over 30% of practicing physicians in Manitoba alone. IMGs thus contribute substantially to the Canadian Health Care system, although there is scant research related to IMGs in Canada. This study aims to address elements of this deficit by exploring the perceptions regarding the strengths and range of expertise that IMGs bring to Canada.
Summary of work: IMGs entering the University of Manitoba postgraduate training and assessment programmes in 2008-2009 were invited to participate in a self-reported questionnaire to seek perceived strengths and recommendations for improvement in the Canadian Health Care system. Participants were asked to rate themselves relative to Canadian Medical Graduates (CMGs) on a Likert-type scale related to the CanMEDS competency statements. Data were collected both at the beginning and six-months into training.
Summary of results: IMGs perceived themselves to be superior to CMGs in all CanMEDS competencies. Follow-up data revealed a reduction in this trend especially with respect to manager, scholar and collaborator competencies and sub-categories. Data for the communicator competency identified IMG patient communication skills as a perceived strength relative to CMGs.
Conclusions/Take-home messages: This study will assist IMGs in their integration into the Health System in Canada and allow educators to adjust programmes to meet IMGs' needs.

6X15

The meaning of the experience in international study programmes of nursing students from Torino and Cuneo University undergraduate nursing courses: A qualitative study

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Background: Nursing literature describes the participation of nursing students in international study programmes abroad as an experience of great value, leading to the development of cultural sensitivity.
Summary of work: The purpose of this qualitative study is to explore the significance of international study experience undertaken by nursing students from the Torino and Cuneo University undergraduate nursing courses. A phenomenological approach with the Giorgi method has been adopted to analyse the data from semi-structured audiotaped interviews carried out with ten nursing students who took part in international activities between 2000 and 2008.
Summary of results: The research led to identify five clusters of meaning, concerning the international experience: to immerse oneself in another culture, to take on a challenging experience, to live and to compare nursing in another country, foreign language communication: challenge and acquisition, to live a unique learning experience. The comparison with different professional, educational and cultural settings, which represents the students' main objective, is also an opportunity to broaden students' cultural conceptions.
Conclusions: International study or placement experiences are great opportunities for the personal, professional and educational growth of nursing students. Such activities should be encouraged and the organizational support maximised.
Take-home messages: International experiences for nursing students at each stage of their education and for nurses in work settings should be implemented in order to promote their broadening of educational and professional horizons.

6X16

Towards Standards for PhD Education in Biomedicine and Health Sciences (ORPHEUS position paper)

Jadwiga Mirecka and Michael Mulvany (Jagiellonian University Medical College, Department of Medical Education, Krakow, Poland)*

Background: The purpose of the above titled position paper is to provide a status report concerning European PhD education in biomedicine and health sciences, and to propose recommendations regarding development of standards for PhD education.
Summary of work: The paper was accepted on the IV ORPHEUS Conference in Aarhus and summarizes the consensus documents prepared collectively during the previous ORPHEUS conferences.
Summary of results: Quality recommendations have been grouped into 5 areas: 1. Admission criteria; 2. Requirements of the PhD programme; 3. Requirements for the supervisor; 4. Requirements of the PhD thesis; 5. Evaluation of PhD theses.
Conclusions: The content and requirements for a PhD degree will inevitably vary between countries, universities and faculties. However, if the value of the PhD degree is to be maintained and increased, some harmonization of current standards and goals is needed. It is intended that this position paper will be of assistance in this direction.
Take home message: We aim for standards in PhD education, not for standardization of PhD programmes.

6X17

Shaken, but not stirred: teaching earthquake preparedness

A Kemp (Partnerships in International Medical Education, Hastings, UK)

Background: We teach within well understood cultural boundaries; when involved in international development work the boundaries often change and our methodologies are challenged. Armenia is an ancient country situated in the Caucasus region and has a long history of earthquake disasters. An ex-Soviet bloc country, Armenia is poorly prepared for disaster relief operations. Following official invitations from the Armenian Christian Medical Association and the State Medical School, the UK based medical education charity PRIME has developed and continues to provide medical response to disaster courses in Armenia.
Summary of work: The presentation will discuss the very considerable educational challenges in providing a relevant educational experience within a vastly different learning culture where practical workshops and voluntary interaction are largely unknown. Part of PRIME's mission is to mirror excellence in medical education and to stimulate educational development wherever its tutors work. **Conclusions:** The Armenian programme has resulted in (for Armenia) novel interactive programmes now supported by the Ministry of Disaster Preparedness and includes community outreach training from the professional healthcare community to lay people so as to embed earthquake preparedness within the population.

6Z Secrets of Success 3

6Z1

Strategies for successful compliance to accreditation standards: Online tools

M Jolivet, A Qazi and C Bourdy (Université de Montréal, Faculty of Medicine, Québec, Canada)*

Short description of innovation: Simple online tools have been developed to comply with several accreditation standards at the clerkship level. The clerks can record clinical encounters as well as quality of feedback provided by their supervisors. In turn, supervisors and management have access to data allowing them to monitor the progress of each clerk and modify it to ensure that the objectives of the clinical education program will be met and that constructive feedback is given early enough to remedy any deficiency in their education. The data collected helps verify that educational experiences are comparable across all alternative instructional sites within a given discipline.
What will be demonstrated: Functionalities available to clerks, supervisors and management will be shown. Statistics will be presented showing the increase in participation levels and quality of feedback with time.

What is particularly interesting about the innovation/How could it be implemented? The tools were built around the needs of the clerks. Accessibility of the web helped improve processes. The success of constructive and timely feedback relies on a mid-clerkship evaluation form based on the RIME framework. It is the mutual responsibility between clerk and supervisor that the mid-clerkship evaluation actually takes place.
Why participants should come to the demonstration: Communication, motivation, simple processes and online tools as well as close collaboration from clerks and supervisors can greatly enhance the quality of clerkships

6Z2

Lessons learned from Hollywood: Developing an efficient workflow for creating Reusable Learning Objects (RLOs)

P Pribaz and C Adams* (Northwestern University, Simulation Technology and Immersive Learning, Chicago, Illinois, USA)*

Short description of innovation: By utilizing standard film industry workflow, educators can deploy Reusable Learning Objects (RLOs), like instructional video vignettes, without exhausting time and budget resources. We have successfully implemented a script drafting and approval process that has drastically reduced faculty and staff time involved in producing content.
What will be demonstrated: We will discuss how the development of an RLO should be committed to a script and storyboard prior to production. The entire process will be outlined and successful and unsuccessful practices will be shared. Embedding RLOs in existing infrastructure resources will also be discussed.
What is particularly interesting about the innovation/How could it be implemented? The popularity and demand of RLOs for medical training will continue to increase, as faculty develop a deeper understanding of their educational value. Rapid, cost-effective development and deployment practices are essential. Utilizing best practices from the entertainment industry allows educators to efficiently develop RLOs at their institutions.
Why participants should come to the demonstration: Often, real world clinical examples are the best teaching tools. However, with patient confidentiality and student privacy concerns, the best examples are confined to those who experience them directly. RLOs overcome this problem by extending the experience to a greater number of trainees. Understanding how to deploy RLOs allows more learners to benefit, and gives educators control of learning objectives.

6Z3

How to recruit and train lay women to teach pelvic examination to medical students

B Kelly[1], J Moore[1] and H Salisbury*[2] ([1]Nuffield Department of Obstetrics and Gynaecology; [2]Department of Primary Care, University of Oxford, UK)*

Short description of innovation: Clinical Teaching Associates (CTA) are lay women specifically trained to teach pelvic examination to medical students whilst themselves being examined. Despite extensive experience elsewhere and national and international recognition of the potential role of CTAs, the United Kingdom has been slow to adopt this teaching method. Barriers include cultural differences as well as uncertainty as to how to proceed with recruitment and training. In this session we describe our experience in recruitment and training of lay women to become CTAs, student reaction, evaluation, and ethical issues encountered in Oxford University program.
What will be demonstrated: After a brief discussion of the needs and evidence for this model of teaching, we will present a practical approach to setting it up: achieving consensus and funding, recruitment of lay teachers and designing and delivering a training program for them. We will discuss implementation and evaluation of this teaching.
What is particularly interesting about the innovation/How could it be implemented? This method of teaching is not new but there have been many barriers, both practical and attitudinal, to its widespread adoption. We will bring the lessons we have learnt about how to overcome them.

Why participants should come to the demonstration: Participants should leave convinced of the value of this method of teaching and empowered to establish it in their own institutions

6Z4

Determined to succeed-learning together: Working together

F Muir and S Bradley* (University of Dundee, Medical Education, Dundee, UK)*

Short description of innovation: Generating a culture, which highlights, values and rewards excellence in medical & nurse education, this project was designed to develop medical and nursing students' professional attributes, knowledge and skill of being a competent teacher. To present an innovative four week teaching project: inter-professional learning with primary schools. Students taught in local primary schools. They met their GMC and NMC professional requirements while supporting the School 'Curriculum for Excellence' and the 'Determined to Succeed' Strategy.
What will be demonstrated: 1) A description and feedback of the way in which universities can collaborate with schools to develop a meaningful teaching and learning experience. 2) The way in which this innovation has pulled together individuals from a range of backgrounds: education department, university and schools to explore the way in which Interprofessional education can be delivered and promoted. 3)There will be an opportunity to look at the resources and strategies used in the project.
What is particularly interesting about the innovation/How could it be implemented? One of the key roles inter-professional education can play is for students to appreciate the importance of teamwork and communication and, in this setting their value as role models is highlighted. Collaboration is the pathway to a long term partnership between the Education Department and University. This project was commended by the GMC 2009.
Why participants should come to the demonstration: Educators interested in sharing good practice and making collaborative learning work can draw on the experience and resources to implement in their own schools and establishments.

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SESSION 7

7A Symposium: Research in medical education and its contribution to future developments

Panel: Charlotte Ringsted (Centre for Clinical Education, Copenhagen, Denmark) (Chair); Jeroen van Merriënboer (Maastricht University, Netherlands); Doris Østergaard (Danish Institute of Medical Simulation, Denmark); Frederic Hafferty (University of Minnesota Medical School, USA); Julian Archer (Peninsula College of Medicine and Dentistry, UK); Brian Hodges (Wilson Center, University of Toronto, Canada)

In this symposium a panel of international researchers will present key areas in need of further research in Medical Education in order to support the better training of future doctors.
Members of the panel will give short presentations about what they see as the essential research topics for the future and direct participants to literature that already exists that would support the community of scholars in Medical Education to take their own research forward. The panel represents a wide array of research experience within both undergraduate and postgraduate education. The presentations will include: 'Instructional design for lifelong learning'; 'Simulation-based training'; 'Professionalism and the hidden curriculum'; 'Clinical training and assessment'; and 'Beyond psychometrics'. These topics are clearly part but not all of the debate and we are certain that potential participants will have additional experience and perspectives that would enrich discussions. Hence we encourage you as a delegate to send questions or perspectives you would like to be discussed on the topic 'Future Medical Education Research' to the chairman as soon as possible (charlotte.ringsted@rh.regionh.dk). Further ideas and topics will be invited from the audience during the symposium.

7B Symposium: Faculty development and keeping up to date in education in the healthcare professions

Panel: Ivan Silver (University of Toronto, Canada) (Chair); Michelle McLean (University of the United Arab Emirates, UAE); Karen Mann (Dalhousie University, Canada); Madalena Patricio (University of Lisbon, Portugal)

Preparing healthcare professionals for teaching is regarded as essential for enhancing teaching effectiveness. This session will examine the changing role of the teacher in healthcare professional education and will look at the range of strategies that can contribute to an effective faculty development programme. It will highlight newer approaches to helping teachers to keep up to date with the rapid developments in education. The conclusions from the session will help to prepare the ground for the International Conference on Faculty Development in the Health Professions to be held in Toronto in May 2011.

7C Symposium: International accreditation in medical education: VIII Ibero-American session

Panel: Pablo Pulido (PAFAMS) (Co-chair); Emmanuel Cassimatis (FAIMER-ECFMG, Philadelphia, USA) (Co-chair); Stefan Lindgren (WFME, Copenhagen, Denmark) (Co-chair); John Norcini (FAIMER, Philadelphia, USA); Honorio Silva (PAFAMS)

In Latin America, PAFAMS has been involved in the evaluation and accreditation processes of medical education institutions at a national level, jointly with the National Associations of Medical Schools. Dramatic different realities and approaches are present in countries and sub regions, but evaluation instruments and processes derived from PAHO, FAIMER and PAFAMS experiences have been applied and recently modernized by the WFME triad Standards adapted to local settings through pilot studies. Focus in medical education is now being placed on evaluating the quality of the process and outcomes. Skills and values of medical graduates are considered a key instrument to assess the effectiveness of medical education programs, incorporating the continuous advances being made in medical sciences and is essence the suitability of them through the outcomes to meet health care needs of the population they serve.

Several phenomena have affected deeply the panorama of the Latin American Medical Education, among others: 1) the uncontrolled proliferation of medical schools some of them with only commercial character, 2) ongoing understanding of the health systems being developed along with dramatic changes in the practice of medicine, with focus in primary care, and 3) physician migration. The purpose is to develop a strategic process for International Accreditation of Medical Education based on National and International Institutional Experiences., enhancing our mission of serving the underserved.

7D Short Communications: Clinical Teaching 3

7D1

Developing a model for teaching and learning patient management skills in clerkships: A design-based research approach

M G Tolsgaard[1] and C Ringsted[2] ([1]Centre for Clinical Education, Copenhagen University and Capital Region, [2]Rigshospitalet Copenhagen, Denmark)*

Background: Clinical clerkships remain core to training medical students in managing patient encounters. A number of initiatives such as encounter-cards, feedback-cards, and in-training assessment instruments have been trialled in order to enhance learning and to ensure that feedback occurs. These initiatives have varying effects on student evaluations, final grades, and the amount of feedback given. The aim of this study was to develop a model for teaching and learning patient management skills in clerkships using a design-based research approach.
Summary of work: A critical literature review was performed leading to the development of a new encounter model. The model was tested in pilot studies, focus groups, and finally in two cohorts of each 250 medical students. At each step the model was re-evaluated and re-designed.
Summary of results: Our novel model was inspired by Pangaro's RIME model. Students at our institution did not prioritize psychosocial problems, patient plans, or self-directed learning before the model was introduced to the clerkships. After introduction, students reported a higher degree of reflective thinking when writing patient plans.
Conclusions: A new model for teaching and learning patient management skills was developed to increase students' abilities in respect to reflective clinical practise.
Take-home messages: A model for learning patient managing skills can foster reflective clinical practise.

7D2

'And all this, I'm a part of': A qualitative analysis of medical students' experiences of shame in medical encounters

U Lindström, K Hamberg and E E Johansson (Umeå University, Umeå, Sweden)*

Background: Despite care givers' concern not to harm, unintentional humiliation may take place in interactions with patients. Shame is, however, a scarcely studied issue in clinical medicine, and in medical education. The aim was to explore medical students' experiences of shameful situations in medical encounters and how they tackled the experiences.
Summary of work: During a one-day seminar at the Medical School of Umeå University, Sweden, shame is the theme for individual reflections and group discussions. Medical students (ninth term) were invited to individually write down memories of situations where they had experienced shame in clinical encounters. Of a total of 133 students, 75 were willing to share their written reflections anonymously. The essays were analysed qualitatively by means of open coding, categorisation and constant comparison.
Summary of results: The students described initial problems with recalling embarrassing moments, but after a while they were able to verbalise various scenarios of shameful situations. Three themes emerged in their narratives: Disclosing shame, Shame-inducing circumstances, and Avoiding or addressing shame.
Conclusions: As illness puts the sufferer in a dependent situation, embarrassing situations may be inevitable in medical encounters. However, humiliation must be illuminated, discussed and counteracted, by preparing both patients and students for what might come, and for how intimidations can be handled. The writing task worked as an eye-opener for the students, and their reflections might also give physicians and teachers pause for thought.
Take-home messages: Reflecting upon shameful incidents might be a way to help medical students develop self-awareness and cultivate empathy and respect for patients.

7D3

Gaps and taboos in medical history and physical examination of final year medical students

F Mandraka[*1] and M Fischer[2] ([1]University of Regensburg, Clinic and Policlinic for Internal Medicine I, Regensburg; [2]Institute for Teaching and Educational Research in Health Sciences, University of Witten/Herdecke, Germany)*

Background: Medical history (MH) and physical examination (PE) are important key parts of clinical routine. In the University of Regensburg, Germany, we reimplemented a longitudinal curriculum to teach completed PE and MH. However, we still got complains concerning performance of final year medical students. Before changing schedule we focused on deficits in taboo subjects as sexual and drug history (SH, DH) and rectal-digital-examination (RDE) as surrogate parameters for quality of MH and PE.
Summary of work: Over 6 months we analysed the MH- and PE-documentation of all final year students in gastroenterological departments. Using the DRG-system we characterised patients. Furthermore, students filled in a questionnaire for self-judgement anonymously.
Summary of results: 44 students examined 1178 patients. 38 of the 44 filled in the questionnaire (20 men, 18 women). Gender differences were found. Women graded their performances better. Lack of control was a common claim. Deficits concerning SH, DH and RDE were reported rarely. 52,6% declared never to ask for SH (DH: 47,4%). 73,7% bemoaned deficits in RDE. Men reported missing RDE more often. Checking-up documentation we found RDE of 213 (18,1%) of the patients, DH of 89 (7,6%) and SH of 16 (1,4%).
Conclusions: There is a lack in taboo subjects concerning MH and PE.
Take-home messages: Although it was part of the learning objectives the present interdisciplinary curriculum leads not to anchorage of the skills RDE, SH and DH. Changes shall be based on survey results.

7D4

Learning to Listen: Exploring medical undergraduates' experiences of receiving brief counselling skills training

K Reid[*1], G McMillan[1] and P Cotton[2] (University of Glasgow, [1]Faculty of Education; [2]Faculty of Medicine, Glasgow, UK)*

Background: Students value communications interactions and rate the feedback from simulated patients, but appreciate the authenticity that real patients bring. Identifying and implementing pedagogical approaches to enhance medical students' communication skills is central to their preparedness of practice.
Summary of work: The aims were to help students' access representations of their 'self', and encourage them to engage in critical reflection and reflective discourse to promote change. These functional understandings were used as a platform to challenge and support students to explore new ways of accepting who they are and how they can develop.

Summary of results: A trained BACP counsellor met with ten students in group work and four one-to-one sessions. Semi-structured interviews with the students were carried out upon completion of the counselling skills training. The emergent analysis generated four themes: 1) Role of 'self' in patient-centred approach. 2) Readiness to learn. 3) Learning from others (intra- and inter-professional). 4) Reflecting on pedagogy in medical education.
Conclusions: Medical students value new approaches to tackle complex learning opportunities. Students should be encouraged to develop more opportunities for self-reflection in order to gain a deeper insight and sensitivity towards the doctor patient relationship.
Take-home messages: Focus on the consultation process and on assessment tasks in a full curriculum leave little time for reflection on personal development. Feedback can be rather formulaic for many students and developing skilled tutors who can foster reflection in students is crucial.

7D5

The alternative vision of surgical learning

J Morales, J Aquino*, P Núñez and G Grajeda (Universidad de San Carlos de Guatemala, Facultad de Ciencias Médicas and Hospital Roosevelt, Guatemala)*

Background: Educational Research Project that included the experiences of the 4th year surgery students, on learning from human clinical practice, ethic and integral, using current educational technology from a holistic point of view.
Summary of work: During a period of 4 years, the professor's work was systematized. The students maintaining a close doctor-patient-family relationship, created PowerPoint presentations with cases they witnessed and treated, while making a "Parallel Text" which contained personal experiences that led to acquiring knowledge.
Summary of results: The students included the information that they compared and discussed after observing results. Also, they were able to grasp the message of strengthening themselves as human beings through personal reflection, self-criticism, self-organization and self-learning, seeking personal growth and their purposes in life, all as part of a self-evaluation.
Conclusions: The students lived personally the behavioral changes related to the "inter-apprenticeship, intro-apprenticeship and apprenticeship in between", achieving a process starting from "learn to be, to know, to do and to live together", making this process significant.
Take-home messages: The key for success of significant apprenticeship is founded on learning from own experiences, which effects on the change of attitude. It is important to encourage the "learning to learn" by empowerment of the context.

7D6

Helping Babies Breathe curricula: How much information is required to determine whether a course is successful?

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Background: The American Academy of Pediatrics: Helping Babies Breathe program is a skills based curriculum to train health care professionals in neonatal resuscitation. The program uses didactic teaching, group interaction, and practice with a simulator. Knowledge and skills are assessed through multiple choice questions (MCQ), Bag and Mask performance, and OSCE assessments for routine care and resuscitation.
Summary of work: We obtained teacher and learner perceptions from course evaluations and focus groups. Learners provided pre/post scores from the MCQ; post scores from the bag and mask assessment; and OSCE scores.
Summary of results: Kenya trained 4 master teachers, 16 instructors, and 48 learners. Pakistan trained 11 instructors and 54 learners. Participants were very satisfied with the course at both sites rating most items on the post course evaluation >4/5. Comments on the surveys and during the focus groups suggested very minor modifications to course materials but encouraged lengthening the course and creating a teaching video. Learner scores were low: <55% on the MCQ assessment, <20% passed the bag and mask assessment; and < 25% passed the resuscitation OSCE although >60% passed the routine care OSCE.

Conclusions: Participant satisfaction data can be misleading. For skill based courses, it is essential that knowledge and performance assessments be undertaken to determine whether competencies have been obtained and course objectives are achieved. Curricula revisions must be informed by all data.
Take-home messages: Curriculum design for practicing professionals must include an assessment of learner performance post-course in addition to satisfaction surveys to fully understand course function.

7E PhD Reports 2

7E1

Leadership: recognition of the educational effort provided by faculty

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Introduction: Recognition of the educational effort provided by clinical faculty may encourage educational initiatives because of increased faculty vitality and improved institutional culture (1). However, in the daily work the amount of educational effort is partly invisible thus leading to low recognition of the effort. To increase the visibility, indicators of educational effort may be useful. This leads to the research question "What constitutes educational effort in hospitals and how can it be measured?" Hence the objective of this project was to identify and register indicators of educational effort in hospitals.
Methods: The educational effort was identified in two studies with participants from 20 specialities and 21 hospitals in Denmark. Study 1: 12 medical leaders participated in semi-structured interviews, which were transcribed verbatim and reached saturation within 8 informants. Study 2: 24 clinical faculty members participated in 4 Nominal Group Processes (2).
The identified educational effort from study 1 and 2 was registered in study 3: an implementation study in medical and surgical departments. The data were actual registrations of educational effort and five semi-structured interviews with doctors and clerks, who implemented the indicators. The five interviews were transcribed verbatim, saturation was not reached.
Results: The data from study 1 and 2 were analysed and condensed, and resulted in 12 measurable indicators of educational effort. The developed indicators were found to be in concordance with studies from Canada, USA and Germany, and relate to 1) the quantity of educational effort, 2) the quality of educational effort, and 3) department resources for educational effort.
In study 3, the implementation study showed that 1) the registration process of the indicators was feasible and acceptable to both doctors and clerks, 2) that the indicators were relevant for making the educational effort visible, and 3) the indicators disclosed relevant areas for improvement.
Discussion and conclusion: Indicators of educational effort increase the visibility of educational effort, and thereby increase the recognition of the effort and facilitate educational initiatives. The indicators may be used as a management tool by medical leaders to empower their decisions concerning in educational planning. The indicators may also be beneficial for the communication and collaboration concerning education on the entire institution due to the standardised terminology and measurements.

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2. Ipsen M, Eika B, Thorlacius-Ussing O, Charles P. Measures of educational effort: What is essential to clinical faculty? Academic Medicine. 2010; In press.

7E2

Teaching interpersonal and communication feedback skills to standardized patients: Assessment of a cognitive model

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Introduction: Although feedback is acknowledged as important for medical student development, actual interventions to improve effective feedback are scarce in the literature. The purpose of this study was twofold: 1) to determine whether the addition of a training session on the feedback process and principles improved the quality of SP feedback; and 2) to determine whether the SPs utilized these principles in their feedback to medical students.

Methods: During the 2005-2006 and 2006-2007 academic years, the Standardized Patient Program added an additional feedback session to the training protocol for SPs used in the Year I and Year II interviewing workshops. During the additional three-hour session, the SPs learned the importance of feedback, the principles of giving feedback, and had the opportunity to critically examine examples of feedback using the Quality of Standardized Patient Feedback rating form (QSF) from the Feedback Manual, How to Give Effective Feedback2. Assessment instruments consisted of (1) a post-intervention SP Training Satisfaction Questionnaire measuring SP knowledge, skills, and confidence in providing verbal feedback; (2) a Faculty Workshop Feedback Form assessing whether SPs followed the recommended seven step format when giving feedback; (3) student online workshop evaluations determining if post-intervention feedback was more useful than pre-intervention feedback; and (4) a QSF form which was utilized by two independent raters to score the feedback given to the medical students from random video review of the workshops.
Results: SP Training Satisfaction Questionnaires (n=129) demonstrated high means for all 11 questions (4.41-4.83) on a Likert scale (1=strongly disagree, 5 = strongly agree). Qualitative analysis revealed that the additional feedback session was helpful in learning how to provide verbal feedback. Faculty Workshop Feedback Form results (n=143) showed high frequencies of SPs providing verbal feedback according to the 7 workshop principles (93% - 100%). Student responses post workshops (n=24) indicated a significant improvement in SP feedback ($p<0.001$) across all 4 questions. Random direct video observations by 2 independent faculty (n=25), showed that SPs did not utilize all the principles when giving verbal feedback.
Discussion and conclusion: Three of the four assessment instruments demonstrated an improvement in SP feedback post-intervention. However, the independent observers identified barriers which prevented SPs from being able to provide effective feedback. Further research is needed to overcome these barriers and improve SP feedback.

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2. May W, Fisher D WinDix Training Manual for Standardized Patient Trainers: How to Give Effective Feedback. MedEdPORTAL; 2006. Available from: http://services.aamc.org/jsp/mededportal/retrieveSubmissionDetailById.do?subId=171

7E3

Transition from preclinical to clinical training

E A van Hell, J B M Kuks, J C C Borleffs and J Cohen-Schotanus (University Medical Center Groningen and University of Groningen, The Netherlands)*

Introduction: The first three to four years of their training undergraduate medical students take preclinical training in an academic environment. Subsequently, they have to apply and further develop their competences by rotating through clinical clerkships. Previous studies revealed that the transition from preclinical to clinical training is stressful and may hamper students' progress (Hayes et al. 2004, Prince et al. 2005). The aim of this PhD study was to determine transition difficulties and their relationship with preclinical and clinical learning outcomes. Secondly, we analysed whether a dual learning programme eased the transition.
Methods: The studies were carried out in two curricula: 1) a baseline measurement in a curriculum in which all skills training was provided preceding clerkships, resulting in one transition; 2) a measurement in a dual learning curriculum in which skills training and clerkships alternated, resulting in four mini-transitions. In the baseline measurement, conducted in the second clerkship week, students (n=83) completed a questionnaire measuring the perceived transition difficulty. Furthermore, their preclinical and clinical performance scores were collected. In the dual learning curriculum, students (n=476) completed questionnaires measuring their satisfaction with workload and skills levels, and stress (GHQ-12) in each second clerkship week (four measures). Univariate and multivariate multiple regression analyses were used to analyse relationships. ANOVA was used for trend analysis in the dual learning curriculum and to determine differences with the baseline measurement.
Results: The baseline measurement revealed that the transition difficulty was mainly determined by a perceived high workload. Students were very satisfied with their skills levels. Students' preclinical knowledge and skills levels played a minor role in the perceived difficulty of the transition and had a small influence on clerkship performance scores ($R2=8.6\%$, p=n.s; $R2=18.1\%$, $p<0.01$). The perceived difficulty of the transition was neither predictive of student performance during the transition period (adjusted $R2=11.8\%$, p=n.s.), nor of their overall clerkship performance (adjusted $R2=8.6\%$, p=n.s.). In the dual learning curriculum the students' satisfaction with their workload was higher ($F=7.599$, $p<0.001$) and their satisfaction with their skills levels was comparable to the baseline measurement.

Discussion and conclusion: A direct negative effect of transition difficulties on student performance was not found. The absence of a relationship between students' knowledge and skills and performance during the transition period might indicate a lack of transfer due to cognitive overload. Alternating skills training periods and clerkships seems to ease the transition from preclinical to clinical training, compared to a curriculum in which all skills training precedes clerkships.

7E4

Can a theoretical micro-simulation using a personal computer enhance practical performance?

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Introduction: Using Blooms revised taxonomy (1) the author acknowledges the different types of knowledge application. Usually it cannot be assumed that teaching theoretical issues has a high influence on practical performance, compared to practical training alone. This is why simulation is becoming increasingly popular in medical education. With MicroSim® Laerdal Medical, Norway offers a PC-based micro-simulation (2), that simulates virtual emergencies, following current medical guidelines. This e-learning program is highly interactive and handled like a PC-game. Can MicroSim® enhance practical performance of fifth year medical students in an Objective Structured Clinical Examination (OSCE) though being a theoretical medium? Does MicroSim® also influence other types of knowledge?
Methods: After ethical approval of the IRB fifth year medical students were randomized into three groups (each n>=65). The participants were given literature to read regarding resuscitation, chest pain and dyspnoea. After an initial OSCE ours focussing on a standard approach) the groups either had access to MicroSim (solving such cases), or writing a reflective article about these themes, the third group read literature. In a second OSCE we evaluated again the structured approach.
In addition we asked to fill in different standardized forms before and after the intervention (e.g. learning preferences, avoidance, time spent on computers etc.).
Results: We were able to show a significant improvement in the OSCE scores in the MicroSim group, compared to the other groups. The author's acknowledge that results are currently being analyzed and that these will be available for publication within the next few weeks.
Discussion and conclusion: To our knowledge this study is the first to show the effect of using an e-learning program on practical performance. Though it is assumed, that simulation changes behaviour; so far there was no proof that even theoretical micro-simulation is changing performance more than standard current theory learning (reading literature), or the active dealing with the content when creating a summarization of findings. The authors conclude that interactive e-learning tools are a valuable tool for improving practical performance. However further research on this topic needs to be conducted.
(1) Anderson, L.W., & Krathwohl (Eds.). (2001). A Taxonomy for Learning,Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. New York: Longman.
(2) http://www.laerdal.com/nav/21475622/MicroSim.html

7F Short Communications: Assessing the Professional

7F1

Characteristics of physicians referred for competence assessment: Analysis of 1000 participants

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Background: Educators and regulators share concerns about patient safety, quality of care, national healthcare resources, and professional behavior. Some health systems wait for bad outcomes and then look for a "bad" provider; better foci are on thorough assessment and corrective improvements to prevent harm to patients.
Summary of work: CPEP, a US physician educational assessment and remediation program, evaluates physician competence. Program data provide insight into characteristics of physicians who are referred for post-licensure competence assessment
Summary of results: Most had completed ≥3 years of US post-graduate training. Nearly half were solo practitioners. Compared to the general US physician population, primary care, males, and specialty-board certification were more common. Graduates of non-US medical schools composed a smaller proportion.

Conclusions: This data may dispel myths about the profile of possibly incompetent physicians. Professional isolation may be related to referral for competence assessment. Specialty board certification does not offer a surrogate marker for competence. Additional study may identify predictive characteristics and preventive interventions.
Take-home messages: Questions about a physician's competence may or may not relate to problems with competencies (medical knowledge, patient care practices, clinical judgment and reasoning, communication, cognitive function, styles of ongoing adult learning, professionalism. Only by looking in a careful and structured way can we begin to understand and prevent poor patient care practices.

7F2

Do work based assessment (WBA) scores demonstrate progression in core surgical training?
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Background: The Postgraduate Medical Education and Training Board state that trainees should demonstrate progression in skills, knowledge, and behaviours as evidenced by WBAs. We aimed to see if performance in WBAs by Core Surgical Trainees would show progression with time. The current scoring system for Case Based Discussions, Mini-Clinical Evaluation Exercises, and Directly Observed Procedures ranges from 1-6 and assessment should be made based on the endpoint of that stage of training (i.e. completion of core training).
Summary of work: Data from 30 trainees who completed 3 successive 6 month periods of training were examined (placement 1 (P1), placement 2 (P2) and placement 3 (P3)).
Summary of results: There were no significant differences in the number of assessments completed (mean (SD): P1: 11.7 (3.6); P2: 11.3 (3.4); P3: 11.9 (4.9)) or the mean scores obtained (P1: 4.7 (0.5); P2: 4.7 (0.3); P3: 4.6 (0.9)). All data was skewed to the right. From a total of 953 individual assessments, 0.3% were awarded a score of less than 4, 38% were awarded 4, 50% were awarded 5, and 11% were awarded 6. Individual types of assessment were analysed and no significant differences were observed.
Conclusions/Take-home messages: We conclude that the current use of WBAs is flawed.

7F3

The comparative reliability of work-place based assessments: substantive results and methodological considerations in an Obstetrics and Gynaecology context
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Background: There is a growing use of workplace-based assessment within postgraduate medical training. The degree to which key aspects of the assessment can be fully accounted for in the reliability analysis of such naturalistic data is an open question.
Summary of work: In a retrospective study, Generalisability theory was used to estimate the reliability of the set of 13 workplace-based assessments of the clinical competence of trainee obstetricians and gynaecologists in the UK. There were two mini-CEX (clinical evaluation skills), two CbDs (clinical assessment/management) and nine OSATS (technical skills) forms. Attempts were made in the analysis to account for year of trainee, assessor seniority, and case complexity.
Summary of results: The reliability of the different assessment types varied from 0.453 to 0.850 (five encounters). The impact of case complexity on reliability was generally small. However, more complex models including trainee year or assessor seniority were sometimes problematic.
Conclusions: In naturalistic setting it is often difficult to fully account for key potential facets in the analysis such as year of trainee or assessor variance.
Take-home messages: Workplace based assessments present a challenge in terms of robust psychometric analysis. Often only simple models provide sufficiently robust findings, and care needs to be taken when interpreting the results of more complex modelling.

7F4

Paediatric consultant experience of workplace based assessments: Confident, relevant but not enough time?
D Roland, C Brown, A Long and S Newell (Royal College of Paediatrics and Child Health, London, UK)*

Background: Previously presented work suggested paediatric educational supervisors' knowledge and understanding of work place based assessments may be less than ideal.
Summary of work: In January an online survey was distributed to all educational supervisors. There have been 579 completed responses. Four types of Work-place based assessment (WPBA) were surveyed: DOPS (Direct Observation of Procedural Skills), mini-CEX (Clinical Examination), Case based discussion (CbD) and ePaedMSF (a 360 degree appraisal tool).
Summary of results: There was an equitable distribution of experience and location of consultant across the UK. Generally consultants felt confident in their use of WPBA. Over 80% partly or completely agreed they were comfortable assessing trainees and over half completely agreed they had enough experience to assess trainees and the process improved their own performance. Concerningly 10% had no experience or training in the use of DOPS. 30% disagreed or partly disagreed that they were able to assess trainees adequately due to time constraints of clinical practice.
Conclusions: Educational supervisors in paediatrics feel they have adequate knowledge and understanding of WBPA but not enough time due to service need. Current financial pressures to concentrate of service provision may affect the standard of WPBA.
Take-home messages: Inadequate time due to clinical commitments for WPBA may have a detrimental effect on the optimal use of WPBA.

7F5

How many times should you be allowed to take a licensing examination?

A Freeman[1], R Wakeford[2] and C Blow[3] ([1]Peninsula Medical School, Plymouth; [2]Cambridge University; [3]Royal College of General Practitioners, UK)*

Background: For a licensing examination, how many attempts should be allowed? The Royal College of General Practitioners previously had a non-mandatory multi-component specialist exit examination for General Practice (Family Medicine) towards membership of the College. Research suggested that after three attempts, no improvement took place. In 2007, the College's new assessment procedures became a mandatory licensing examination and produced a more acute dilemma. There are some candidates who repeatedly fail the mandatory exam: how many times should they be allowed to resit?
Summary of work: We have analysed data on exam performance and pass rates for the two components--the Applied Knowledge Test, a multi-choice computer-delivered test, and the Clinical Skills Assessment, an OSCE style SP-delivered performance based assessment—by candidate attempt.
Summary of results: The data suggest that a point is reached (four attempts) where repeated attempts at the exam are unlikely to be successful except by chance.
Conclusions: There should be a fixed number of attempts at passing a licensing examination.
Take-home messages: The number of attempts allowed to sit a medical licensing examination has consequences for the candidates and potentially for the patients.

7F6

The use of simulation to assess poorly performing primary care doctors who work in out of hours (OOH) care

Nick Brown, Martin Rhodes and Pauline McAvoy (National Clinical Assessment Service (NCAS), London, UK)*

Background: The National Clinical Assessment Service (NCAS) advises UK employers who have concerns about the performance of established doctors, dentists and pharmacists. In about 10% of cases a workplace based performance assessment is conducted by a team of trained peer and lay assessors. This normally takes place in the practitioners' own workplace but where this is not possible, for example, when the doctor has been suspended from duty, a simulation of practice is undertaken. The presentation discusses the particular challenges involved when primary care practitioners who provide out of hours care have been suspended and so cannot be observed in practice.
Summary of work: A session simulating telephone triage, a core part of OOH work was developed. This included: 1) Developing 10 scenarios with content validity and varying degrees of challenge.
2) Training simulated patients (including appropriate local knowledge and accents. 3) Providing a setting that was authentic for the doctor including the computer system and unobtrusive telephone monitoring.
Summary of results: NCAS assessors including a linguistic expert assessing communication competency were able to assess the practitioner's telephone triage skills using NCAS instruments

Conclusions: The use of simulation as part of an NCAS performance assessment for doctors providing OOH care is valid and feasible.
Take-home messages: It is feasible to assess the performance of a GP who works in OOH care and has been suspended.

7F7

Developing performance assessments for community pharmacists whose performance has given cause for concern

Martin Rhodes, Nick Brown and Pauline McAvoy (National Clinical Assessment Service, London, UK)*

Background: The National Clinical Assessment Service (NCAS) advises UK employers about the performance of established health care professionals whose functioning has caused concern. In about 10% of cases, workplace based assessments of performance are conducted by a team of trained peer and lay assessors. Since April 2009 NCAS has extended its services to Community Pharmacists. The development of a schedule for the assessment of pharmacists has posed challenges.
Summary of work: Developing performance assessments for community pharmacists involved:-
1) Working with a range of stakeholders. 2) Discussions with academic departments and the Royal Pharmaceutical Society to inform the assessment blueprint. 3) Visits to a range of community pharmacies to evaluate the scope of work and refine assessment instruments. 4) Developing peer and patient feedback. 5) Training assessors and conducting pilot assessments.
Summary of results: Challenges to conducting an effective performance assessment identified and resolved included:- 1) A lack of clinical records. 2) Multiple professional activities happening concurrently. 3) Patient participation including consent for observations. 4) The unique environment of pharmacy - clinical and retail.
Conclusions: A valid and feasible workplace-based assessment for community pharmacists has now been conducted.
Take-home messages: Community pharmacists are an important healthcare professional group, their performance in the workplace should and can now be subject to assessment in line with other health professions.

7G Short Communications: Outcome-based Education: Postgraduate Training

7G1

How Dutch medical residents perceive the competency as manager in the revised postgraduate medical curriculum

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Background: In 2005, the postgraduate medical training in the Netherlands was revised and competency based training was introduced into the curriculum. The role as manager is one of the seven competencies and is thought to receive less attention during training. The goal of our study was to investigate medical residents understanding of this competency and how they perceive their role as manager.
Summary of work: We designed a 29-item Likert-scale questionnaire to investigate residents perceived healthcare management skills and knowledge in four areas. 506 Residents from different specialties in four teaching hospitals were invited via email to participate.
Summary of results: So far, 158 (31.2%) residents responded to our survey. More than half of the respondents did not feel confident about their contract negotiating skills and stated that they lacked knowledge of how the Dutch healthcare system is organised. Seventy-three percent didn't know how their specialty department is organised and financed. They were most confident of their ability to handle feedback (85%), medical information databases (95%) and on how they allocate healthcare resources (81%). Around one-third gave neutral ratings in being able to negotiate career ambitions, feeling adequate in leadership roles and of their knowledge on healthcare law.
Conclusions/Take-home messages: Dutch medical residents perceive a lack of knowledge and skills in several aspects of medical management.

7G2

The 3-hour meeting process as an organisational tool for educational change and development

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Background: At Aalborg Hospital, Denmark, the 3-hour meetings is an established process to engage junior doctors in generating educational initiatives supported by management. Moreover, the meetings are utilised for hospital management to obtain focused improvements.
Summary of work: The 6 other DanMED roles than medical expert required from the Danish Health Authorities are difficult to grasp - hence there is a need for concrete guidelines as to how to qualify within these roles. Therefore the agenda for 3h meetings 2009 was to provide ideas on how to obtain these qualifications in the clinical work setting.
Summary of results: A wide arrange of ideas for obtaining DanMED qualifications in the workplace were elicited: 44 ideas for Communicator, 40 for Collaborator, 45 for Scholar, 21 for Professional, 34 for Manager, and 34 ideas for Health Advocate. From previous years, we know that we can expect 2/3 of the initiatives to be partly or fully implemented. Effects of focus for 2009 can already be seen with departments arranging meetings within Health Advocating or making posters providing overview of how to obtain the roles.
Conclusions: By focusing the 3h meetings, specific educational changes are made that would arguably not occur otherwise.
Take-home messages: The 3h process is an organisational tool for educational change and development.

7G3

Postgraduate Education in Palliative Care - How a systematic review informed the development of a competency based curriculum renewal and design

S Winemaker, D Marshall, L Shaw, M Howard, A Taniguchi and K Brazil (McMaster University, Hamilton, Ontario, Canada)*

Background: Since no thorough systematic review of postgraduate training programs in palliative care exists in the literature, the authors undertook this review in order to inform an upcoming curriculum renewal for palliative care in the family medicine residency program at McMaster University. The intent was to use the review plus the articulated competencies expected by the resident at end of training, as well as key informant and residency focus groups, to develop and deliver a multi-pronged curriculum.
Summary of work: A systematic review was undertaken and a working group established to examine the results in light of nationally articulated palliative care competencies for residents. A new postgraduate curriculum was then designed that built on the strengths of the literature review, and incorporated a mandatory clinical experience, multiple modalities to gain the articulated competencies, elective experiences, online learning and e portfolios
Summary of results: A robust curriculum with a menu of both mandatory and elective offerings was found to be the most appropriate, evidence based approach to a competency based curriculum design
Conclusions: Intensity of the learning experience, more than hours of exposure was found to be important. Providing multiple curricular components, delivered via a variety of mediums to attain the proposed competencies proved popular, feasible and sustainable.
Take-home messages: Use the systematic review to guide curricular renewal and provide multiple ways to achieve set competencies.

7G4

Specialty training programme in Croatia

N Cikes[1], S Kalenic[1], K Sekelj-Kauzlaric[2], H Minigo[2], H Sobat[3], Z Metelko[3], Z Reiner[4], D Derezic[1], D Bosnjak[1] and AZ Golem[5] ([1]University of Zagreb School of Medicine; [2]Croatian Medical Chamber; [3]Croatian Medical Association; [4]Academy of Medical Sciences of Croatia; [5]Ministry of Health and Social Welfare, Croatia)*

Background: The creation of the new competency-based specialty training programme (STP) in Croatia entails the involvement of all the stakeholders such as: all four medical schools, Croatian Medical Chamber, Croatian Medical Association and Academy of Medical Sciences of Croatia together with the support of the Ministry of

Health and Social Welfare. The Coordination Committee comprising the representatives of all institutions was nominated and medical schools were invited to organise the work.
Summary of work: After elaborating the European boards/UEMS sections proposals, EU directives requirements, actual STPs and necessary changes of the bylaws, 50 groups with 12 representatives of medical schools, the Chamber and relevant specialist societies worked jointly and proposed new documents.
Summary of results: Learning outcomes, level of generic and specific competencies, institution and mentor requirements, programme duration and plan, number of procedures required, and logbook for each specialty were defined. The new bylaws are proposed, implementation elaborated with the Ministry.
Conclusions: The largest project in medical education in Croatia involving 600 specialists defined new STP and corresponding legislation.
Take-home messages: Only a joint commitment of all the stakeholders involved (academic institutions, professional societies and organisations, together with the Ministry of Health) will result in a successful STP.

7G5

Results of a pilot implementation of competency-based assessment in Family Medicine

S Ross[1], M Donoff[1], C Poth[2], P Humphries[1], I Steiner[1] and R Georgis[2] (University of Alberta, [1]Department of Family Medicine; [2]Department of Educational Psychology, Edmonton, Canada)*

Background: We developed the Competency-Based Achievement System (CBAS) in response to Departmental needs in assessment. CBAS uses an electronic workbook (eCBAS) to organize Field Notes (FN) of formative feedback to guide self-assessment. Summative evaluations of progress use contents of eCBAS.
Summary of work: Implementation of eCBAS was staggered across 3 sites over 6 months. We used mixed methods: quantitative data from eCBAS, and qualitative data from 3 focus groups (3-6 residents in each). Our research question was: To what extent and in what way are residents at pilot sites using CBAS?
Summary of results: Of 31 residents, 6 have no FN, 9 have at least 1 FN, 6 have at least 1 FN/week, and 12 residents have more than 2 FN/week (total FN = 1188). Most FN are in the categories of Clinical Reasoning (33%) and Procedural Skills (22%). Qualitative data indicates the following themes: need for Faculty Development around giving feedback, need to improve FN entry procedures, and perceived potential of the CBAS system.
Conclusions: Residents see the potential of CBAS; varying levels of adoption reflect need for further training about the principles and goals of CBAS for resident learning.
Take-home messages: Training is key when implementing competency-based assessment.

7G6

Do physicians' professional competencies change during the career? A Finnish national survey

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Background: Competence consists of range of skills, knowledge and attitudes used in work. Different models for defining competency areas of physicians have been introduced. The goal of this study was to explore how Finnish physicians perceive the need for different competencies during their career.
Summary of work: Data for this study were collected in a national questionnaire administered by the Finnish Medical Association (response rate= 63%; N=11,959). The competencies were derived from the CanMEDS framework (seven areas) and articulated into eleven items. The participants were asked to assess how much they needed different items in their work.
Summary of results: Factor analysis identified three broad dimensions of competency: 1) Medical knowledge 2) Management skills and 3) Interpersonal skills. A multivariate analysis of variance showed that evaluations about how many different areas were needed varied according to sex, speciality and position.
Conclusions: The results complied with the framework provided by CanMEDS, but the factor analysis compressed the seven areas in to three broader dimensions. This study suggests that in addition to the differing demands for medical expertise, different specialties also induce divergent demands for other competencies.
Take-home messages: If physicians are assessed, they should be assessed in accordance with the needs of their work assignments and perhaps bearing the stage of career in mind.

7H Short Communications: Peer Assisted Learning 1

7H1

Pushing the limits of PAL: Can student tutors train their peers to teach?

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Background: In peer assisted learning (PAL) non-professional tutors usually help others learn. This study investigated whether medical students could use PAL to train other students to act as tutors to their peers.
Summary of work: Senior students trained by experts to teach clinical examination of the neurological system recruited other students to train as volunteer tutors. 58 junior students participated in sessions, 35 trained by senior students and 23 by volunteer tutors. Trainee responses were assessed using pre- and post-course confidence scoring using visual analogue scales and course experience questionnaires (CEQ) including free text comments. Tutor responses were similarly assessed. Volunteer tutors attended a post-course focus group about their experiences.
Summary of results: Confidence increased for all trainees ($p<0.05$) independent of tutor training. Data from CEQs (n=58), and free text comments confirmed results. Senior and volunteer tutors experienced increased confidence levels. CEQs (n=8) and free text comments confirmed findings. Qualitative focus group data showed volunteer tutors' experiences were similar to expert-trained senior tutors.
Conclusions: This is the first report in the literature showing student tutors trained by experts are capable of delivering PAL sessions and are also equipped to train other students to act as tutors.
Take-home messages: Student tutors have shown they can train their peers to teach.

7H2

A pilot study exploring the utility of applying a behavioural model for predicting the drivers and barriers to providing mentorship in medicine

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Background: Despite having enthusiasm for offering mentorship, barriers still prevent medical students and doctors from providing support. If applicable in the context of mentoring, Fishbein's integrative model of behaviour 1) predicts that self-efficacy and group norms influence whether mentors offer support.
Summary of work: Final year medical students were invited to participate in focus groups and recall their experience of mentoring in the first 3 months after training. Metaplanning 2) was used to help elicit drivers or barriers, rank their importance, as well as organise themes into categories for comparison against the model.
Summary of results: "Helping others" was the most popular driver but "getting started" was the most cited barrier. Although "altruism" was proposed to be the most important driver, "self-confidence" was suggested to be the most difficult barrier to overcome.
Conclusions: Fishbein's model would have predicted self-efficacy and motivation to be key drivers or barriers in the context of mentoring. This model may help to predict the likelihood of individuals offering support after being trained in the future.
Take-home messages: Theoretical frameworks may be used for explaining likely drivers or barriers to sustaining mentorship and for helping propose theory based interventions that could be used to overcome these as part of future faculty development.

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7H3

Peer assisted mentoring: A novel approach to the reflective aspects of the cleanliness champions programme

Barbara Findlay, Janet Skinner and Janette Moyes (University of Edinburgh, College of Medicine and Veterinary Medicine, Edinburgh, UK)*

Background: The Cleanliness Champions programme is an online package designed by NHS Education Scotland in a bid to combat healthcare acquired infections. The medical student version consists of a number of e-learning modules and a focus on reflective aspects.
Summary of work: Mentorship is an integral part of the Cleanliness Champions programme. To mentor 250 students we trained senior students who had completed the Cleanliness Champions programme and attended a generic tutor training afternoon, to mentor Year 3 students on the reflective components of the programme. Both tutors and tutees completed feedback sheets on their mentorship sessions.
Summary of results: Peer mentorship of the Cleanliness Champion programme gives senior students the opportunity to be responsible for teaching junior students, consolidates their own knowledge of infection control and develops their own personal teaching styles. Our junior students report that they find mentoring less intimidating when carried out by peers that have a good knowledge of infection control and are competent and confident.
Conclusions: Student mentorship of the Cleanliness Champions programme through peer-assisted learning encourages interest in infection control and promotes patient safety in the clinical environment, through positive role modelling and engagement by the students.
Take-home messages: Peer assisted mentoring encourages engagement by students through the use of positive role modelling.

7H4

Medical students as simulated patients

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Background: Injection skills are included in the Pediatrics clerkship. Studying from computer assistant instruction (CAI), demonstration and practicing with a manikin before practice with children are incorporated into 5th year medical student curriculum. It is both unfair and impractical to practice with children if they still have no confidence and incompetent. Medical students themselves, therefore, should become a feasible and appropriate simulated patients practicing injection.
Summary of work: After learning injection techniques according to the setup programme. Evaluation by teacher and nurse were done during giving vaccination to children at well child clinic. Questionnaires before and after practice were performed.
Summary of results: There are 116 medical students studied and evaluated during March-Feb 2009. There were 32 medical students in simulated group had 100 % confidence after practicing. We found that students in the manikin group were more reluctant and performed worse. ($p = 0.000$)
Conclusions: Medical students as simulated patients can improve performance by direct experience feedback and from their friends.
Take-home messages: Direct experience and feedback methods are more constructive or useful than manikin for practicing injection

7H5

Does introduction of a 'buddy' in the early years promote ward based learning? A qualitative study

Janette Moyes, Barbara Findlay and Janet Skinner (Western General Hospital, Edinburgh, UK)*

Background: Throughout the UK, graduates are expected to reflect, learn and teach others. In Edinburgh core clinical skills and procedures are taught in simulated environments before clinical placements. Although simulation-based learning offers many benefits, novice students are often unaware of how much practice is required to develop competence and need support to transfer learning from simulation into clinical contexts. This study aims to explore the experiences of students taking part in a buddying system aimed at early transfer of simulated to ward based learning.
Summary of work: A buddy system was piloted involving final and 3rd year medical students. Six buddy pairs revised history taking and examination skills with patients on wards. Senior students gave feedback using a structured feedback sheet. Semi structured interviews are being carried out with all twelve students.
Summary of results: Junior students lack confidence to access, engage and reflect upon ward based learning. Initial student experiences suggest that buddying senior to junior students to share standardised feedback promotes placements as learning environments. Senior students benefit by revising clinical and teaching skills.

Conclusions/Take-home messages: A buddying system facilitated senior students to signpost learning for junior students while simultaneously developing skills in mentoring necessary to participate in a ward based model of learning

7H6

Peer-Assisted Learning: Exploration of the role of peer-tutor

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Background: Peer-assisted learning (PAL) is a technique used for medical education at The University of Manchester. PAL has demonstrated unique benefits in medical education. These include a supportive atmosphere in sessions, teaching on students' own cognitive level and the feeling of freedom to ask questions. The exact reason for these benefits is not clear.
Summary of work: There is relatively more past research into how the learners in PAL respond, but less about the peer-tutors. The study used focus groups and one-to-one interviews with PAL peer-tutors to investigate how PAL tutors interact with students in sessions, and how they perceive their teaching role. Video recordings of PAL sessions were used in the focus groups and interviews to stimulate grounded discussion around these themes.
Summary of results: The PAL tutor-student relationship exhibits cognitive and social 'closeness', which may facilitate learning during sessions. PAL tutors describe 'breaking down the barrier of teacher-learner interaction' while in PAL sessions. They have developed teaching techniques to achieve this.
Conclusions: Cognitive and social closeness between peer-tutor and students may foster the learning relationship in PAL. Peer-tutors adopt teaching strategies that facilitate closeness.
Take-home messages: Cognitive and social closeness may underpin the learning relationship in PAL.

7H7

MEDIK-T: empowering medical students to be involved in medical education

M Weggemans, R Buttigieg* and R Duvivier (University of Utrecht, The Netherlands)*

Background: The International Federation of Medical Students' Associations (IFMSA) aims to give students the necessary knowledge and skills to work with their faculties to restructure and improve their education. This is done during MEDIK-Ts (Medical Education Development International Kit – Training) where members from all 100 IFMSA member countries come together.
Summary of work: The aims of the MEDIK-T are: 1) To provide knowledge of Medical Education. 2) To develop personal skills to increase effectiveness. 3) To improve the work in participants' work in their home countries. The peer to peer trainings utilise various teaching methods on a wide range of topics (e.g. adult learning theory and curriculum development), with additional support from expert teachers. Participants are encouraged to use their newly gained skills and knowledge in their local setting.
Summary of results: We have held three MEDIK-Ts since 2009, with 50-80 participants from all continents. Students' evaluations have been consistently positive and national MEDIK-Ts are now being developed and piloted.
Conclusions: The MEDIK-Ts empower medical students and improve their participation in medical education either as student-teachers or student-representatives.
Take-home messages: Peer teaching sessions on educational theory and practical teaching is a useful and enjoyable way to involve medical students in improvement of their education.

7I Short Communications: Community Based Education

7I1

Medical students' reflection about initial visit to a primary health care unit

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Background: The aim of this study is to investigate students' reflection about primary health care (PHC) services while they visited first time.

Summary of work: Phase I students took part in the study. The students visited to PHC unite in their good medical practice program. 174 students filled out individual reflection forms after visiting. Qualitative data was entered into the computer and thematic coding was done. Reflection of students was categorized as "positive", "neutral" and "negative" and compared their reflection between before and after visit.
Summary of results: Before the visiting, 67.5% of the students' expectations were determined neutral. Students expected to make observations "provided services", "patient-doctor communication" and "working conditions" most frequently. After visiting 80.6% of students were positive emotions. Students stated that "they are motivated to be in the profession", "they regard themselves as a doctor" and "they observed patient-doctor communication" after visiting. A large portion of students who had low expectation before the visiting had positive impression after visiting.
Conclusions/Take-home messages: This study has revealed that the visiting in PHC units provides recognition of basic health services and is a positive impact on students' motivation to be a doctor.

7I2

Primary health care experience and reflections of medical students in Marmara University

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Background: According to Marmara Medical School (MMS) curriculum, since 2003, third year students visit primary health care centers to experience an early patient contact leading to participation in patient care including team work. This study aims to evaluate reflections on primary health care experience (PHCE) of third year students.
Summary of work: MMS has affiliated 12-14 centers for community oriented experience. Student groups were supervised by clinicians of the center during their clinical practice, which is designed to observe and develop the clinical skills which are fundamental to practice medicine and clinical problem solving.
Summary of results: Student diaries and logbooks were used to assess PHCE, content of diaries evaluated by analytical rubric items such as to observe the roles of a primary care setting as a unit, to experience an early patient contact and to appreciate the wider determinants of health. This year student reflections were collected through diaries which contain certain items reflected on learning experience. The structure and purpose of reflection was announced at the beginning of the program. The course coordinator provided online feedback to students.
Conclusions: Students appreciated the wider determinants of health and professional partnership/roles in primary health care settings.
Take-home messages: Students had an opportunity compare the program outcomes and actual health provision.

7I3

Why do rural GPs engage in longitudinal integrated community-based clerkships at a time of workforce shortage?

E A Farmer, J N Hudson and K M Weston (University of Wollongong Graduate School of Medicine, Australia)*

Background: In keeping with its mission to produce doctors for rural and regional Australia, the University of Wollongong Graduate School of Medicine has established an innovative model of clinical education. This involves a 12-month integrated community-based clerkship where students live, learn and work in a regional or rural community.
Summary of work: Before the first student cohort started their clerkship, we interviewed 28 general practitioners to determine why they engaged as clerkship supervisors at a time of workforce shortage. Independent researchers conducted semi-structured interviews. Responses were transcribed for thematic analysis.
Summary of results: The new model motivated supervisors to engage in the program. It enhanced opportunities to contribute to teaching compared with short-term attachments. Supervisors appreciated the significant recognition of the value of general practice teaching and the honour of major involvement in the university. Other themes included the doctors' commitment to their profession, 'handing on' to the next generation and helping their community to attract doctors in the future.

Conclusions: Doctors expected that this innovative longitudinal clerkship model would offer a worthwhile strategy to help address workforce shortages. The longitudinal relationship between preceptor, student and community offered reciprocal benefits.
Take-home messages: Supervisors perceive that new clinical education models offer attractive alternative solutions to health care education, delivery and workforce.

7I4
Making successful community placements in undergraduate medicine
B Amies, R Lindley, J Ream, S Smithson and C Rayner (Medical Education, University Hospital of South Manchester, UK)*

Background: In the first two years of the Manchester curriculum, community placements make up two days per semester, and later comprise 20% of total clinical experience. To assess how experiences on placements can be improved, we explored a variety of student opinions across years.
Summary of work: Three sets of pre-existing qualitative data on community placements were compared. These were: email responses collected by an administrator (a normal evaluation process) (49 students), written responses in a workshop on maximising placements with a GP clinical teaching fellow (88 students), and by a student using focus groups as a research project (32 students). Each set was independently thematically analysed then themes were compared to identify common 'core' themes.
Summary of results: Factors were identified regarding what comprises a "good practice", the placement structure and student behaviour. Dominant themes regarded clear and relevant learning objectives and active learning experiences. The supervising doctor was often seen as the broker of success. Students thought that placements were most successful when they felt welcome and had tasks provided.
Conclusions: We propose a set of generic student suggestions for successful community placements.
Take-home messages: Recommendations vary in feasibility, but some relatively minor changes to practice activities can make big differences to student experiences.

7I5
Medical students' attitudes towards the chronic sick
K Mullen, P Cotton and M Nicolson (University of Glasgow, Centre for the History of Medicine, Glasgow, UK)*

Background: The need for medical students to engage with the elderly and those with a chronic illness is projected to increase in coming years. There will be a concomitant greater emphasis on community-based learning. The present study assessed the impact of a community-based teaching initiative, the Life History Project, on students' attitudes to these groups.
Summary of work: A questionnaire including Likert based responses and free text comments were distributed to all first-year MBChB students after completion of their Life History coursework. Data was analysed using SPSS and content analysis.
Summary of results: A high proportion of students believed the Life History project had increased their understanding of both psychological and social aspects of health and illness and the role of the medical humanities within this. The qualitative free text comments corroborated these views.
Conclusions: We discovered that the Life History project not only gave students first-hand experience of the elderly and chronic sick but also had a positive effect on their attitudes towards these groups.
Take-home messages: It is possible to positively influence medical students' attitudes towards these stigmatised groups; it is therefore important that we continue to enhance opportunities for learning about the impact of chronic illness on individuals and society throughout the curriculum.

7I6
Do students in a longitudinal integrated community clerkship perform as well as students in the traditional clerkship? A preliminary analysis
W Woloschuk, W Jackson, K McLaughlin, D Myhre and B Wright (University of Calgary, Canada)*

Background: The University of Calgary recently (Class 2009) implemented a longitudinal integrated community clerkship (ICC) in the third and final year. Students spend 36 weeks in a rural community and must achieve the same objectives and write the same examinations as students in the traditional clerkship. A 3-year evaluation plan comparing the performance of students in the two steams is underway.

Summary of work: Initially, each ICC student (n = 9) was matched academically with 4 peers in the traditional clerkship (n = 36) to serve as controls. Measures of both knowledge and clinical skills in the mandatory clerkship rotations for students in the two streams were compared. Performance on the clerkship OSCE and the Medical Council of Canada (MCC) licensing exam were also examined.
Summary of results: MANOVA revealed no statistical differences in performance between students in the two streams on any of the written exams, in-training evaluation reports, the OSCE or the MCC licensing exam.
Conclusions: Performance of ICC students appears comparable to that of students in the traditional clerkship.
Take-home messages: Students who complete the majority of their clerkship in community sites are able to meet learning objectives without sacrificing their academic or clinical skills development.

7I7
Initial experiences in a novel outer suburban Community-Based Medical Education Program
S Mahoney(Onkaparinga Clinical Education Program (OCEP) Flinders University, South Australia)*

Background: Onkaparinga Clinical Education Program (OCEP) was established in 2009 by Flinders Medical School (FMS) as an innovative longitudinal, community-based clinical experience for senior medical students, based in an outer metropolitan area in South Australia.
Summary of work: Learning occurs in longitudinal general practice and emergency department attachments, supplemented by specialist placements and supported by FMS academic program.
Summary of results: General practitioner preceptors found longitudinal placements more rewarding than shorter attachments and stated that patients enjoyed the student contact. Placements worked particularly well if several GPs from a practice participated. Specialists found OCEP placements less satisfying than familiar hospital block rotations. Emergency department (ED) staff enjoyed teaching, with students becoming valuable team members. Staff were concerned about impact on workload. Students were initially anxious and this persisted through much of the first year. With hindsight, (passing the exams) students were more positive.
Conclusions: Longitudinal CBME in suburban general practice with local hospital and specialist attachments provides excellent learning opportunities but requires further development to establish the model.
Take-home messages: "Where is your student today?" CBME will have established its success when patients routinely expect their doctor to also be a teacher.

7J Short Communications: Professionalism

7J1
Medical students' personal incident narratives of professionalism dilemma situations: An international study
Lynn V Monrouxe[1] and Charlotte E Rees[2] ([1]Cardiff University, Division of Medical Education, School of Medicine, Cardiff; [2]University of Dundee, Centre for Medical Education, Dundee, UK)*

Background: In professional dilemma situations students feel 'put on the spot' regarding the professional behaviours of themselves or others. All medical students experience such situations during basic training. Previous research concentrated on professionalism lapses using written ('crafted' confessions) or oral explanations of hypothetical behaviours.
Summary of work: An international study (England, Wales, and Australia) explored students' personal incident narratives (PINs) of behaviours during professionalism dilemmas (including lapses, and resistance to lapses). Thirty-two group and twenty-two individual interviews were conducted (n=200) with students across all years. The data were analysed using Framework Analysis exploring what students narrated and how they narrated it.
Summary of results: 833 PINs were coded. Twenty content themes were identified including dilemmas about: Students' identities, Informed consent, Patient care, Student humiliation and mistreatment, Death and dying, Dissection, and Overseas placements. Furthermore, these PINs are richly detailed, brimming with laughter, metaphors, narrative plotlines and emotional talk that provide unique insights into the personal meanings that these events hold for students.
Conclusions: Listening to PINs of professionalism dilemmas can reveal the impact dilemmas have on students and the difficulties they experience in the face of such dilemmas.

Take-home messages: Understanding professionalism dilemmas from the students' perspective (how they acted and why) can inform the appropriate development of professionalism curricula.

7J2

Social networking sites: Facing the new challenges of professionalism in medical students

J Chambers, J Shaw and S Ogston (University of Dundee Medical School, Dundee, UK)*

Background: The use of social networking sites (SNSs) is commonplace among students. However, distinctions between personal and professional life can become blurred when using such sites. Tomorrow's Doctors and Medical Students: Professional behaviour and fitness to practice outline the professional standards required of medical students, but do not specifically address the use of SNSs.
Summary of work: A questionnaire was distributed to all medical students at the University of Dundee. Areas explored included privacy settings on student SNSs and the types of information posted. Results between year of study, graduate status and gender were compared.
Summary of results: The response rate was 60.4% (n=519). Nearly 60% of respondents did not have a private profile. Personal and professional information was often revealed, including identifiable details. Students reported posting images of alcohol-consumption (74.2%) and smoking (5.9%). Notably, 46.2% had never worried about appearing unprofessional. Overall, no significant difference was noted between 1st and 5th year students.
Conclusions: Many students are unaware of the risk of appearing unprofessional on their SNS. Guidelines are needed to ensure adherence to GMC advice, something welcomed by the majority of respondents.
Take-home messages: 1) Limited awareness of the risk of appearing unprofessional on SNSs. 2) Clearer guidance needed for medical students on the professional use of SNSs.

7J3

Viewing medical professionalism from the perspective of the general public

M Chandratilake[1], S McAleer[1], J Gibson[2] and S Roff[1] (University of Dundee, [1]Centre for Medical Education; [2]Dental School, UK)*

Background: Medical professionalism has been increasingly seen from the perspective of the general public. The objective of this study was to investigate the perceived importance of professional attributes of doctors to the UK general public.
Summary of work: Forty-six professional attributes were retrieved from a comprehensive literature search. Nine social misconceptions were added to the list by the authors. A national representative sample of 953 members of the UK general public were asked to rate the importance they place on each of these 55 items using a five-point Likert scale.
Summary of results: The general public rated almost all the attributes identified in the literature as being important despite their gender, age or social status. However, the majority of those highly rated attributes focused on the doctors' relationship with patients. Factor analysis of these items identified three facets to medical professionalism: clinicianship; workmanship; citizenship. The misconceptions related to social standing, wealth and appearance received low ratings.
Conclusions: The public perspective of medical professionalism can be seen as a three-faceted phenomenon. It is related to doctors' relationship with patients, colleagues and society.
Take-home messages: Medical professionalism extends beyond the boundaries of doctor-patient relationship.

7J4

An ethnographic study of the effects of the clinical setting, and its hidden curriculum, on students' professional identity and the barriers to obtaining effective support in their formation

J Goldie, A Dowie, A Goldie, P Cotton, J Morrison and J B Neilly (University of Glasgow, UK)*

Background: How do today's medical students develop professional identity through the clerkship experiences that frame clinical learning? Students' formation in the hidden curriculum is mediated by role models, yet curriculum change can entail a reduction in time spent in the ward setting, with implications for the quality of contact with clinical teachers, nurses, and other health care professionals.

Summary of work: A pilot ethnographic study was undertaken in a university teaching hospital, combining longitudinal fieldwork observation of medical students with a series of educational supervisor interviews and student focus groups.
Summary of results: Fieldwork elucidated the strategic manner of students' experiential learning, and aspects of their hospital demeanour reflected both continuity and discontinuity with their university campus 'selves'. Student focus groups articulated what they variously consider to be motivating and destructive with respect to their emergent professional identities. Supervisors who were interviewed noted clear differences in students compared to those of previous eras.
Conclusions: Where the multiple identities of medical students as individuals in today's culture are relatively accentuated, there is risk of tension with an informal curriculum fostering a reductively conforming 'self' that is more of a simulacrum than authentic medical professionalism.
Take-home messages: Students should be supported in integrating multiple identities within their formation as medical professionals.

7J5

Developing a taxonomy for the assessment of professionalism in British surgeons

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Background: Professionalism is identified as a domain of competency for UK surgical trainees. This implies that professionalism can be learned and assessed. We wanted to determine how surgeons and people who "suffer under surgeons" (trainees, nurses and patients) value different aspects of professionalism.
Summary of work: Interviews with senior surgeon-educators, nominal group technique with surgeons, trainees, nurses who work with surgeons and surgical patients (breast cancer and stoma patient groups) and Questionnaires to define the characteristics most valued.
Summary of results: Senior surgeons see professionalism as a global concept within a surgical community of practice. Different groups value different elements of professionalism: excellence for consultants, accountability for trainees; nurses value surgeons' relationships with other team members; patients most value altruism and honest communication. Surgeons tend to think of professionalism as abstract concepts such as diligence, honesty and accountability, but patients describe specific behaviour e.g. "be prepared to walk the extra mile with me". Twenty characteristics were identified to trial in an assessment tool.
Conclusions: Surgical professionalism contains a large number of person and behavioural characteristics; we identify the most valued for inclusion in a quantifiable assessment instrument.
Take-home messages: The input of non-surgical team members and patients is essential for the validity of an assessment tool for surgical professionalism.

7J6

Students' attitudes towards peer assessment of professionalism: A multi-centre study

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Background: Undergraduate medical students in the UK are expected to meet numerous guidelines relating to their professional behaviour as specified by the GMC 1) This guidance includes objectively appraising and assessing the performance of their colleagues 2) Little is known about how students perceive and understand these requirements, and the impact this has on their learning experience.
Summary of work: 72 undergraduate students from 2 schools participated in 13 focus groups. Data were analysed using a grounded theory approach3.
Summary of results: Focus group themes were: the context for appraising the professional behaviour of peers, the appropriate disclosure of peer appraisal, how students justified their peer appraisals, the importance of feedback for personal reflection, the importance of good role models, the teaching of professional behaviours and lifelong learning.
Conclusions: Students understood the importance of peer appraisal as part of their professional development, although they did have reservations about delivering constructive feedback face to face. Students suggest that professional behaviour is subjective, therefore teaching and appraising professionalism is context dependent e.g. if its on clinical placement, in a classroom setting or even on virtual environments then the feedback will be different.

Take-home messages: Students need to understand why they are appraising peers, and how this impacts upon their professional development and personal reflection.

7J7

I'm watching what you do: Professionalism from the students' point of view

R Hemphill and S Santen (Emory University School of Medicine, Atlanta, GA, USA)*

Background: The purpose of this study is to better understand professionalism in the ER from the perspective of medical students.
Summary of work: 4th year students in an emergency medicine clerkship were required to write two reflections during the month. Qualitative analysis to determine themes was performed.
Summary of results: 58 student reflections included professionalism issues. Several themes emerged: how to determine if a patient has drug seeking behavior, awareness of cynicism, unprofessional conduct by physician superiors, and being subordinate in a hierarchy. Many students struggled with how to approach potential "drug seekers" and related uneasiness about prescribing narcotics. They were concerned about the balance of compassion, often noting the difference in the patient's background compared to their own. Other students noted poor professional role modeling by residents or attendings. Some students related the importance of communication and advocating for patients, while others noted a lack of teamwork.
Conclusions: Students are aware of professional and unprofessional role modeling, both good and bad, in the clinical environment.
Take-home messages: Through student reflections, we may gain a deeper understanding of good and bad professional behaviors from the view of students as well as the threats to professionalism that students witness.

7K Short Communications: Evaluation of the Teacher

7K1

Are our best teachers more effective – or do they just sound better?

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Background: Teaching effectiveness is typically evaluated using rating scales that are prone to systematic biases. Previous studies found a correlation between superficial attributes, such as physical attractiveness, and ratings of teaching effectiveness. Our objective was to study the correlation between "thin-slice" ratings of verbal communication and ratings of teaching effectiveness.
Summary of work: Twenty one first-year medical students from the class of 2011 rated teaching effectiveness of ten teachers, whom they had not encountered previously, based upon anonymous two-minute audio clips. We then compared these rating to the end-of-course ratings for these teachers from the class of 2010.
Summary of results: There was a significant correlation ($r=0.9$, $p = 0.004$) between thin-slice ratings and end-of-course ratings, suggesting that approximately 80% of the variance in the teacher ratings can be explained by the perceived effectiveness of verbal communication.
Conclusions: Students' ratings of teaching effectiveness are highly correlated with perceptions of verbal communication. Teaching interventions should highlight ways for teachers to improve verbal communication skills, although it is unclear if this will lead to better learning outcomes, or just more enjoyable learning experiences.
Take-home messages: Students' perceptions of teaching effectiveness are highly correlated with perceptions of verbal communication.

7K2

What do UK medical students consider to be important components of the clinical mentor role?

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Background: Research has strongly supported the influences of 'role models' and good clinical teachers in enhancing learning and influencing career paths of medical students. There is much overlap within the literature between the terms 'clinical teacher' and 'role model'. As roles are defined by the expectation of

others this research sets out to make explicit what UK medical students consider important components of the clinical mentor role.
Summary of work: Questionnaire to fourth year medical students at a large London teaching hospital inviting free text comments about clinical mentors. Content analysis of comments with coding dictionary generated from the data. Focus groups to explore differences and similarities between a good clinical teachers and mentors.
Summary of results: Many themes emerged from the data but these could effectively be clustered under 4 roles: model clinician, teacher, supervisor, and person. Despite identifying these roles, actual selection of a mentor was governed by approachability, availability and awareness of learner needs.
Conclusions: Selection of a mentor by a medical student is complex - desirable qualities may be identified but selection is determined by approachability, availability and awareness of learner needs.
Take-home messages: Medical schools should consider these factors when arranging student placements in order to facilitate excellent mentor - mentee partnerships.

7K3
Student assessment of faculty professionalism
R Cruess[1], S Cruess*[1], M Young[1] and J Pickering[2] (McGill University, [1]Center for Medical Education; [2]Associate Dean for Undergraduate Education, Montreal, QC, Canada)*

Background: A universal barrier to the teaching of professionalism in medicine is unprofessional conduct by teachers. Providing students an opportunity to evaluate the professionalism of their teachers can involve students in improving the teaching environment and provide data for remediation and recognition.
Summary of work: Students and faculty developed and piloted a form for student assessment of faculty professionalism. The form contained an overall rating and 16 items in four equal categories; evaluated on a five-point Likert scale anchored from 'Unsatisfactory' to 'Excellent', hosted on an electronic platform used at McGill for curricular monitoring. Students completing clinical rotations were required to evaluate two faculty members in order to view their marks electronically.
Summary of results: In 8 months since implementation, 2510 forms were returned (~14/student). 'Excellent' was the modal response for all categories, with 544 unsatisfactory ratings (across all 16 behaviours) reported. In the overall rating of individual faculty members, 26 'unsatisfactory' and 91 'fair' responses were recorded. All unsatisfactory ratings were immediately flagged to an Associate Dean, and some actions taken will be reported.
Conclusions: Student assessment of faculty professionalism is possible; both for remediation and recognition.
Take-home messages: Student assessment of faculty professionalism can be a powerful tool to improve the learning environment.

7K4
A qualitative evaluation of online feedback given to clinical teachers
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Background: An on-line checklist used to assess a clinical teaching session, provides clinical teachers with formative feedback from all those present at the session. Clinical teachers can compare their own ratings with normative data collected from other clinical teachers who have been assessed. Feedback includes graphs to compare standardised self and trainee scores, raw scores, and qualitative comments. We aimed to explore the utility of the web-based programme and the formative feedback it generates.
Summary of work: After evaluating a teaching session, clinical teachers from different specialties or grades were asked to take part in an interview to review the process. To date ten clinical teachers with 106 evaluations between them have been interviewed and transcripts thematically analysed.
Summary of results: Interviewees found the web-based programme was quick and easy to use, allowing clinical teachers and trainees to enter ratings directly and they would use the programme again. The checklist informed reflection on teaching helping clinical teachers identify specific areas for improvement. Suggestions were made to improve the process, such as being able to self-register.
Conclusions: The web-based checklist is an easy way to evaluate clinical teaching, providing rich information about a single teaching session to inform reflection and identify areas for improvement.
Take-home messages: This is a useful and convenient way to assess your clinical teaching

7K5

Improving lectures: combining student and peer-review of lectures

M-L Dick, D King, A Moore, P Rego, T Papinczak, R Peterson and T Janamian (University of Queensland, School of Medicine, Brisbane, Australia)*

Background: Lecturing remains an important teaching modality in today's multi-faceted approach to medical education, yet while the evaluation of lectures by students is common, peer review is less common. Peer review has the potential to provide feedback that is different in nature and complementary to that received from students.
Summary of work: In 2008, participating General Practice Rotation lecturers delivered their lecture/s in the presence of one GP academic and one medical educationalist. De-identified student evaluations were forwarded to lecturers; peer evaluations were given by face-to-face discussions and/or written summary. This process was repeated several months later when the lecture was delivered to a different cohort of students. Lecturers and peer reviewers evaluated their experiences.
Summary of results: Twelve lecturers participated in the project, delivering a total of 17 different lectures to students per rotation. Coordinating the availability of reviewers was challenging but feasible. Results show a positive trend in student lecture evaluations following the peer review process. Lecturers reported "substantially" valuing their participation in the project and asked for peer-review to become a regular occurrence.
Conclusions: This project provided lecturers with feedback on their performance from both students and peers, and enriched the learning environment for both students and teachers.
Take-home messages: Where possible, undertake peer-review of lectures regularly.

7K6

Students' perception of the student teacher relationship, and the learning process

Keren Levitin (Ben Gurion University of the Negev, Recanati School for Community Health Professions, Israel)*

Background: To be a Registered Nurse in Israel requires 4 years of study for the RN, BN diploma. As in other health professions, nursing students must do clinical rotations which will allow them to achieve the practical training they need to obtain a nursing license. In these rotations the clinical teacher is the main facilitator in the student's learning process.
Summary of work: Goal of the study: To check how the nursing students perceive the meaning of student teacher relationship in the learning process. Method: Qualitative study using focus groups. All focus groups were recorded, transcribed, and content analysis was performed to identify main themes.
Summary of results: Six characteristics of the clinical teacher were found to be significant in the eyes of the students, regarding confidence in the clinical setting and the learning process. These were: the clinical teacher as a safety net, working together, communication and feedback, reduction of anxiety, positive personality of the clinical teacher and the teacher as a role model.
Conclusions: Students see in the clinical teacher a significant figure who contributes to, or harms, their learning process and sense of security in the clinical learning environment.
Take-home messages: Student-teacher relationships influence the learning process of students for better and for worse.

7L Short Communications: Teaching and Learning: The Lecture

7L1

The use of new media (videos) in teaching psychotherapy to undergraduate medical students: impacts on learning outcome, fun and motivation

A Kuhnert, R Naumann*, R Pfeifer, A Sandholz, T Bay, E-M Schneid and M Wirsching (University Hospital of Freiburg, Department of Psychosomatic Medicine and Psychotherapy, Freiburg, Germany)*

Background: Teaching psychotherapy to medical students remains theoretical, since students cannot observe therapy sessions directly. Video tapes could facilitate a sort of bed side teaching (Rojas et al. 2010).

Summary of work: In 2009, 114 medical students (psychosomatics) were taught three different methods of psychotherapy (psychoanalysis (PA), cognitive behavioral therapy (CBT) and family therapy (FT). 63 students attended a lecture including a video demonstrating the different therapy settings. Typical elements/methods were accentuated by captions. The others (n= 51) heard the lecture without videos. A questionnaire inquired the state of knowledge, motivation, fun, and interest before and after the lectures.
Summary of results: The increase of theoretical knowledge in CBT in the group with video was significantly (p< 0,001) higher. This effect was not shown in PA and FT. In addition, the group who watched the videos had more fun and indicated easier learning.
Conclusions: These results provide evidence that videos are good media for visualizing psychotherapy. Even though there is no benefit in theoretical knowledge in general, video assisted learning increases the students' fun and learning outcome.
Take-home messages: Visual educational strategies improve learning outcome and motivation of medical students in the difficult field of psychotherapy.

7L2

Communicating in Medical Education (ME) activities: Results of an audit of electronic presentations
Elizabeth Wooster[1] and Douglas Wooster[2] (University of Toronto [1]OISE; [2]UHN/TGH, Toronto, Canada)*

Background: Clear communication in group learning activities frequently involves visual aids. This study was done to identify the character and quality of electronic presentations in medical education activities and to suggest strategies for improvement.
Summary of work: Methods: An audit of 50 electronic presentations in each of small (<20), mid-sized (20-100) and large (>100) group ME activities was performed using a structured audit tool. The elements assessed by a numeric scale included font (size, colour), background (colour, distractions), image handling (size, cropping, brightness, contrast) and impact. These findings were cross-correlated with an audit of the quality of the material, voice presentation and overall logic and impact of the presentation. The results of a focused literature search identified "optimal" strategies to improve presentations.
Summary of results: Results: The audits identified common flaws in font size (48%) and colour selection (35%) and image handling (40%) in all groups. Background colour was not optimal in 22%. There were no specific differences in the 3 groups. Cross-correlation with the other characteristics of the presentations showed a trend to better electronic features in better overall presentations but there were some excellent presentations marred by poor visuals (15%). The literature search identified standard font and colour theory recommendations; there was little useful material on image handling.
Conclusions: High level educational activities are frequently marred by poor electronic visual material. Simple strategies are suggested to improve this situation.
Take-home messages: High level educational activities are frequently marred by poor electronic visual material. Simple strategies are suggested to improve this situation.

7L3

Faculty and student perceptions and expectations on interactive lecturing
A Arshad and M Seefeldt* (King Saud bin Abdulaziz University for Health Sciences, Riyadh, KSA)*

Background: The College of Medicine in King Saud bin Abdulaziz University of Health Sciences, Riyadh, has a hybrid curriculum which uses PBL, interactive lectures and other methodologies. This study explores the faculty and student perceptions, and expectations on interactive lectures.
Summary of work: A qualitative exploratory research was done and focus groups were used as a method. Four focus group discussions were done until it was felt that a consolidated picture had emerged. Text generated from the discussions was paraphrased, coded and bundled into categories.
Summary of results: Some important issues emerging from the focus groups were explanations of interactive lecturing, student expectations, faculty understanding, curricular requirements and subject limitations.
Conclusions: It was found that almost all faculties perceived that they deliver interactive lectures while students had a markedly opposite opinion. Different explanations of interactive lectures emerged during the discussions as well depicting differing understandings and expectations. Students and faculty, however, both agreed on and appreciated the role of interactive lecture as an educational tool.
Take-home messages: Faculty can improve their skills in interactive lectures by listening to and recognising the expectations of students.

7L4

Promoting long term knowledge retention by use of KEEPad audience response systems

M Sawdon (School of Medicine and Health, Durham University, Stockton-on-Tees, UK)*

Background: Knowledge retention following didactic teaching decays at an undesirable rate. The use of audience response systems (ARSs) has been suggested to improve and facilitate learning in a lecture by increasing student participation, giving feedback, and improving knowledge retention.
Summary of work: 102 medical students attended lectures incorporating the use of the ARS KEEpad. KEEpad was used to ask the students an MCQ before the lecture; at the end of the lecture; and 1 & 4 weeks later. Evaluation forms (Likert scale) completed by students included the following statements; The KEEpad audience response system; gives me feedback on my progress, aids my knowledge recall and consolidates my knowledge.
Summary of results: On first exposure to the question 46±16% (mean±SD of 19 questions) of the class selected the correct answer using KEEpad. Immediately post lecture this increased to 66±20%. One week post lecture 77±22% and 4 weeks post lecture 79±14%. Evaluation forms showed student satisfaction regarding use of KEEpad was 99%, 99% and 98% for the above statements.
Conclusions: We have found that knowledge retention is better than by conventional methods using KEEpad, and students love it! The low cost and flexibility of this approach makes it ideal in a number of teaching settings.
Take-home messages: KEEpad increases knowledge following lectures

7L5

Can online voice-over lecture replace traditional didactic lecture? An evaluation through randomized cross over study

K M Tan, T P Yeow and LC Loh (Penang Medical College, Dept of Medicine, Penang, Malaysia)*

Background: Attendance of on-campus didactic lecture is made difficult by off-site clinical placement. We evaluate if traditional didactic lectures can be replaced by online voice-over lectures (VoL).
Summary of work: We conducted a randomized, crossover trial in an undergraduate medicine programme using 4 lectures delivered by 2 lecturers. Students were randomly allocated to either attend VoL (consisting of an online PowerPointTM slideshow with voice-over narration, coupled with 30-minute interactive session) or traditional lecture delivered by same lecturer. Students crossed over to receive both formats twice. Learning outcome was evaluated with MCQ quiz and confidence rating of lecture content mastery. Format preference was evaluated using perception questionnaire.
Summary of results: 14 students completed double cross-over study with no difference in MCQ scores, mean ±SD of 6.93 ± 2.00(VoL) and 7.29 ± 1.72 (traditional), p=0.364. No difference in confidence rating, mean ±SD of 2.20 ± 0.63(VoL) and 2.12 ± 0.59 (traditional), p=0.493. VoL is preferred for allowing repeated study of the lecture content at own pace and place. 27.1% prefer VoL to replace traditional lecture, while 96.4% prefer it as add-on.
Conclusions/Take-home messages: Our study shows that VoL can replace traditional lecture without compromising learning outcome but is preferred as add-on rather than replacement to traditional lecture.

7L6

Shifting teaching to active learning methods after a career of lecturing, with student satisfaction

Stanley Jacobson, Mark Bailey and Susan Albright (Tufts University School of Medicine, Boston, Ma, USA)*

Background: Medical education in the US has been predominantly lecture based. Faculty note that even though syllabus materials are prepared and available in advance students arrive unprepared for lecture, lab and small group. Faculty development workshops were held at Tufts University focusing on active learning techniques using multimedia for multiple learning styles. We experimented with multimedia curricular materials to supplement anatomy lectures encouraging students to both prepare in advance of lectures.
Summary of work: For each lecture we would seek out existing or create supplemental multimedia which would be made available ahead of lecture. Links to content were emailed and students were asked to review them. Material ranged from YouTube videos on the brachial plexus, virtual patients, to newly created videos on the examination of the cranial nerves.

Summary of results: Student usage was tracked and evaluation of student satisfaction with materials shows favorable ratings.
Conclusions: Providing a variety of media for students in advance of lecture or lab engages students in active learning and encourages pre-lecture/lab preparation.
Take-home messages: Faculty who have lectured to passive learners for a whole career can be encouraged through faculty development and technical assistance to use active learning techniques. Students use innovative materials with interest and prepare appropriately for class.

7M Research Papers: Students

7M1

A prospective multi-institutional study exploring relationship between student distress and specialty preference

Liselotte N Dyrbye[1], F Stanford Massie Jr[2], David V Power[3], Anne Eacker[4], William Harper[5], Daniel Satele[1], Matthew R Thomas[1], Jeff A Sloan[1] and Tait D Shanafelt[1] ([1]Mayo Clinic Department of Medicine; [2]University of Alabama School of Medicine; [3]University of Minnesota Medical School; [4]University of Washington School of Medicine; [5]University of Chicago Pritzker School of Medicine, USA)*

Introduction: Many medical students change their specialty preference between matriculation and graduation. Although previous studies have explored the relationship between a host of factors, such as demographic characteristics (e.g. debt, gender), empathy, competency, personal values, mentors, clinical experiences, perceived nature of patient care, and specialty choice (1, 2), to our knowledge, no study has previously explored the relationship between student distress and anticipated specialty choice. Given the high prevalence of psychological distress among students and the impact this distress has on life decisions (3, 4) we explored whether burnout, depression, and/or low mental quality of life [QOL] could predict subsequent major changes in specialty preference while controlling for other factors.
Methods: Students attending 5 U.S. medical schools were surveyed prospectively in 2006 and 2007. Both surveys included the Maslach Burnout Inventory (MBI), PRIME MD, and SF-8 to identify burnout and symptoms of depression and measure QOL, respectively. The MBI separate subscales to evaluate each domain of burnout: emotional exhaustion (EE), depersonalization (DP), and low sense of personal accomplishment (PA). The surveys also included: 1) demographic items previously found to relate to student specialty choice (1, 2); 2) recent life event items associated with student distress (5); and, specialty preference (categorized as primary care [PC], surgical fields [SF], or non-primary care/non-surgical field [NPC/NSF]) items. Students were considered to have made a major change if they indicated a different specialty preference, as defined above, between the 2006 and 2007 surveys. Students who responded in both 2006 and 2007 and responded to the specialty preference item were eligible for the present analysis. Logistic regression identified factors independently associated with specialty preference change. The study had institutional review board approval.
Results: 858/1321 (65%) students responded in 2006 and 2007. There were no differences in age, sex, marital status, parental status, or ethnicity (all $p>0.05$) between students who responded to both surveys and students who chose to respond only to the 2006 survey. Fifty-nine students did not indicate their specialty preference and were excluded from the remaining analysis. Although no relationship between the burnout sub-domains of emotional exhaustion or sense of personal accomplishment with change in anticipated specialty preference over the subsequent year was observed, students with higher depersonalization scores were less likely to change anticipated specialty preference. Logistic regression modeling indicated that only depersonalization score (OR 0.962,$p=0.03$), male gender (OR 1.48,$p=0.03$), and being a second year student at baseline (OR 1.90,$p<0.001$) at baseline were independent predictors of change in specialty preference. Each 1-point increase in depersonalization score was associated with a 4% decrease in the odds of making a major change in specialty preference.
Discussion and conclusion: Among this cohort students with higher burnout in the depersonalization dimension were less likely to change specialty choice. Feeling detached and hardened emotionally -typical symptoms of depersonalization - may interfere with the reflective process involved in making a specialty preference that lead some students to maintaining the status quo rather than change their specialty preference. As other aspects of distress did not relate to a major change in specialty preference, distress does not appear to be major factor in predicting which students will change their specialty preference. Conclusion:

Although improving the mental health of trainees and physicians is important to ensuring the health of the workforce and the quality of medical care provided, distress does not appear to influence specialty preference, except perhaps to diminish the likelihood that students will change their specialty preference if they are suffering from depersonalization.

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7M2

Medical students going "Off Track": A significant and growing trend

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Introduction: A growing proportion of students are taking longer than the traditional four-years to complete medical school. Currently estimated at 15-20% (Kassebaum & Szenas, 1994), this group is expected to increase (Kadison & DiGeronimo, 2004)). This led the authors to ask the question, how are students who go 'off track' quantitatively and qualitatively different from those who complete medical school in four years?
Methods: Using a chart audit review of the student academic record, we assembled a database of all students who matriculated from 1993-2005 at a major Midwestern US medical school (n=2128), including a subset of those who encountered attrition or a delay in graduation (15%). Reasons for inclusion in the latter group were categorized as enhancement (additional studies/research), academic difficulty, illness, family, financial, career, and other/unknown, based upon information in the student record. We performed between-group (on-track v off-track) and within-group (off-track only) analyses, examining academics, demographics, reasons for delay, institutional intervention and graduation rate. Statistical analysis was limited to Student's T test.
Results: Between-group analyses revealed that age (older) and under-represented minority group status was associated with higher risk for going off-track, gender was not. Pre-medical grades and MCAT scores of attriters and extenders were statistically significantly lower than those of students on track. Within-group analyses showed that those who went off-track for academic enhancement had a 91% graduation rate while those categorized as having academic difficulty had a 55% chance of graduation. Students with multiple reasons for going off-track graduated at a rate of 30%.
Discussion and conclusion: With the exception of the small share of students who go off-track for enhancement purposes, the phenomenon of student going off-track represents an increasingly important field for investigation. At one institution, our study revealed that students who went off-track for reasons of academic difficulty were twice as likely to require multiple curricular interventions and three times more likely to have additional factors complicating their curricular progress. The investment in faculty and administrative time in students going off-track, as well as financial cost to students themselves is considerable and likely to grow. Our study suggests that schools of medicine should examine their own experiences with this growing and complex student group, including the effectiveness of various institutional responses, in an effort to develop "best practices".

Kadison R & DiGeronimo T (2004). College of the Overwhelmed: The campus mental health crisis and what to do about it. San Francisco, CA: Jossey-Bass.
Kassebaum, D & Szenas, P (1994). The longer road to medical school graduation, Academic Medicine 69 (10), 856-860.

7M3

What influences medical students' location choice for postgraduate training?

F French, on behalf of the Scottish Medical Careers Cohort Study Group (NHS Education for Scotland, Aberdeen, UK)*

Introduction: Modernising Medical Careers reformed UK postgraduate training. The Scottish Medical Careers Cohort Study Group (SMCCG) was established in 2009 to study the career aspirations, influences and decisions

of medical students and trainees in Scotland. This paper reports on the Group's survey of fifth year medical students conducted in Scotland in 2009.
Methods: A questionnaire was designed by SMCCG, piloted with five Foundation Year 1 doctors and distributed to fifth year students during pre-arranged sessions at the four Scottish graduating medical schools (Aberdeen, Dundee, Edinburgh, Glasgow). Participation was high (>70%) for three schools but low for one (27%) due to low student attendance. Data were therefore weighted prior to statistical analysis with SPSS.
Results: The overall response rate was 62% (510/826). 70% of respondents were female, 81% were white, 82% were born in the UK (45% in Scotland) and 80% came from a managerial or professional background. 80% of all and 95% of Scottish-born students aspired to train in the Scottish Foundation School. 65% of all and 89% of Scottish-born students wished to stay in Scotland for specialty training. Of the four Scottish Deaneries, the West was the most popular whilst the North was least popular because of its remote location and wide geographical spread although 53% of Aberdeen students wished to remain locally. Of 33 students who applied for the academic Foundation Programme (FP), 26 (79%) were successful. The main influences on choice of FP were expectation of experience of a particular specialty; mix of specialties offered and Programme location. Many (65%) felt the application process was complex or very complex and 25% were dissatisfied with it. However, 98% were satisfied with the location and 97% with the content of their allocated Programme. Men preferred surgery, emergency medicine ($p<0.01$) whilst women favoured general practice, obstetrics and gynaecology, paediatrics and radiology ($p<0.05$-0.01).
Discussion and conclusion: Less than half of the respondents were born in Scotland. Scottish-born students were more likely to wish to remain in Scotland for postgraduate training than students born elsewhere. University was the only predictive factor influencing a wish to remain in the associated Deanery for Foundation training which may account for the apparent relative variations in popularity of location for training. Significant gender differences remain in specialty aspiration. This study provides new insights into the aspirations of medical students in Scotland guiding schools in providing information and programmes in understanding features that are highly valued in training.

7M4

Differences in opinions on sexual harassment scenarios between students and teachers

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Introduction: Sexual harassment is being reported among medical students world-wide. This undesirable behaviour is often attributable to the culture in teaching hospitals, which is mostly male-dominated, hierarchical and resistant to change. 1 To prepare students for such situations, sexual harassment should be addressed in each medical curriculum. Education in professionalism offers appropriate means to do so. 2 Considering the hierarchical relationship between students and teachers, it is interesting to explore how both groups perceive sexual harassment. Therefore we investigated to what extent clerks and teachers perceived sexual harassment situations as crossing boundaries and sexually intimidating.
Methods: Based on real-life experiences of clerks, we designed five written scenarios each rendering another type of sexual harassment: 1) clinical teacher addressing female clerks with the word 'Barbie doll'; 2) clinical teachers making a dirty joke in presence of a clerk; 3) female clerk wearing provocative clothes to impress her clinical teacher to get a higher mark; 4) resident constantly making eye contact and inviting a clerk for dinner; 5) clinical teacher asking a female clerk if her poor clinical performance is ascribable to her menstruation. The drafts of these scenarios were jointly discussed and improved by 10 teachers and students. Subsequently, fourth, fifth and sixth-year medical students (n=1195) and residents and staff of 8 different teaching hospitals (n=1243) were invited to rate on a five-point Likert scale (1=not at all, 5=very much) to what extent they perceived each scenario as crossing boundaries and sexually intimidating. Residents and staff were requested to only complete the questionnaire if they actually supervised clerks. To analyze the dat we calculated means, standard deviations and performed t-tests.
Results: The respondents, 645 students (54%) and 553 teachers (44%), showed a broad variety while scoring the scenarios ($.9 < SD < 1.3$). They perceived all scenarios rather as crossing boundaries than as sexually intimidating ($p<.05$). Respondents rated the scenario provocative clothes as most serious. Of the students, those 130 (20%) who reported being sexual harassed, rated all scenarios significantly higher as sexually intimidating than the other students and teachers did.
Discussion and conclusion: Students' and teachers' tendency to identify certain behaviours rather as crossing boundaries than sexually intimidating, should be taken into account when addressing sexual harassment in an

educational setting. Since students and teachers opinions on sexual harassment show a broad variety, it might also be crucial to create an open dialogue about the way to handle unacceptable behaviour.

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7M5

An experimental investigation of medical students' use of lifestyle behaviour change skills

J Hart[1], H Ashraf[2], L Bird[1], S Maqsood[2], P McNamee[2], C Ng[1] and S Peters[2] ([1]Manchester Medical School, [2]School of Psychological Sciences, University of Manchester, Manchester, UK)*

Introduction: Obesity is a leading cause of morbidity and mortality. Nearly 25% of the UK population are obese, and by 2050 this is predicted to reach 60%. This has enormous cost implications for health care services. Consequently, tackling obesity is a priority. An evidence-base exists of theoretically-informed behaviour change techniques for weight loss, however, in routine practice, doctors more commonly use theoretically-unfounded communication strategies (e.g. information giving). It is not known if the current focus on communication skills teaching during undergraduate training adequately prepares future doctors for this growing challenge.
Research questions: 1) What behaviour change techniques do medical students use to facilitate behaviour change in obese patients and 2) How do these impact on patient behavioural intentions.
Methods: Forty-eight students in their clinical years of a UK medical school were recruited to perform two simulated consultations each. Both consultations involved an obese patient where weight loss was indicated. Simulated patients (SPs) were used to standardise patient variables (e.g. barriers to behaviour change) and presentation of scenario order was counterbalanced. Following each consultation, students assessed the techniques they perceived themselves to have used. SPs rated the extent to which they intended to make behavioural changes. Anonymised transcripts of the audiotaped consultations were coded by independent assessors, blind to student and SP ratings, using a validated behaviour change taxonomy (Abraham & Michie, 2008).
Results: Students reported using a wide range of evidence-based techniques. In contrast, codings of observed communication behaviours were more limited, focusing on information-giving strategies. SPs behavioural intentions also varied and was explained with reference to students' communication.
Discussion and conclusion: It is suggested that current skills-based communication programmes inadequately prepare future doctors for the growing task of facilitating weight loss. Findings are discussed in relation to the social cognitive basis of behaviour change and communication training needs for health professionals.

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7N Workshop: Developing high-quality multiple-choice tests to assess application of basic science knowledge using patient vignettes

K Holtzman and D Swanson* (National Board of Medical Examiners, Philadelphia, USA)*

Background: Multiple-choice questions (MCQs) often contain technical flaws advantaging “test-wise” examinees and focus on relatively unimportant content from clinical and life-long learning perspectives. This workshop focuses on writing integrative basic science exams assessing application of knowledge to clinical situations, rather than recall of isolated basic science facts.
Intended outcomes: At the conclusion of the workshop, participants will be able to: 1)Recognize, correct and avoid commonly occurring technical flaws in MCQ phrasing, 2)Write MCQs assessing application of basic science knowledge to clinical situations rather than recall of isolated facts, 3) Participate effectively in group review of MCQs, 4) Organize item-writing efforts for basic science courses.
Structure: The workshop will be run in an interactive, seminar-style format as delineated below.
1) Introductions and pretest assessing “test-wiseness”, 2)Commonly occurring MCQ item formats and flaws, 3)Using clinical situations to provide a context for testing application of basic science knowledge, 4)Revision of “factoid” MCQs in inter-disciplinary groups; •Review of items written by small groups, 5)Organization of item-writing/review activities to improve item/test quality and general discussion.
Who should attend: Faculty involved in writing basic science exams, including course directors, members of Royal Colleges and specialty boards, and others interested in achievement testing.
Level of workshop: Beginner.

7O Workshop: Curriculum maps for the web generation

SJ Cotterill, S Ball*, G Skelly, P Horner, A McDonald and J Peterson (Newcastle University, School of Medical Sciences Education Development, UK)*

Background: Curriculum maps can have an important role in learning, teaching, quality assurance and curriculum management (Harden, 2001). Typically these provide a static map of the formal planned curriculum. Technology can be used to enhance curriculum maps to improve visualisation and navigability of complex curricula. Furthermore, Web-based technologies can be used to develop environments which are personalised, interactive and participative – in line with the changing experiences and expectations of modern learners. This workshop builds on our experience of developing 'Dynamic Learning Maps' (http://learning-maps.ncl.ac.uk). In this concept individuals can navigate the formal curriculum map, add personal notes/reflections, and make links between the different elements (such as outcomes, timetabled sessions, cases etc.). The maps provide links to curriculum content, which are differentiated from peer-shared external resources, which can be rated and discussed.
Intended outcomes: Understand the role of curriculum maps for different stakeholders; Be able to identify key barriers and challenges to developing curriculum maps; Become familiar with ways in which technology can enhance curriculum maps.
Structure: Introduction; Brief discussion - curriculum maps; Presentation: Dynamic Learning Maps & evaluation; Group work: role of technology and potential benefits and drawbacks; Plenary and Feedback.
Who should attend: curriculum managers, teachers, learning technologists, students.
Level of workshop: Intermediate.

7P Workshop: Diagnosing and treating barriers to implementing competency based education

Elaine Dannefer[1] and Lindsey Henson*[2] ([1]Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland; [2]University of Minnesota Medical School, Minneapolis, USA)*

Background: Medical educators committed to moving towards competency based education frequently encounter barriers that impede planning and implementation. For example, faculty may have difficulty moving beyond learning objectives, identifying developmentally appropriate standards for competencies, or developing new assessment tools to address competencies. Strategies for dealing with these barriers can make the difference between success and failure.
Intended outcomes: This workshop will provide participants with a framework for evaluating causes of lack of progress in developing a competency-based approach and guidelines for choosing appropriate strategies to address specific types of barriers.
Structure: Primarily interactive discussion. Short introduction will be followed by Activity #1, in which participants will diagnose barriers to implementing competency based education for their educational program using a questionnaire. Participants will report to the larger group on specific barriers identified during Activity #1 and assign the barriers to categories. After a review of strategies for addressing specific categories, participants will break into small groups for Activity #2, during which they will apply diagnostic and strategic skills to a sample case. The workshop will end with a large group discussion of lessons learned.
Who should attend: All faculty involved in designing and implementing a competency based approach to medical education programs.
Level of workshop: Intermediate.

7Q Workshop: We can improve your performance! Or enhancing medical student performance in objective structured clinical examinations by adapting the tools of sport psychology

I Maynard[1], J Butt[1], K Forrest*[2] and B Nicholson[2] ([1]Sheffield Hallam University, Centre for Sport and Exercise Science, Sheffield; [2]University of Leeds, Academic Unit of Anaesthesia, Leeds, UK)*

Background: Competitive and stressful situations occur throughout all people's lives where performance can be affected. We would like to share with you our findings and techniques that have been developed in collaboration across disciplines and institutions to improve student performance in exams. This collaboration, between Sheffield Hallam and Leeds University has developed a mental skills training programme, based on the performance enhancement tools used in sport psychology, for medical students.
Intended outcomes: These techniques have been used successful at Leeds University. The techniques will be experienced by the participants and as well as providing personal benefits, it is hoped that the participants will adapt and introduce some of these techniques in their own institutions to aid student support.
Structure: The workshop participants will experience a compacted version of a six week course, developed to aid performance in stressful exam situations. Participants will be asked to complete an anxiety questionnaire prior to the conference and the results will be available to guide the session on the day. The workshop will be highly interactive with participants first understanding how to recognise when they themselves and others are stressed. Then the different techniques that have been developed will be experienced in a very practical way.
Who should attend: Those involved with student support. All who find performance situations stressful.
Level of workshop: Beginner.

7R Workshop: Safer patients with collective learning?

Paul Bowie, Murray Lough and Diane Kelly (NHS Education for Scotland, Glasgow, UK)

Background: NHS Education for Scotland (NES) is a national body responsible for the education & training of much of the healthcare workforce. A NES programme of multi-professional educational research informs important NHS objectives and is centred on two key themes: patient safety and collective learning. Published evidence from our safety research on significant event investigation, care bundles, rapid casenote review, culture assessment and clinical audit shows variation in the application and impact of improvement techniques by healthcare teams. Similarly published evidence from our collective learning research demonstrates new knowledge on how and why teams learn and improve together - formally and informally – providing valuable insights into the quality and impact of team-working. The challenge is in how to bring both themes together to improve patient safety more effectively. If consideration of a choice of safety strategies merely provides opportunities for healthcare teams to get together, how do we enhance their application through encouraging more thinking and greater investment around the pivotal importance of collective learning to improve patient safety?
Intended outcomes: 3-4 context specific scenarios for considering the importance of collective learning in improving patient safety.
Structure: Two short presentations, small group work developing scenarios, open discussion.
Who Should Attend: Open to all educators, researchers and policymakers.
Level of workshop: All

7S Workshop: What are the benefits of inter-institutional partnerships?

Phillip Evans[1], Yasuyuki Suzuki*[2], Keiko Abe*[2], Hideki Wakabayashi*[2] and Jennifer Cleland*[3]*
([1]Centre for Educational Scholarship, University of Glasgow, UK; [2]Medical Education Development Centre, Gifu University, Japan; [3]University of Aberdeen, UK)

Background: The Universities of Gifu, Japan, and Glasgow, UK, have prepared a partnership agreement that promotes scholarship in Medical Education, between these two institutions. Other institutions may also have similar agreements, or may wish to form similar arrangements.
Intended outcomes: To explore the benefits and barriers of partnership agreements, with a view to dscribing the mechanisms that make these possible, and recognising the overall merits of such arrangements.
Key questions: What are the possible different kinds of partneships that can exist between institutions? How do they arise and develop? What are the possible benefits and rewards of partnerships? What can be done to maximise them? What are the kinds of activities and links might exist in partnerships? How may these activities be increased?
Structure: Introduction, break-out groups, plenary, presentation.
Who should attend: Anyone who has experience of, or interest in, institutional agreements.

Level of workshop: Intermediate.

7U Posters: Student Characteristics and Learning Styles

7U1

Heterogeneity of student population and educational outcome

K Malaker P Cooles* and L Benjamin (Ross University School of Medicine, Dominica, West Indies)*

Background: We reported (AMEE 2008, 2009), learning and practicing a relevant clinical skill in 1st semester improved understanding physiology and written examination score. Poor performance was likely due to heterogeneity in student population.
Summary of work: Total of 463 students evaluated for heterogeneity of, sex, age and level of premedical education.
Summary of results: Male to female ratio is 49 vs 51%. In "age reported group", 79% were 26 years or younger and 21% were 27 years or older. 72% had a BS or equivalent and 28% had higher or other professional qualifications (mature students).
Conclusions: Heterogeneity of students, in sex, age and level of education, compared to other North American and western European medical schools, may impact on learning, comprehension and examination score.
Take-home messages: Performance and heterogeneity need to be evaluated to optimize learning and teaching.

7U2

Are Swedish first year medical students more gender aware than Dutch colleagues? An investigation using a validated Gender Awareness scale

J Andersson[1], P Verdonk[2], E Johansson[1], M vanTongeren-Alers[3], A Lagro-Janssen[3] and K Hamberg[1] ([1]Umeå University, Public Health and Clinical Medicine, Umeå, Sweden; [2]Maastricht University, Social Medicine, Maastricht; [3]Radboud University Nijmegen Medical Centre, Primary Care, Nijmegen, The Netherlands)*

Background: To improve healthcare for both women and men and increase the awareness of gender in future doctors, there is a need for a gender perspective in medical education. In most medical schools this process has recently started. Research suggests that knowledge about students' attitudes and assumptions concerning gender are important for a successful implementation.
Summary of work: We wanted to explore how cultural similarities and differences were related to gender awareness. We compared gender awareness among Swedish and Dutch, male and female, first year medical students, by use of a validated scale, the Nijmegen Gender Awareness Scale.
Summary of results: Country of study was the factor with strongest relationship to gender awareness, the Swedish students expressing less stereotypic thinking about patients and doctors and the Dutch students being more sensitive to gender difference. The students' sex mattered for gender stereotyping, with male students agreeing more to stereotypes.
Conclusions: Gender perspective in medical education needs to take cultural aspects, gender attitudes and students' sex into account. Reflections on assumptions about men and women, patients as well as doctors, need to have room within medical curricula.
Take-home messages: Medical education needs to take gender into account and gender education needs to take cultural norms and students attitudes into account.

7U3

Expression of professional identity among first-year medical students

P Kronqvist, E Rantanen, I Kiviluoto, M Neitola and P Kääpä (University of Turku [1]Medical Education Research and Development Centre; [2]Faculty of Education, Finland)*

Background: Different educational backgrounds may influence development of professional identity among undergraduate medical students. We investigated identity expression in first-year students of medicine.
Summary of work: The study comprises 252 first-year students admitted to medical faculty of University of Turku, Finland, in 2003-2006. The majority of students (n=118) started their medical studies directly after high-school, while 90 had performed studies in other university faculties. Forty-four graduate-entry students

were admitted after graduation and practical training in health care. All students were administered a narrative test presenting a simulated patient case.
Summary of results: Graduate-entry students showed higher medical orientation, holistic patient approach and tendency to independent decision-making in their narrative exercise than the other first-year medical students. Students with previous university or high-school studies did not significantly differ from each other.
Conclusions: Among first-year medical students with different educational backgrounds, previous education and work experience in health care was associated with a holistic attitude and readiness for clinical decision-making.
Take-home messages: Early development of medical professional identity may be influenced by the students' educational background. This observation may be considered in medical student recruitment and curriculum.

7U4

The good student is more than a listener – the 12 roles of the student

D E Karakitsiou, A Markou*, P Kyriakou*, M Pieri*, D Papatsimpa*, M Abuaita*, E Bourousis*, T Hido* and I D K Dimoliatis* (University of Ioannina Medical School, Department of Hygiene and Epidemiology, Ioannina, Greece)*

Background: Educational procedure is a wide and complicated issue. Harden and Crosby claimed that a good teacher is more than a lecturer, and identified twelve roles that certify a good and capable teacher. However, this is half the true. The other half is that a good student is more than a listener. Educational procedure is a mutual relationship between both the teacher and the student. Teaching-and-learning does not occur one-way. A medical student is not a child and andragogy, not pedagogy apply. We propose the twelve roles of the student.
Summary of work: The Harden and Crosby paper was distributed in a class of third year medical students, asked to think about student's roles. A smaller discussion group brainstormed ideas, refined further in many author discussion rounds.
Summary of results: The twelve roles of the good medical student, grouped in six areas, are: Information receiver (in lecture and clinical context), learning role model (in class and in choosing role models), teaching facilitator and teacher's mentor, teacher assessor and curriculum evaluator, active participator and keeping-up with curriculum, resource material consumer/co-creator and medical literature searcher. The ideal student should fulfill the majority if not all of these complementary roles.
Conclusions/Take-home messages: Twelve complementary student roles indicate the good and capable learner.

7U5

Student-centered approach by e-Learning: Medical clips project

K Songrit (Department of Surgery, Hatyai Hospital, Songkhla Thailand)*

Background: Learning by doing is our concept in this project. Now because of the advances in technology, 'change' can be achieved around the world closely and easily. The benefit of the digital media that can be used repeatedly and is easily distributed motivates researcher to integrate/upgrade the learning method with the advanced technology.
Summary of work: We assigned our students to make 2 medical clips in each group. The content of clips should relate to physical examination, medical procedure, or clinical sign. During the next 2 weeks the student present and discuss their medical clips in the class. After wards their clips were uploaded to the website, making them accessible anywhere and anytime.
Summary of results: After 2 rotations of medical student 10 medical clips were produced. The clips were made enthusiastically and the class all participated in much discussion during each presentation.
Conclusions: Medical clips project is one idea that has benefits for participants while active and fun. And there are online medical sources that are useful for self learning anytime.
Take-home messages: Effectiveness of learning that comes together with learner lifestyle made them happy and be enthusiastic.

7U6

Comparison of creativity between medical, dentistry and pharmacy students

Pegah Jahani, Jaafar Jahani*, Mitra Amini and Badrossadat Moosavi (Shiraz University of Medical Sciences, Medical School, Shiraz, Iran)*

Background: The purpose of this survey is to study the answers of students from Shiraz University of Medical Sciences to creativity questions. The answers from 90 medical, dentistry and pharmacy students were examined.
Summary of work: 30 students of each field were chosen through simple random sampling. The tool that is used is RANDSEEP questionnaire containing 50 questions. Data were analyzed by SPSS software and the means and the standard deviations of the creativity of the three groups of students were compared.
Summary of results: We obtained creativity average, 42 in medical students, 44 in dentistry Students and 37 in pharmacy. According to this data, creativity average among dentistry students is higher than the other 2 fields. Standard deviation of creativity is 6.5 for medical students, 6.9 for dentistry and 9.3 for pharmacy. According to obtained standard deviation, it is lower between medical students than the other 2 field.
Conclusions/Take-home messages: The results indicate that creativity average between dentistry students is more than in medical and pharmacy students. It means that dentistry students are the most creative group between these three groups. Dentistry and medical students were homogenous in regard to creativity. Greater standard deviation between pharmacy students indicates that in regard to creativity there is more variation in students of pharmacy in comparison to the other two fields.

7U7

Change in views towards medical profession among first year students

M Toivonen[1], A Jauhiainen[2] and P Kääpä[1] (University of Turku, [1]Medical Education Research and Development Centre; [2]Faculty of Education, Turku, Finland)*

Background: Change of views of first-year students on medical profession at the beginning and end of the initial year of studies was investigated.
Summary of work: The study comprises of 123 medical and dental students admitted to the medical faculty of the University of Turku, Finland, in 2008. Students performed a narrative exercise during the first week and last month of their first-year studies, describing characteristic features of a good doctor. The data were qualitatively analysed.
Summary of results: In the majority of narratives (39%) ambition and uncompromising attitude towards medical profession were replaced by considerations of professional well-being. Similarly, students often (36%) reshaped their initial beliefs of empathy and co-operation in medical profession to emphasize work-life realities. In a considerable number of narratives (25%) students initially highlighted professional knowledge and technical skills, but changed their view towards empathic patient approaches in the profession.
Conclusions: Opinions of 'a good doctor' seems to change considerably during the first year of medical education. The influence of these perceptions on the later outcome of medical and dental studies and work-life remains to be studied.
Take-home messages: Specific changes in attitudes towards the characteristics of medical profession are found among the first-year medical and dental students.

7U8

Teaching undergraduate vs postgraduate medical students: A personal experience with NUS-YLL and Duke-NUS GMS

WS Yong (Department of Surgical Oncology, NCC and Department of Surgery, SGH, Singapore)*

Background: Undergraduate medical education in Singapore has been around for more than 50 years but recently a second medical school was started 3 years ago, taking in post graduate students. As a result, doctors who all along have been teaching undergraduate students are now called upon to teach this new group of post graduate medical students.
Summary of work: As the new second medical school is located within the same campus as the Singapore General Hospital, we were called upon to formulate a brand new curriculum and plan the teaching of this extra group of medical students, taking into account the system used at Duke University, USA, but adapting it to our local context.

Summary of results: We revamped the curriculum, not only on the basic medical knowledge and clinical exposure, but also the method of teaching in small groups, embedding within the surgical teams and a continuous assessment system.
Conclusions: The first batch of about 25 postgraduate students is due to graduate in the second half of 2011. They will then start work on interns/first year residents. Only then will we be able to gauge the success or shortcomings of this new post graduate style of medical education.
Take-home messages: Teaching a group of post graduate medical students, who have basic degrees which may or may not be related to medicine, and who are more mature and have worked before is a very different and challenging exercise, and can be very daunting yet rewarding.

7U9

Are there differences between medical school students and professional graduate medical school students regarding perceived difficulties and effectiveness of problem based learning?

Jae-Hyun Park, Kyong-Jee Kim* and Changwon Kee (Sungkyunkwan University School of Medicine, Suwon, Korea)*

Background: Problem based learning (PBL) method is widely applied in medical education. However, little information has been reported about the differences between medical school students (MSS) and professional graduate medical school students (PGMSS) in their perceived difficulties and effectiveness of PBL.
Summary of work: A self-administered survey was conducted of six PBL groups which were randomly allocated with second-year 14 MSS and 18 PGMSS in a PBL course in Feb 2010. The selected students were asked questions about their experiences in PBL, on their perceived difficulties and their opinion of its effectiveness. The results were analyzed.
Summary of results: Although participants regarded effectiveness of PBL course positively, they perceived substantial difficulties in PBL course. However, we could not find differences between MSS and PGMSS in the perceived difficulties and effectiveness of PBL but two items in perceived effectiveness. PGMSS were more likely to think that PBL is helpful in obtaining ability to collaborate in drawing conclusions and that PBL is efficient in obtaining medical knowledge than MSS.
Conclusions: MSS and PGMSS had similar degree of perceived difficulties in PBL. However, some differences were found in their perceptions of the effectiveness of PBL.
Take-home messages: An introductory lecture of PBL needs to be emphasized to narrow the gap regarding perceived effectiveness of PBL between MSS and PGMSS.

7U10

A survey to determine the influence of social networks on motivation of medical students to attend commercial revision courses

M Pavan, S Taslaq, B Iqbal and G Mehta* (Elite Medical Institute, London, UK)*

Background: There is an increasing understanding of the impact of social networks on individual motivation in decision making. The understanding of these networks has implications for enhancing student motivation.
Summary of work: A questionnaire was utilised to identify the numbers of acquaintances and friends within the students' social networks that were attending a commercial revision course.
Summary of results: 41 students were surveyed, 33 students responded. When asked, how many friends were known to be attending the course average response was 4 students (SD 5.73). On questioning how many friends were subsequently identified as attending the course once it has started the average was 10 (SD 9.92) students. The response to how many acquaintances they knew attending before any after were 6 (SD 9.05) and 13 (SD 11.21) students respectively.
Conclusions: The significant difference in acquaintances and friends identified on the course suggests a motivational factor not previously identified. The study also suggests significant numbers of transitive relationships within their social networks attending courses.
Take-home messages: The recognition of high numbers of transitive relationships within the medical student network and its impact on attendance has implications for the understanding of the extrinsic motivation of medical student learning.

7U11

Learning methods across an undergraduate programme: A questionnaire survey

F Tasker and J Rees (King's College London School of Medicine, London, UK)*

Background: Learning methods can be divided into four main categories, visual (V, aural (A, read/write (R) and kinesthetic (K).
Summary of work: 557 medical students across 5 years of the undergraduate programme at King's College London School of Medicine completed a questionnaire online to determine information about learning methods as categorised by VARK.
Summary of results: a) Medical students in their later years preferred some kinesthetic methods compared to the first two years ($P<0.05$). b) Aural methods had not been tried (37.4%) compared to the other modalities of learning across all years ($P<0.05$). c) A large proportion of read/write methods had been tried but disliked (37.6%) compared to the other modalities of learning across all years ($P<0.05$). d) 85% of students would like to learn more about methods of learning.
Conclusions: This cross-sectional study suggests that medical students may change their learning methods to suit the style of the course. Read/write methods are liked least and aural methods are least tried, by all years. Students would like to learn more about methods of learning.
Take-home messages: Medical students and tutors may benefit from an understanding of different learning styles and student adaptations across an undergraduate programme.

7U12

Change in learning style in young doctors in Japan

M Hayashi A Kondo, S Kim, T Matsumoto and S Izumi (Obstetrics and Gynaecology, Tokai University School of Medicine, Kanagawa, Japan)*

Background: The education for young doctors has been changing gradually. There used to be an apprentice system in medical education, but it is replacing to more systemic education. It is good to keep quality of life for young doctors, however, it sometimes causes problems in clinical settings. This study clarifies the good and bad points to make better residency.
Summary of work: We recruited 30 participants who had been through their residency at University hospitals. Participants completed a self-administered questionnaire to assess their clinical residency which includes working hours, number of on-call, clinical skills, reward and satisfaction for comparative studies among the different generations.
Summary of results: There are a lot of disparities in different generations as we assumed. However there is only slight difference in their satisfaction.
Conclusions: It is difficult to find the best way of residency, however it must be important to have good concentrated training to become independent as a specialised doctor.
Take-home messages: We all have to recognise that young doctors need more years to be independent to avoid medical errors. Hard work is not major training style nowadays, but not always wrong thing to have intensive training to be a well skilled doctor sooner.

7U13

A students' guide to mind mapping in the medical curriculum

R Barrett, A Waduud*, J Burke and C Collins (University of Glasgow, UK)*

Background: Mind Maps (a technique invented by Tony Buzan) are thought to be an effective way to study and remember information. It was thought it would be useful to look at this technique applied to a medical curriculum and in particular that of Glasgow Medical School.
Summary of work: Research was carried out by two students and resources were evaluated. Searches were carried out for articles regarding the efficacy of Mind Mapping and computer software available was reviewed. It was then decided that the best way to present the information found to students would be in the form of a booklet. The booklet produced was evaluated by peers in years 1 and 3 and by teaching staff in the medical school.
Summary of results: Both students and staff believed the booklet to be a worthwhile resource that would be beneficial to members of the medical school. Copies were placed in the Study Landscape and on the Web Portal.

Conclusions: Information requested by students was collected and reproduced by fellow students in a digestible format. Evaluation and re-evaluation by students and staff ensured the resource would be useful to them.
Take-home messages: Mind Maps are an alternative to traditional note taking which many find a useful memory tool.

7U14

Helping medical students to become effective self-regulating learners

Casey B White, Rajesh S Mangrulkar, Theodore A Hanss and Joseph C Fantone (University of Michigan Medical School, Ann Arbor, Michigan, USA)*

Background: Students in a pilot curriculum featuring flexibility in experiences and timeline were advised to practice self-regulated learning (SRL) to succeed. SRL was defined using an existing theory-based model: a 4-phase cycle of planning (motivation, self-efficacy, personal goals), learning (learning styles, learning strategies), assessing (external feedback, self-assessment) and adjusting (reflection, attribution). (White CB, Gruppen LD. 2007. Self-regulated learning in medical education. Association for the Study of Medical Education: Understanding Medical Education).
Summary of work: Six students kept a daily journal, they used it as a tool for reflection on their progress in the curriculum; they received weekly feedback. Qualitative analysis of the journals by raters familiar with SRL was conducted to detect SRL behaviors and to validate the model.
Summary of results: Analysis revealed three critical observations. First, all students appeared to self-regulate their learning, however, to varying degrees. Second, journal entries frequently described elements of two or more phases of the SRL model within a single thought. Finally, reflection was not just observed in the adjusting phase (as in model) – but also in planning, learning and assessing phases.
Conclusions: Medical students can show evidence of developing habits of self-regulated learning, however the theory-based model that serves as a framework for SRL should be modified based on evidence.
Take-home messages: Self-regulated learning can be taught/practiced in the medical education setting.

7U15

Useful clusters of medical students' prerequisites for learning with erroneous worked examples

J Toepper[1], R Stark[2] and M R Fischer ([1]Institute for Teaching and Educational Research in Health Sciences, University Witten/Herdecke; [2]Institute of Education, Saarland University, Germany)*

Background: The basic idea of the so called Aptitude-Treatment-Interaction (ATI) approach assumes that learners' prerequisites and learning conditions interact and different subgroups of learners profit therefore from different learning conditions.
Summary of work: 72 medical students worked on case-based examples. Before working on the cases, tolerance of ambiguity, attitudes towards mistakes, fear of making mistakes, and domain-specific prior knowledge were measured. After the individual learning sessions, three components of diagnostic competence were assessed.
Summary of results: Three different student profiles were identified by ward cluster analysis. One cluster are students with medium fear level and high domain-specific prior knowledge. Learners of that cluster acquired substantially more diagnostic competence by working with the example cases.
Conclusions: Acquiring diagnostic competence by learning with case-based erroneous examples in complex medical domains confronts learners with high demands not only with respect to domain-specific prior knowledge, but also concerning emotional aspects and attitudes.
Take-home messages: In order to design adaptive computer-based learning environments that have the potential to foster the acquisition of complex competencies for learners with different profiles of learning prerequisites, more and especially more differentiated insights into various configurations of learning prerequisites and their specific effects on complex learning should be gained.

7U16

Thai medical students' online network abuse

Apinut Wongkietkachorn and Somchai Tanawattanacharoen (Department of Obstetrics and Gynecology, Chulalongkorn University, Bangkok, Thailand)*

Background: Nowadays, online networks play an important role in medical students' life. Despite its benefits, any unprofessional posting could harm medical society if it was exposed to anybody outside medical field. This study aims to assess the prevalence and patterns of online network abuse and its association with gender, academic year, and GPAX.
Summary of work: A cross-sectional study was conducted in Faculty of Medicine, Chulalongkorn University in academic year 2009. All medical students were recruited.
Summary of results: Of 1,002 medical students who completed the questionnaire, 839 (83.7%) had actively used online network. Three most common networks were Facebook, MSN, and Hi5, respectively. Only a few of them (up to 16.3%) made unprofessional online posting in various topics and forms. Female students reported better attitude and lower prevalence than males. Students' attitude and behaviour tended to get improved across the year. There was no significant trend relationship between attitude/behaviour and GPAX. Regarding the faculty's involvement, the students prefer distinct recommendation rather than strict regulation.
Conclusions/ Take-home messages: A number of medical students made unprofessional online posting. They seemed unconcerned with possible ramifications of sharing personal information in publicly available online profiles. The faculty should establish clear guideline and reasonable strategies for using online networks in the institute to enhance students' professional responsibility.

7U17

Students', experts' and professors' views on the learning skills program at the Health College, Kashan University of Medical Sciences

G Mostefaii, L Iranshahi, H Akbari and H Almasi (Kashan University of Medical Sciences, Kashan, Iran)*

Background: The 'learning skills' unit in the final term is an important aspect of studies for Health College students. This unit is important also for professors.
Summary of work: Three questionnaires were prepared for students relating to learning skills. Professors' and experts' views about learning skills were taped.
Summary of results: The research shows that all students in the various courses at the Health College evaluated learning skills as a necessary unit. Although they believe that some changes are necessary, experts claimed that training in learning skills is useful and important.
Conclusions/Take-home messages: Although the results show that learning skills from the students' point of view were well evaluated, students, professors and experts pointed out sections that need to be changed, in order to develop better learning skills.

7U18

Different learning style of medical students and model of continuing medical education of medical personnel, Udornthani Medical Education Center

S Raiyawa and N Raiyawa* (Affiliated with Khonkhean Medical Faculty, University of Khonkhean, Ministry of Public Health, Thailand)*

Background: To identify the updating knowledge of the medical personnel and students' learning style and their difference for designing the supporting system.
Summary of work: A descriptive analytic study , a questionnaire distributed to 93 medical personnel, mid level administrators and 28 fourth year medical students, also specific research questions for focus group.
Summary of results: 93 personnel had worked a median time of 24 years. The most practiced style of continuous medical education was attending academic meetings 23.17 %, other statistically significance were learning on the job training, internet and text book 21.22 %, 20.4% and 18.28%, respectively. 28 fourth year medical students, 7 male and 21 female preferred reading text book 35.61%. Other styles were attending lectures, ward work and self direction. Learning (SDL, with 27.36% and 25.11% respectively.
Conclusions: Comparison between these two groups, medical students read text more than medical personnel who prefer more in searching internet and reading journal. Both groups preferred attending lecture or academic meeting and dislike studying from academic video. Female students did more reading than males with a ratio 1.21: 1. Focus group investigation, a majority opinion of 18.7% needed a quiet reading room with a computer, printer and a fitness room. The most important things, they needed were teachers who could dedicate time in teaching. Medical personnel need enough supporting budget for human resource development.

Take-home messages: Remember that students want a devoted teacher.

7V Posters: Curriculum Educational Strategies

7V1

Integrating basic and clinical disciplines: Experience of Kazakhstan medical universities

F A Mindubayeva, R S Dosmagambetova and V P Riklefs (Karaganda State Medical University, Karaganda, Kazakhstan)*

Background: Modern tendencies towards integration in all the areas of social life require medical schools to train specialists with holistic professional world view. The reform of medical education in 2006 in Kazakhstan accordingly changed the methodology of student learning.
Summary of work: Combining fundamental knowledge with clinical skills is the key condition for sustainable learning experience. We redesigned the third year of 5-year curriculum and introduced the integrated learning of anatomy, histology, physiology, pathology, pharmacology, visual diagnostics and basic clinical medicine. All the disciplines are taught consecutively in 8 modules, built around cardiovascular, respiratory, gastrointestinal, nervous, genitourinary, endocrine, locomotor and haematogenic systems.
Summary of results: The implementation of the model required a change in methodology to make curriculum to be more student-oriented. It is now based on problem based learning, clinical skills training, integrated lectures, students' projects, and integrated assessment.
Conclusions: Developed model of integration allowed students to learn the clinical examination of different organs and system in health and disease, based on understanding of underlying physiologic mechanisms of different clinical syndromes.
Take-home messages: Integrated learning motivates the students for better academic achievements, activates the previous knowledge, promotes the learning, and makes medical education more enjoyable. At the same time it requires a lot of effort of faculty staff to implement.

7V2

Integrating medical science teaching in the dissection room using cadaveric pathologies

M Ford, A Wood, D Jackson and S Whiten (Bute Medical School, University of St Andrews, St Andrews, UK)*

Background: The Bute Medical School retains full body dissection within an integrated curriculum. Over the past decade we have obtained brief medical histories for all the cadavers. The histories are used to stimulate observation and discussion of pathological changes in common and uncommon conditions.
Summary of work: The medical histories of cadavers used in the past decade, were reviewed and notable individual stories have been selected to illustrate the wide range of clinical conditions we have observed.
Summary of results: The availability of a real medical history encourages observation beyond normal anatomy and biological variation and leads to a discussion of gross and microscopic pathology.
Conclusions: The provision of medical histories in the dissecting room is stimulating for students in the early years of their training, not only providing the means to learn medical sciences but also allowing the cadaver to act as their 'first patient'.
Take-home messages: The dissecting room teaching can be enriched by supplying medical histories for the cadavers. It is appropriate that the important sciences of pathology and anatomy can be integrated in a clinical context in the dissecting room of the 21st Century.

7V3

Medical students value an integrated approach to neuroscience training

J A Giles[1] and A Kirkby[2] ([1]The University of Manchester; [2]Greater Manchester Neuroscience Centre, Salford, UK)*

Background: An integrated approach to neuroscience training is often advocated in undergraduate medical curricula. This involves integrating basic with clinical neuroscience, which is believed to enhance learning.
Summary of work: Questionnaires were administered to 163 students after four weeks of clinical neuroscience training. Students ranked on a Likert scale the degree to which various sessions had helped

them to "learn and understand aspects of clinical neurology". Sessions included were problem-based learning (PBL), expert-patient teaching, seminars and lectures, bedside teaching (integrated), and outpatient clinics and operating theatre sessions (clinical).
Summary of results: Comparative analyses indicated significantly fewer students attended clinical sessions (outpatient and theatre) than attended other sessions. Students reported that expert-patient and bedside teaching were significantly more helpful than outpatient and theatre sessions. These sessions were also rated as significantly more helpful than PBL. There was no difference between PBL and clinics or theatre.
Conclusions: Students valued sessions with a more integrated approach to a greater degree than clinical sessions. PBL was reported as less helpful than more didactic methods. This may help to inform future planning of undergraduate neuroscience curricula and allocation of educational resources.
Take-home messages: An integrated approach to neuroscience was valued more by students. Tailoring training to students' needs may help to enhance specialty recruitment.

7V4
Early clinical learning at Ross University: What for, what if, and how?
James F Grogan, Sharon Morang and Mary T Coleman (Ross University School of Medicine, North Brunswick, NJ, USA)*

Background: Several factors contribute to the trend toward earlier clinical learning in undergraduate medical education programs. We outline factors driving significant change at a large Caribbean medical school preparing students for practice in the United States.
Summary of work: Planning for curriculum change has involved modification of the existing clinical education program and increased emphasis on learning competencies related to professionalism, systems, improvement, and patient centered care. Factors which were important in creating a strategy toward inclusion of greater clinical learning were limitations of clinical faculty, the existing traditional lecture-based program, enrollment logistics, environment and accreditation.
Summary of results: We summarize measures and parameters of these factors which have led to formulation of plans for curricular change.
Conclusions/Take-home messages: The resulting program implementation suggests that students' earlier clinical learning experiences can be improved by enhancing existing programs, such as community medicine projects and problem-based learning, while also implementing new early learning experiences through the use of standardized patients and simulations.

7V5
Teaching geriatric assessment skills to preclinical students: Does it make a difference?
W S Lim, S Natesan, WC Wong, Y Y Ding, T L Tan and K Y Tham (Tan Tock Seng Hospital, Singapore)*

Background: Currently, students undergo the geriatric medicine rotation only in the final year of the undergraduate curriculum. We developed a pilot module to teach geriatric assessment skills to preclinical second-year students (M2).
Summary of work: Fifty-nine M2s in the pilot module received multi-modal teaching on communication skills, cognitive testing, functional assessment and measurement of postural blood pressure. Forty-seven third-year students (M3) who received a lecture on the same topics served as controls. We compared responses on a questionnaire that examined the domains of skills confidence, attitudes and communication (7-point Likert scale, and a 10-item multiple-choice-question test on cognitive testing.
Summary of results: There was a significant difference between the pre- and post-M2 scores in all 3 domains ($P<.01$). M2s who underwent the pilot module scored higher than M3s in attitude (6.7 vs 6.3, $P<.01$, skills confidence (6.0 vs 4.8, $P<.01$, and cognitive testing (7.7 vs 5.7, $P<.01$, although there was no difference in communication (4.6 vs 4.3, NS).
Conclusions: Our pilot module was effective in teaching geriatric assessment skills to preclinical students, although communication skills may be less amenable to improvement via a focused module.
Take-home messages: It is never too early to expose students to geriatric medicine.

7V6
Effect of early practical experience on the orientation of first year medical students

A Eory, P Torzsa, K Voros, P Vajer, K Dunai, F Tamas, A Szelvari and L Kalabay (Semmelweis University, Budapest, Hungary)*

Background: The undergraduate curriculum of the Medical Faculty at Semmelweis University underwent a complex innovation in 2008 which aimed to integrate practical experience into pre-clinical science grounding.
Summary of work: Small groups of first year students had a practical one semester course covering context-sensitive issues of healthcare via student-patient interaction supervised by GP trainers. Forty five GP trainers and 349 students were assessed by questionnaires at the end of the semester.
Summary of results: GP trainers (33/45) and students (280/349) agreed that making medical thinking understandable was the most important target of the course. From tutors' aspect it was followed by improving communication skills, boosting students' interaction with patients and forming basic skills. Improving theoretical knowledge was the least important aspect of the course for both students and tutors. Students' opinions about their tutors were exceptionally positive. 60% (171) of students reported that their view of family medicine had been positively changed during the semester, while 55% of them felt that they would likely become a GP.
Conclusions: Introduction of early practical education shows promising results, however, long-term follow up is required to determine the impact upon family medicine as a career choice.
Take-home messages: The human factors make medicine effective.

7V7

The impact of horizontal integration of two foundation modules on first years' knowledge, attitudes and skills

A J N Louw and M H P van Heusden (Stellenbosch University, Tygerberg, South Africa)*

Background: First year students in the Extended Degree Programme (EDP) at the Faculty of Health Sciences of Stellenbosch University (RSA) are exposed to a foundation module, Practical Clinical Exposure (PCE). Three research assignments were set to enhance the value of the module and to transfer academic writing and research skills developed in another foundation module, strategic communication.
Summary of work: A comparative retrospective qualitative and quantitative study was done. Semi-structured interviews were conducted with two cohorts (2008, 2009) EDP students and with final year MB, ChB students (2009) who were guiding them. End of module reports from all participants were analysed. A questionnaire was used for triangulation.
Summary of results: Both groups reported positively on the PCE, their career choice and a rekindling of motivation. However, the 2008 cohort expressed frustration in not understanding terminology and clinical discussions at bedside. Horizontal integration between foundation modules impacted on the 2009 cohort's understanding of, and involvement in, some disorders observed, confidence in decoding medical terminology, the level of communication, as well as application of research and academic writing skills.
Conclusions: Horizontal integration of Strategic Communication and PCE impacted positively on knowledge, attitudes and skills of students at this level.
Take-home messages: Elementary research during the Practical Clinical Experience can empower and motivate EDP students.

7V8

POBLE – Population Based Learning – Development of longitudinal, community based undergraduate student attachments using some new approaches

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Background: The pace of educational change is increasing. At the same time quality of clinical placements has come under scrutiny. Curriculum development practices are slow to respond to change and the theory of curriculum development may not reflect reality. Products of curricular development are often not used by teachers and learners' alike leading to serendipitous and inefficient learning on clinical placements.
Summary of work: Community undergraduate clinical attachments were re-evaluated in years 3 and 4 and change proposed. A background document defined general themes and was refined through an iterative and complex process of stakeholder meetings. A pilot programme is now proposed to test the product. A reflective log was kept of the development process together with relevant grey literature.

Summary of results: Curriculum planning for clinical placements must involve many people, be iterative, be driven by a few and is messy. It does not seem to follow traditional models of curriculum development.
Conclusions: Small pilot projects may be a useful way of quickly testing potentially useful curricular responses to the many changes afoot in medical education.
Take-home messages: Iterative and interactive small scale curriculum development may present a useful method of testing curricular innovations.

7V9

Off-campus education effects for students in School of Health Sciences

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Background: Gunma University has been promoting community contribution activity in addition to educational activity and research activity. And then, in school of health sciences, community-based education was started from 2009 by taking advantage of the connection between the community and university. One of main courses of this education is to conduct classes outside school (off-campus classes).
Summary of work: The purpose of this study was to search for what students had learned through the participation in off-campus classes using text analyzing methods. Sixty-two reports submitted by students after participating in off-campus classes were decomposed into words (using IBM SPSS Text Analysis for Surveys). And the extracted words were carefully selected from the perspective of contained meaning or contents to sixteen words remained. Cluster analysis was performed and common factors were searched.
Summary of results: Extracted words were categorized into 6 clusters, "surprising at the difference /vigor/preliminary study," "on-campus study/knowledge," "work/communication," "participation/joy," "Actually what happens in the community," "people/experiences."
Conclusions: It was expected off-campus education would bring about six varieties of effects. There was a possibility that students acquired different learning from on-campus classes through the experiences in off-campus classes.
Take-home messages: It is thought that community-based education should be included in undergraduate programs for students of health sciences.

7V10

Outcome evaluation of community medicine during the 25-year curricular administration

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Background: Since 1985, Faculty of Medicine, Srinakharinwirot University (MEDSWU) has conducted a new curriculum of community medicine (CM). Little has been published long-term evaluation of curricular experiences in CM.
Summary of work: To have student's cognizant of community skills and holistic health care in both rural and urban communities, we have conducted CM with 18 out of 250 credits throughout their 6-year training. Students are assigned to have field-work skills in 2nd year, focused on content crucial to survey, interview, data collection and analysis, presentation and urban community in 3rd year. In 4th year, field study in rural community, working with health alliances is designed to anticipate students to have linking concept between patient's illness and societal factors. Students also serve in a rural hospital for 6 weeks during the 6th year. Faculty members continually assess graduates' community knowledge/skills as well as supervised doctors' satisfaction.
Summary of results: The results of the curricular evaluation show fulfillment of learning objectives and graduates' satisfaction. Nevertheless, two doctors graduated from MEDSWU are awarded Best Rural Doctors.
Conclusions: Curricular development is aimed at reframing the context of health within the complex and integrated system including social, cultural and environmental variables.
Take-home messages: Conclusively, graduates' attitudes toward societal concerns are the most critical factor.

7V11

Distributed medical learning: It's more than sending students into the community

Jeannine Girard-Pearlman, Mathieu Albert, Niall Byrne and Cassandra Walters ([1]Wilson Centre; [2]University of Toronto, Canada)*

Background: Distributed medical education and social responsibility are hot topics in Canada and elsewhere. There is a need to educate students in the community to provide them with a broad range of community care and learning opportunities. The University of Toronto medical school has 14 years of experience with distributed medical education through a mandatory 4th year course entitled: Ambulatory Community Experience (ACE). A description and analysis of key community and learning aspects are offered.
Summary of work: A historical content analysis, a descriptive analysis of learning agreements, a thematic review of assignments. The learning agreements and assignments were selected by probability sampling with stratification and randomization.
Summary of results: The selection of learning objectives related to desired outcomes, the importance of choosing ambulatory/community sites based on the learning objectives, the significance of learning agreements for self directed learning, the identification of health promotion at the individual and community level, the recognition of collaboration as a contributor to better patient care and decreased costs.
Conclusions: Findings will inform the development of distributed medical education models with a social responsibility focus.
Take-home messages: Distributed medical education experiences can be successfully structured to support a social responsibility agenda. This project was supported by the University of Toronto Faculty of Medicine Education Development/Curriculum renewal Fund.

7V12

A longitudinal community-based experiential programme for medical students: Let's experience human communication on our common family life-cycle in our community

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Background: Recently highly-specialized medicine has developed while human life and communication may have been forgotten. In our aged and competitive society, many novice medical students, without enough opportunities to meet different generation, have difficulty in connecting with them.
Summary of work: A longitudinal community-based experiential programme for first-year medical students was conducted. The goals were to understand family life-cycle and to practise communication. They met weekly with a partner, either a kindergarten child, a pregnant woman, or an elderly person on six occasions. Reflection and portfolio were combined. Evaluation was by a questionnaire and the students' portfolio analysis.
Summary of results: In 2009 the questionnaire showed 76% agreed on improvement of communication skills, 60% on understanding of life-cycle, 91% on significant learning. The student's portfolio suggested they first felt helpless in communicating with their partner, they gradually understood their partner's context of life.
Conclusions: This program showed a great impact on the students in understanding human life-cycle and communication. The continuous relationships with reflection and portfolio helped the students deepen the connection with their partner and realize human life-cycle.
Take-home messages: A community-based experiential programme helped novice medical students understand human life-cycle and improve their communication skills. Key ingredients are continuity, support, and self-reflection.

7V13

Application of a controlled vocabulary to an undergraduate medical curriculum database – challenges and potential solutions

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Background: Medical school curricula are complex entities consisting of students, teachers, schedules, objectives/competencies, assessment, etc. Increasingly, databases are being employed to manage curricular activities.
Summary of work: The University of Alberta has implemented HOMER, a custom on-line learning community, which utilizes an Undergraduate Medical Education database. Development of a controlled vocabulary of

keywords allows for tagging of curriculum units and, in turn, specific searches across this database. To follow is a summary of challenges and, in parentheses, solutions encountered.
Summary of results: The original vocabulary inadequately represented curriculum content (systematic addition of keywords). Increasing number of keywords (no "ideal" number, depends on desired functionality). Difficulty managing keywords (hierarchical organization). Haphazard addition or deletion of keywords and inconsistent tagging (authorize key personnel, develop rules). Loss of centralized control of curriculum (integration with governance structure). Software "bugs" (beta-testing, communication, and back-up). Project scope and time-pressure (iterative process). Turn-over of personnel (documentation). Identification of "hidden curriculum" (opportunity for quality control).
Conclusions: Further development of this curriculum management tool is essential as on-line educational resources continue to enhance or even replace traditional approaches to curriculum management.
Take-home messages: The development and application of a controlled vocabulary to an undergraduate medicine curriculum presents numerous challenges. It is hoped that other schools will benefit from our experiences.

7V14

Knowledge loss and retention: How literature can improve practice of undergraduate medical education in Greece

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Background: A common complaint among medical students in Greece is that much of the knowledge gained during the early years of medical school cannot be retained soon thereafter.
Summary of work: This study aims to review literature concerning knowledge loss and retention in undergraduate medical education, recognize associations with possible influencing factors and identify strategies to minimize knowledge loss in the context of the academic setting of Greek medical schools.
Summary of results: Knowledge loss among medical students has been a longstanding issue, proved by research primarily focusing on basic science disciplines. The decline has been associated with the retention interval, while statistical significant differences have been found among different subjects. Thus, no correlation has been found with the students' examination marks. Some factors that facilitate long term retention of gained knowledge have been identified, including quality of initial learning and its reinforcement over time.
Conclusions: Most Greek medical schools are based on the traditional model of medical education with a clear distinction between basic science and clinical disciplines. Applying the before mentioned results in restructuring curricula and courses can minimize knowledge loss over time.
Take-home messages: The shift towards a more integrated model, where advanced courses review and build upon prior knowledge can raise quality of medical education and subsequently future patient care.

7V15

Response system for curriculum drift: Identifying faculty and student views on tutorial sessions to improve skills

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Background: For twelve years, a medical school in Brazil has had a successful problem-based learning curriculum. The past three years, students and faculty have given poor ratings to the tutorial sessions. To respond to these issues, we designed a study to identify specific strengths and weaknesses in the teaching and learning practices.
Summary of work: One questionnaire to 60/180 tutors and another to 60/320 students (each from the 1st-4th years). We analyzed the faculty response and frequency that facilitated the management of tutorial and the student response frequency to the eight steps.
Summary of results: Tutor identified three top difficulties: giving formative attitudinal student assessment (38.2%), dealing with a heterogeneous group that includes shy and/or talkative students (25.9%), how to formulate their learning objectives (17.7%). Students reported that tutorial sessions promoting meaningful learning and identified same difficulties: distress when receiving faculty assessment (20.9%), difficulty in formulating their learning objectives (17.7%), difficulty in making hypothetical inferences (16.2%).

Conclusions: Both tutors and students reported difficulties were in student assessment, group dynamics, and the learning process steps into the tutorial sessions.
Take-home messages: We emphasize the importance of on-going curriculum evaluation, identification of areas with problems, in order to develop effective corrective strategies.

7V16

Development of the vision statement for Tehran University of Medical Sciences MD program: A road map for reform

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Background: One of the major challenges for each curricular reform is lack of consensus on depth and direction of the reform. This project conducted to develop a Vision Statement (VS) for our MD program reform.
Summary of work: According to the recommendations of a comprehensive evaluation which showed the urgency for change (Kotter step 1), the initial draft of the VS has been developed. It has been discussed in several meetings including three workshops by participation of more than 200 faculty members of basic and clinical sciences departments and also representatives of medical students. After modification in the Faculty Council, the University Council adopted it in December 2009.
Summary of results: This VS has been prepared in 10 sections as the following: 1) outcomes, 2) content, 3) educational strategies, 4) teaching and learning methods, 5) educational environment, 6) assessment, 7) program administration, 8) faculty, 9) students, 10) physical resources. Currently we are working to implement the VS in our MD program.
Conclusions/Take-home messages: We used the VS as a tool for overcoming ambiguities in the way toward a radical reform in our MD program (Kotter step 3). Our brief experiences in implementation of VS showed us its usefulness.

7W Posters: Educational Management and Leadership Training

7W1

The managed introduction of higher specialist training programmes into a teaching hospital in Kent, Surrey and Sussex

K Kelleher (Postgraduate Deanery for Kent, Surrey and Sussex (KSS), UK)*

Background: With the advent of the new medical school at the Brighton and Sussex University, the Local Education Provider (LEP) NHS Trust has had to evolve its teaching hospital status.
Summary of work: The Postgraduate Deanery for Kent, Surrey and Sussex (KSS) has collaborated with the NHS Trust and the local University on a project of introduction of new specialty schools and specialist training programmes, which are centred in the Brighton and Sussex University Hospital.
Summary of results: In 2008-2009, two new specialty schools were introduced to the Brighton area – clinical radiology and emergency medicine. There have also been new programmes centred in Brighton in the specialties of geriatric medicine, dermatology, intensive care medicine, renal and acute medicine/ general internal medicine.
Conclusions: This paper describes the process and project management of the introduction of new specialty schools and training programmes into an expanding teaching hospital environment.
Take-home messages: A specific project management approach is required for the introduction of new specialist schools and training programmes into a UK teaching hospital environment.

7W2

Does the introduction of action research in a management development programme contribute towards developing self directed managers?

V Pillay(Foundation for Professional Development, Private Higher Educational Institute, South Africa)*

Background: Annually FPD, a private institution of higher education, in collaboration with Yale University offers 350 scholarships, on a one year management development programme, for health care managers

working in the AIDS field in South Africa. In a large study, published in 2005 in Europe, it was found that only 15% of managers were transformational managers and one of the few examples of achieving that was linked to the integration of action research. As a result, the FPD has implemented action research to its existing management programme.
Summary of work: The AHMP was developed with the aim of increasing the students' leadership capabilities by focusing on a broad range of leadership competencies that are relevant to managers in the current South African public sector. During 2009, action research was included as a module in this programme.
Summary of results: The author has facilitated the workshops and assisted students with guidelines to successfully implementing action research. Students presented their action research "ideas" to the author and it was evident that students were embracing action research and their presentations have shown early signs of transformational behaviour.
Conclusions: It is vital that educational providers continuously assess their training methodologies and implement new concepts that contribute competent and transformational managers.
Take-home messages: Even though self directed (transformational leaders) are scare, business schools have the power to promote this behavior.

7W3

Community healthcare leadership training

C H How, S S Ting and EG Tay (Sing Health Polyclinics, Singapore Health Services, Singapore)*

Background: Singapore Health Services Polyclinics conducted training for community healthcare leaders from a developing Asian country. Singapore had been identified as a learning partner for their healthcare reform initiatives. The general practice primary care, community health services and family medicine training were identified as their key learning objectives.
Summary of work: We presented the organization of primary healthcare services and family medicine training in Singapore through interactive sessions with group discussion, role-plays and presentations and on-site training visits. Assignments to encourage personal reflections of daily topics and the differences in both healthcare systems helped stimulate a deeper learning and generate improvement initiatives for their own country. Frequent feedbacks, group discussions and summary presentations were used in assessment.
Summary of results: Our first of four 2-weeks courses was in January 2010. The written feedback and summary presentation by the participants demonstrated their intended learning objectives. They were most impressed by the participant-centred training and positive attitudes of our teaching faculty. The faculty also benefitted from a deeper understanding of another health system.
Conclusions: Interactions through planned activities and guided reflections promote deeper learning for health professionals from two different countries.
Take-home messages: Learning is a two way process especially when two health systems meet in training.

7W4

How should leadership skills be taught in the medical curriculum?

M Lopmeri, J Rautavaara, R Peltonen, F Raunio and H Pipping (University of Helsinki, Finland)*

Background: Leadership is an important part of almost every doctor's work. However, thus far there has been little education in leadership skills in the medical curriculum in Finland. Both the students and the teachers consider it necessary to correct this deficiency.
Summary of work: A new leadership skills training program will be started at the Faculty of Medicine, University of Helsinki. It focuses on the theme 'Doctor as a leader of a Multiprofessional team'. The purpose of the program is not to make every doctor an administrative leader, instead it aims at giving the students the leadership competencies they will need in their everyday work, in emergency situations and when working with other health care professionals, among others. Students have been actively involved in the planning of the program.
Summary of results: The program offers medical students a hands-on approach to leadership skills. It involves tutorials and simulation exercises as well as lectures. The plan has been warmly welcomed by the students.
Conclusions: The leadership training program is a great example of how leadership skills can be taught in an effective and interesting manner.
Take-home messages: Leadership skills are important in a doctor's work and they should be taught as a natural part of the medical curriculum.

7W5

Introduction to Veterinary Leadership (IVL) for first-year veterinary students

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Background: Since 2007, an annual 3-day IVL workshop has introduced first-year veterinary students to the basics of leadership aptitudes, such as interpersonal communication, professional commitment and teamwork.
Summary of work: Two questionnaires were completed by all participants (n=170) in 2008 and 2009. Previous experience and perception of leadership qualities were evaluated prior to IVL. Perceived benefits and changes in perception of leadership were evaluated after the workshop.
Summary of results: Many students (51.5%) had never received specific leadership training, yet most had work or academic experience in personnel management (53.2%), group leadership (40.4%), teamwork (98.8%) and customer service (87.7%). Following the workshop, students' perception of leadership seemed to change, with qualities becoming more communication-based. Self-evaluation of personal leadership aptitudes and recognition of the leadership role of veterinarians increased. Most students (99.4%) reported increased awareness of leadership aptitudes and 64.7% felt the workshop would influence their future professional behaviour.
Conclusions: The IVL workshop appears to increase veterinary student awareness of the importance of leadership in their future role as veterinarians and of the aptitudes necessary for leadership.
Take-home messages: Early introduction can positively influence veterinary students' perception of leadership.

7W6

The critical role of self-reflection: Some insights into the successful implementation of the medical leadership competency framework at undergraduate level

T Spurgeon (University of Sheffield, Medical School, UK)*

Background: There is growing emphasis on supporting doctors in acquiring leadership skills as a normal part of their role. Collectively, the Institute of Innovation and Improvement and the Academy of Medical Royal Colleges, via PMETB, have agreed a curriculum for all postgraduate leadership training. However, 'Tomorrow's Doctors' now requires similar leadership content for all undergraduates. This has posed particular challenges, notably convincing students about the need for leadership training at undergraduate level, and identifying appropriate forms of leadership assessment. Multi-source feedback (MSF, a widely-used assessment tool at postgraduate level, may have relevance for assessing leadership training at undergraduate level.
Summary of work: The study reported here focuses on two questions: what are undergraduates' views about the introduction of MLCF in the medical curriculum? How acceptable is MSF as a means of assessing leadership at this level?
Summary of results: Using a focus group and think-aloud (verbal protocol) approach respectively to address these questions, the former suggested a need for clearer explanation for the inclusion of MLCF in the undergraduate curriculum, while the latter demonstrated serious limitations in undergraduates' reflective capacity.
Conclusions: Promote understanding of the necessity for leadership development, and create more opportunities to facilitate students' reflective capacity
Take-home messages: More cogent and persuasive messages about the importance of leadership

7W7

Development of a novel tool for workplace based assessment of clinical leadership

E Eyre, R Hughes and P Reynolds* (Department of Paediatrics, St Peter's Hospital, UK)*

Background: The Medical Leadership Curriculum (AMRC) was published May 2009, PMETB has recognised that medical leadership should be integrated into postgraduate medical training but the mechanism is not yet

established. We have developed an algorhythm-based tool which introduces medical leadership into the existing workplace assessments for junior doctors.
Summary of work: The proposed study pilots the use of this tool, a single page with written prompts, that we hope will enable discussion with trainees to evaluate leadership issues and develop leadership competencies within existing assessments, specifically CbD (case-based discussions) and ACAT (acute care assessment tool).
Summary of results: During April-June 2010 we propose to evaluate the tool within a district general hospital. We will collect qualitative and quantitative data to evaluate its utility and value to educational supervisors and trainees. We will collect 20 CbD-Leadership and 20 ACAT-Leadership assessments and compare them to the same number of standard assessments.
Conclusions: We hope to demonstrate that this clinical leadership tool is simple and effective and can be used as an adjunct to existing assessments to assess and develop clinical leadership skills.
Take-home messages: We have developed and propose to pilot a simple and effective tool that introduces the concept of clinical leadership into the existing assessment framework for medical trainees.

7W8

Development of an integrated course on management and entrepreneurship in the veterinary medical master curriculum

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Background: Veterinary alumni in The Netherlands experience a lack of competencies in practice and business management. We designed a 4-week course on management and entrepreneurship which will be implemented in the veterinary master curriculum 2010. We describe the process of development and the headlines of the course.
Summary of work: With the curriculum program outcomes as reference, learning objectives were defined for process-oriented and task-oriented management. Objectives were translated into a didactic concept. Formative and summative assessment was defined. Specific focus was given to integration of this course with workplace learning in private practices. Several stakeholders were consulted.
Summary of results: We designed a course in which interactive lectures, seminars and self study are alternated with externships in private practice and in veterinary pharmacy. Focused tasks on entrepreneurship are developed for externships. Process and task-oriented management are both addressed f.i., conflict management and financial aspects of practice. Assessment is mainly formatively. Students write a personal development plan, as part of their master e-portfolio, which is assessed summative.
Conclusions: A course on management and entrepreneurship is developed in a structural way, addressing aspects as objectives, didactic concept and assessment.
Take-home messages: Education in management and entrepreneurship can be integrated into a clinical master programme in a structured way.

7W9

Entering the Dragon's Den: Integrating business skills into professionalism teaching

Liz Mossop and Karen Braithwaite (School of Veterinary Medicine and Science, University of Nottingham, UK)*

Background: Business skills have long been identified as an area of weakness in veterinary graduates, but very few faculties include this teaching within their core curriculum.
Summary of work: An integrated module was developed as part of a core professionalism curriculum. The module covers basic theory around strategy, finance, entrepreneurship, management, career planning and leadership skills. It culminates in a one day business game, in which teams of students compete against each other to buy a practice and enter a “Dragon’s Den” with their pitch.
Summary of results: Feedback from students has been positive, although the topic has challenged their values and the importance of business ethics teaching has been highlighted. The business game was very popular, and was an effective way to consolidate and contextualise learning. The use of practising veterinary surgeons as team mentors was extremely effective. Team working and leadership skills were challenged by the format of the day.
Conclusions: Business teaching should be incorporated into veterinary curricular and may become a consideration for medical curricula in the future.

Take-home messages: Whilst a challenging aspect to deliver, business teaching is a useful addition to core veterinary curricula and aspects of team working, time management and ethics can also be incorporated.

7W10

Defining critical success factors for organizational learning

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Background: The Andalusian Agency for Health Quality (Spain) has defined its Strategic Plan 2010-13. It is important to establish the main factors that will enable success of our organization in the short, medium and long term.
Summary of work: Process conducted by the Steering Committee with participation of staff of the organization aims to increase organizational knowledge. Timeframe: February to November 2009. Methodology: A reflection of the entire organization using the criteria of EFQM Model.
Summary of results: Critical success factors identified are: 1) Job well done, 2) Customers' satisfaction, 3) External recognition, 4) Establishment of partnerships agreements, 5) Ability to innovate, 6) Knowledge as a key resource, 7) The people in the organization.
Conclusions: Critical success factors are closely related to the mission, vision and values of our organization. Identifying critical success factors aid to organizational learning and facilitate the establishment of our actions and strategic objectives.
Take-home messages: Any complex organizational process can be approached from a perspective of organizational learning.

7W11

An innovative approach to increasing resident participation in accreditation

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Background: The accreditation process is critical to ensuring quality postgraduate medical education in Canada. Residents play a fundamental role in the accreditation of residency programs as surveyors in external reviews and internal reviews. The Canadian Association of Internes and Residents and the Royal College of Physicians and Surgeons of Canada noted that resident participation in the accreditation of residency programs is not optimal and may in fact be commensurate with an understanding of, and formal training in, the accreditation process.
Summary of work: A four-hour workshop was developed to educate residents on the accreditation standards and process. The workshop incorporated didactic sessions and simulated accreditation reviews. Three workshops were conducted over a seven-month period in 2009. 105 residents attended the workshops.
Summary of results: Educating residents on the accreditation process and the residents' role in that process enables greater and more effective participation by residents in the evaluation of residency programs.
Conclusions: A "Train the Trainer" style workshop is an effective method for increasing interest in accreditation activities and willingness to assume a greater involvement in the process, thereby ensuring ongoing quality postgraduate medical education in Canada.
Take-home messages: Increasing resident understanding of the accreditation process increases resident participation and improves the overall quality of medical education.

7W12

An analysis of Physician Assistant practice in the US

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Background: In 2009, the National Commission on Certification of Physician Assistants conducted an analysis of PA practice in the US to inform the development of certification and recertification exams. The information also is relevant to those designing curriculum for PA programs in the US and to those involved in the development of similar professions around the world.

Summary of work: More than 70,000 certified PAs were invited to complete a web-based survey on which they rated the importance and frequency of more than 200 knowledge and skill items. The response rate was greater than 15 percent.
Summary of results: Analysis of the survey results is in progress. Findings will be completed in spring 2010.
Conclusions: The study will draw conclusions about the frequency and importance of the application of specific knowledge areas and skills in PA practice, with additional analyses by specialty.
Take-home messages: The practice of medicine is dynamic and requires regular re-evaluation for those involved in the education and assessment of health care professionals.

7W13

Exploring the dynamics of alumni interactions in professional and personal matters

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Background: An important aspect of the period of undergraduate studies is the social links and ties that develop between fellow students. These reflect the development of a community of practice. We explored alumni interactions of Shifa College of Medicine alumni from 2003-2009.
Summary of work: An open ended questionnaire was administered to a purposive sample of 50 students from all five graduating classes. The students were in and outside Pakistan, in different stages of their professional career including internship, preparing for postgraduate or entry examinations, postgraduate training, private practice and non-practicing. Final thematic analysis was done using agreed themes from two independently developed themes by investigators
Summary of results: Themes identified were incidence of interaction, means of communication, request guidance in professional matters, seek advice in personal issues and examples of help received from colleagues. Majority (89%) stayed in contact, half of them interacting with 10-12 colleagues, average frequency of communications being once a month. Majority used Facebook for communication followed by phone calls. 73% requested guidance in professional matters, and 52% sought personal advice.
Conclusions: Development of alumni community helps to support their professional and personal growth.
Take-home messages: Institutions need to be cognizant of the importance of alumni interactions and provide an enabling environment for the development of alumni as a community.

7W14

Human capital management is a critical success factor, leading to sustainable high-performance medical school

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Background: Seventy-eight indicators developed by the Office of Public Sector Development Commission (OPDC) and Commission on Higher Education (CHE) are currently implemented as a tool for quality assurance assessment in all Thai universities. However, how to drive all faculty members to continuously produce academic activities is still challenging.
Summary of work: Therefore, we designed two powerful policies (P4P: pay for performance and K4P: KPI for promotion) in order to directly or indirectly encourage our faculty members to invest on their career paths. Some academic activities are pre-conditioning criteria for enrolling in the P4P policy and also to upgrade the maximal top-up payment. Moreover, since 2007, those public indicators have been transformed into our K4P policy which effectively deployed individual KPI toward all faculty members.
Summary of results: As a result, quality assurance of our institution was evaluated by OPDC at the level of 70.5%, 77.3% and 82.5% in 2007, 2008 and 2009, respectively. Regarding the CHE evaluation format, there were dramatic increases in number of publications (115.9%), items bank (150%), research grants (124.7%) and cited references (28.6%).
Conclusions: Increase in human capital is a considerable means for sustainable high performance organization.
Take-home messages: Implemented policy in medical professionals should be designed upon the concept of co-investment on human capital management.

7W15

Implementation of key performance index and competency for the medical education management

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Background: The Key Performance Index (KPI) and Competency (C) have been introduced to both academic and supporting staff in Faculty of Medicine, Srinakharinwirot University since March 2007.
Summary of work: With the agreement among staff and Faculty Board Committees, the KPI+C were established from the organization strategies and standard criteria from National and International Quality Assurance. The KPI+C are deployed not only for promotion but also improvement of 4 main strategies, teaching, research, service and administration.
Summary of results: After 2-year implementation of KPI+C renewal with modification by knowledge management (KM) process, many improvements and outputs/outcomes that restored the weakness and reinforced the strength from SWOT analysis were observed. Accordingly, we firstly created the KPI-online with claimed paperless documents.
Conclusions: To respond declination of staff participation, change management was fully complied by the KPI orientation as well as KPI consultant system.
Take-home messages: Nevertheless, continuous quality improvement of individual balanced score card is a pivotal role to create a homogeneous alignment, therefore achieving the ultimate goal without difficulties.

7W16

The good, the bad and the benignly inconsistent - Ensuring robust policies and procedures in the management of training

Kate Read[1], Surbhi Shah[1,2] and Simon Gregory[1] ([1]East of England Multiprofessional Deanery, Cambridge; [2]Eversheds LLP, Cambridge, UK)*

Background: Following a workshop involving the East of England Multi-Professional Deanery ("the Deanery") and Eversheds LLP covering the regulations around training and education (set out in the Gold Guide 2009, a project was initiated to develop policies and procedures, with the aim of ensuring transparency of process and thoroughness of application across the Deanery.
Summary of work: A scoping exercise identified existing policies and procedures and any gaps. A risk analysis categorised which policies needed reviewing and/or implementing. The aim was to ensure that trainees were treated equitably. It was ensured that policies had practical application and could be trusted by, educational managers, trainers and trainees. An educational needs analysis was undertaken as part of the project which identified training requirements across all members of staff.
Summary of results: A set of policies which are easily accessible and which have been agreed as a fit for purpose.
Conclusions: As a result of a successful public private partnership, a set of robust policies and procedures has been produced, which provide equity for all trainees in the management of their training. A set of training sessions for staff has ensured the implementation of the policies and procedures.
Take-home messages: Policies must be fit for purpose and regularly reviewed. Policies must be user friendly and concise.

7W17

Teaching biopsychosocial competence at the bedside

Vanessa Burch, Lauraine Vivian, Sean McLaughlin and Charles Swanepoel (Department of Medicine and Primary Care Directorate, University of Cape Town, South Africa)*

Background: Behavioural and social determinants of health and illness are well recognized, yet we still struggle to bring these principles to the bedside in clinical practice. In 1994 the University of Cape Town adopted a Primary Health Care (PHC)-based approach to education in order to equip its graduates to meet the challenges of providing health care to people with vast social, political and economic inequalities.
Summary of work: Our teaching approach weaves the principles of PHC and a biopsychosocial approach to patient care into clinical practice at the bedside. Patients with psychosocial issues relevant to their illness and or PHC issues relevant to their care are selected on ward rounds conducted jointly by a senior physician and a medical anthropologist. Fourth year medical students interview these patients and develop mini-ethnographies which are discussed with the anthropologist in an interactive seminar. Thereafter students

develop a portfolio of 15 patient ethnographies which are assessed as part of the Medicine examination at the end of 4th year.
An open-ended questionnaire was used to canvass student opinion about the educational and personal learning value of the teaching pedagogy used. Qualitative data analysis techniques were used to analyse the written responses.
Summary of results: Students described the learning experience as authentic, interesting and informative. They recognized the importance of holistic, patient-centred care based on a biopsychosocial approach and the importance of PHC principles in providing patient care. Barriers to implementation were also highlighted.
Conclusions/Take-home messages: The teaching pedagogy described, now used elsewhere in the faculty and taught in our faculty development programme, helps students learn the essential elements of a biopsychosocial approach to clinical care at the bedside.

7W18

Individuals' experiences of bullying with a view to spreading best practice in the management of NHS workplace bullying

P Crampton, M Campbell, J Illing and B Burford* (Durham University, School of Medicine and Health, Durham, UK)*

Background: The 2008 NHS staff survey revealed that 15% of respondents in the North East of England reported that they had been bullied or harassed by other staff in the previous 12 months. By investigating individuals' own accounts of bullying, the research can offer insight on how organisations are currently dealing with workplace bullying.
Summary of work: The interviewees self-selected the majority of these after filling in a bullying survey. Telephone interviews were carried out on employees from 6 different NHS trusts in the North East of England. A pre-screening questionnaire ensured a diverse demographic sample of participants, and those with a range of bullying experiences. The interviews lasted between 25-45 minutes and were coded anonymously, transcribed and analysed using a grounded theory approach.
Summary of results: Detailed accounts were obtained from victims of bullying, people who had witnessed bullying and those who had been accused of bullying.
Conclusions: The reactions of those involved, barriers to reporting bullying, and the impact of bullying on individuals was ascertained. Interviewees described the support they received and additional guidance they would have valued.
Take-home messages: By gaining a thorough knowledge of experiences of bullying and the procedures that were followed, examples of best practice can be described so that organisations can improve their management of bullying.

7W19

Web technology - Can it cure all ills?

G McCulloch, J Chadwick* and D Salman* (East Kent University Hospital Trust, Ashford, Kent, UK)*

Background: Acute medical team doctors working in the Clinical Decision Unit created a virtual calendar to which each uploaded their rotas including details of on-calls, nights and leave. It enabled team members to access details of ward cover from any location and at any time, making organising study leave, shift swaps etc more efficient to arrange.
Summary of results: Feedback was generally positive: ''I liked being able to check the calendar from home after work when I had time to look at courses". "As the medical registrar on-call it allowed me to quickly check who was available each day for clerking, aiding management of the take". Since the original medical team switched jobs the calendar fell into disuse, due to poor handover. This led to a number of clashes of annual leave/study leave greatly reducing the number of acute medical doctors available to assist the on-call team. This slowed down patient progression and added greatly to the work-load of the on-call team.
Conclusions/Take-home messages: A virtual calendar is a useful tool for co-ordinating the rotas of a team aiding leave planning and leading to a consistent level of cover. Its role could be extended to larger teams and directorates to enable co-ordination of rotas and teaching.

7W20

Building an academic support unit

*Lawrence 'Hy' Doyle * (UCLA Prime, Los Angeles, California, USA)*

Background: An understanding that academic support units are an important component of medical education is gaining in importance. There are few programs that discuss the development of such support. The poster covers (1) components of academic support programs; (2) exercises related to improving skills in the areas of test-taking, and anxiety; (3) management and sports psychology skills useful to students attempting to perform at their best; (4) observations of student difficulties; (5) some related research in the areas of learning approaches, reading improvement, and stereotype threat.

7X Posters: Communication Skills

7X1

An innovative way of evaluating clinical history taking and interview skills of first semester medical students

Davendra Sharma, E S Fernandez, B Rios, Y Burnett and R Nasiiro (Department of Behavior Science, Ross University School of Medicine, Dominica)*

Background: The Doctor Patient Society course for semester 1 students at Ross University teaches the clinical history and interview techniques from week 1 of classes. Students are expected, by the end of the semester to be able to organize the clinical history and to conduct a comprehensive clinical interview.
Summary of work: Students complete an examination in the class room where they conduct an interview by means of written questions and patient answers on paper around a chief complaint given prior to the examination. The interviews were graded based on a scoring template.
Summary of results: Analysis of the results of the end of semester examination showed that 92% of the student interviews were graded as good. 9% were excellent and 1% was graded as average. An evaluation questionnaire of the clinical training and examination was done. On a Likert rating scale of 1 to 4 with 1 being poor and 4 being excellent, students responses were a mean of 3.25
Conclusions: The examination results showed that the majority of students had acquired good skills at history taking.
Take-home messages: Student history taking skills can be effectively evaluated from a written format.

7X2

Emergency communication skills teaching in Australian Medical Schools

E Flynn[1], R Woodward-Kron[1], D Slade[2], G McColl[1] and G Webb[1] ([1]University of Melbourne, Medical Education, Melbourne, Victoria; [2]University of Technology, Sydney, NSW, Australia)*

Background: Communication in Emergency Departments is fragmented and pressured and a known causes of complaints and poor patient outcomes. Though communication skills are a core component of medical undergraduate curricula the teaching generally takes place pre clinically, increasing the possible impact of the hidden curriculum in clinical rotations. In a study to develop teaching resources for students in Emergency Departments we surveyed the communication skills teaching in Australian Medical Schools.
Summary of work: The presenter conducted a semi-structured telephone survey with senior academics from all 20 Medical Schools. The survey covered both teaching and assessment of communication skills in general and Emergency situations.
Summary of results: All schools conduct formal communication skills training in the pre-clinical period. Communication is a core subject, which in 95% is integrated into broader clinical skills subjects. 19 of the schools assess communication skills by observing student performance. No school conducts specific emergency communication skills teaching programs though 65% of schools include communication skills in advanced life support teaching. One school assesses Emergency communication skills specifically.
Conclusions: General communication skills are comprehensively taught and assessed in Australian preclinical medical school teaching but there is a need for the development of specific programs for Emergency communication skills.
Take-home messages: Need communication skills teaching in Emergency Medicine.

7X3

Communication skills training for medical students at Faculty of Medicine University of Indonesia

Endang Basuki (University of Indonesia, Jakarta, Indonesia)*

Background: Communication skills is one of the competencies that should be held by Indonesian doctors, which is a line with WHO's criteria on global doctor. Research showed that patient's dissatisfaction is related to ineffective communication.
Summary of work: Communication skills are given in the form of a module: empathy, communication, bioethics for personal and professional development in the context of humanities. It is impossible to give communication subject without giving the foundation of treating patients such as humanities, empathy and bioethics. In the first semester it is given 2 credits and lasts for 10 days. In semester 2-6, it is given another 2 credits and conducted for 2-4 hours in each module. It also merged into the basic clinical skills and foundation of clinical practice modules. During the clinical practice in 7th to 10th semester, communication skills are emphasized on the technique of anamnesis, giving information, performing medical counseling, breaking bad news and obtaining informed consent. In the 10th semester during the community medicine module, a refresher of communication skills is given and at the end of the clerkship OSCE is performed.
Conclusions/Take-home messages: A spiral curriculum is needed in the communication skills teaching. Deep comprehension of treating patients is a must, this can be achieved by integrating communication with other subjects such as empathy, bioethics and humanities.

7X4

Let's go retro in communication skills studies! Reintroducing role-plays in a new and playful way

E Pyörälä (Research and Development Unit for Medical Education, University of Helsinki, Finland)*

Background: Comprehensive communication skills studies (CCS) were started in Helsinki in 1994. Simulated patients were introduced in 1997 alongside role-plays. Students preferred simulations and role-plays were given up in 2002.
Summary of work: For further development of CCS, student feedback from years 2007-2009 was analysed. Students expressed both enthusiasm and anxiety towards simulations and some suggested that communication could also be rehearsed with peers. Thus, role-plays were reintroduced in a patient interview course in a modern way in 2010. They included playful exercises of non-verbal interaction and mini role-plays, and were followed by simulations. Student feedback of this course is analysed here.
Summary of results: The preliminary analysis shows that role-play sessions prior simulations were appreciated by students. Playful elements in role-plays reduced anxiety, and taking different roles stimulated students. Role-plays with peers provided a safe, relaxed and supportive environment for learning communication skills.
Conclusions: Role-plays are effective in learning both non-verbal communication and the process of patient interviews. A combination of role-play and simulations proved to be a good way for learning patient interviews. Benefits of both learning methods were profited from.
Take-home messages: Combination of role-plays and simulations reduced anxiety and enhanced communication skills learning.

7X5

Analysis of doctor-doctor telephone communication in emergency care training

N Parnell (BSUH, The Princes Royal Hospital, Haywards Heath, UK)*

Background: Care of acutely unwell hospital patients is often sub-optimal. Studies indicate that communication failure is frequently implicated in medical error. While doctor-patient communication is routinely taught and has been thoroughly studied the same is not true of doctor-doctor communication. This study looked at doctor-doctor communication through the medium of simulation training.
Summary of work: 23 telephone conversations between junior doctors and more senior colleagues were recorded during emergency medicine simulation training using a medium fidelity simulator. Conversations were analysed using a modified version of a previously described rhetorical framework, consisting of audience, purpose, framing the problem and content
Summary of results: 74% of conversations had at least one error and 56.5% had two or more. Errors of purpose, content and framing the problem each occurred in over 40% of conversations.
Conclusions: In this setting communication errors by trainees are frequent. The framework used readily identifies where telephone communication may go wrong and allows for a standardised approach to its teaching. The potential effect on patient outcome was not studied but improving communication may help to reduce medical mishap.

Take-home messages: Errors in telephone communication by junior doctors in emergency care are frequent. Training and patient care may benefit from wider inclusion of doctor-doctor communication in undergraduate and postgraduate education.

7X6

The pitfalls of using bilingual medical students as interpreters: Is it good practice?

T Ikoko[1], S Shah[2], T Sanders and V Wass ([1]University of Manchester; [2]University of Keele, UK)*

Background: Little is known about using bilingual medical students as ad-hoc interpreters. We aimed to investigate how this practice might impact on doctor-patient communication and consequently patient care.
Summary of work: Ten bilingual medical students were interviewed (SS) using a previously piloted semi-structured interview. Two purposively sampled focus groups were conducted (TI) to triangulate findings. Among the 25 participants, 15 different languages were represented. Interviews and focus groups were transcribed, analysed qualitatively using grounded theory (TI, SS, VW) and validated externally by an independent researcher (TS).
Summary of results: Four themes emerged: 'Lack of linguistic skills:' students lacked necessary medical vocabulary finding translation difficult, 'Out of role:' they felt pressured by doctors to assume roles beyond their capabilities and by patients to act as 'cultural brokers', 'Implications on patient care:' they perceived this to be detrimental to patient care. 'Feelings:' A few reported positive experiences through bridging language barriers to satisfy patients. Many were negative.
Conclusions: A complex shift in roles and responsibilities occurs with ad-hoc interpreting that compromises students. This risks mistranslation is harmful to patient care.
Take-home messages: Using bilingual medical students as amateur interpreters has unexpected consequences. Students must be adequately trained to interpret and to ensure all clinical responsibility remains with the consulting doctors.

7X7

The Structured Communication Adolescent Guide (SCAG) and its use in the continuum of medical education

K Blake and K Mann (Dalhousie University, Halifax, Nova Scotia, Canada)*

Background: Interviewing adolescent patients requires particular skills. The Structured Communication Adolescent Guide (SCAG) has been developed over 10 years as a teaching, learning and assessment tool for medical students and residents, to obtain feedback from adolescents, both standardized and real patients. The goal is to improve feedback to learners on their adolescent interviewing.
Summary of work: The SCAG was developed as part of teaching adolescent interviewing skills to medical students. A randomized study demonstrated its significant and sustained effectiveness. Studies since conducted have explored its construct validity and reliability when used by both trained and untrained adolescents. Further studies are ongoing.
Summary of results: The instrument has demonstrated both reliability and validity when used by trained adolescents (Standardized Patients) to assess medical student and resident interviewing abilities, and by untrained adolescents, male and female, within a school-based pilot study. It effectively discriminates undergraduate from postgraduate learners. It has been adopted by other schools nationally and internationally.
Conclusions: The SCAG is a reliable teaching, learning and assessment tool for teaching adolescent interviewing and can be scored by both trained and untrained adolescents.
Take-home messages: A reliable teaching assessment tool can be used across a variety of settings and learners.

7X8

Attitudes towards learning communication skills in students of medicine and psychology of two Universities of Madrid, Spain

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Background: It is internationally accepted that communication is one of the necessary skills of the clinical professional. However, in Spain, teaching this aptitude is not included in most of medicine and psychology curricula.
Summary of work: The aim of this study was to evaluate the attitude of healthcare students about learning communication. For this purpose, we used the Communication Skills Attitude Scale (CSAS, which was translated to Spanish. The 26-item questionnaire has response options along a 5-point scale. We have studied the opinions of medicine (second grade) and psychology (first grade) students (number 250 and 90, respectively). Neither group had previous experience on communication activities. Data were analysed using Statistical Package for the Social Sciences (SPSS).
Summary of results: Both, medicine and psychology students, perceived a high necessity of learning communication skills. However, psychology students were more in favour of exercising this skill during their grades, than medicine students. Furthermore, psychology students found more enjoyable learning communication than medicine ones. Female students had more positive attitudes than male ones, as previously reported by other groups.
Conclusions: Both medicine and psychology students believe it necessary for their work to learn communication skills. But, medical students find this more difficult to do during their career.
Take-home messages: Medical students consider learning communication important, although they do not feel very enthusiastic about doing this during medical studies.

7X9

Evolution of medical students' communication skills from pre-clinical to clinical years: Still room for improvement!

M Louis Simonet, A Gut, A Rudaz, F Demaurex and M R Nendaz (University of Geneva, and Geneva University Hospitals, Geneva, Switzerland)*

Background: Our institution provides a communication skills (CS) teaching program during the pre-clinical years of our 6-year medical curriculum. Our objective was to determine the progression of specific CS from pre-clinical to clinical years.
Summary of work: 34 students completed two 20-minute medical encounters with a standardized patient: one at the end of their pre-clinical years (3rd year) and one at the end of their 4-5th-year internal medicine clerkship. Students' interviewing skills were rated by CS teachers using appropriate items from the Calgary-Cambridge Process Guides. Overall and selected CS item's scores were calculated (percent-scores) and compared between pre-clinical and clinical assessments.
Summary of results: Students' overall score declined between pre-clinical and clinical assessments (86% vs.78%, $p<0.001$). While skills used to initiate the encounter (90% vs 73%, $p<0.001$) and build the relationship (92% vs 77%, $p=0.007$) showed the greatest decrease, other abilities, such as providing structure to the encounter and closing it, were maintained over time.
Conclusions: We confirm the overall decrease of students' CS from pre-clinical to clinical years and provide information about specific communication abilities deserving specific reinforcement during clinical education.
Take-home messages: Some abilities in communication need more specific reinforcement during the clinical years.

7X10

The new communication study program in pharmaceutical education curriculum to use the scene of informed consent

E Arita[1], T Iioka[1], T Watanabe[2], A Ujihara[2] and K Tsuchimoto[2] ([1]Pharmaceutical Education Research Center, Kitasato University School of Pharmacy; [2]Division of Clinical Research, Kitasato Institute Hospital, Japan)*

Background: The 6-year faculty of pharmacy had started in Japan since 2006. More practical education programs are under consideration and how to train communication skills is most important. So we are trying to make many programs of role-playing study for pharmacy students (ex Scene of first interview or guidance of taking medicine). To have understanding and consent of patient is very important in medical communications, and it needs high level communication skills. So we thought the Informed Consent(IC) training was efficient method to develop communication skills.
Summary of work: In this study we tried to develop a Role-Playing Study Program of the IC to use the scene of clinical trial informed consent. At first, we prepared scenarios, background of patients and evaluation sheets

of each role (CRCs, Patient and Observer). Pharmacy students who had practical training at the clinical trial coordinating office, participated in this study. After the role-playing exercises of the IC, they checked the evaluation sheets and gave feedback to CRCs.
Summary of results: Those role-playing exercises were greatly appreciated by trainees for providing the opportunity to learn how important it is to have thoughtful attitude toward patients and practical communications with them, and the exercises have proved to be useful to pharmacy students.

7X11

Role play as a teaching tool for communication skills in ethical issues

S Kim[1], A Kondo[1,2], Y Nishijima[1,2], K Takahashi[1,2], H Yokoyama[2], M Mizoguchi[2] and S Izumi[1,2] (Tokai University School of Medicine, [1]Obstetrics and Gynaecology; [2]Clinical Genetics, Kanagawa, Japan)*

Background: Role-play is a very effective learning tool to obtain communication skills. In Japan while our medical students learn basic communication from 1st to 5th year, however, it is still difficult to make this advanced.
Summary of work: We assessed the role-plays by 5th year students in the situation of prenatal difficult settings. We made a lecture about prenatal tests including ethical issues before role-play. This tutorial normally takes place only for 2 or 3 students each time. The tutor recorded all conversations with shorthand. Role-play took about 35 minutes in average.
Summary of results: Students were very flexible to put their knowledge into practical use with a supportive attitude. However, it seemed difficult to choose more appropriate language for communicating with patients. Interestingly, they pretty much included what they think interesting rather than basic genetics to explain genetic conditions.
Conclusions: The students had good motivation in role-play settings. Role-play is good tool not only for communication skills but also for active discussion in rather shy Japanese students.
Take-home messages: It takes time and needs more manpower to make small group teaching. However, it is worth to do role-play to introduce more discussion with students not only for better communication skills.

7X12

Alternative educational formats for training in consultation skills

L Aper, J Reniers, K Haeck, F Hugelier and A Derese (Ghent University, Belgium)*

Background: At Ghent University medical students in the 4th, 5th and 6th year receive consultation training. This course integrates clinical, communication and reasoning skills. An online portfolio is used to monitor the individual learning process over these three years. During the integrated consultation course students used to practice in groups of three with a simulated patient and a supervising clinician to prepare them for real patient encounters. Students are asking for more training considering the complexity of consultation skills. Due to the raising student numbers and the inability to enlarge the staff this method can't be increased. Therefore, alternative formats for training in consultation skills were studied. Do the alternatives show a better learning result and self-efficacy than the current training?
Summary of work: Two alternative methods were developed: an interactive website (students observe fragments of consultations, answer questions to receive immediate feedback) and independent training sessions (students train without supervision and receive feedback from simulated patients and peers, subsequently the experiences are discussed in groups of 8 with a clinician). Both formats were evaluated by student questionnaires (ongoing).
Summary of results: Preliminary - the existing training and the alternatives are seen as complementary. In the future we will provide all students with these three forms.
Conclusions/Take-home messages: To be discussed at the conference.

7X13

An analysis of the level of discourse used by final year medical students during clinical case presentations

GI Van Schalkwyk, H Botha, J Bezuidenhout and SC Van Schalkwyk (Stellenbosch University, Cape Town, South Africa)*

Background: The need for medical students to adopt a discourse appropriate to the field is repeatedly emphasised by teaching staff during lectures and ward rounds. The acquisition of such discourse is often not assessed, resulting in inconsistency between the level used among students of similar academic backgrounds. We report on a study conducted to determine the level of appropriate discourse adopted by final year medical students during clinical case presentations and compare this usage with their academic results.
Summary of work: Transcriptions of recorded case presentations were assessed by two experts and a peer evaluator, using a rubric which drew on prior research in medical discourse, and included the prominent themes of terminology and thematic staging.
Summary of results: Our findings support the hypothesis that students with similar academic backgrounds may display considerable variation in their level of discourse.
Conclusions: Although it appears as if the students were all beginning to shift towards a more mature form of medical discourse, the degree to which this occurs is sporadic, both between different students and between different components of discourse within the same student.
Take-home messages: The apparent absence of a relationship between discursive competencies and academic achievement suggests that the ability of assessment to encourage the adoption of disciplinary discourse is not being optimally applied.

7X14

Integrated technical and non-technical clinical skills program

L Patrao and M Sousa (University of Beira Interior, Covilha, Portugal)*

Background: Medical skills are not limited to technical skills and medical learning must include non-technical components. Communication aspects of doctor-patient relationship, patient privacy, environmental concerns and medical hygiene are examples of non-technical skills (NTS). They are a major concern nowadays and subject to different approaches.
Summary of work: A technical and non-technical clinical skills program was developed in our medical course. This program is transversal (during the six years, integrated and vertical (more advanced skills depend on more simple ones and are related to knowledge learning occurring simultaneously).
Summary of results: New NTS are constantly being adapted as the need for them is recognized. Medical waste disposal was the first NTS trained in our course, motivational interview is one of the last updates. These skills allow students to better adapt to clinical practice and to train in some aspects that cannot be trained in a clinical environment. At this moment more than ten NTS are in our program and new ones are being developed.
Conclusions: NTS are growing in importance and their training must be stimulated from the first years of medical training.
Take-home messages: NTS programs should be developed or integrated in clinical skills programs already running.

7X15

Informational needs of older women with stage 1 breast cancer-needs assessment study

Ewa Szumacher, Laura D'Alimonte and Jan Angus ([1]Sunnybrook Odette Cancer Centre, University of Toronto; [2]The Michener and University of Toronto Medical Radiation Sciences Program, Toronto Canada)*

Background: The study purpose was to elicit the views of older women about adjuvant treatment for their early stage breast cancer with respect to the challenges of decision making, supports and educational resources needed during the process of choosing the treatment.
Summary of work: Summary of work analysis of focus group transcripts. The study participants included sixteen women over the age of 70 years of age treated at the Odette Cancer Centre in Toronto.
Summary of results: Fifty percent of participants were not informed about possible treatment options by their physicians and were not fully engaged in choosing their treatments. These patients' needs were related to asking and discussing more specific questions during initial consultation, the possibility of using decisional aids such as diagrams or lists of online resources, a list of the side effects of radiation therapy and hormonal treatment, what to expect when treatment is completed, and information about clinical trials and supportive services such as parking, volunteer drivers, educational materials for family members about treatment, and post-treatment follow-up.

Conclusions/Take-home messages: The findings of this study indicate that older breast cancer patients' informational needs are complex. Ways of enhancing patients' involvement in the treatment selection process requires individualization.

7X16

Video analysis and direct observation of medical students' consultations: Tools for identifying educational needs

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Background: One way to improve the quality of training programs is to identify for the trainees' achievements and specific learning needs

Summary of work: This study was conducted during the course of ambulatory pediatrics of the beginning of the medical internship. The aim was to assess how students performed medical consultations and to identify their learning necessities. Video analysis and direct observation of the consultations were used as tools for assessing clinical competence, which was defined based on the patient-centred care. The data were analyzed by exploratory technique using qualitative methodology.

Summary of results: 30 consultations of different students were analyzed. Most of the students: greet the parents and child at the beginning of the consultation, have difficulty in identifying parents´ concern, do not prioritize parents´ complaints, do not explore the emotions and fears accompanying clinical symptoms, do not include the child in the consultation.

Conclusions: Students at the medical internship seem not to be able to perform patient-centred care. The learning necessities found were related to communication skills and to core aspects of patient-centered care.

Take-home messages: Video analysis and direct observation of the consultation are effective tools for assessing clinical competence and identifying learning needs.

7Z Secrets of Success 4

7Z1

Project PRAiSE

Z Siddiqui (Education Centre, Dentistry and Health Sciences, University of Western Australia, Perth, Australia)*

Short description of innovation: Using innovative assessment strategies with a focus on e-assessment and formative assessment this project was funded to contribute towards better teaching practices among academics, development of generic skills including learning skills among students and will provide more opportunities for feedback and out of class learning

What will be demonstrated: A brief overview of different components of the project.

What is particularly interesting about the innovation/How could it be implemented? Using assessment as a learning experience for student learning as well as faculty development.

Why participants should come to the demonstration: The Project PRAiSE has been a successful attempt and has potential to be replicated across other Faculties and institutions.

7Z2

Using text messaging for successful feedback

Julie Struthers, Paul Irvine and Cathy Jackson (University of St Andrews, Bute Medical School, St Andrews UK)*

Short description of innovation: In order to alert the School to early problems in student placements and allow time to quickly act upon these it is essential that students are encouraged to provide prompt feedback. A pilot project using third party text messaging service as an option for collecting feedback from students on GP placements was completed. This project tested whether the use of text messages to request feedback achieved sufficient return rates and provided worthwhile information. After their placement, students were sent a series of 4 questions by text with each response prompting the next question. The project evaluated the response rate, the ease of use of the system, quality of feedback received and compared this with online data collection.

What will be demonstrated: We plan to demonstrate the method used, how the questions were structured and discuss the value of the data returned. There will be further discussions on administrating the process, the costs, how we processed the data returned and ideas to extend usage.
What is particularly interesting about the innovation/How could it be implemented? The results of the pilot provides us with an interesting platform to lead a discussion on staff and student views on the potential and success of using text messaging as an early feedback alert of any major concerns in placements.
Why participants should come to the demonstration: To discuss innovative ways of collecting quality and timely feedback from students.

7Z3

The physician assistant movement – Global trends in the extension of medical care by non-physician providers

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Short description of innovation: Forty years ago in the United States, a predicted shortage in primary care providers led to the development of an innovative profession. The Physician Assistant (PA) career utilized new and efficient educational models (2-3 years) to train non-traditional students (e.g. experienced health personnel).
What will be demonstrated: An estimated 68,000 PAs are in clinical practice in the US and 64% are women. Physician Assistants are certified by national examination and work collaboratively with a supervising physician who may be at distant or local sites. Individual nations are now adapting the PA concept to their specific health needs. Newly established programs in The Netherlands, the UK, Canada, Australia, South Africa, Ghana,as well as updated PA-like programs in many countries in Sub-Saharan Africa, illustrate this development.
What is particularly interesting about the innovation/How could it be implemented? The utilization of PA non-physician medical providers has facilitated the efficient and efficacious extension of limited medical resources to underserved populations in the US PA scope of care is 80% of that of physicians.
Why participants should come to the demonstration: Limited resources and underserved populations are prevalent globally. Implementation of the extension of medical care by non-physician providers is occurring in diverse formats based on country specific variation in resources and requirements. A worldwide reawakening of this concept may be emerging.

7Z4

PEDICEL (Progressive Educational Development and Co-operation in Learning material elaboration)

J Tuulari, M Koulu and P Kääpä (University of Turku, Faculty of Medicine, Finland)*

Short description of innovation: PEDICEL will provide a new co-operative approach to enhanced learning material development in the medical faculty.
What will be demonstrated: PEDICEL describes a new possibility for students to compose advanced studies in core curriculum through production of new learning material. In the elaboration process students will be supported by peer tutors and by teaching staff with medical and pedagogical expertise. At the meeting, the continuous process of material development will be demonstrated together with created materials.
What is particularly interesting about the innovation/How could it be implemented? PEDICEL offers continous, innovative, student-centered and effective way to assure quality of learning materials used in undergraduate courses in any medical faculty. The focus of PEDICEL is in the fact that, apart from teachers, students can be the initiators of learning material renewal. Thus students could be seen not only as study material users but guided producers as well. Essentially this method is about creating a fruitful learning environment where the student's fresh innovative ideas and expertise of their teachers meet in an organized way.
Why participants should come to the demonstration: The programme will allow the participants to see examples of the planning of the projects, function of the tutors and the different tools (manual/electronic) used in the execution.

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SESSION 8

8A Symposium: The doctor we are educating for the future

Panel: Stefan Lindgren (WFME, Copenhagen, Denmark) (Chair); Jocelyne Aldridge (Medical Schools Council, UK); David Gordon (AMSE); Katie Petty-Saphon (Medical Schools Council, UK); Bernardo Bollen Pinto, (Permanent Working Group of European Junior Doctors); Julia Seyer (WMA)

The role of the doctor has been taken as implicit knowledge, among explicit statements about other professions and changing patterns of disease. Yet, medical care is deficient in many parts of the world, while in richer countries the costs and complexities of health care are rising unsustainably. Thus, societies need to understand what it is that only doctors can do and what can or should be done by other members of the health care team. Doctors' accountability to society as a whole is critical, not to continue blindly to do what has always been done. Doctors may not need in the future to undertake all their traditional roles, while other new roles may emerge instead. The present net flow of health care professionals from poorer to richer parts of the world underlines the need for redefinition. A synthesis of these elements is necessary to propose a policy and philosophy for the future global role of the doctor, allowing flexibility concerning how care is delivered. Only then, the stage is set for medical education to produce a person equipped to fulfil that role.

8B Symposium: The future of the basic sciences in the training of the future healthcare professional

Panel: Frazier Stevenson (USA); Amy Wilson-Delfosse (USA) on behalf of International Association of Medical Science Educators (IAMSE)

A hundred years ago the Flexner Report highlighted the importance of the basic sciences in medical education. The contributions of the basic sciences to a medical education programme and their place in both the undergraduate and postgraduate curriculum is again attracting attention, with particular emphasis on removing the traditional segregation of basic and clinical training. In an era of hyperspecialized faculty, who will knit together medicine with its scientific underpinnings? The topic has featured prominently at AMEE conferences in recent years, and at other meetings in medical education, notably IAMSE. This session organised by IAMSE will explore trends in basic science education in the healthcare professions and their role in the training of the future healthcare professional. There will be particular focus on methods of teaching basic sciences in the clinical phases of training.

8C Short Communications: Interprofessional Education 2

8C1

Mental health in primary care in Brazil: Training interdisciplinary teams

S Fortes[1], D Ballester[2], L F Tofoli[3], L F Chazan[1], D Gonçalves, N Almeida, V Bollela and D Chiaverini ([1]University of the State of Rio de Janeiro, College of Medical Sciences, Rio de Janeiro; [2]State University of Londrina; [3]Federal University of Ceara, Sobral, Brazil)*

Background: Integrated models of Mental Health (MH) and Family Health (FH) teams working can be a solution for good MH care in the community. The Family Health Strategy (FHS) in Brazil is now being included in MH assistance through an integrated interdisciplinary team work model denominated Matrix Support.
Summary of work: A 120 hour interdisciplinary course, granted by the Ministry of Health, was developed in four state capitals to train MH and FH teams together, stressing communicational skills and everyday contextual problems. Based on active learning methods, it includes face to face and e-learning activities, with interdisciplinary interventions (consultation-liaison) and clinical supervision. Focal Groups were held at the end of the training.

Summary of results: More than 500 professionals were trained. Focal groups analysis demonstrated that broader health conceptions, with development of psychosocial and interdisciplinary therapeutic interventions, were stimulated. Challenges detected 1) lack of understanding about matrix support process by the Municipal Health Secretariats, 2) lack of knowledge of MH and FHS roles, 3) great diversity on theoretical models; stigma; and fear of leaving traditional practices.
Conclusions: Developing integrated mental health care in primary care leads to changes in mental health problems detection and synergism in therapeutic interventions.
Take-home messages: Integrated mental health care is possible but needs support from special educational and organizational strategies.

8C2

Obtaining informed consent from patients with communication disabilities – evaluation of an interprofessional training programme for final year students

C Woolf[1,3], T Penman[2] and M Rogers[3] ([1]Barts & The London School of Medicine & Dentistry, Queen Mary University of London; [2]NHS Tower Hamlets; [3]School of Community & Health Sciences, City University, London, UK)*

Background: Health professionals are expected to involve patients in decision making and to obtain informed consent. This presents particular challenges when patients have communication disabilities; these individuals are often unnecessarily excluded from proper involvement in decision making about their healthcare (e.g. Byng et al, 2003; Law et al, 2005). Health professionals need training to adapt how they present healthcare information and collaborate to enable communication disabled individuals to express consent decisions.
Summary of work: We piloted an interprofessional training programme for final year students of medicine, speech & language therapy, nursing, and radiography around gaining informed consent from patients with communication disabilities. Communication and learning disabled co-trainers helped deliver the training. This created opportunities for students to learn about service-user experiences of healthcare interactions, and to practice more advanced communication skills first-hand through simulated consent scenarios. Evaluation used mixed methods to explore changes in students' knowledge and confidence, their experiences of involvement and their perceptions of the value of the training.
Summary of results: Students improved their knowledge, skills and confidence around obtaining informed consent and developed more positive attitudes towards people with communication disabilities. Interaction with communication disabled co-trainers, including consent scenario simulations, was highly valued.
Conclusions: Training prepared students to obtain consent more effectively from communication disabled patients, and improved their wider understanding of professional responsibilities around consent.
Take-home messages: Training in obtaining consent from patients with communication disability is relevant to all health professionals and improves skills, knowledge and confidence.

8C3

Speed dating: a novel approach to teaching about multidisciplinary teams

G Easton[1] and A Bailey[2] (Imperial College, [1]Department of Primary Care and Public Health; [2]Faculty of Medicine, London, UK)*

Background: At Imperial College a new community psychiatry workshop uses a "speed-dating" approach to introduce students to the professionals involved in community mental health care. In the two hour session, a Police Officer, Psychiatrist, Approved Mental Health Professional and General Practitioner rotate between 4 small groups of students, spending 20 minutes with the students before moving on to the next group.
Summary of work: Analysis of student feedback forms before and after workshop to gauge self-rated knowledge and degree to which learning objectives were met. Thematic analysis of students' free-text comments about what they have learned.
Summary of results: The speed-dating approach: Improves students' self-rated knowledge about different disciplines in community psychiatry Students feel it helps them to meet the stated learning objectives for the session. Students are able to give fuller and more accurate descriptions of 4 professional roles after the workshop compared with before.

Conclusions: This novel "speed dating" approach is an effective way to teach about community psychiatry and has been well received. It is also a unique opportunity for students to learn from the police in a professional capacity.
Take-home messages: This model could be used to introduce students to a range of multidisciplinary teams, such as the primary care team or hospital discharge planning team.

8C4

Medico-legal interprofessional problem-based learning focused on clinical practice guidelines
R Licenik, M Tomoszek, M Faix, K Cervena and K Ivanova (Palacky University, Olomouc, Czech Republic)*

Background: The Centre for Clinical Practice Guidelines of the Department of Social Medicine and Health Policy, Faculty of Medicine and Dentistry, Palacky University in Olomouc is concerned with issues of clinical practice guidelines (CPGs) as viewed from different perspectives, included medico-legal and ethical. Inspired by interprofessional education models we developed an innovative problem-based learning sessions focused on CPGs.
Summary of work: We developed a CEP focused on various aspects of CPGs and many workshops and lectures have been held since 2008. A new interprofessional medico-legal problem-based learning programme focused on the legal aspects of CPGs has been developed for both medical students and students of law and held in November 2009 for the first time. The case is based on the judgement of the Supreme Court of the Czech Republic and different problems are identified by medical and law students during the problem-based learning sessions. This new subject will be listed in the standard curriculum of the Medical Faculty as well as the Faculty of Law from 2010/2011.
Summary of results: Interprofessional medico-legal problem-based learning programme focused on the legal aspects of CPGs for medical (n=4) and law (n=4) students, a pilot version. Medico-legal PBL as an optional subject in 2010/2011. Evaluation of the CEP.
Conclusions: We have found extremely valuable to put together two so different professions as future physicians and lawyers are.
Take-home messages: Interprofessional medico-legal education using PBL is very efficient way to share ideas, problems and learning issues within a multidisciplinary team in both undergraduate and continuing medical education.

8C5

An interprofessional training concept to foster diagnostic competence through a case-based worked example approach
N Heitzmann[1], M Fischer[2], F Fischer[3] and R Stark[4] ([1]University Witten/Herdecke, Institute for Teaching and Educational Research in Health Sciences, Witten/Herdecke; [2]Ludwig-Maximilians-University Munich; [3]Education and Educational Psychology, Munich; [4] Saarland University Saarbrücken, Germany)*

Background: The ability to generate correct diagnoses is an important competence in the health professions. This competence is however difficult to acquire. To illustrate the consequences you should consider the percentage of misdiagnosis that lies at 5-15 % depending on the medical discipline (Berner & Graber, 2008). To facilitate medical students' diagnostic knowledge a computer-based learning environment has been developed and two additional instructional measures 'learning with erroneous examples' and 'elaborated feedback' were varied experimentally. This learning environment proved to be effective, effects were sustainable and it was possible to replicate the effects in an authentic study environment (Kopp, Stark, Heitzmann, & Fischer, 2009; Kopp, Stark, Kühne-Eversmann, & Fischer, 2009; Stark, Kopp, & Fischer, in Druck).
Summary of work: Central purpose of this research project is to examine to what extent it is possible to adapt this learning environment for the interprofessional use in the academic education of medical practitioners and nurses. To increase the effectiveness self-explanation prompts and an adaptable optional feedback procedure will be integrated and experimentally tested.
Conclusions/Take-home messages: Interprofessional training concepts are important to foster the collaboration between the different health professions and therefore to increase the effectiveness of the health system in sum.

8D Fringe 2

8D1

Driven to distraction

M Topps, D Topps* and M Seguin* (Northern Ontario School of Medicine, Sudbury, Canada)*

Patient safety is a major focus of health care organizations with many initiatives to reduce errors within the health care environment. However, less attention is paid to the safety of health care personnel. The Northern Ontario School of Medicine embraces a unique model of distributed education with a campus spanning a geographic area the size of France and Germany combined. Work in a distributed environment such as this brings its own special perils with respect to safety in multiple environments. Using a multisensory exploration of challenging situations with the potential for adverse outcomes, the team will stimulate you, through humour and parody, to raise your own awareness of circumstances and behaviours which can lead to difficulty… Come along for the ride!

8D2

Groundhog play! Groundhog play! Groundhog play!

Anne de la Croix (Department of Medical Psychology and Psychotherapy, Erasmus University Medical Centre, Rotterdam, The Netherlands)*

You might have seen the film Groundhog Day, in which the main character lives through the same day over and over again. I would like to present you with Groundhog role-play! Students all have their own style of dealing with emotions and will all deal with emotional patients differently. To learn from each others styles, Groundhog role-play (also known as repetitive role-play) can be used. In Groundhog role-play, students are presented with the same situation multiple times. For example: student number 1 is faced with an extremely angry patient who does not even want to sit down to talk to them. After a set amount of time (30 seconds at this Fringe session), a bell rings and student 1 has to leave. Student 2 is then presented with the exact same situation for the same amount of time. The patient has the same starting line with each of the students. Then student 3 has a go, etc. At the end of the exercise, the group can discuss the different strategies and decide what worked and what did not. Obviously, this method will be demonstrated in the Fringe session with some help from the audience!

8D3

The education cowboy on a learning drive

Mark Piper (Northumbria Healthcare NHS Foundation Trust, Whitley Bay, Tyne and Wear, UK)*

The educational mantra of “assessment drives learning” dominates the educational landscape. Through the medium of audience member interview and song, supported with slides and a map I hope to inspire people to look beyond the habits of education and embrace the concepts of educational trust, respect and common sense.

8D4

"The Art of War" - Teachers and students of medicine benefit from studying Sun Tzu's principles

P Kube [1], A Pelz* [2], M Gebauer* [3], U Tautenhahn*[1] and J Pelz*[1] ([1]Charité-Universitätsmedizin Berlin, Berlin; [2]Ruhr-Universität Bochum, Bochum, [3]Europa-Universität Viadrina, Frankfurt/O, Germany)*

The practice of medicine is a peaceful art and science. We take care of patients, are empathic, pretend to be ethical. Sometimes we use martial expressions like fighting cancer, killing microbes, destroying cells … Ironically teaching and studying medicine may profit from the study of the writings of the great Chinese warlord Sun Tzu who lived about 2,500 years ago. He developed a collection of useful concepts governing the art of warfare drawing on experience gained while leading military campaigns. Sun Tzu explains two levels of principles in “The Art of War” which can help teachers and students of medicine alike to master their tasks. He names three strategic principles - Commitment, Observation, and Preparation - which are applied consistently regardless of the situation – they are the basis for successful operations. The six tactical principles – Assessment, Adaptation, Deception, Leverage, Pace, and Timing - are applied together in direct response to a specific opportunity or threat. In addition to these principles Sun Tzu advises three points of view: the individual, the individual’s working group, and the competition which have to be carefully considered while

applying his principles to a given situation. Study Sun-Tzu's principles and succeed as teacher and student of medicine.

8E Short Communications: Implementation of e-Learning

8E1

Intellectual Property Rights and the online sharing of medical educational content: a focus group study accounting for educator and student perspectives

Stathis Th. Konstantinidis[1], Maria Nikolaidou[1], Marinos Papadopoulos[2], Panagiotis D Bamidis*[1], Eleni Kaldoudi[3], Nicholas Dombros[1] and Dionysia Kallinikou[2] ([1]Aristotle University of Thessaloniki, Medical School; [2]National and Kapodistrian University of Athens, School of Law; [3]Democritus University of Thrace, Medical School, Greece)*

Background: It is nowadays true that, many organizations are studying how medical educational content existing in diverse digital forms, should be shared among academics (and/or students) through specific sharing frameworks enabled by different technologies. Towards this direction the meducator project aims to enable specialized state-of-the-art medical educational content to be discovered, retrieved, shared and re-used across European higher academic institutions.

Summary of work: Resolution of the involved Intellectual Property Rights (IPRs) on this content is not only a timely issue but a compulsory task. In this paper, focus groups were organized and conducted in 3 Medical Schools in Greece in order to investigate the familiarization/knowledge and the feeling of educators and post-graduate learners regarding sharing, retrieval and reuse of online medical educational content.

Summary of results: Our research revealed the general lack of knowledge on IPR issues and the prejudice against illegal use of existing freely accessible material. To this extend, skepticisms regarding the sharing of licensed state-of-the-art medical educational content were obvious.

Conclusions: It was also evident that licensing schemes like the Creative Commons can ensure the legal use of all types of online medical education content, from text to exam sheets, algorithms, teaching files, computer programs (simulators or games) and interactive objects (like virtual patients and electronically traced anatomies).

Take-home messages: It is imperative that a number of attempts should be urged towards informing the medical academic community on how to properly and legally share, retrieve and reuse different medical education content types.

8E2

What do we look for when searching for learning resources online?

David Davies[1], Jackie Wickham[2] and Lindsay Wood[3] ([1]University of Warwick, Warwick Medical School, Coventry; [2]Health and Life Sciences, Nottingham; [3]Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine, Newcastle University, UK)*

Background: Searching online for learning resources is perhaps the quickest way of finding new content to enhance teaching materials. There are formal repositories of e-learning content such as JorumOpen in the UK or MedEdPortal in the US, as well as informal collections without explicit learning intent such as Flicker and YouTube, whose content can nonetheless be useful to enhance e-learning. And ultimately of course there is Google. But what is known about how we search, what strategies do we use, and how do we decide what content is fit for purpose?

Summary of work: In the context of an open educational resources project, we have conducted a large-scale online survey of higher education teachers and learning technologists to find out their online searching behaviour. We supplemented our survey with focus groups involving teachers and students to explore issues in more depth.

Summary of results: Results identify some of the attributes of learning resources and the repositories that contain them that are most useful to teachers, as well as evidence for how learning resources are chosen.

Conclusions/Take-home messages: Our findings will help inform the implementation of learning resource collections and institutions considering an open educational resources approach, and will make learning resources more discoverable and ultimately more useful to teachers.

8E3

Where does e-Learning fit in with real patient learning? The clinical teacher's perspective

G J Gormley, C Thomson, C Coyle and J Johnston (Queen's University Belfast (QUB), Centre of Medical Education, Belfast, UK)*

Background: Learning with patients is the foundation of training the next generation of doctors. E-learning is now established in most medical schools. There has been limited insight of how e-Learning is considered by teachers in the real patient environment. There is concern that such learning is driven more by novelty than by pedagogical evidence.
Summary of work: The objective of this study is to sample clinical teachers' experiences and attitudes towards e-learning. A postal questionnaire was developed to capture various aspects of clinical teachers' attitudes, opinions and experiences of utilising e-learning in clinical teaching. It was distributed to all clinical teachers affiliated to QUB (n=319). Free text comments underwent qualitative analysis.
Summary of results: 71.2% response rate. Respondents differed in their level of e-learning use. Teachers acknowledged the positive contributions to teaching delivery made by e-learning, mainly standardisation and transparency of the curriculum. However, concerns exist that e-learning may promote learner isolation rather than learning with patients. E-learning was considered to be most valuable for knowledge-based learning domains rather than those concerning communication or procedural skills.
Conclusions: Clinical teachers value e-learning and consider it best utilised as part of a blended learning strategy especially for teaching within knowledge-based domains. Real patient contact remains the core of undergraduate clinical teaching. E-learning is an important supplement, but not a replacement.
Take-home messages: e-Learning needs to be designed and harnessed in a considered, longitudinal and strategic approach to maximise clinical learning. At our pearl we should not forget the humanistic aspects of learner, teacher and patient interactions

8E4

Web 2.0 technologies in medical education: Trends and concerns

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Background: Web2.0 applications add additional dimensions and layers of complexity to the professional development of medical teachers. Web2.0 made a call for the permanent advancement of critical ICT competencies. Without responding to an emerging educational technology and learning environment, medical educators may find themselves professionally outdated in the upcoming future.
Summary of work: Research indicates that growing body of Web2.0 tools provides almost unlimited opportunities for designing a student-centered learning environment. As highly interactive and accessible tools, Web2.0 applications have reinforced the concept of collaborative learning media-sheering and communication. Furthermore, Web2.0 productivity and organizational tools positively affects the routine of teachers' immediate preparation for coursework activities.
Summary of results: As with any other educational novelty, the integration of Web2.0 may raises serious concerns. First, the capability of medical schools to cope with the proliferation of Web2.0 platforms is questionable. Second, there are concerns regarding the possible violation of student privacy, system security and copyright issues.
Conclusions: Undoubtedly, Web2.0 technology impacts the nature of medical education.
Take-home messages: A generated experience in the domain of medical education suggests that the best possible response to new technological and teaching demands would be to establish University Centers for permanent teacher technology training.

8E5

Ensuring medical students/trainees can access effective IT facilities on clinical attachments

K Wylde, J Scott and K Morgan (University of Edinburgh, School of Medicine, NHS Education Scotland (NES), Edinburgh, UK)*

Background: A survey was undertaken to review the availability of IT facilities and access to on-line learning resources for medical students/trainees on clinical attachments across Scotland.

Summary of work: A questionnaire collected 245 responses across NHS hospitals and general practices nationwide. They were asked for information including: availability of software, network access, ratio of PCs to students/trainees, hours of access/IT support available.
Summary of results: Students/trainees experienced problems at some sites with the availability of software, time taken to receive log-ins and accessibility of key web-sites. NHS Firewalls were often cited as a factor in preventing access to web-sites.
Conclusions: A set of standards is now established and incorporated within Service Level Agreements, detailing minimum requirements to be met to address the problems identified. Each Scottish medical school has detailed web-sites that students need to access regularly. All NHS Boards have to ensure that Firewall issues do not affect accessibility of these sites.
Take-home messages: It is vital that students/trainees can easily obtain access to effective IT facilities that meet their needs in full. Technology is moving very quickly with wireless and handset access increasingly essential for students/trainees to ensure they gain as much as possible from their time on clinical attachments.

8F Short Communications: Self Assessment

8F1

Improving self-assessment: Identifying and resolving tensions

K Mann[1], J Sargeant[1], H Armson[2], B Chesluk, T Dornan, K Eva, E Holmboe, J Lockyer, E Loney and Cees van der Vleuten ([1]Dalhousie University, Division of Medical Education, Halifax, Nova Scotia; [2]University of Calgary, Alberta, and McMaster University, Hamilton, Ontario, Canada)*

Background: Developing and supporting self-assessment abilities remains educationally challenging. Earlier work revealed a dynamic model of informed self-assessment with 5 interactive components; one component was tensions. This paper's purpose is to explore the tensions described by learners and professionals in informing their self-assessments.
Summary of work: This qualitative study was based in grounded theory. We purposively sampled 8 programs in 5 countries across undergraduate, postgraduate and continuing medical education, and conducted 17 focus groups. Detailed analyses were conducted iteratively to understand themes and relationships.
Summary of results: Participants experienced multiple tensions in self-assessment. Three categories of tensions emerged: between people (e.g. giving honest feedback vs. maintaining relationships), within people (e.g. appearing competent vs. open to feedback) and in the learning/practice environment (e.g. credible, valued feedback vs. "playing the game"). Tensions were ongoing, contextual, and dynamic; they prevailed across participant groups, infusing all other model components.
Conclusions: Multiple tensions, requiring ongoing negotiation and renegotiation, are inherent in self-assessment. Tensions are both individual and culturally situated, reflecting both professional and institutional influences.
Take-home messages: Our findings suggest that educational interventions should be directed at both individual and cultural levels. Sociocultural and social learning theories may inform this work.

8F2

Development of universal medical student self-assessment system of clinical competencies; Experience in Fukushima, Japan

A Sugawara, G Kobayashi, T Fukushima and K Ishikawa (Centre for Medical Education and Career Development, Fukushima Medical School, Japan)*

Background: Assessment of clinical competencies of Japanese medical students does not seem sufficient since national examination for license is only conducted by a written examination. In addition, physician shortage has brought physician/teachers heavy duties of medical practice and research, which make limited contribution for medical students.
Summary of work: We have developed online self-assessment system, which cover all goals in 'the Model Core Curriculum for Medical Education in Japan'. This system is consisted of 68 checklists in 15 fields. Seventy-nine students experienced this self-assessment after clinical clerkship. They were explained answers are not used for grade. Students evaluated their performance from very good-5 to very weak-1.
Summary of results: Self-assessment score of 68 checklists was 4〔3, 5〕(median〔25%, 75%〕), suggesting most students feel their competencies affirmative. Students were especially confident with 'Medical

interview', 'Vital sign' and 'Emergency'. In contrast, 'Examination for children and elderly', 'Punctures/Injections', and 'Diagnostic equipment manipulation' was negative.
Conclusions: Self-assessment informs us actual conditions of clinical clerkship and their confidence although its objectivity needs to be confirmed.
Take-home messages: Online self-assessment of clinical competencies should be widely performed not to miss required education and to catch the reaction/confidence of students.

8F3

Construction of a video based assessment tool to identify over estimators in practical surgical skills
Achim Braunbeck[1], Miriam Rüsseler[1], Wilma Flaig[2], Felix Walcher[1] and Ingo Marzi[1] (Johann Wolfgang Goethe-University Frankfurt, [1]Department of Trauma, Hand and Reconstructive Surgery; [2]Department of Orthopaedic Surgery, Frankfurt, Germany)

Background: Correct and precise self assessment of one´s owns skills and limitations are essential for all professions with high responsibility, especially in daily medical practice. It is a known problem that those who perform worst show the highest tendency to overestimate their own performance and therewith endanger the patients. In this study, we developed and evaluated a video-assessment tool to identify students overestimating their competencies in surgery.
Summary of work: 3rd year medical students were asked to assess 8 videos showing different practical surgical skills on a 18 item questionnaire using a 5-Point Likert Scale. Their ratings were compared with those by faculty members and competency checklists. All students participated in a 17 station OSCE in surgery rated their performance in order to identify those students overestimating their performance. The "over estimators" were analysed regarding conformities in both tests using Student T Test.
Summary of results: 89 students participated in this study. The time needed for the video assessment was under 15 minutes. Students overestimating the "video skills" showed a significantly lower OSCE performance (3,0 vs 2,19, $p < 0,01$). A total of 15,4% (n =13) overestimated their performance in the OSCE. These students overestimated the "video skills" significantly ($p < 0.01$) more often than their fellows (Bias index F = 0,39 vs F = – 0,61).
Conclusions: Students who overestimate their own competencies can be identified using video assessment.
Take-home messages: To ensure quality of practical surgical skills, it is possible to identify over-estimators time and cost effective.

8F4

Self assessment in multisource feedback: Why doctors rate themselves as they do
C L Brown[1] and J Crossley[2] (University of Sheffield, [1]Academic Unit of Child Health; [2]Academic Unit of Medical Education, Sheffield, UK)*

Background: Multisource feedback (MSF) is common and can provide wide-ranging valuable feedback for doctors on their performance. There is frequently a discrepancy between doctors' self-assessments and the ratings that others give them. The factors influencing self-assessments although postulated, are unknown. Increased understanding of these factors may help provide better feedback. This may potentially improve clinical care as doctors may be more accepting of feedback received and utilise it more constructively.
Summary of work: A qualitative study, using semi-structured interviews alongside think aloud methodology, has been completed. Doctors involved include foundation trainees, psychiatry and paediatric specialty trainees, general practitioners and consultants.
Summary of results: Factors influencing self-assessments have been found to include strategy, specific incidents, comparison, feedback, personal viewpoint and personal development. Importantly the factors differ at different career stages.
Conclusions: Various factors influence self assessment in multisource feedback. That these differ as doctors progress through their career is likely to have impact on the purpose and effectiveness of this assessment.
Take-home messages: A range of factors are involved in the self-assessments made by doctors and these are likely to be important in the utilisation of feedback by doctors.

8F5

Do trainees appreciate career planning workshops focusing on self assessment?
H M Goodyear and D W Wall (West Midlands Workforce Deanery, UK)*

Background: In 2008, the National Medical Careers website was launched in the UK recommending a 4-stage process of career management i.e. self-assessment, career exploration, decision making and plan implementation. In the West Midlands Deanery, to facilitate the first stage of self- assessment, all Foundation year one (F1) trainees are expected to attend a workshop.
Summary of work: Evaluation of 12 consecutive workshops by analysing the 13-item questionnaire completed by trainees.
Summary of results: 94% (165/176) found the workshops thought provoking and useful. The top 4 gains were self-awareness, clarification of career objectives, motivation and skills awareness. The top 3 action points for trainees were career planning, getting more information and ensuring an up-to-date Electronic Portfolio. Trainees wanted support with careers information, their curriculum vitae and interview skills. Trainees who had not expected to find the workshop useful felt they had gained substantially. There were only 3 negative comments which centred on the reflective analytical approach to careers.
Conclusions: Career planning workshops focusing on self-assessment are valued by F1 trainees. Many had given little thought to their career prior to these workshops.
Take-home messages: Self-assessment is a vital first step in career management and should be undertaken by trainees at the start of their medical careers

8G Short Communications: Preparedness for Practice

8G1

Preparedness for prescribing: The transition from medical school to junior doctor
C Kergon, J Illing, G Morrow, B Burford, J Spencer, E Peile, C Davies, B Baldauf, M Allen, N Johnson and J Morrison (University of Durham, School of Medicine & Health, Durham, UK)*

Background: A study was carried out to explore the preparedness for practice of UK medical graduates making the transition to junior doctor, including their preparedness for prescribing.
Summary of work: Graduates of three UK medical schools entering Foundation Year 1 (FY1) (Intern) were interviewed three times: at the end of their final year, and after 4 and 12 months in FY1 (n=65). A questionnaire was completed by this cohort prior to starting FY1 (n=480). Clinical teams who worked with F1s provided triangulating data through interviews (n=92) and a questionnaire (n=80). Results of a safe prescribing assessment were also reviewed.
Summary of results: Graduates of all schools initially felt under-prepared for prescribing, but this improved over the F1 year. Triangulating data reinforced these findings, although pharmacists identified gaps not reported by others. However, prescribing was the main area of practice in which errors were reported, indicating significant potential risk. Pharmacists and nurses were often able to intervene and avoid adverse consequences. Participants felt learning in an applied setting would increase confidence in prescribing.
Conclusions: Graduates entering F1 felt under-prepared for prescribing but improved through practical experience and support.
Take-home messages: Perceived weaknesses in prescribing should be addressed by supporting of ward-based teaching of prescribing, which is subject to the time pressures and contingencies of all clinical skills.

8G2

Evaluating preparedness for practice from different perspectives: Lessons from the last three years
K Wylde, V Tallentire*, K Morgan, A D Cumming and H S Cameron (Medical Teaching Organisation, University of Edinburgh, UK)*

Background: Previous research demonstrates that graduating UK medical students often feel unprepared to start work as doctors and that their perceptions of preparedness correlate poorly with those of their supervising consultants.
Summary of work: A questionnaire study undertaken at the University of Edinburgh involving detailed feedback on preparedness for practice over three academic years against the major course learning outcomes, from graduates and their educational supervisors. A total of 192 responses were analysed including ranking of the 13 outcomes for each group, and comparisons between groups and years.

Summary of results: Graduates consistently felt well prepared in consultation and communication skills but less prepared in medical emergency care and prescribing. Educational supervisors consistently felt graduates were well prepared in information technology and communication skills but less prepared in medical emergency care and practical procedures. There was variation between years in responses from both groups.
Conclusions: Graduates feel significantly better prepared in some domains than others. Their perceptions of preparedness correlate partially with those of their educational supervisors.
Take-home messages: Fluctuations in perceived preparedness by both groups mean that curriculum changes should be evaluated over several years. Although this is a process fraught with difficulty, detailed interrogation of feedback has offered valuable insights to guide curriculum development.

8G3

Graduate survey as a part of curriculum evaluation in Ege University: Relevance of teaching to real practice

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Background: The new vertical and horizontal integrated curriculum of our school gave its first graduates at 2009. New curriculum is evaluated by several methods including graduate surveys.
Summary of work: As a part of curriculum evaluation system, graduate survey is organized since 2008. Graduates are asked to complete the survey asking, 1) demographic characteristics, 2) career plans, 3) competencies gained during medical study, 4) learning activities, 5) learning climate, 6) school culture and 7) general opinions.
Summary of results: Among 2008 graduates, 68,6% find themselves competent enough and 91,2% for 2009 graduates. 2008 graduates rated higher the items having difficulty with the curriculum and overloaded teaching. 2009 graduates gave higher ratings to quality of practical teaching, availability of independent study time, integration of the curriculum, and rated Ege University Faculty of Medicine among the top-rated Turkish medical schools. Open-ended questions revealed positive opinions on the faculty as a democratic and modernist school, and negative feelings about case-mix of clinics, clinical professors' inadequate interest to students, insufficient facilities for social activities and health care for students.
Conclusions: Graduate survey is a valuable tool for curriculum evaluation. Compared to former curriculum, new curriculum of our school is rated higher by graduates for many aspects.
Take-home messages: Graduates' evaluation shows whether the curriculum is relevant to professional practice

8G4

How well are graduates prepared for practice when measured against the latest recommendations of the General Medical Council?

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Background: This paper investigates the views of University of Liverpool graduate Foundation doctors and their Consultants on their preparedness to undertake skills and competencies expected of new doctors in relation to the latest GMC recommendations (GMC, 2007).
Summary of work: On-line questionnaires were distributed in December 2008 to all 1217 Consultants and all 400 Liverpool graduate Foundation doctors across the Mersey Deanery region.
Summary of results: Ninety-one (45.5%, n=200) F1 doctors 95 (47.5%, n =200) F2 doctors and 345 Consultants (28.3%, n = 1217) responded. The vast majority of junior doctors and consultants generally rated the competencies listed on the questionnaire at midpoint (generally quite well prepared) and above. They were seen as being well prepared to work as F1 doctors and had good clinical skills but there were repeated criticisms of basic scientific knowledge due to PBL in the Liverpool curriculum.
Conclusions: Preparedness was largely attributed to final exams at the end of 4th allowing students to "shadow" junior doctors in final year and compulsory clinical and communication skills modules whilst PBL can create uncertainty over science knowledge acquisition.
Take-home messages: Liverpool graduates are seen as being generally well prepared to work as junior doctors and perform the skills required by the GMC despite concerns about basic science knowledge.

8G5

Satisfaction of Finnish junior physicians with their basic medical education in 1988, 1993, 1998, 2003, and 2008

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Background: All five Finnish medical faculties have developed curriculum to correspond current needs.
Summary of work: Physician studies in 1988, 1993, 1998, 2003, and 2008 examined physicians' satisfaction with medical education. In each study year a questionnaire was mailed to half of the physicians graduated 2–11 years earlier. The response rates varied between 50% and 78%, and the number of respondents between 1211 and 1822. The respondents were asked to evaluate their satisfaction with hospital and primary health care (PHC) teaching on a 5-step scale from very unsatisfied to very satisfied.
Summary of results: The proportion of respondents who were rather or very satisfied with teaching of hospital work has been on the level of 60–82 % in the five Finnish medical faculties in all years. But the proportion of respondents satisfied with PHC teaching has been on the level of 74–86 % among graduates from Kuopio and Tampere, while it was about 20 % among graduates from three older faculties in 1988. The proportion of satisfied graduates has increased most in Turku up to 63 % in 2008. In Helsinki the proportion has been 35 % since 1993.
Conclusions/Take-home messages: According to our results it seems to be difficult to change an old established curriculum.

8G6

Perception of competence in clinical procedural skills of pre-interns graduating from a South Asian University

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Background: MBBS graduates are expected to be proficient in basic clinical procedural skill, but studies have shown that many newly-qualified interns perceived their competencies in basic procedures as inadequate. Though the MBBS curriculum in the University of Colombo incorporates a variety of teaching-learning methods and opportunities to improve students' competence in clinical procedural skills, competence is not formally assessed at any time.
Summary of work: A descriptive cross sectional study was conducted among 75 pre-interns using a self-administered questionnaire.
Summary of results: Though the majority (>80%) were confident in independently performing basic procedural skills, confidence in performing cardiopulmonary resuscitation (62%) and nasogastric tube insertion (43%), were suboptimal. >10% have never performed subcutaneous, intramuscular or insulin injections, and 23% have never inserted a nasogastric tube, on a patient or a mannequin. Though facilities are available, <40% have used the skills laboratory for practicing venepuncture, nasogastric tube insertion, lumbar puncture, urethral catheterization and insulin injection.
Conclusions: Students require further training to become more confident in life-saving procedures (cardiopulmonary resuscitation), and simple skills (parental injections and nasogastric tube insertion). More learning opportunities should be provided in the skills laboratory. Formal skills assessment may improve skills learning.
Take-home messages: Undergraduate training and assessment needs strengthening to improve pre-interns' confidence in basic procedural skills.

8H Short Communications: Postgraduate Education 2

8H1

Surgical trainees' approaches to learning in the initial stage of surgical training

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Background: The deep, surface, strategic and vocational approaches to learning have been identified in the undergraduate literature but there is a relative paucity of research looking at learning approaches in the postgraduate setting. The aim of this study is to identify what characterised and uncharacterised approaches to learning surgical trainees in the initial stage of surgical training use in their personal study.
Summary of work: Semi-structured interviews were carried out based on a previously published interview schedule. Domain descriptors for each learning approach were applied to the transcribed interviews. Statements were then re-coded into further categories to determine if new themes were arising.
Summary of results: Results are based on the responses of 7 surgical trainees in the initial stage of surgical training (FY2 – ST2). Participants incorporated elements of the deep, surface, strategic and vocational approaches in their personal study with the strategic and vocational approaches appearing dominant. No novel learning approaches were identified in this sample of surgical trainees.
Conclusions: Surgical trainees adopt predominantly vocational and strategic approaches to learning in their personal study depending on the context of the learning task and external influences.
Take-home messages: Current learning approaches to personal study in postgraduate surgical trainees may not produce the most appropriate learning outcome for clinical practice.

8H2

Assessing the quality of postgraduate medical training: the example of psychiatry in the UK

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Background: Competency based training in postgraduate medical education (PGME) in the UK brings questions over how training scheme organisation, assessment and how this fits in with postgraduate examinations. In psychiatry there are particular problems around identifying reliable and effective assessment tools and the ongoing challenges in recruitment to the specialty. In this context assessing the quality of PGME is crucial.
Summary of work: A Delphi technique to seek expert consensus was chosen: 15 were asked to participate, initially amending a list of components of training. The next iteration asked participants to rate the components on a scale of 1-7 for a) how important the component was felt to be to training and b) how well incorporated the component currently was in training. After each iteration information was analysed by the project team and fed back to the participants.
Summary of results: There was some consensus on what the components of training are. However there are varying views on which are important and which are currently well incorporated. Those elements that are important and poorly developed are highlighted and discussed.
Conclusions: This study offers an alternative view of training to a purely curriculum mapped experience. A shared appreciation of what training should contain and what needs further development is a step towards alignment.
Take-home messages: The reality of postgraduate medical education with the pressures of service provision means that curriculum must be aligned with the actual training components and assessment.

8H3

Formative assessment tool for basic surgical skills education

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Background: Education of basic surgical skills is fundamental in development of competence in operative surgery. There are formal teaching programmes to develop these skills in trainees but principally the learning is work based and not formally assessed. There are already concerns with current trainees' work based education and requires innovative educational methods for finest outcomes.
Summary of work: Application of the principle of formative assessment that assessment leads to learning and development of competence to basic surgical skills education is expected to produce to better learning outcomes. This concept divides a skill such as suturing into component actions and grades the competency in each component into four well defined levels: requiring direct supervision and demonstration, requiring occasional verbal guidance, performing correctly under supervision, and independent performance. According to a consensus an achievement of grade 4 performance with three different assessors in all components is considered as attainment of competence.
Summary of results: A trial with the tool for assessing subcuticular suturing created good acceptance among trainees and trainers and objectively reflects a trainee's competence and so identifying educational needs.

Conclusions: A structured, procedure defined formative assessment tool ensures accurate assessment and good learning outcomes, and acceptable to trainers and trainees.
Take-home messages: Surgical skills education requires structured, procedure defined formative assessment tool for ensuring learner centred education and better outcomes

8H4

A training intervention for intern discharge summaries (TRIFIDS)

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Background: The Discharge Summary (DCS) is important for the transfer of information between hospitals and primary care. It should convey clear, concise and constructive information, for the ongoing co-ordinated management of a patient. Accurate and timely communication at discharge from hospital is essential, and reduces adverse events and duplication. The most inexperienced member of the team, the intern, is most often responsible for writing DCS.
Summary of work: We designed and validated an auditing tool for assessing DCS. Using this instrument, four independent assessors marked a total of 100 randomly-selected DCS. Marks were averaged for each summary. We then presented a "Training Intervention For Intern Discharge Summaries" (TRIFIDS) to interns at an 800-bed Australian teaching hospital. Post-intervention we audited a further 100 summaries.
Summary of results: Following the educational intervention, the summaries showed highly significant improvement overall ($p<0.0003$) and also in the key domains of: principal diagnosis ($p<0.004$); relevant information ($p<0.04$), medication accuracy ($p<0.01$), and discharge management plan ($p<0.008$).
Conclusions: We suggest that the combination of audit and educational intervention improves DCS. Such audits are labour intensive and require additional resources
Take-home messages: 1) We designed and validated an auditing tool for DCS. 2) A training intervention, TrIFIDS, improves DCS. 3) Such a labour-intensive audit requires additional resources.

8H5

A performance model to systematically design, develop, and implement graduate medical education interventions

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Background: As part of our strategic initiative to systematically plan and manage our educational efforts and to make data driven decisions for performance improvement, we created a Graduate Medical Education (GME) Performance Measurement and Management System (PMMS) model. The model utilizes a systems approach to performance measurement and management in the GME setting. Theoretical foundations of our PMMS model draw from psychological, business, and education disciplines.
Summary of work: The model is comprised of six performance domains: Education, Accreditation, Communication, Management & Continuous Improvement, Leadership, and Evaluation. Requirements of internal and external regulatory agencies, extant data review, and experience overseeing the performance of 60 WSU residency programs contributed to its design. The GME PMMS allows for the design, development, implementation, and evaluation of educational initiatives at the Institutional, Program, Faculty, and Resident Levels.
Summary of results: Multiple interventions emerged from this model including GME Institutional and Program Portfolios; GME Leadership Model; Faculty Development and Resident seminars and workshops; and the formation of a GME Leadership Academy Curriculum.
Conclusions: The PMMS informed the design and development of multiple educational interventions that align with societal, organizational, departmental, and learner goals.
Take-home messages: Creating a conceptual model is a required step for assessing and managing performance at any system level.

8H6

The experience of trainees training less than full time in paediatrics in Scotland: A qualitative study

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Background: 1 in 5 UK paediatric trainees train less than full time (LTFT). Little is known about the training experience. Research Questions: What is the experience of training LTFT in paediatrics? Does training LTFT affect clinical performance or training quality? If so, what coping strategies are adopted? Does the present set-up support LTFT trainees?
Summary of work: Sample - Scottish LTFT paediatric trainees (n=24). A focus group established key themes which were explored in 13 subsequent semi-structured interviews.
Summary of results: LTFT trainees were satisfied with their 'lot' but were aware of compromises that went with it - compromise to career choice, clinical performance and training. Compromise to clinical performance was least acceptable and minimised through improved communication and efficiency. Other strategies - regular unpaid hours and prioritising clinical work ahead of educational activities were also employed. Support for trainees returning from maternity leave / commencing LTFT training was lacking. Once in post, intolerance /inflexibility toward LTFT trainees was felt to preclude development of fully supportive working environments.
Conclusions: High levels of satisfaction among LTFT trainees is offset by the need for considerable compromise.
Take-home messages: Despite numbers training LTFT, paediatrics remains orientated to full-time training and the onus of making LTFT work lies with the individual.

8I Short Communications: Public Health and Health Promotion

8I1

Students "at the community's bed side": Another way to teach public health?

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Background: Interesting medical students in public health and community medicine is a challenge for medical schools worldwide. Upcoming changes in demography, health policy and pathology profile makes it a major issue. Therefore, our school developed a module inspired by socio-constructivist learning theory and previous experiences held in Geneva.
Summary of work: During 4 weeks, students in small groups explore, through a tutorial system, a research question freely chosen. They conduct interviews with community stakeholders, literature review, questionnaires, etc. Results are shared during a closing "congress" with a poster-session and oral presentations.
Summary of results: In 2009, 150 students in 31 groups completed the module, tutored by 31 voluntaries from various hospital services. The 31 abstracts, posters and oral presentations, assessed by specialists following rigorous criteria, fulfilled the requirements. A process and results evaluation was conducted.
Conclusions: More than 85% of the students were completely satisfied. They claim having measured the importance of a community approach of health problems, with an emphasis on economic, social and cultural determinants. More than 60% reported a complete change in their vision of public health. Six abstracts were selected for publication in medical journals.
Take-home messages: When a learning group controls the question and the way to answer it, the domain becomes their own.

8I2

Teaching and assessing community-doctor theme on a PBL curriculum at King Saud bin Abdul-Aziz University for Health Sciences, Riyadh, Saudi Arabia

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Background: The College of Medicine King Saud bin Abdulaziz University for Health Science is a problem-based four year graduate entry medical school. Community-doctor theme comprises almost 12.5% of all curricular activities. This theme focuses mainly in population medicine is well integrated in all curricular activities starting from day one and continues throughout the curriculum. The contents are based on eight

questions of public health for instance how common is the problem and how it is managed? And how does society respond?
Summary of work: This communication will describe how the curriculum is integrated and assessed. Qualitative feedback of students and teachers to the theme was also collected and analyzed.
Summary of results: The curricular activities of community-dr theme include 60 lectures and students seminars, 40 theme sessions and 60 learning topics as part of PBL sessions. In addition to various community-based activities and reasonable time spent on individual study. The theme is assessed through student portfolios, written test and rating of students' presentations though peer assessment. Student and teachers feedback showed that they were highly satisfied with the delivery of this theme.
Conclusions: Integration of community-dr theme throughout curricular activities increases satisfaction of students as well as teachers.
Take-home messages: Community doctor theme should not be an isolated curricular activity. It should be well integrated throughout the curriculum.

8I3

Narrative-based medicine for second year students as a way of learning versatility of primary care work at Helsinki University Medical School

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Background: The versatility of patient population and their health problems in the primary health care is a challenge for young doctors. The narratives people construct of their lives are a meaningful and rewarding part of GP's work. We wanted to expose our second year students to the versatility of the life cycles and the narratives of community-dwelling people.
Summary of work: Our students visited nurseries, well-baby clinics, either multicultural centres for immigrants or centres for people recovering from life crisis like drug addiction and older people's homes. The students interviewed one customer at every place and wrote stories about them.
Summary of results: Students (response rate 84%) gave feedback on their learning experiences. They learned that the responses of the individuals varied a lot despite the similarity of the life events (4.0/5). They also learned how people construct narratives (4.0/5) and how to interview people and gain self confidence in doing so (3.6/5).
Conclusions: The second year students showed an improved understanding towards the people coming from various life contexts.
Take-home messages: It is possible to teach the primary health care viewpoint for the medical students with early patient contacts.

8I4

Medical student readiness to provide lifestyle counselling for patients

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Background: Lifestyle factors such as tobacco use, obesity, diet and physical inactivity are leading causes of preventable morbidity and mortality. With changing population dynamics and rise of chronic disease, the development of skill and competency in preventive medicine is an important aspect of undergraduate education. Curriculum structures have led to a fragmented approach to preventive medicine education. We aimed to assess the impact of health promotion education within the current undergraduate curricula to 1) determine current knowledge, attitudes and skills and 2) identify predictors of health promotion practice.
Summary of work: Health promotion knowledge, attitudes and skills questionnaire was completed by 462 of 578 (80% response rate) undergraduate medical students in years 1 - 4.
Summary of results: Overall students' had positive attitudes to the role of preventive medicine and health promotion. Self-perceived competence and skill increased with experience. Students identified a number of health promotion intervention barriers and facilitators in clinical practice. Students felt adequately prepared to undertake tobacco smoking and physical activity and poorly prepared for sexual practice and illicit drug use health promotion interventions.

Conclusions: A non-systematic approach to the acquisition of health promotion knowledge and skills may be a barrier to the development of key competencies. Over emphasis in some subject areas may lead to less positive attitudes to health promotion and to inadequate education and training in others.
Take-home messages: Coordinated, integrated and more skills based approach to preventive medicine education is needed in undergraduate curricula.

8I5
When did it happen? (Students' and doctors' knowledge of significant events in medical history)
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Background: Students' and doctors' ability to pinpoint important events in medical history can be seen as an indicator of their knowledge of medical history.
Summary of work: Three groups – older doctors, final year medical students and first year students – were given a questionnaire with 35 significant events from the last century, and asked to specify which year each event happened. We performed analyses of variance based on the differences between the years provided and the correct answers.
Summary of results: Older doctors identified the events most accurately, final and first year students displayed increasingly larger margins of error ($p < 0,001$). Final year students identified only 9 out of 35 events more accurately than first year students. All groups identified certain events more accurately than others and all performed poorly on pre-World War II events. The oldest events were estimated to have occurred more recently than they actually did.
Conclusions: Older doctors have better knowledge of significant events in medical history than medical students. The difference between final and first year students is marginal.
Take-home messages: Knowledge of which events final year students are able to recall accurately can provide information on how to further develop the education in medical history.

8J Short Communications: Approaches to Selection

8J1
Has the United Kingdom clinical aptitude test improved medical student selection at Newcastle University?
Sarah Robin Wright and Phillip M Bradley (Newcastle University, School of Medical Sciences Education Development, Newcastle upon Tyne, UK)*

Background: Medical schools strive to have fair admissions procedures that can select the best candidates.
Summary of work: Regression analysis was used to determine whether previous school type and gender could predict UKCAT, Personal Statement or Interview Scores. Further analysis tested whether admissions scores could predict performance on knowledge examinations.
Summary of results: School type was not a significant predictor of interview or UKCAT scores among attending students. However, it was a significant predictor of personal statement score, with students from independent and grammar schools performing better than students from maintained schools. School type, personal statements and interviews were not significant predictors of knowledge examination performance. UKCAT scores were significant predictors of knowledge examination performance for all but one examination given in the first two years of medical school.
Conclusions: Personal Statements scores favoured students from independent and grammar schools. However, these students did not perform any better than those from maintained schools on examinations. Previous school type did not predict interview or UKCAT scores of accepted students. UKCAT scores were predictive of first and second year examination performance at Newcastle Medical School, while interview scores were not.
Take-home messages: The results of this study challenge criticisms of aptitude testing for medical student selection in the United Kingdom.

8J2
How to choose the successful medical student: First results from a new selection process in Frankfurt

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Background: After prior selection of special applicants (the largest group consists of non-EU-students; group 1) the admission process for medical students in Germany follows a 20:20:60-rule. 20% of the available study places are given to applicants with excellent final high-school examinations (group 2) and 20% to students according to accumulated waiting time (group 3) by a central governmental office (ZVS). The final 60% share is selected by our faculty based on the overall examination score of high-school (weaker than group 2) modified by individual marks in natural sciences, foreign languages and/or history (group 4).
Summary of work: For each group we calculated the percentage of students (N=391) that successfully passed all the 8 classes to be taken during the initial 3 preclinical terms [anatomy (3 classes), biochemistry, biology (2 classes), chemistry and physics].
Summary of results: The best success was observed in group 2 (68.2%), followed by group 4 (60.1%) and group 3 (22.2%). Group 1 was the least successful (none of these students passed the 8 classes without failure).
Conclusions: Students with excellent marks in selected disciplines but a weaker overall score reach similar success in preclinical classes as the best high-school students.
Take-home messages: Non-EU-students need particular courses to prepare them for their subsequent medical education.

8J3

The Scottish admissions follow-up study

J Dowell and B Kumwenda (University of Dundee, Tayside Centre for General Practice, Dundee, UK)*

Background: Selection for medical school remains a contentious imprecise process which has struggled to meaningfully include applicant's non-cognitive attributes. One proposed approach has been the Personal Qualities Assessment (developed by Powis et al) which includes assessments of 'emotional distance' and 'moral orientation'. To date no predictive validity studies have been published. In 2001 and 2002 all Scottish applicants to medical school were invited to sit the PQA and a total of 925 entrants did so. Their score distributions and first year performance has previously been reported by Lumsden et al.
Summary of work: This study reports on the follow up of these cohorts as they left medical school in 2007/8. Performance data was gathered for 412 graduates, there were no significant differences between this group and the original study participants.
Summary of results: Medical schools in the UK rank final year students as part of the job allocation system based upon their overall performance. We found no correlation between medical school rank and either moral orientation or moral orientation or any of their subscales. A further analysis of 4th year OSCE performance is awaited. Reporting on progression rates was not possible.
Conclusions/Take-home messages: The PQA does not appear to predict overall medical school performance.

8J4

Development of a situational judgement test for selecting into UK Public Health Training

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Background: We report on the initial development of Situational Judgement Test (SJT) designed to select candidates into Public Health (PH) training. PH represents a unique context for design of selection methods, as candidates come from both medical and non-medical backgrounds.
Summary of work: The SJT focuses on non-cognitive selection criteria (integrity, coping with pressure, team involvement, organisation and planning). Items are developed by trained subject matter experts to ensure content validity. An initial, national pilot was completed alongside live selection by 307 candidates, who completed 1 of 2 test versions (18 items each).
Summary of results: The preliminary analysis showed close to normal score distributions and good internal reliability (0.80 when corrected for a 40-item test). 69% of pilot items performed well psychometrically. The majority of candidates (82%) rated the SJT as relevant to PH, appropriate and fair. SJT scores discriminated

fairly between appointable and not appointable candidates (area under the ROC curve, AUCROC= 0.71 (95% CI 0.60-0.86)). Further analysis of incremental predictive validity of SJT for selection purposes and long term predictive validity are underway.
Conclusions: SJTs can provide an effective selection methodology for postgraduate specialty training in Public Health.
Take-home messages: SJTs can provide an effective selection methodology for postgraduate specialty training in Public Health.

8J5

Development of a competency profile in order to improve the selection of medical students
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Background: The criteria for the selection and admission procedure for medical students have to be defined.
Summary of work: The competency profile will be based on three important and critical competencies for success in (A) Medical Study and National Examinations, (B) Internships, and (C) Residency. The ongoing development of the competency profile will integrate competencies described by students in their Internships (B) and by Resident Physicians (C).
Summary of results: In 2008, competencies for A were determined by the critical incident technique: In step 1, students who have passed the First National Examination (Year 2) described critical situations and associated successful behavioral strategies in a questionnaire. In step 2, competencies from experts (professors and assistant professors) were determined in standardized interviews. In step 3, the advisory board of study affairs matched the obtained competencies into a non-weighted catalogue of competencies. In step 4, Faculty members and students ranked the competencies according to their importance.
Conclusions: In 2011, the admission and selection procedure will be optimized according to the extended catalogue of competencies.
Take-home messages: The Medical Faculty of Dresden, Germany, develops a competency profile for high school students in order to improve the selection and admission procedure for medical students.

8J6

Student selection at Hannover Medical School
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Background: Since 2006 the Hannover Medical School assesses 60% of the applicants not only by Abitur grade (German secondary school diploma) but by additional selection interviews. According to the profile of the newly introduced model curriculum highly motivated students with distinct soft skills are wanted.
Summary of work: 1) With regard to the high school diploma, the constitution of the cohorts is analyzed. 2) By means of variance analysis we explored the performances of the selected students in the exams.
Summary of results: 1) Appr. 40% of the students would not have been able to study at MHH if the Abitur grade was the only criterion. 2) In addition, students drafted by means of interviews are not worse than the students selected exclusively by Abitur grade.
Conclusions: Although the first results are encouraging, more instruments and valid criteria need to be developed to trace student's medical skills. Still, due to legal restrictions the Abitur grade dominates the procedure of selection. Thus, the spectrum of applicants could not be enlarged in a way that was desired by university committees.
Take-home messages: Personal interviews with applicants lead to a more diversified but successful group of students. In addition, a positive identification with the school is emphasized by involved learners and teachers.

8K Short Communications: Prescribing and Patient Safety

8K1

An evaluation of a practical prescribing teaching course given by pharmacists to medical students

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Background: Prescribing errors occur in 10% of junior doctor prescriptions. The aim of this project was to evaluate a teaching programme of practical prescribing skills, conducted by pharmacists in five hospitals, via a series of focus groups and evaluation forms.
Summary of work: A focus group was conducted at each participating hospital and emerging themes were identified.
Summary of results: Focus groups have shown students feel more confident and competent in prescribing. Students suggested the course be continued and provided earlier in the degree programme. Students valued interactive, problem-based exercises which encouraged them to prescribe on real drug charts or spot prescribing errors or drug interactions charts constructed by pharmacists. Pharmacists were felt to be knowledgeable and approachable teachers who enjoyed having a role in medical education.
Conclusions: A practical prescribing course is beneficial in developing medical student's prescribing and to become a safe junior doctor. The multi-professional approach was well-received.
Take-home messages: More practical prescribing courses should be developed in undergraduate medical education to gain a better understanding of drug prescribing and help prevent prescribing errors. Multi-professional teaching is successfully used in prescribing skills. More work on the transferability of these courses would be beneficial.

8K2

Interprofessional prescribing science: A novel online interprofessional programme for undergraduate medical students, medical interns and pharmacy interns

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Background: Medication errors contribute to patient morbidity and mortality. Prescribing competence and collaboration between medics and pharmacists are important factors in preventing errors. The introduction of a National Pharmacy Internship Programme provided an opportunity for an interprofessional approach to address training gaps in prescribing competence.
Summary of work: The programme was delivered to final year medical students (FYM) postgraduate medical interns (PMI) and postgraduate pharmacy interns (PPI). Baseline competence was assessed. This was followed by an online teaching programme using problem based clinical quizzes, evidence-based e-tutorials, a discussion forum and links to research resources. Students and interns were paired to undertake joint prescribing exercises.
Summary of results: A total of 655 enrolled in the programme with over 90,000 logged activities recorded over 6 months. There was no overall difference between the 3 groups in the baseline competency, all scoring below 35%. Sub-analysis demonstrated differences related to professional background. Post-course analysis showed significant improvement for the PPIs, with analysis of the other groups to follow
Conclusions: An online interprofessional prescribing programme can characterise knowledge and learning patterns of healthcare graduates. This data can be utilised to inform curriculum review and methods for improving collaboration.
Take-home messages: Online interprofessional education can effectively facilitate learning for large groups of different professions dispersed geographically.

8K3

Interactive teaching of core prescribing skills by pharmacists as part of the Barts and The London School of Medicine and Dentistry teaching programme

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Background: It is recognised that there is a high error rate in prescriptions written by junior doctors. This was addressed using a pharmacy-led programme to develop competence in prescribing and prescription writing.
Summary of work: Six groups of six to twelve final year medical students were given intensive teaching sessions with experienced pharmacists over four weeks. Time was dedicated to working through realistic scenarios, ensuring the simple basics of prescribing using the BNF and other authoritative resources.

Summary of results: Formal assessment was provided by the concept lead, and is currently undergoing analysis. Qualitative feedback from the students overwhelmingly demonstrated increased confidence and awareness of safe prescribing practices. Feedback acknowledged the personalised approach particularly benefited students in areas where they were less able or confident. Moreover, interprofessional relationships between pharmacists and future doctors were enhanced.
Conclusions: Students appreciated the time and expertise dedicated to them by experienced pharmacists. Pharmacy-led teaching improved both safety and confidence and laid foundations for effective interprofessional relationships in the future.
Take-home messages: Pharmacists are ideally placed to identify and address knowledge gaps in core prescribing skills of medical students and are able to emphasise safe, patient-centred prescribing.

8K4

Snapshot: A mixed method investigation exploring prescribing teaching and competence in UK-based undergraduate medical students

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Background: Many junior doctors do not prescribe safely or effectively. This causes harm and wastes resources. Training and assessment of prescribers is problematic. We conducted a 4-part investigation exploring this topical issue.
Summary of work: The work comprised: 1) administering a prescribing test (=multiple-choice + simulated chart completion) to third and final year undergraduate medical students - analysed quantitatively. 2) administering a written survey to the same third year and final year students - analysed quantitatively. 3) conducting a focus group, consisting of students from all 5 years of the course, to explore student experiences of learning to prescribe, with subsequent identification of key themes.
Summary of results: Finalists (n=58) performed better on the prescribing skills test ($p<0.003$). Overall performance was low (mean score 41.1%) Finalists were more confident of their ability to prescribe safe and effectively than third years ($p<0.01$). However, third years (n=68) were more confident of their basic pharmacology ($p<0.05$). Key themes emerged during the focus group: practical experience, assessment, case-based learning, formularies and integration.
Conclusions: Current training leads to improved relative competence and confidence in prescribing. However, absolute performance is poor. It might improve with supervised practice and specific prescribing assessments.
Take-home messages: Educating medical prescribers should involve more practise and more pharmacists.

8K5

How well can we bridge the gap between pharmacology lectures and bedside prescribing?

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Background: Previous studies indicated inadequate preparation of our graduates for prescribing and a need for more supervised practical training during clinical years.
Summary of work: This study evaluated the effectiveness of a prescribing skills training workshop, piloted in the final year of our MBBS programme. The whole class was divided into 12 rotational groups. Six "test" groups underwent a half-day hands-on training workshop in a district hospital posting before sitting for a standardised prescribing skills test at the end of that posting. The other six groups ("control") received the same training, but at a clinical posting held post-test. The perspectives of students on the training were obtained using questionnaires and interviews.
Summary of results: Students were positive about the training and found the workshop materials helpful. They especially enjoyed the small-group activities, where clear guidance and prompt feedbacks were given by the facilitators. Their own assessment and the formal test results also indicated improvement in their competence to prescribe. The main concern expressed was about the scheduling of the training and time given for group activities.
Conclusions: This study highlighted the benefit of a structured practical training programme in improving prescribing skills.
Take-home messages: Exploratory research facilitated the development of an evidence-based intervention to meet the intended prescribing skills learning outcome.

8L Short Communications: Simulated Patients

8L1

Verisimilitude: Training simulated patients to realism

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Background: Simulated patients (SPs) are used for teaching and for high stakes examinations to evaluate the clinical skills of medical students and residents. SP standardization is paramount, yet equally important is SP authenticity as learners need to suspend disbelief and interact as if with a real patient.
Summary of work: A Realism Assessment Monitoring (RAM) tool was developed by the Educational Commission for Foreign Medical Graduates and the National Board of Medical Examiners to measure SP verisimilitude. A medical school piloted and modified the initial RAM, and SPs were trained on verisimilitude and the use of RAM. They viewed videos of a case they had performed, which required high authenticity, and rated their "realism". Subsequently, they portrayed the same case. Trainers and SPs reviewed videos for realism, being blinded as to whether the videos were pre or post-training.
Summary of results: When using the 5-item quantitative measure to assess SP realism, the inter-rater agreement (T index) was 1.00 for trainers and SPs. SPs who did not exhibit realism pre-training showed improvement post-training. SPs who had greater verisimilitude pre-training showed no change.
Conclusions: SPs who did not exhibit realism initially, improved with the training.
Take-home messages: Verisimilitude training can be employed to make SPs more realistic for learners.

8L2

The added value of using patient instructors in health professions education

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Background: The rationale for involving patients as teachers is manifold and there are some disagreements about the effect when compared with faculty teachers. This study explores the added value of patient instructors in health professions education. Patient instructors are RA patients certified to teach joint examination and everyday life with RA using their own joints and personal experiences.
Summary of work: Eight focus groups interview were conducted, with physiotherapist- and occupational therapist students, having attended teaching by patient instructors. Duration of interviews was each 1½-hour. Overall themes were generated in a content analysis-process.
Summary of results: Data showed that although all students valued the teaching highly, they had difficulty in explicating their learning outcome. However, results show that one of the added values related to reducing anxiety before meeting real patients in the clinic. In the clinic the students want to appear professional to the patients and that might hinder learning from the patient encounters. When taught by patient instructors' students appreciate the opportunity to make mistakes and asking whatever question without losing face.
Conclusions: One added value of using patient instructors as teachers is the way in which it might supplement clinical teaching.
Take-home messages: Using patient instructors, as teachers might be a unique supplement to clinical teaching.

8L3

Faculty as Simulated Patients (FSPs) in assessing medical students' clinical reasoning skills

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Background: We used clinical faculty as simulated patients (FSP) to assess students' communication, history taking and reasoning skills on summative OSCEs. The aim of this study is to evaluate students' and faculty perceptions of using a faculty member simultaneously both as the simulated patient and assessor in OSCEs.
Summary of work: Two structured questionnaires were developed. They measured the students' and faculty's agreement with statements related to the ability of the FSP to convince students that he/she was a

real patient, respond to students' questions, and evaluate students' skills in questioning, communication and clinical reasoning.
Summary of results: A total of 412 students and 28 FSPs responded to the questionnaires. The percentage of students who agreed with the various positively-worded questionnaire items ranged from a lowest of 52% (mean = 2.32) to a highest of 78% (mean = 2.66) and among faculty ranged from a lowest of 61% (mean = 2.54) to a highest of 100% (mean=3.0).
Conclusions: Student and faculty perceptions about the simultaneous use of faculty as simulated patient and assessor were generally positive. The results of this study encouraged the program to continue using FSP on formative and summative OSCE assessments.
Take-home messages: Faculty can be used as simulated patients and students' assessors in OSCEs.

8L4

Intimate examinations: Male and female specialised SPs teaching pre-clinical students

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Background: The female 'Well Woman' check has been in operation for over 10 years. The program reflects clinical practice with a history, breast, speculum, and bimanual pelvic examination. Over 350 students attend the program each year. The recently piloted MTA program follows a similar format for male genital and rectal examination. Emphasis is on communication while performing physical examination skills.
Summary of work: The CTAs/MTAs teach and assess the students while being examined themselves without the presence of a clinician. In both programs the students record their hopes and concerns before the session. The students are assessed by the CTAs/MTAs and debrief or submit a reflection afterwards.
Summary of results: The students are concerned about hurting the SPs or embarrassing themselves. The SPs provide feedback to students, can identify students with problems, and report differences between gender, age and background in students performance. Students report their experience as invaluable and improving their confidence
Conclusions: Students value this SP experience and are more comfortable and confident entering the clinical rotations
Take-home messages: Experiencing intimate examinations for male and female 'patients' before the clinical years forms a foundation of best practice

8L5

Standardized patients' global ratings of pediatric examination candidates in a high-stakes examination: A pilot study

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Background: Standardized patients (SPs) and OSCEs are increasingly popular in the evaluation of medical trainees. This growth has heightened the need to critically evaluate the abilities of SPs as assessors of clinical competence, especially in high-stakes examinations. Although a number of studies have examined the correlation between SP ratings with ratings by physician examiners (PEs), the decision outcomes from these ratings has not been examined.
Summary of work: The present study explores the agreement in outcomes (i.e. pass or fail) of Pediatric candidates in a high-stakes examination using global ratings completed by SPs and PEs.
Summary of results: Correlation coefficients of the ratings between SPs and PEs ranged from 0.50 to 0.78. Cronbach's alpha for the standardized patients' ratings and examiners' ratings ranged from 0.53-0.79 and 0.71-0.81, respectively. Chi-square analyses showed significant differences in ratings between PEs and SPs, with much higher passing rates for the latter.
Conclusions: Although the ratings between SPs and PEs were moderately correlated and had an acceptable reliability coefficient, ratings assigned by SPs were much less likely to fail candidates compared to those assigned by PEs.
Take-home messages: The significantly higher scores demonstrated by SPs in assigning global ratings illustrates that caution should be taken when relying on SPs as the sole assessors of clinical competence.

8M Research Papers: Postgraduate Education

8M1

Palliative care curriculum for post-graduate education programs in family medicine: a systematic review

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Introduction: Palliative care is part of comprehensive family practice, however many physicians do not feel confident in the biomedical and psychosocial realms. Improving residency training is necessary, however there is little consensus on the best education methods. The objective of this research was to conduct a systematic review of postgraduate curricula in palliative care in order to incorporate the most effective components into a Family Medicine education program.
Methods: We conducted a systematic review of published literature since 1980. Studies included were those that were conducted in postgraduate medical training programs, with any postgraduate learner including residents, interns and fellows, that evaluated the impact of a curriculum. Pairs of investigators independently examined abstracts of potentially relevant papers, using standard selection criteria and data collection forms Discrepancies were resolved by consensus. The studies were required to report outcomes on communication skills, knowledge, attitudes, and comfort level to be included.
Results: 27 studies (2 examples cited) were included after reviewing 174 abstracts. Most studies (n=19) used survey pre-post design with no control group. Outcomes were grouped into communication skills, knowledge and attitudes and confidence. Workshops with simulated patients or role plays improved communication skills. Relatively brief strategies such as short workshops showed objective improvements in focused knowledge areas. Either clinical rotations or multi-faceted interventions were required to produce improvements more broadly in knowledge base. There were few longer term studies.
Discussion and conclusion: An effective palliative care curriculum will need to incorporate a variety of strategies to address the multiple competencies required. There is a need for more rigorous curricular evaluation.

[1]Fischer GS, Arnold RM: Feasibility of a brief workshop on palliative care communication skills for medical interns. J Palliat Med 2007;10:19-23.
[2]Greenberg LW, Ochsenschlager D, O'Donnell R, Mastruserio J, Cohen GJ: Communicating bad news: a pediatric department's evaluation of a simulated intervention. Pediatrics 1999;103:1210-1217.

8M2

Mind Mapping in General Practice: exploring the development of clinical thinking with trainees

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Introduction: There is considerable debate as to the role and relevance of time spent in general practice to the development of GP trainees in the UK. Much of what is known is drawn from the feedback of trainees regarding the usefulness of attachments. There is a pressing need to refocus research to move on from considering trainee placement feedback on time spent training for general practice, to instead explore other aspects of learning in order to deepen understandings about the role of posts in the development of clinical thinking skills. This project was intended to go some way to try to address this need. The aim of this exploratory investigation was to identify whether there was a significant change in the themes/ key features contained in trainees' Mind Maps after an attachment in general practice. It was anticipated that change in the composition of items would reflect a movement away from a clinical focus towards a more holistic approach to the treatment /management of the case, and that there would be a greater overlap with the 'gold standard' Mind Map developed by experienced GPs the further through training the participants were.
Methods: Participants were required to record their thoughts on a given case scenario pre and post an attachment in general practice. The data collection method used was innovative, in that it captured the participants' thinking using Mind Maps. Participants were drawn from foundation and GPST (1-3) training years and also included GP trainers. The trainers helped develop the 'gold standard' comparison map used for analysis. The analysis process required that a coding manual be developed in order to allow the trainees' maps to be described and compared, pre-post and within /between groups.

Results: The analysis process is underway, and will be completed by August 2010. Early findings indicate a range of ways of thinking about the case; it also shows evidence of change in thinking between trainees' the pre and post maps. The analysis is on-going and will provide both quantitative and qualitative perspectives on the data. The presentation will present the final results from the project and their implication for learning in general practice. It will also share and discuss the usefulness of this novel method of data collection and the analysis process.
Discussion and conclusion: The presentation will: 1)Provide insight into changes in clinical thinking during training for general practice; 2)Give consideration to the impact of this new data collection method for research into GP training.

8M3

Development and analysis of D-RECT, an instrument measuring residents' learning climate

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Introduction: Many instruments have been designed to measure learning climates. Most of them lack an explicit theoretical foundation and their psychometrical properties have scarcely been tested. This paper describes the development of an instrument to measure the learning climate in postgraduate specialist training: the Dutch Residency Educational Climate Test (D-RECT). D-RECT's psychometric qualities are also reported.
Methods: In April-May 2008 a preliminary questionnaire (based on a theoretical framework) was evaluated in a modified Delphi procedure. In May 2008 all residents in the Netherlands were invited to fill out the preliminary questionnaire. We randomly selected half of the returned questionnaires for exploratory factor analysis to analyse the outcomes and construct the definitive D-RECT. Confirmatory factor analysis of the other half of the data tested the questionnaire's goodness of fit. Generalisability studies tested the number of residents needed for a reliable outcome.
Results: In two rounds, the Delphi panel (consisting of 38 experts) reached consensus concerning removal or retention of questionnaire items. Also, 1278 residents representing 26 specialties completed the questionnaire. Exploratory factor analysis of 600 completed surveys led to the definitive D-RECT, consisting of 50 items in 11 subscales. Cronbach's α varied from 0.64 to 0.85 for the different subscales. Confirmatory factor analyses of the remaining surveys confirmed the construct (CFI 0.89; RMSEA 0.04; CMIN/DF: 2.9). The results showed that eight residents can reliably assess most subscales for a single department. Four residents per department can assess groups of departments reliably.
Discussion and conclusion: D-RECT appears to be a valid, reliable and feasible tool to measure the quality of the postgraduate learning climate.

8M4

Designing support for medical apprentices: a conceptual model of informal learning processes

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Introduction: The increasingly demanding nature of today's clinical services calls for imaginative ways of delivering high quality education within limited time and resources. Any intervention to enhance this education, however, must be based on sound research into the nature of clinical work based learning. Currently available empirical evidence is very limited. The aim of this study was to develop a conceptual model of informal learning processes that linked with prior conceptualisations of the topic and characterise interventions that could support learning.
Methods: Multiple methods of data collection were used to gain different but convergent perspectives on workplace learning. Rheumatology specialist trainees and consultant clinical supervisors across North-West England kept audio-diaries recording educational experiences over a working week. An external perspective was provided by two researchers from different professional backgrounds directly observing trainees across a range of clinical settings and activities. Sociocultural theory and Eraut's conception[1] of informal learning provided the conceptual orientation of a qualitative analysis. An interpretative framework was developed by constant comparison against the original free text data, elaborated, and refined iteratively through further data collection. The 'member checking' stage of analysis entailed presenting the provisional interpretation to

the trainee and trained rheumatologist respondents, now as teams rather than individuals. From a synthesis of the observations an interpretive model was then finalised.
Results: Twenty-six audio-diaries, 50 hours of observation, and 4 group-discussions were analysed. The conceptual model that resulted describes how learning is triggered by uncertainty within the complexity of clinical practice and centred around real patient cases. Learning 'on the job' takes the demands of patients and the service as a whole almost exclusively as its starting point. Trainees reported that effective interventions to support their learning should be as integral to the existing focus and demands of their work as possible. Informal, socially mediated learning processes include: team exchange, hierarchical instruction, and sharing of knowledge, thoughts and experiences. During solitary work trainees attempt to resolve issues of uncertainty or knowledge gaps by accessing online resources and through adaptation of practice, but overall perceive they learn less when they are working alone. Factors influencing the quality of learning include: time pressure, which can negatively impact on feedback practices; team culture and the organisation of clinical systems. Motivations for learning change with trainee grade, being knowledge driven in the newcomer to more process driven in the senior
Discussion and conclusion: The outcome of this study is a conceptual model of the processes and influences of postgraduate workplace learning, which centre on the service and client needs, and is concordant with sociocultural learning theories. To our knowledge, this is the first study in the field to incorporate multiple methods of data collection along with trainee and trainer views. Previous research has been largely based on retrospective accounts from focus groups. The novel use of audio-diaries in this study adds further to our knowledge by providing contemporaneous accounts of workplace learning. Although the generalisability of the findings is limited by having studied a single specialty, similarities across disciplines would be expected. Our findings concur with other single specialty studies in this field[2]. In conclusion, this study offers unique insights into postgraduate learning processes, which may be applied to support workplace learning further. Based on these findings, we suggest that informal learning could be supported by a knowledgebase centred around real patient cases, integrated into the working environment and evolving with the longitudinal care of patients. Clinicians should be encouraged to articulate their reasoning within patient records and share it by regular team exchange
[1]Eraut M 2004. Studies in Continuing Education, 26 (2) 247-273,
[2]Teunissen PW et al. 2007 Med Educ. Aug;41(8):763-70.

8O Workshop: Making assessment fair and equal: An invitational workshop on the first CRAMET Research Collaboration Paper

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Background: Major assessment bodies in the UK experience differential performance by candidates in terms of gender, ethnic group, and country of education. Unsurprisingly, international medical graduates underperform. But amongst UK graduates, Caucasians outperform Asians and women outperform men on multi-choice tests as well as in clinical encounters. The Royal College of General Practitioners has established a research collaboration with the University of Cambridge and Cambridge Assessment to promote work in three priority areas, including the promotion of fairness in assessment. The collaboration—CRAMET—is convening a stakeholders meeting with experts contributing to a discussion of the topic, towards planning a research agenda and developing draft guidelines for best practice in the assessment delivery. The report will be presented at the Workshop.
Intended outcomes: 1) Heightened awareness of the complexity of fairness issue, and consequent legal responsibilities, 2) Engagement with and improvement of the research agenda and guidelines.
Structure: 1) Review of Report, 2) Expert commentary from senior AMEE participants, 3) Small group discussion of the Report – development of research agenda and best practice guidelines, 4)Plenary discussion.
Who should attend: Assessment specialists and examination body chairs concerned to make assessments as defensible as possible to challenges of unfair treatment. Practitioners in E+D with professional insights.
Level of workshop: Intermediate.

8P Workshop: The McMaster-Ottawa Team Observed Structured Clinical Encounter (TOSCE) - an assessment and evaluation tool for interprofessional and team collaborative competencies

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Background: It is not possible to set interprofessional or collaborative practice competencies as an expected outcome of health science educational training, unless robust assessment and evaluation methodologies exist. There are virtually no such tools in the literature. McMaster University and the University of Ottawa in Ontario Canada have developed and evaluated their new Team Observed Structured Clinical Encounter (TOSCE). This tool allows assessment of students or a clinical team's abilities to demonstrate interprofessional competencies in a clinical scenario. In this interactive workshop, participants will learn what TOSCEs are and how they were developed. They will gain an understanding of their use in both Interprofessional Education and collaborative clinical team based practice by participating in a mock TOSCE station. Finally, participants will learn of the newly completed evaluation of the TOSCE including feasibility, acceptability, reliability and validity data of a set of 10 TOSCE stations.
Intended outcomes: A thorough understanding of the TOSCE tool, and its potential uses in health science education and clinical practice.
Structure: introductory presentation, followed by all participants experiencing a mock TOSCE station and interactive discussion of the evalution and use of the tool.
Who should attend: cirriculum planners, assessment coordinators, clinical educators, program chairs and Deans.
Level of workshop: Beginner.

8Q Workshop: Facilitating medical education in developing countries: Part II learning from each other

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Background: The evidence highlighting the need for medical schools to improve is unequivocal. Articles and research activities support this need for change and, in part, begin to address many of the new outcomes that should be achieved. Each year, the AMEE conference provides an international forum whereby medical educationalists meet, promote and discuss the changes that are occurring within their organisations. The AMEE 2009 workshop in Malaga, demonstrated that the playing field of educational transformation was far from being level. Individuals from organisations around the world attend the conference and some leave with mixed feelings; their initial confidence invariably raised, but their returning to less ideal organisations quickly dampens any enthusiasm. As an organisation, AMEE has a responsibility in bridging the gap between the idea and the practical, the world of theory and the real world. In this workshop (Part II), we aim to to build upon the lessons learned from and difficulties identified at the Malaga workshop.
Intended outcomes: a) Opportunity to share present day difficulties; b) Opportunity to explore and share present day initiatives; c) Development of constructive and purposeful links between organisations; d) Further development of an interactive SIG on MedEdWorld to share opportunities , experiences and resource.
Structure: Initial short presentation and open forum feedback.
Who should attend: All those interested in Internationalisation of Medical Education; Those from developing countries who wish to share and form links with others; Those participants who feel that they have opportunity to offer to other countries.
Level of workshop: Intermediate.

8R Workshop: Developing an appraisal with multisource-feedback to assess professionalism

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Background: Developing professionalism is now recognised as a key requirement of undergraduate medical programmes. Opportunities to develop professionalism are regularly found in curricula and the extent to which students are required to develop professionalism outcomes vary according to international, cultural and local factors. At Liverpool and Lancaster we have collaboratively developed a Student Feedback Appraisal based on a multi-source feedback (MSF). Students collect feedback on professional behaviour from a variety of sources including their peers and reflect on this will a facilitator. This workshop will look at the process of developing the appraisal system and will look at the opportunities and barriers in the participants host institutions.
Intended outcomes: After completing this workshop, participants will: 1 Understand the process of appraisal using MSF; (2) Have explored the barriers and opportunities for introducing appraisal in their institutions; (3) Have developed an action plan for introducing an appraisal system in their institution.
Structure: Brief introduction to the appraisal system developed in Liverpool/Lancaster; SWOT analysis of the presented system when applied to participants' institution/context; Specific issues – engagement of clinical colleagues, peer appraisal, staff development; Action planning to develop appraisal in participants' institution.
Who should attend: Colleagues responsible for developing professionalism and assessment of professionalism.
Level of workshop: Intermediate.

8S Workshop: Say it better: Effective use of visual aids

E Wooster, A Dueck* and D Wooster* (OISE/University of Toronto, Canada)*

Background: The ability to present effectively is a skill that is necessary at all levels of medicine training and careers. The ability to use electronic resources to enhance presentation and teaching is one that is underdeveloped within the medical arena. A study previously conducted by the authors revealed that high level presentations were often marred by poor visuals. This result held regardless of the level of education of the presenter (medical student, resident, fellow, faculty) or the size of meeting being presented at. There is a general consensus that there exists a wide variety of information regarding electronic presentations. Unfortunately, this information is not being applied and many presentations are suffering as a result.
Intended outcomes: At the end of this workshop, participants will be able to: 1) identify pitfalls that lead to a poor presentation, 2) apply an analysis tool to their presentations, 3) create an electronic presentation that has increased impact.
Structure: We will be using the following instructional methods: 1) Small group discussion, 2) Contrast and comparison between what is accepted practice and the "standard", 3) Application of an analysis tool to an electronic presentation submitted by the participants; 4) Demonstration of how the analysis tool can be modified to suit each individual program/situation.
Who should attend: Any one who needs to use visual aids and conduct effective presentations.
Level of workshop: Beginner.

8U Posters: Student Career Choice and Mentoring

8U1

The career development of female students in Korean medical universities

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Background: This study aims to focus on the career development of female students in Korean medical universities.
Summary of work: First, I investigated the percentage of females studying in undergraduate, master degree, doctor degree, and the rate of female professor. Second, I interviewed 10 female students who have been educated in a medical university. Through the interviews, I found out the barriers that female students had to face while studying in medical universities.
Summary of results: First, there appeared to be a vertical gender segregation in the field of medical science. Women are under-represented in the medical field. In 2009, about 27.5% of students entering medical universities were females. Further, 45.2% of master degree and 33.7% of doctor degree students were women. However, female professors accounted for only 12% of the faculty in medical universities. Second, a horizontal gender segregation was also observed. Female students tend to select internal medicine when they

choose their major. Conversely, men tend to opt for surgery as their major. Lastly, it is difficult for female students to adapt to the environment in medical universities during their experience as an intern and while studying in a residential course. Some of them interrupt their careers because it is difficult for women to balance between work and life when they are in their clinics.
Conclusions: It is necessary to introduce gender-specific learning objectives in the curricula and career development programs for female students at medical universities.
Take-home messages: How can we help female students develop their career through medical education without career interruptions?

8U2

How can we help doctors choose specialties that are right for them?
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Background: One impact of the increased structure of postgraduate medical training in the UK (Modernising Medical Careers) is that doctors have to decide which specialty training programme they wish to follow early in their second post-graduate year. With doctors now being asked to make career decisions so early it is important to understand the factors that influence their specialty choices.
Summary of work: Twenty doctors in-training, working in a wide range of specialties, were interviewed. The factors which had influenced participant's career choices were explored.
Summary of results: All doctors had a strong perception of different specialties with views being mainly shaped through postgraduate experience. Doctors often described a match between their skills and the perceived characteristics of a specialty, which affected their confidence to compete. The use of formal career guidance was infrequently mentioned.
Conclusions: Trying out specialties was an important strategy used to guide career decisions but is less feasible within the current more rigid postgraduate training programme.
Take-home messages: Directing doctors into the specialties that are right for them requires early career planning interventions that are accessible and provide meaningful experience.

8U3

Career choices of part time trainees in medicine
Melanie Jones, Lorraine Kemble and Rachel Mort (School of PGMDE, Cardiff University, Cardiff, UK)*

Background: Less than full time (LTFT) training is an increasingly popular career option for postgraduate doctors in the UK. The challenge of balancing parental responsibilities with career progression can influence career decision making.
Summary of work: An online survey of all LTFT trainees in Wales was undertaken to ascertain the reasons for this career choice and to find out what career choices would have been made if this option was not available. Data was also collected on gender, specialty and grade. Trainees were asked about their perception of quality of part time training.
Summary of results: 75 (50%) of LTFT trainees responded to the online survey. 25% were in general practice, 30% in paediatrics, 20% in medical specialities and 10% in psychiatry. All were female, with 99% training LTFT to care for young children, and 1% due to health /disability. 95% felt their training was of an equivalent standard to full time programmes. 19 trainees stated that they would have left the profession if part time training had not been available. Non responders were asked to complete a paper survey which increased the response rate.
Conclusions: LTFT training is a well perceived career option enabling young doctors to balance their postgraduate training with parental responsibilities. It also enables doctors with health/disability issues to remain in the workforce. If this option was not available some of these individuals would choose to leave the profession.
Take-home messages: Part time training in postgraduate specialities is a career choice which improves retention of graduates in the workforce.

8U4

Motivation of high school students for choosing medicine as a professional career

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Background: The University of São Paulo (USP, Brazil, promotes a Fair of Professions (FPUSP), which is visited by high school students wishing to get information about different careers.
Summary of work: A questionnaire on motivations for entering medical school was answered by high school students (median age: 17 years) visiting FPUSP 2009 whose first professional option was medicine. Students were divided into two groups according to their socioeconomic status: Group I – public schools (n = 41) and Group II – private school (n = 115).
Summary of results: The most cited reasons for choosing medicine in both groups were idealism/altruism/aspects of human relationships (Group I: 48,2%, Group II: 53%, p=0.61), prospects of a good socioeconomic situation (Group I: 18%, Group II: 23%, p=0.26), and having specific skills (Group I: 7,1% Group II: 17%, p=0.09). Differences between groups were not statistically significant, although Group II showed a tendency to value their skills more for the exercise of the profession.
Conclusions: Although high school students opting for medicine as a career, irrespectively of economic status, intend to have a stable economic situation and to receive recognition by society, motivations related to idealism/altruism/human relations predominated.
Take-home messages: The altruist aspects of medicine are those most valued by young people who intend to opt for medicine as a career.

8U5

Medical students' speciality choice depends on subjects already studied

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Background: As students advance to higher years of medical education and meet additional clinical subjects, career choice contemplation begins. We analysed whether encountered subjects influence students' speciality choice preferences.
Summary of work: Year-4 to year-6 students (n=143) selected their current top three speciality choices in questionnaires. According to our curriculum, specialities can be sorted into four categories. Group-A comprising those Year-4 students have already encountered, Group-B those studied from 4th to 5th year and Group-C those only Year-6 students have experiences with. Group-D contains specialities reported but not included as subjects in our curriculum.
Summary of results: Chi-square test on contingency table Group of specialities versus Year of studies shows significant difference (p=0.012) in reported answers' frequency distribution. On average, Year-4 students selected 1.59 specialities from Group-A and 0.14 from Group-C, whereas Year-6 students selected 1.23 and 0.52 respectively. Mean comparison demonstrates important difference in these two groups. Similarly, odds ratios show that Year-6 students are 3.86 times more likely to select Group-C speciality than Year-4, and 1.90 times more than Year-5 students.
Conclusions: Students' speciality choice preferences do change as they encounter additional subjects. Curricular inclusion or expansion of deficient specialities might alter trends in young doctors' career selection.
Take-home messages: Subjects studied influence students' speciality choice preferences.

8U6

Choosing ophthalmology as a specialty

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Background: The profiles of Ophthalmology medical residency candidates, as well as their motivations, have changed over the last decades. The objective of the study was to collect the opinions of recently graduated physicians, at the time of the exam for entering the Medical Residency regarding their own motivations for the choice of the specialty.
Summary of work: Fifty-nine applicants (38 male) respond to a multiple choice questionnaire containing the following options: Idealism, greater contact with the patient, using manual dexterity, having equipment available, influence of family and friends, recognition by society, interest in surgery, affinity for the area, and other reasons, with the possibility of choosing more than one alternative.

Summary of results: Quality of life was the greatest motivation, followed by the use of manual dexterity, the possibility of greater contact with the patient, idealism, and affinity for the area. No gender differences were detected.
Conclusions: Despite the fact that the respondents considered other items, quality of life was the main reason for their choice of ophthalmology, as a career.
Take-home messages: The possibility of equilibrating work with quality of life is a current tendency in the choice of a career.

8U7

Factors that affect the career choice of psychiatry in Finland

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Background: Over the last decade, the number of trainees entering the specialist training programmes in psychiatry has been decreasing in Finland.
Summary of work: Trainees specializing in psychiatry (PSYs) in Finland in 2004 were studied in comparison with trainees in gynaecology and obstetrics (GYNs). A questionnaire including 38 items that possibly affect the career choice of psychiatry was given to both groups.
Summary of results: Response rates for PSY and GYN were 146/220 (66.4 %) and 59/103 (52.2%, respectively. Almost 73% of PSYs and a half of GYNs had chosen their specialty after graduation from medical school. A third of GYNs had made the decision after the undergraduate course on their specialty, whereas the corresponding figure for PSYs was 9.6%. The quality of undergraduate education and status of psychiatry were rated negatively by both PSYs and GYNs. PSYs appreciated the complexity of psychiatry, and the holistic, humanistic, dialogic and hermeneutic aspects of the discipline.
Conclusions: Undergraduate education in psychiatry did not seem to affect the choice of psychiatry as specialty.
Take-home messages: Positive early career work experiences might affect one's choice of specialty.

8U8

NHS medical careers website: Future plans

Joan Reid, Jason Yarrow and Lisa Stone (Postgraduate Deanery for Kent, Surrey and Sussex, London, UK)*

Background: The medical career pathway in the UK has changed significantly as a result of the Modernising Medical Careers initiative and the provision of careers information, advice and guidance is an important activity for postgraduate deaneries and foundation schools. KSS manages the NHS medical careers website (www.medicalcareers.nhs.uk) on behalf of the Department of Health.
Summary of work: The website was re-launched in July 2009 to address the need for medical careers advice. It is based on the career approach developed by the Association of American Medical Colleges (AAMC) and utilises a range of materials licensed from them within a four stage career planning framework).
Summary of results: The site has a wide user base and the content is updated on a regular basis. Site usage is monitored on a regular basis and feedback obtained. A focus group comprising both medical students and foundation trainees has been recruited and the results will be presented together with an analysis of other feedback which has been received. Our plans for the development of the site will be included.
Conclusions: The importance of providing quality information over the web is recognised and the site includes a range of tools, information and resources.
Take-home messages: Computer-based technology can be used to provide information and resources.

8U9

Effect of basic training in general surgery on motivation for a career on surgical subspecialties

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Background: The reasons for pursuing a surgical career have not been much studied. We aimed at determining whether basic training in General Surgery affects motivation for a career in surgical subspecialties.
Summary of work: A self-administered questionnaire containing 8 reasons for choosing a surgical career was answered by two groups of applicants to residency programs: 1) basic training in General Surgery (N=35,

median age: 25 years, 28 men), 2) surgical sub-specialties, after completing basic training (N=34, median age: 27 years, 26 men).
Summary of results: The most frequent reasons for pursuing a surgical career were similar in both groups: work using psychomotor skills and altruism. Other reasons, such as influence of family were also similarly, but scarcely mentioned. Applicants to surgical subspecialties were less motivated by having closer contact with patients (20% vs 0%, p=0.01) and more strongly motivated in preserving their quality of life (0% vs 14%, p=0.02).
Conclusions: Basic training in General Surgery does not affect motivation to work using psychomotor skills and altruism, but decreases the will to have closer contact with patients and increase interest in preserving quality of life.
Take-home messages: Reasons for pursuing a surgical career should be taken into account in the planning of the basic training in General Surgery.

8U10

Medical students, residency program directors, and career advisors' beliefs about the significance of audition electives

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Background: We aimed to identify perspectives of medical students, residency program directors, and AAMC careers in medicine liaisons (advisors) about audition electives and their influence on the residency match process. Audition electives are elective students which distinguish themselves and demonstrate interest to residency program faculty.
Summary of work: In 2009, we invited 2006 fourth-year students (pre-Match), 2109 fourth-year students (post-Match), 857 program directors, and 47 career advisors to complete online surveys yielding 13.9%, 11.2%, 15% and 45% response rates respectively.
Summary of results: 49% of students reported receiving advice to complete an audition elective before completing their match rank lists, and usually this advice came from residents, peers, or faculty other than their advisors. Median number of audition electives completed was 1.6. While 36% of program directors reported audition electives were important, 80% reported students' performance during audition electives was influential. Career advisors estimated 26% of residency programs require audition electives.
Conclusions: Despite unpredictability and inherent risks of audition elective experiences, many students believe they are necessary and devote considerable time and money for the opportunity.
Take-home messages: Students should consider that elective requirements vary by specialty and program, and can negatively influence the residency match rank process. Career advisors should discuss these caveats with students.

8U11

What do junior doctors want from a medical careers service?

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Background: Foundation year 1 and 2 (FY1/FY2) doctors were surveyed for their perceptions of career advice needed during undergraduate and early postgraduate years and reasons for career choice.
Summary of work: An email was sent to 660 FY1/2s (June 2009) in the Mersey Deanery linking to a validated, anonymised, electronic questionnaire. A deanery research committee approved ethicality and validity.
Summary of results: Of 130/660 (19.6%) respondents, 36% were male, 43 (33%) graduated outside Mersey. 51/70 (81%) FY2 had achieved first choice specialty posts. Top factors in career choice were: work-life balance, junior doctor experiences and career potential. 46% said career preference changed after graduation because of previously unconsidered factors. 61/80 respondents about postgraduate careers support found careers advice useful (mostly consultant-delivered). 83 FY1/2 thought future careers support should include: careers fairs (15), deanery careers advice (14), supervisor advice (12), specialty presentations by consultants (8), application assistance (7), data about competition and length of training, smaller specialty information, careers advisor appointments, and more information as undergraduates (all 5 or less).

Conclusions: Although practice experiences strongly influence career choice, undergraduates and postgraduates also request a range of different approaches to careers support.
Take-home messages: Coordinated careers advice targeted at undergraduates and FY1 doctors is needed.

8U12

Developing mentoring skills for medical students in preparation for final examinations and a future career in the NHS

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Background: Mentorship is an important domain within medical education and leadership. It can help individuals to reach their full potential, or form an integral part of support offered to those in difficulty.
Summary of work: 18 students entering their final year attended a 4-day course based on the Egan Skilled Helper model[1] as part of a medical education student selected module. They also received feedback on their Myers-Briggs Type Index personality classification and helped to understand how this may impact on their behaviour when in consultation or offering support.
Summary of results: A post-course questionnaire indicated the majority felt their perceptions and understanding of mentoring had either changed significantly or beyond previous expectations. Students liked alternating between small and large group settings for practising skills, and facilitation by trained mentors giving immediate feedback.
Conclusions: Having started the course with an unconscious tendency towards diagnostic listening and a need to offer their solutions for issues presented to them, this novel cohort of mentors demonstrated new understanding about how active listening can inspire mentees find their own solutions to problems or opportunities.
Take-home messages: Promoting mentoring as a process centred on self-awareness, self-development and self-management proved popular amongst students with an interest in medical education.
[1]G Egan, The Skilled Helper - a problem management approach to helping.

8U13

Improving health system process: Medicine students participation and learning

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Background: The universal health system implementation and consequent changing in medical education in Brazil are recent phenomenon. Since 2006 the Medical School of Sorocaba has developed a new curriculum, introducing Problem Based Learning methodologies.
Summary of work: In 2009 a community based problem activity was evaluated by medical students of 4th year course. The challenge was to improve reference of patients from primary health care to specialties services. They studied the situation, analysed critical points, proposed actions and tested them in five different Sorocaba's neighborhoods.
Summary of results: One of the Basic Health Care Units presented a list with over a thousand patients waiting for specialist consultation, this situation was similar in five other areas, psychiatry, orthopaedics, ophthalmology, dermatology and gastroenterology. The students revised typical cases with support from experts and literature. New guidelines for diagnose, treatment and reference were established and are in use.
Conclusions: Students learned about the actual situation of health system and have got valuable abilities to analyse and implement actions, helping to construct better care.
Take-home messages: In developing countries, with transitional health system, participation of medicine students in initiatives that meaning to improve process of health care can offer value to learning and is an important social gain.

8U14

The medical labour market in Denmark

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Background: Denmark is lacking medical specialists. In 2009 32% of positions were vacant.

Summary of work: Statistical studies examine the number of occupied/vacant medical specialist posts and junior doctor posts in relation to the growing demand for specialists. On this basis, we have analysed the dynamics behind the increasing demand.
Summary of results: In Denmark, the medical labour market can be divided into three separate groups that influence one another mutually: specialists, junior doctors in training and junior doctors in non-training posts. The increasing demand for specialists generates a growing need for more specialist training posts. However, as a large number of tasks must only be performed by specialists, the work of junior doctors in training is restricted. Thus, as junior doctors in training are not adequately incorporated into the operation, hospitals will demand more specialists in the future.
Conclusions: To meet future operational needs, it is imperative to consider the distribution of tasks among the three labour markets. Examples of recommendations: 1) less new treatments should be defined as specialized functions, 2) transfer of tasks from specialists to junior doctors, 3) closer relation between training and operational functions.
Take-home messages: It is essential to ensure consistency between the operational and training requirements for specialists in Denmark.

8U15

Is mentoring a method which effectively develops potential "personal, professional, social, and career potential development"?

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Background: Mentoring programs have been shown to have a profound impact on personal development, professional development, social development, career guidance, selection of specialty choices, research development, productivity, faculty retention, self-confidence and improvement in computer skills. However, we do not have any evidence from physicians "consultant" point of view, if mentoring improves potential in their social or career development.
Summary of work: A survey design was distributed to 86 (100%) subjects. All are consultant physicians in a tertiary academic health center. We surveyed their perception towards developing a mentorship program and if it is an effective method of developing potentials "personal, professional, social, and career potential development". We found 90% agree on this concept, and only one person < 1% disagrees with this concept. The remaining <9% were neutral in their opinion.
Conclusions: Having less collegial support for teaching and scholarly activities, with the above responsibilities, hindered faculty's productivity which also led to the emergence of mentoring
Take-home messages: Mentorship program is an important model that should be developed for all physicians in any academic center. We believe that it will enhance personal, professional, and career development.

8U16

Mentoring in the new Millennium

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Background: A mentor is described by Odysseus as a trusted individual to educate, tutor, protect, and guide. Mentoring effectively in the areas of education, research and clinical skills across generational differences, changing economic times, and changing academic expectations remains challenging. To foster a critical understanding of the new role of mentorship and have successful mentoring relationships, we developed a novel mentoring program.
Summary of work: We defined the strategies used to facilitate effective mentoring. First, at the residency level, we matched mentors and mentees based on core values rather than career goals. The mentoring participants were given a questionnaire asking specifics on core value traits. Second, we facilitated meetings with the mentors/mentees with specific goals for those meetings aligned with residency program objectives and needs.
Summary of results: Once clearly defined guidelines for the mentoring relationship were developed, 90% of participants involved in mentoring were satisfied. This will hopefully translate to more success in their educational pursuits.

Conclusions: Medical institutions should clearly define the goals of mentoring relationships and determine clear expectations of each participant involved in mentoring.
Take-home messages: (1) Set goals and clear expectations of the mentoring relationships in your institution. (2) Match participants on core values rather than on career goals.

8V Posters: Basic Science Education

8V1

Emphasis on the quality of health care starts in the gross anatomy laboratory

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Background: Knowledge, judgment, and skill of physicians are most important determinants of quality in health care. High quality health care organizations monitor physicians' performance with accurate data from clinical outcomes and patient satisfaction, as well as develop mechanisms to help physicians improve.
Summary of work: A similar comparison may be drawn to medical students in the gross anatomy courses where knowledge, judgment and skills determine their quality of dissection. In most anatomy courses quality of cadaveric dissection is not assessed, therefore students are less concern with laboratory assignments. To emphasize quality of students' work at Mayo Medical School, a new method was implemented to evaluate dissection and provide students with formative feedback. Team performance constituted 5% of total course grade.
Summary of results: A ten-point evaluation tool used incorporated both objective and subjective measures for determining if students met learning objectives. Implementation of evaluation resulted in the improvement of dissection quality.
Conclusions: The dissection evaluation is a valuable assessment tool in our anatomy curriculum. Comparable to a high-quality health care organization gross anatomy laboratory creates an environment of continuous learning and a culture of professional excellence.
Take-home messages: Emphasis of quality in health care was linked to dissection evaluation resulted in the improvement of quality of anatomy lab experience.

8V2

Is dissection important for learning anatomy?

Sujie Sulucsa Pararajasingam and J H Fuller (Barts and the London School of Medicine and Dentistry, London, UK)*

Background: Cadaver dissection in undergraduate anatomy teaching has been the main instruction in undergraduate medical schools until recently. There has been much debate with regards to its use and whether it is an effective teaching method. Only a handful of medical schools now use dissection as the main method for anatomy teaching whereas others use a cadaver free approach using prosections, body painting and interactive anatomy software. Barts and the London School of medicine and dentistry offer dissection to some students within their selected study components (SSC) in their preclinical years. These SSCs focus on different body parts. All students learn anatomy through sessions with prosections, models and specimens. This provides a natural experiment which allows comparison between the two methods of learning anatomy.
Summary of work: Using data collected over the past 4 years we compared students who participated in these SSCs against those that did not with regards to their anatomy knowledge, their end of year exam performance and their clinical performance in OSCE stations.
Summary of results: The data allows the comparison between students who dissect cadavers and those who do not.

8V3

Student attitudes towards dissection

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Background: Today, the role of full cadaveric dissection in medical education is questioned. Some argue it is not needed to teach anatomy, is costly, and may constitute a traumatic experience. Others argue dissection may play a role in developing "new professional values".
Summary of work: On intake in 2009, 156 preclinical students (55% of year group, 53% female) completed a questionnaire which included validated instruments assessing anxiety, items examining attitudes towards dissection and recent experience of bereavement.
Summary of results: 99% of students believed dissection would give them a better understanding of anatomy. The majority held broadly positive attitudes towards dissection. Students experiencing recent personal loss were less likely to objectify the cadaver. A pronounced differential gender effect was found, with female student attitudes significantly associated with anxiety (negative) and length of experience of dissection (positive). Associations were far weaker among male students.
Conclusions: Students in this study held positive attitudes towards dissection and believed it would give them a better understanding of anatomy. More anxious female students at the outset of the course held less positive attitudes. Females' attitudes improved with experience of dissection.
Take-home messages: Possible gender differences and recent bereavement need to be taken into account when preparing students for work in the dissection room.

8V4

The effects of advanced organizer in dissection course

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Background: An advanced organizer (AO) is selected information relevant to learning material that is prepared and provided for learners in advance in order to facilitate learning. The purpose of this study was to investigate how AO affects the learning experience in a dissection course.
Summary of work: The subjects were 141 first-year medical students attending Chonnam National University Medical School (CNUMS), South Korea. Participants were randomly assigned to two groups: video-clips AO (n=70), predissected specimens AO (n=71). Participants were given a test regarding anatomical knowledge before and after the dissection course. They also had to complete a 5-point Likert scale questionnaire about their perception of the learning experience.
Summary of results: Learning achievements of predissected specimens AO were significantly higher than that of video-clips AO. Predissected specimens AO facilitated the understanding of course content and concepts. This form of AO lowered student anxiety and increased active participation during dissection practice.
Conclusions: The predissected specimens AO improved learner performance during the dissection course and increased student engagement and satisfaction. This study showed the effects of AO on the learning experience in a dissection course.
Take-home messages: We should consider various AO applications in order to improve student performance and learning satisfaction in medical education.

8V5

The use of brain-suite teaching tools improves learning of neuroanatomy

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Background: Neuroanatomy text books, atlases and multimedial tools (TAMM), allows the student to easy understand spatial relationships existing among neuroanatomical structures.
Summary of work: In order to improve the knowledge of spatial relationships among neuroanatomical structures, neurosurgical images taken with the aid of Intraoperatory Brain Suite (IBS) were shown in a series of neuroanatomy lessons (SNL). Students' satisfaction and degree of understanding were evaluated by a questionnaire.
Summary of results: 105 students filled the questionnaire. 74% thinks that TAMM are sufficient to achieve a good knowledge degree of neuroanatomy, while only 51% indicated they are sufficient to understand spatial relationships existing among neuroanatomical structures. 63% think that IBS are sufficient to achieve a good knowledge degree of neuroanatomy, while 89% think that IBS are very useful to learn spatial relationships among nervous system structures. 86% had a high degree of satisfaction for SNL with IBS if placed at the end of the course.

Conclusions: SNL with IBS help students in learning and understanding of spatial relationships among neuroanatomical structures.
Take-home messages: The ultimate neuroimaging technology integrated with neurosurgical images, obtained by Brain Suite, improves and speeds up students learning and understanding of spatial relationships of nervous system structures.

8V6

Logbook and anatomy education for medical students

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Background: Anatomy has been characterized, over time, by a continually developing understanding of the functions of organs and structures in the body. The structures and organs are fine and complex. Therefore, the teaching of anatomy is very important. The students need to learn and the teachers need to identify the most efficient ways to teach. Using the logbook helps to evaluate the anatomy teaching.
Summary of work: The logbook was distributed to 60 medical students. The students were asked to sign in and log items. At the end of every session, the logbooks were signed by the teacher. Anatomy was also taught to 60 medical students without logbook (control group).
Summary of results: The mean score of these students was better than the control group. Also the satisfaction of the logbook group was higher.
Conclusions/Take-home messages: Using a log book for anatomy teaching is an efficient method and preparation of a logbook for other medical basic sciences may be useful.

8V7

Virtual anatomical training in medical education

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Background: In today's demanding medical curriculum, time for cadaveric dissection is limited and anatomical training is becoming increasingly dependent on supplementation from virtual datasets. Many are concerned however, that current virtual training aids are unsatisfactory due to oversimplification and lack of realism. This project involves a unique collaboration between the DDS (GSA), the RCSPG and The Laboratory of Human Anatomy (GU), and aims to create an enhanced virtual training package for the anatomically complex inguinal canal.
Summary of work: Detailed dissection of the inguinal canal region of a 68 year old male cadaver was imaged at key stages using state of the art laser scanning technology. The data obtained was then augmented with a pre-existing dataset and a functional training package was developed.
Summary of results: An anatomically accurate interactive 3D training package of the inguinal canal was successfully produced.
Conclusions: Results show that by collecting and utilising data from real cadaveric material, it is possible to create extremely accurate virtual anatomical 3D reconstructions for medical training purposes.
Take-home messages: Combining cadaveric dissection and laser scanning creates unique accurate anatomical datasets for use in the 3D stereoscopic environment for medical education and will revolutionise training.

8V8

Assessment based impact of integrated case-based pathology instruction for endocrine disorders on student learning

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Background: Endocrine disorders and their management are taught by disciplines in the basic sciences curriculum. We experimented with teaching the endocrinology in an integrated fashion. We developed classical case-scenarios and integrated basic science concepts as explanations of clinical presentations.
Summary of work: The aim of this study was to determine if this strategy had an impact on student learning. MCQ examination results two weeks post-instruction were analyzed for the conventional teaching and the integrated case-based teaching. The top and the bottom 27% of students were compared between the two instruction groups. The degree of difficulty for each exam was also analyzed.

Summary of results: The degree of difficulty on a scale of 1-3 was comparable (1.35-1.48) for all exams. There was no significant difference in the performance of all the students (76.4% vs 79.5%) or the top 27% of students (88.9% vs 90.7%). However, the bottom 27% students performed significantly better (p=0.05) after case based instruction (66.9% vs 61%) after case based instruction.
Conclusions: This suggests that basic concepts were retained better by the weaker students when they were put in the clinical context.
Take-home messages: Based on this we plan to include a least one case-based integrated teaching session for each of the organ systems in our basic sciences curriculum.

8V9

Linking three university clinical sites in the Caribbean through video-teleconferencing of Clinico-Pathological Conferences (CPCs) to integrate the clinical and basic science teaching

Gerald Grell, Rhonda McIntyre*, Peter Bellot, James Catroppo and Rosana Emmanuel*(Ross University School of Medicine (RUSM), Dominica, West Indies)*

Background: RUSM, founded in the Caribbean 31 years ago, has 2 major teaching sites in the Commonwealth of Dominica, and a recently added campus in Freeport in the Bahamas. Linking these teaching sites in order to ensure consistency in training has been challenging.
Summary of work: Video teleconferencing is an important part of teaching technology in developed countries, and has become a critical educational tool in recent years. In our Caribbean setting the distance between islands, and even within countries with difficult terrain, has placed great emphasis on technology which allows transmission of critical clinical and teaching data.
Summary of results: Once a week, an expert clinician presents clinical cases seen at the central hospital on the island of Dominica related to particular topics in a variety of disciplines. The expert presents the history and diagnosis of the illness, physical examination results, epidemiological data, radiological findings, and relevant laboratory results. The Pathologists dissect the case, and provide the "final diagnosis" in the traditional N.Eng.J. Med CPC style.
Conclusions: The material discussed is of great educational value to all members of the RUSM community, from medical student, directors, and researchers, as well as for junior and senior clinicians at the hospital.
Take-home messages: It is a fantastic educational and CME adventure.

8V10

The role of biomedical knowledge in echocardiographic expertise development: A correlation study

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Background: Recent research suggests that biomedical knowledge plays a more prominent role in professional practice than previously assumed. This study investigates the role of biomedical knowledge in the development of echocardiographic expertise.
Summary of work: Echocardiography interpretation scores of forty-five physicians (15 novices, 15 intermediates and 15 experts) were correlated with their scores on a MCQ exam of echocardiography relevant knowledge of physiology. The interpretation test consisted of a checklist and a global rating scale, previously validated. The MCQ test was validated by content and construct validity. Reliability was estimated by Cronbach's alpha.
Summary of results: A significant correlation was found between expertise level and physiology score, experts scoring significant higher than novices. A strong correlation was found between interpretation checklist scores and physiology scores for the intermediates, but not for novices or experts. We found no correlation between global rating scores and physiology scores for any group.
Conclusions: Basic science (knowledge of physiology) is strongly correlated to echocardiographic interpretation skills in intermediates only, even though a significant correlation between physiology knowledge and level of expertise was found.
Take-home messages: Physiology knowledge and interpretation skills interact when physicians learn echocardiography, but become separated with increased level of expertise.

8V11

Evaluation and comparison of students' opinion toward revised medical basic sciences curriculum in Isfahan University of Medical Science

Farzaneh Dehghani, Sara Mozafarpour, Zahra Teimouri and Vahid Ashourioun (Isfahan University of Medical Science, Isfahan, Iran)*

Background: Basic sciences are the first introductory course in the medical training program in Iran which includes five semesters. Isfahan Medical School revised the basic science curriculum to solve the problem of imbalanced courses by rearranging the subject matters in each semester. This study is aimed at comparing the students' opinion participating in two different curricula.
Summary of work: The subjects included all 120 students involved in curricula. Data-gathering tool was a self-administered questionnaire. Students' opinions about curriculum were assessed by a 5-point (strongly-disagree … strongly-agree) Likert scale. Their viewpoints towards the burden of courses were evaluated by closed ended questions for each 5 semester.
Summary of results: In general, the new curriculum has been considered more satisfactory (2.95+0.48 vs. 2.78+0.68: P=0.002). The majority (61.4%) of the students in the 1st semester in the new curriculum rated burden of courses suitable vs. 1.7% of respondents in the former curriculum. (P-value=.000). Regarding burden of courses we found significant differences with more suitability in the 4th semester in the new curriculum and the 3rd semester in the old curriculum (P-value<.05).
Conclusions: The students' opinions toward the basic sciences curriculum were more positive in the new curriculum. However, curriculum revision should be conducted periodically to resolve the current problems.
Take-home messages: Minor changes in curriculum lead to great effects.

8W Posters: Miscellaneous Subjects

8W1

Acute kidney injury: Assessing training of medical students and junior doctors

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Background: A large national audit (NCEPOD, 2009) found that prevention, recognition and management of Acute Kidney Injury (AKI) were substandard in UK hospitals. This represents a major burden of preventable morbidity and mortality.
Summary of work: To understand why management of AKI is poor, we administered questionnaires to a group of final-year medical students and junior doctors at a district general hospital (n=68).
Summary of results: Data was subject to analysis of variance and t-testing. Respondents scored their confidence in managing AKI as worse than their confidence in Sepsis ($p < 0.003$, Gastro-intestinal haemorrhage ($p < 0.001$) or Acute Coronary Syndrome ($p < 0.001$). Respondents were less aware of guidelines for AKI than for other acute medical conditions ($p < 0.001$). Unprompted, respondents cited inadequate teaching (n=14, 21%) and the complexity of the underlying pathophysiology (n=15, 22 %) as explanations.
Take-home messages: 1) junior doctors and medical students are underconfident and undertrained in the recognition and management of AKI. 2) We propose and describe modification of curricula to improve understanding of basic renal pathophysiology and clinical exposure to renal medicine. 3) We suggest automated laboratory "delta-check" alerts comparing previous results to draw clinical attention to AKI. 4) These interventions have the potential to significantly improve patient care and outcomes.

8W2

Competence and confidence of neonatal resuscitation in graduating-medical student of Maharat Nakhon Ratchasima Hospital, School of Medicine

P Thanomsingh (Dept of Pediatrics, Maharat Nakhon Ratchasima Hospital, School of Medicine, Thailand)*

Background: Neonatal resuscitation skill is required in new graduated-doctor. Our medical students have been trained to perform neonatal resuscitation in fifth and sixth year. After completing the course, some of them have low confidence in their skills.
Summary of work: All 30 students were tested with MCQ and simulation-based scenario at the end of sixth year. They were asked to complete the questionnaires about experiences and confidence in neonatal

resuscitation and cardiopulmonary resuscitation (CPR). Descriptive statistics and Pearson's correlation were used for data analysis.
Summary of results: Mean knowledge and skill scores are 68.7% and 67.2% respectively. The knowledge scores correlate with their GPA. Comparison of 2 groups at the time they in pediatric clerkship, mean knowledge scores are lower in the first half-year group (63.0% VS 74.3%, p=0.016) but the skills are not significantly different. The neonatal resuscitation confidence score is 5.05 (range 0-10) and correlates with experiences in neonatal resuscitation (r=0.422, p=0.022, CPR (r=0.485, p=0.007) and confidence in neonatal intubation (r=0.586, p=0.001).
Conclusions: The competence of neonatal resuscitation depends on knowledge and duration after finished clerkship. The confidence correlates with their experiences.
Take-home messages: To improve the competence and confidence of neonatal resuscitation in medical students, a refresher course and emphasizing their experiences are necessary.

8W3

Mission difficult or mission impossible? GMC – Tomorrow's Doctors 3: Section 16
V McDowall, L Anderson* and J Skinner (University of Edinburgh, College of Medicine, Edinburgh, UK)*

Background: The GMC in Tomorrow's Doctors 3 (TD3) states that a graduating medical student should be able to manage medical emergencies and direct resuscitation. However, many medical students have not witnessed a cardiac arrest nor been directly involved in managing the care of a medical emergency.
Summary of work: Focus groups were held with final year medical students and junior doctors to obtain their experiences of cardiac arrest and to discuss perceptions of their preparedness for managing medical emergencies on graduation.
Summary of results: Focus groups are ongoing but results suggest junior doctors take on practical aspects of care as opposed to a leadership role. Virtually no undergraduate students had experience of cardiac arrest management.
Conclusions: In contrast to the TD3 learning outcomes junior doctors operate at a task orientated level rather than take on a decision-making position when dealing with medical emergencies. Undergraduate medical students have little structured exposure to medical emergencies. The current role of junior doctors within the emergency team suggests that it may not be appropriate to train medical students to higher-level functioning within such a team.
Take-home messages: Students require greater exposure to, and involvement, in the management of medical emergencies throughout their undergraduate years if they are to fully demonstrate TD 3 outcomes.

8W4

Highlighting the need for Anaesthetic/Intensive care teaching to medical students in the era of Problem Based-Learning (PBL)
E Doorley, J McCann* and M Al-Khalid (Intensive Care Department, Warrington Foundation Trust, UK)*
Background: Anaesthetics/Intensive care medicine is an integral part of medicine today with changing population demographics. Teaching of these core subjects however lacks clear guidelines with many medical students having poor knowledge of these essential topics, largely due to the lack of teaching with the advent of PBL.
Summary of work: Twenty-five 4th-year medical students were invited to attend a day's tutorial on anaesthetic/intensive care topics- namely acid-base disturbances, post –operative dyspnoea/shock and fluid management. Students completed the same questionnaire before and after the teaching to assess its benefits.
Summary of results: Students in this study had clear deficiencies in their basic knowledge of anaphylaxis, fluid resuscitation and pain management with only 30 % (n=78/240 questions) answering questions correctly before intensive lectures. Students competency of knowledge rose dramatically to 99% (n=237/240 questions) on these subjects following some basic anaesthetic teaching and encouragement.
Conclusions: Junior doctors regularly encounter medical problems on wards in terms of post-operative pain/fluids and dyspnoea. If we are to confidently leave these new doctors to manage our patients appropriately, we should equip them with the necessary knowledge and teaching to do so.
Take-home messages: Anaesthetic/Intensive care knowledge is often best imparted in the form of medical lectures to students to compliment their PBL learning.

8W5

All hazards approach to managing disaster patients

Ken Harbert, Rick Hillegas*, Dan Bequillard and Doug Seaton (South College, School of Physician Assistants, Knoxville, USA)*

Background: The change in the global response to dealing with disasters both natural and manmade demands a new and innovative approach to assessment and management by future health care providers.
Summary of work: We have developed an all hazards approach to dealing with disasters using a variety of learning situations and educational strategies.
Summary of results: The all hazards approach to dealing with disasters focuses on the medical, social, and risk assessment venues that health care providers need in their toolbox to care and manage patients involved in a traumatic event.
Conclusions: Our approach focuses on risk assessment, command/resource issues, patient assessment, social, psychological and emergency management of patients involved in a disaster.
Take-home messages: Faculty should prepare students with the right tool box of strategic awareness, risk assessment, psychological core competencies and resource/emergency skill sets needed to care for patients involved in a disaster.

8W6

Students' knowledge and awareness on sex and gender issues

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Background: Many curricula at medical universities require sex and gender issues to be implemented throughout all courses, often through a blanket clause. We investigated if a blanket clause on such topics in curricula would be enough to establish awareness and knowledge in students.
Summary of work: We investigated two representative groups of students at Medical University of Graz, using an anonymous questionnaire using questions on personal interest in and educational relevance of gender and/or sex specific differences. First group: 3rd semester students of Health and Nursing Science Master Degree. Second group: 3rd year medical students.
Summary of results: Statistical analysis showed that basics in sex and gender issues were largely unknown by the students of both group, medical students showed especially little knowledge. Medical students also rated relevance of sex and gender issues in health sciences poorly (45% moderate to no relevance, compared with students of Health and Nursing Science (17%).
Conclusions: Although being a mandatory part of the curriculum, even basic knowledge was not transferred to the students. A reason might be limited knowledge and/or interest of the teachers.
Take-home messages: The sole inclusion of sex/gender issues into the curriculum is not enough. Students and teachers have to be convinced of the clinical relevance to transfer critical knowledge.

8W7

Preemptive exposure to geriatrics: An undergraduate chronic care internship

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Background: The demographic imperative for preparing the physician workforce to care for increasing numbers of elder Americans is looming. To pre-empt efforts of medical schools to educate students in areas of gerontology, Saint Louis University has taken initiative at the undergraduate level with an experiential nursing home-based internship. This was conceived from a curricular need assessment utilizing student-derived course objectives.
Summary of work: A "Chronic Care Internship" was created to encompass six course themes through a weekly resident companionship, weekly Geriatric Medicine rounds, a student-initiated quality improvement project, and a topical weekly lecture series. Pre and post-course surveys examined students' attitudinal changes towards elders. Weekly lecture reflections and a post-course essay qualitatively evaluated the effect on students' perception of geriatrics.
Summary of results: On a five-point Likert scale, an average 0.77 point decrease was observed when asked if "Treatment of chronically ill old people is hopeless" ($p<.001$). This change indicates a reduction in negative attitudes toward the elderly. The qualitative analyses showed increased knowledge of aspects of geriatric medicine including learned helplessness, frailty, and effective communication.

Conclusions: Early and frequent exposure to nursing home residents proved to be integral in decreasing students' negative attitudes towards gerontology. Further analysis of qualitative data from the reflection exercises have illustrated a rich understanding of communication challenges as well as an appreciation of the concepts of learned helplessness and frailty.
Take-home messages: Through development of a structured internship at the undergraduate level, positive attitudinal changes toward gerontology have been observed earlier in pre-professional health students.

8W8

Psychiatric teaching program for 5th year medical student in a general hospital
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Background: Psychiatry has been taught in medical curriculum for the 5th year medical students. Contents are taught in theory with few practicing opportunity. In 2009, the psychiatric course was firstly implemented in general hospital to provide more chance for practice. This new program should be evaluated for further improvement.
Summary of work: The course was designed to equip the students with general psychiatric knowledge and skills. All topics were taught in medical school hospital using different teaching methods including lectures, conferences, small group discussion, seminars, self-study, and topic discussion in the first 2 weeks. The last 2 weeks, student practiced psychiatric interview and counseling with real patients under supervision in general hospital. Students conducted the whole process of psychiatric evaluation with 2 patients and submitted the reports for assessment.
Summary of results: Results from student feedback showed that the students who practiced in general hospital gained more experience in psychiatric interview comparing to students taught in medical school hospital. They had more opportunities to contact with real patients at out-patient and in-patient units. They were more confident to approach patients with common mental disorders and reflected that patients in the general hospital were more realistic for general practitioner. All students and teaching staffs in the general hospital satisfied with this program.
Conclusions: Psychiatric practicing in general hospital was more realistic and provided chances for medical students to approach real patients with common mental disorders.
Take-home messages: Attitude and self-reflection ability of medical students should be assessed in the next academic year.

8W9

Assimilation of legal medicine with other system based modules, an endearing evolution
Zubaida Zain and Waseem Ullah Khan (Shifa College of Medicine, Islamabad, Pakistan)*

Background: Shifa College of Medicine, Pakistan introduced its integrated modular curriculum in 2008. Legal medicine was integrated with other system based modules. This integration is imperative for changing future health professional's attitude towards legal aspects of medical practice.
Summary of work: Legal medicine was integrated longitudinally in four different modules. Tools of delivery were small group sessions, large group interactive sessions and PBLs.
Summary of results: MCQ results were statistically analyzed with its reliability based on cronbach's alpha Neurology: cronbach's alpha 0.63 with a mean of 59.7 ± 7.4 with equal distribution curve.
CVS: cronbach's alpha 0.62 mean of 56.7 ± 8 and slight positive skewness. Respiratory: cronbach's alpha 0.64, mean 60 ± 9.3 with equal distribution curve. GIT: cronbach's alpha 0.74 mean of 57.2 ± 8.9 with positive skewness.
Conclusions: Performance of students based on these results showed that legal medicine can successfully integrate both horizontally and vertically with other system based modules.
Take-home messages: Integration of legal medicine with other systems allows students to become familiar with important legal principles at a time when these principles are particularly relevant to their clinical activities.

8W10

The assessment of basic ophthalmologic knowledge in interns and their previous 5th year passing scores in ophthalmologic course
T Chongwiriyanurak(Lampang Medical Education Center, Department of Ophthalmology, Lampang, Thailand)*

Background: Graduated medical students should have basic ophthalmologic knowledge in accordance with standard requirement of Thai Medical Council. We assessed this knowledge in internship and their previous knowledge since they were 5th year medical students at Lampang Medical Education Center.
Summary of work: 23 of 30 interns were examined on their ophthalmologic knowledge by using 40 item-multiple choice questions (MCQ) corresponding with the standard requirement of the Thai Medical Council. The scores of this examination were compared with their previous passing scores of MCQ examination in 5th year medical students. Paired-t test was used to compare mean and median of both scores.
Summary of results: The scores were ranged from 35% to 70%. The median and mean of intern scores were both 50% whereas the median and mean of 5th year scores were 61% and 60.9%, respectively. The differences of mean and median were statistical significant ($p<0.05$).
Conclusions: According to standard requirement of the Thai Medical Council, basic ophthalmologic knowledge in interns was significantly lower than their previous knowledge since they were 5th year medical students.
Take-home messages: Basic knowledge in ophthalmology declines over time. It's no doubt challenging for all medical educators to acknowledge and help medical students to overcome because this declination leaves an impact on medical professions as well.

8W11

Pushing the boundaries, a unique collaboration in undergraduate nursing medicines calculations

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Background: Nurses experience significant difficulty safely calculating medicine dosages (Sabin 2006) with potentially hazardous consequences.
Summary of work: While the curriculum fulfilled the professional body (Nursing and Midwifery Council (NMC) requirements, an opportunity presented itself for a unique educational collaboration.
1) New intake of final year students. 2) Newly appointed professional nurse and mathematics advisor. 3) New honorary clinical lecturers and clinical skills facilitator. 4) New academic university teacher to the subject area. 5) New independent resource from the Workers Educational Association (WEA). The collaboration identified the need to review the curriculum content and delivery, demonstrating more clinical context and increasing emphases on a more individual approach to teaching, learning and assessment methods.
Summary of results: 1) Surprisingly, students wished to continue summative assessment in the final year examination, calculators and formulae have been introduced to enhance clinical context and relevance. 2) Incorporation of practical application in clinical simulation and improved theoretical integration throughout the programme. 3) Introduction of a programme "workbook" with integral student "self-referral" process to appropriate tailored tutorials throughout the programme. The "workbook" includes a range of calculations with progressive difficulty, worked examples with answers and is designed to accommodate individual learning requirements.
Conclusions: Continuous curriculum review is essential in this dynamic and high profile aspect of patient safety.
Take-home messages: Multiple collaboration not only uncovers unexpected challenges to nurse education but can generate innovative solutions too.

8W12

Factors influencing neuroscience grades of medical students

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Background: Neuroscience has become an integral part of living and society and this growth necessitates a greater understanding and simplification of the subject. New approaches to medical education within the constraints of time therefore need to be utilized to enable students to meet its evolving dimensions. These approaches must target not only the physical constructs of the material but also the bio-psychosocial components of both the learner and the educator. The aim of this study was therefore to determine whether students' prior knowledge, attitude or study practice influenced their Neuroscience grades.
Summary of work: A cross-sectional survey was conducted using an electronic self-administered questionnaire via Survey Monkey. Third semester students who had previously done the neuroscience course

were surveyed. Self-reported information on their prior knowledge (MCAT scores, attitude and study practices towards neuroscience and final grades was collected. Data was analyzed using correlation where $p< 0.05$ was determined as significant.
Summary of results: Students were more likely to have higher neuroscience grades if they spent more hours reviewing lectures on media site ($p=0.04$) and entered with higher MCAT scores ($p=0.03$). Attitude did not affect grade ($p=0.29$).
Conclusions: Reviewing neuroscience lectures on mediasite is an effective method of studying.
Take-home messages: Media site is an effective learning resource for neuroscience students who usually have demanding schedules.

8W13

Healthcare professionals' attitude toward diabetes as an outcome for medical schools' training in clinical practice

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Background: To compare healthcare professionals' attitudes towards diabetes as an outcome of the current medical schools training for clinical practice in Iran.
Summary of work: The third version of Diabetes Attitude Scale was completed by 291 healthcare professionals (Clinical teachers=34 nurses=40 Residents=44 Interns=44 Medical students=38) DAS-3 measures five subscales with five-point Likert scale.
Summary of results: The mean age of the participants was 31.7 (±9.34) years and 60% were female. In overall, all groups' attitudes towards the Need for special training (Mean=4.49±0.40, and the Psychosocial impact of diabetes (Mean=3.98±0.50) were positive. In other two subscales, the Seriousness of Type2 diabetes (Mean=3.70±0.51, and the Value of tight control (Mean=3.80±0.42, their attitudes were tend to be positive. Although their beliefs about Patient autonomy was not strong (Mean=3.31±0.40). Statistically significant differences were seen in attitude towards Seriousness of type 2 diabetes between nurses and residents, also nurses and interns ($P<0.000$, $P=0.003$ respectively), nurses scored the lowest in both. However for the patient autonomy, nurses obtained the highest score and clinical teachers and residents scored the lowest ($P=0.005$, $P=0.020$ respectively).
Conclusions: The medical schools' curriculum in Iran has not been appropriately prepared to offer health promotion empowering programs for students.
Take-home messages: Training program for clinical practice should be improved and be more attitude-oriented.

8W14

What should every doctor know at graduation about Systemic Lupus Erythematosus (SLE)? Pilot questionnaire development

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Background: There is an absence of a defined SLE curriculum for medical students in the UK. This study developed a questionnaire for final year medical students to establish their understanding about SLE including curriculum content and delivery.
Summary of work: A literature search was performed and focus group analysis with fourth year students undertaken. A questionnaire was developed to collect qualitative and quantitative data about students understanding of SLE. Subsequent revision was undertaken at a national Arthritis Research Campaign (ARC) educators meeting. Questionnaires were distributed to 20 final year medical students.
Summary of results: 45% rated their confidence regarding SLE knowledge as poor (VAS <3). Commonest sources of information were textbooks and the internet. Renal failure was rated the most important complication (60%) with psychological complications rated the least important (30%). 45% of students felt that understanding of current management is important and proposed that future teaching should be from a consultant rheumatologist.
Conclusions: Despite the lack of a curriculum in SLE, students obtain key information, but demonstrate gaps in understanding. The questionnaire will now allow identification of the knowledge base amongst students in

other medical schools. Consensus opinion on the development of an SLE curriculum may provide guidance in prioritizing teaching and learning.
Take-home messages: Determining curriculum content for rare diseases such as SLE remains problematic.

8X Posters: Clinical Assessment/OSCE

8X1

Statistical evaluation of the European Board of Ophthalmology (EBO) examination

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Background: The European Board of Ophthalmology Diploma (EBOD) examination is a test designed to assess knowledge and clinical skills requisite to deliver a European standard of ophthalmologic care. The EBOD examination consists of a written paper (true-false MCQs) and an oral examination (Viva Voce).
Summary of work: In order to be able to validate EBOD, a statistical analysis package based on both classical analysis techniques as well as on item-response analysis, has been developed in-house.
A measure to overcome one of the main disadvantages of true-false MCQs, namely guessing of candidates, is the introduction of negative marking as from the 2010 edition of EBOD.
Summary of results: Retrospective analysis of the past two EBOD examinations showed good reliability of the examination (0.78-0.81) and reproducibility in terms of percentage of candidates being able to pass EBOD (pass rate). The prospective analysis and comparison with the retrospective analysis will be performed after the 2010 edition of EBOD, which takes place in May.
Conclusions: It is our aim to measure objectively that introduction of negative marking will increase the discriminative power of EBOD and therefore the reliability of the examination, without negatively influencing the pass rate.
Take-home messages: Validation and analysis of examinations are crucial for continuous improvement of assessment.

8X2

Outcome analysis of case adjustment for the MRCGP CSA

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Background: The Clinical Skills Assessment (CSA) of the MRCGP tests candidates with simulated patients typical of those encountered in Primary Care. Case performance varies and one factor is the nature of the case itself. We examine the success of case adjustment in improving performance and reliability based on integrating written feedback and case performance data.
Summary of work: Data has been kept on the timing and nature of case adjustment for the last 18 months of the CSA. We examined the performance of cases before and after adjustment to determine if certain case problems are harder to correct
Summary of results: The work is still underway but initial results suggest that case adjustment for variance in challenge is more successful than that for correlation
Conclusions: Case adjustment is a complex and challenging process. Certain case problems can be corrected but other differences may require cases to be removed from case selection entirely
Take-home messages: Case adjustment is possible but benefits from a structured approach using both written feedback and case performance data

8X3

Using trainee focus group in examination development

Peter Saul (Postgraduate Medical Education (GP), Royal College of Paediatrics and Child Health, London, UK)*

Background: The DCH is an examination run by the RCPCH predominantly as an 'additional' qualification for GPs/GPStRs to recognise expertise in managing children's health. In 2009 changes to the examination were

proposed and it was decided to convene a focus group of recent examinees in order to evaluate and feedback views on the proposed changes.
Summary of work: A group of previously successful candidates attended a structured focus group at the RCPCH to examine and feedback views about proposed changes to the DCH examination. Views and conclusions were written up and played an important part in informing further development of the exam.
Summary of results: Participants expressed strong views with respect to maintaining a robust clinical content to the examination. Reasons for taking the exam were discussed. Participants interested in joining the examination board were identified.
Conclusions: Involving examinees/trainees in evaluating 'additional' examinations can be useful in tailoring examination development and soliciting further involvement in the examination process.
Take-home messages: Focus groups involving recent examinees are a useful tool in examination development.

8X4

The relationship of epistemological beliefs and scores on the clinical performance examination (CPX)
Sun A Oh, Eun Kyung Chung, Young Jong Woo, Eui Ryoung Han, Jung Ae Rhee and Chang Soo Park (Dept Medical Education, Medical School of Chonnam National University, Gwang-ju, Korea)*

Background: Epistemological beliefs (EB) are fundamental assumptions about the nature of knowledge and learning. Different epistemological beliefs can lead to different choices in clinical practices. The purpose of this study was to investigate CPX scores according to the level of EBs.
Summary of work: The CPX using nine standardized patients (SP) was administered to 133 fourth-year medical students attending Chonnam National University Medical School (CNUMS, South Korea. Students had to fill out a questionnaire regarding epistemological beliefs (EBQ) before taking the CPX. The EBQ was composed of 61 items to reflect five belief systems.
Summary of results: The higher EB groups of certainty of knowledge, ability to learn, and speed of knowledge acquisition received higher total CPX scores than the lower EB groups. History taking scores and EB levels were significantly different. There was no significant difference in the achievement of physical examination and physician-patient interaction according to EB levels.
Conclusions: Students having more sophisticated and advanced EB accomplished more comprehensive and various approaches in history taking.
Take-home messages: To improve critical thinking and problem-solving competence in clinic settings, we should consider various efforts to encourage discussion about epistemological views.

8X5

Assessment of clinical performance in gynecology by physician examiners and standardized patients
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Background: To assess and compare the quality of ratings of clinical performance in gynecology of medical undergraduates provided by physician examiners and standardized patients (SPs).
Summary of work: This was a cross-sectional study of seven-year medical students undergoing an objective structured clinical examination (OSCE) during the gynecological internship rotation. The study consisted of 33 candidates from the Chang Gung Memorial Hospital Medical Undergraduate (UGY) Program, physician examiners and SPs in two 10-minute duration OSCE stations. A 4-component performance rating (acquisition skills, communication skills, clinical examination, and interpretation of results) was used to assess the undergraduates. Pearson correlation coefficient, two-sample t-test, effect size calculation, and multiple linear regression were used for data analysis.
Summary of results: Correlation between the physician and SP ratings ranged from 0.137 to 0.839. The SPs gave more lenient ratings. Mean alpha reliability for the physicians' ratings was 0.684, and for the SPs' 0.862. There was strong agreement between the physicians and SPs in assessing communication skills ($r=0.696$, $p=0.003$) and acquisition skill ($r=0.467$, $p=0.046$) of candidates.

Conclusions: SP examiners are acceptable assessors of medical students in gynecologic rotation. SP exminers may be used rather than physician examiners to assess UGY candidates' acquisition and communication skills in gynecology.
Take-home messages: SP examiners may be used to assess UGY candidates' acquisition and communication skills in gynecology.

8X6

Evaluation of an instrument to assess competences in a 4th year medical curriculum

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Background: Medical curriculum at the FCS is competence-based and an evaluation system was implemented to guarantee that students achieve the adequate level of competence. We developed an assessment tool similar to OSCE, which we call "Integrated Clinical Evaluation" (ICE). Our objective was to evaluate the quality of the instrument we are using.
Summary of work: We describe the ICE used in 2007/2008 for a group of 62 students of the 4th year. In order to evaluate the quality of the instrument, reliability was determined. A questionnaire to evaluate students' perceptions about ICE was analyzed.
Summary of results: The mean score of the 62 students in the ICE was 65,7%±6,33. The reliability (Cronbach's α) was 0,569. Students' perceptions of the examination showed that more than 50% considered that it was well organized (88,4%, the stations' content was adequate (68,4%) but difficult (80,3%, they were anxious before (90,4%) and during (76,7%) the exam. They considered the duration of the examination to be too long (65,2%).
Conclusions: We need to review the ICE in order to have a better assessment instrument and increase its reliability. In general, students agree that this is a good instrument to evaluate their competences.
Take-home messages: We have to select the adequate instruments to evaluate competences and to adapt them to our context.

8X7

In clinic assessment in Veterinary education: Adapting the mini-CEX to create a Veterinary clinical assessment tool

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Background: The mini-CEX is one of many tools developed to facilitate in-clinic assessment in medical education, yet remarkably few in-clinic assessments have been described in the Veterinary context. The aim of this project was to evaluate the performance of the mini-CEX in the veterinary undergraduate context, specifically in a small animal practice-based rotation.
Summary of work: An adapted mini-CEX form was used to assess final year undergraduate vet students during a small animal clinical rotation. 80 individual student assessments were completed by a single assessor over a period of 24 weeks. Information was collected to assess the practical implications of the assessment as well as issues related to student and staff experiences of the assessment and mark distributions.
Summary of results: 1) Both students and staff rated the usefulness of the assessment tool highly
2) Modifications to the form and assessment procedure will improve its practical application. 3) Further work is required to clarify the longitudinal performance scores and comparisons with other assessment methods highlighted by this study.
Conclusions: Mini-CEX has great potential as an in-clinic assessment for Veterinary undergraduates. Further work is required to establish the reliability and validity of the assessment in this context
Take-home messages: Mini-CEX can be successfully and efficiently incorporated into the veterinary clinical setting.

8X8

Evaluating the validity and feasibility of Direct Observation of Procedural Skills (DOPS) assessment tool on year 5 medical students in the clinical setting

R Mcleod, J Ker and G J Mires (Clinical Skills Centre, University of Dundee, UK)*

Background: Practical skills teaching in medicine has traditionally been based on the principles of, See One, Do One, Teach One, but to what extent is this adage adequate? DOPS is a robust assessment method which could ensure standards would be met and that satisfactory progress has been demonstrated. Final year students should be able to demonstrate procedural skills competencies outlined by GMC. The intention with this research is to introduce the DOPS assessment form into the teaching for year 5 undergraduate medical students, to provide a clear assessment which is structured to improve procedural clinical skills.
Summary of work: It is the author's intention to evaluate this assessment tool and how it impacts on the student learning in the clinical setting utilising the Bristol Online Survey (BOS).
Summary of results: The analysis of the survey will be used to identify the impact of the DOPS tool as perceived by learners and assessors.
Conclusions: This study will provide evidence of the validity and feasibility of DOPS by senior students and clinicians in the clinical setting. This study will also provide some insights into the development of the DOPS tool and how its use in simulated workplace performance is predictable to real workplace performance.
Take-home messages: DOPS is a robust assessment method which could ensure standards would be met and that satisfactory progress has been demonstrated.

8X9

Does personal character affect the results of clinical performance skill tests?
S J Shin[*1] and D S Lee[2] ([1]Dongguk University Ilsan Hospital, Internal Medicine, Seoul; [2]Dongguk University Kyungju Hospital, Pediatrics, Kyungju, South Korea)*

Background: The aim of this study was that the test scores about the clinical skill performance exams were affected by the personality traits.
Summary of work: Raw data were obtained from 57 in fourth-grade medical students. To assess personality types, we used the MBTI. Data were analyzed by appropriate statistical test in SPSS 13.
Summary of results: In total, 55 senior medical students were responded completely to the MBTI. The dominant personality types were ISTJ (23.6%, ESTJ(14.5%, and ISTP(10.9%). Each proportion of four paired MBTI dimensions was Introversion(I)-Extroversion(E)(67.3%-32.7%, Sensing(E)-iNtuision(N) (76.4%-.23.6%, Thinking(T)-Feeling(F)(61.8%-38.2%, and Judging(J)-Perception(P)(56.4%-43.6%). The first OSCE test showed higher scores in E or J compared to its counterpart, I or P ($p<0.05$, but this effect was not observed in the second OSCE test. The scores of physical examination and patient education in CPX test were higher in N, T or P compared to each counterparts ($p=<0.05$). There were no differences in other items and the total scores of CPX test.
Conclusions: Individual personality affects the test scores of several objects of clinical performance skill exams. Further study may be necessary to disclose whether the effect of personality could have faded away with the increase of student's experience and educational training, and also the reason why different influences of character traits on items in CPX test.
Take-home messages: Individual personality should be considered in assessing the clinical performance exams. Personality measurement might be a useful tool for counseling a students who have a difficulty in performance tests.

8X10

Reliability of a peer-approved checklist for evaluation of medical students' anesthesia reports
P Boonmak, S Boonmak, D Horatanaruang and P Bunsaengjaroen (Khon Kaen University, Anesthesiology Department, Thailand)*

Background: To study the reliability of a peer-approved checklist for scoring anesthesia case reports.
Summary of work: A report checklist was created by a tutor in the Department of Anesthesia, Khon Kaen University, comprising: 4 items on pre-anesthetic evaluation, 4 on pre-anesthetic preparation, 8 on intra-operative management, and, 5 on postoperative care. The checklist was pre-approved by all 14 anesthesiology tutors in the department. Each student prepared a case report which was evaluated by 4 tutors (in random order) using the checklist. The reports and checklist were collected for inter-rater and intra-class correlation analyses.
Summary of results: We included 30 anesthesia case reports. The kappa (κ) coefficient for each item was between 0.10 and 0.96: 3 items (14.28 %) had almost perfect reliability ($\kappa = 0.81$-1.00), 2 (9.53 %) substantial ($\kappa = 0.61$-0.80), 3 (14.28 %) moderate ($\kappa = 0.41$-0.60), 4 (23.81 %) fair ($\kappa = 0.21$-0.40), and, 12 (38.10 %) slight

(κ = 0.0-0.20). Intra-class correlation coefficients within each part were between 0.51 and 0.70. The whole anesthesia report had an intra-class correlation of 0.75.
Conclusions: Reliability of the anesthesia scoring checklist was low, despite improvements in the scoring checklist. The checklist for case report scoring should be further tested for reliability and improved before using.
Take-home messages: Improving some items with poor reliability and improving tutors' understanding of each item might make the checklist more reliable.

8X11
Testing of clinical examination skills in final year medical students in comparison to their third year performance
P Loose, S Störmann, M Holzer and M Angstwurm (Ludwig-Maximilians University, Munich, Germany)*

Background: Our goal was to assess final year students' clinical examination skills using an objective structured clinical examination (OSCE) and to compare them to prior performance.
Summary of work: The sample consisted of 99 final year medical students at the University of Munich, who had undergone an OSCE during their third year of studies. In their final year, at the beginning of the mandatory term in internal medicine of the practical year, the students repeated four physical examination stations from the OSCE. We compared the final test scores to prior performance.
Summary of results: We saw no difference in the students' third and final year scoring overall (68,5% ± 12,2 vs 68,75% ± 6,8). The individual stations showed considerable differences in the students' third and final year performance though. Final year students regarded the
repetition of clinical examination skills as being useful and a good idea.
Conclusions: The repetition of an OSCE showed no change in the mean performance of the students. The differences in individual stations' scores might be a result of differences in assessed competencies on each station. This is subject to further research.
Take-home messages: The practical performance of routine skills is similar in students with three and five years of clinical training.

8X12
Increasing Gerontological content into advanced practice nursing curriculum through the use of clinical simulation
L Kennedy-Malone and E Jones* (The University of North Carolina at Greensboro School of Nursing, Adult/Gerontological Nurse Practitioner Program, Greensboro, NC, USA)*

Background: Systematically assessing nurse practitioner students using modified objective structured clinical examinations (OSCEs) have become a means of measuring clinical competency of students throughout the nurse practitioner program. Challenged now to increase the gerontological content in advanced practice nursing programs, faculty should consider designing clinical simulations of common health conditions of older adults that students most likely will encounter upon graduation but may have had limited experience in the actual clinical setting.
Summary of work: In this presentation, faculty will discuss options in designing OSCEs that include the use of human patient simulators and various anatomical clinical trainers to determine clinical competency in caring for older adults. Short video vignettes of OSCEs using a high fidelity human patient simulator, lung auscultator and cardiac auscultator trainer will be shown. Faculty will also discuss the option of using a pelvic simulator model and a microscope to develop an OSCE for a gerontological gynecologic situation.
Summary of results: Suggestions for developing case study using anatomical simulators and human patient actors will be included.
Conclusions: : Carefully designed clinical simulations can be interspersed throughout the curriculum of any advanced practice nursing program that prepares graduates to care for older adults beginning with advanced assessment simulations and culminating with complex management scenarios involving an interdisciplinary team.
Take-home messages: Combining standardized patients with human simulators and anatomical clinical trainers enhances the ability of faculty to measure clinical competency.

8X13
The OSCE: A mirror for the quality of (clinical) teaching

A Dermine and N Druine (K U Leuven, Medical Education Unit, Belgium)*

Background: The final exam at the K U Leuven faculty of medicine consists of a 120 EMMCQ examination, the submission of a scientific paper and - since 2008 - an OSCE. During their observations the raters repeatedly asked for feedback in order to adjust their training programs. To adress this need, we performed a qualitative and quantitative evaluation of the results on the OSCE.
Summary of work: During the OSCE of June 2009 (288 students) comments on student performances were systematically collected from the raters. The response rate was 129/240.
For each station comments were reviewed by faculty. All feedback deemed relevant was listed.
In addition, p-values for each item on the checklist were calculated and those <0,5 were marked.
These findings were compared with the qualitative comments and translated into feedback messages.
Summary of results: Both analyses roughly lead to the same conclusions. Case sensitive as well as general issues arose.
Conclusions: Overall it appeared that our students do not work in a systematic manner and it has become clear that more direct observation during their clerkship is desirable.
Take-home messages: The OSCE results are a rich source for feedback. Combining qualitative and quantitative analyses of the results seems a useful way to generate feedback on the curriculum.

8X14

Promote the quality of clinical nursing care with objective structured clinical examinations (OSCES)

Y E Lin, C Y Chen, W P Yu and H M Han (Chang Gung Memorial Hospital, Chang Gung Medical Foundation, Linkou, Taoyuan, Taiwan)*

Background: This project aimed to promote learning clinical skills satisfaction and the patient safety in new staffs. With a step by step guide to mastering the OSCEs and solving and improving the care skills and patient safety.
Summary of work: We collected current care conditions of a total of 102 staffs. Statistical analysis of surveys on nurses' skills that new staffs felt needed urgent assistance showed a 96.78% of accuracy on knowledge of clinical skills. We used the following methods to improve the project: 1) Correct administration of medicine. 2) Injection and Infusion pump control, 3) Preparation and transfusion of blood. 4) CPCR and assist use defibrillator equipments. We arranged the clinical OSCEs before caring patients and compared with no arrangements OSCEs training.
Summary of results: After all the above interventions, nurses had higher accuracy on knowledge of above skills (98.33%, 97.30%, 94.17%and 95.33%, respectively). The completeness of before job training care abilities had been promoted from 88.05% to 96.28% (promote 8.23%)
Conclusions: This project set an example for hospitals to improve clinical practice environment to increase safety of administration. We build up care standards and environmentally clean working standards for new staff.
Take-home messages: These findings may provide the required further study and provide some suggestions for the nursing education.

8X15

Efforts in the field of OSCE for occupational therapy education in Japan

Chicaco Inoue[1],Takaji Suzuki[2],Tsuneto Furuta[3],Takamasa Mizuno[3],Hirokazu Nishikata[3] and Kurosawa Yaoko[3] ([1]Nippon Medical School; [2]School of Nursing and Rehabilitation Sciences at Odawara, International University of Health and Welfare; [3]Bunkyo Gakuin University, Tokyo, Japan)*

Background: There are rarely had examples that standardized patients (SP) participated in OSCE for the occupational therapy (OT) education in Japan. OT students (OTS) in order to implement the OSCE, it is desirable to develop the scenarios which enable to evaluate the skills and knowledge. Here we report on two scenarios of OSCE in OTS we developed.
Summary of work: In OSCE, the student's clinical ability was then appraised thorough their interview manner, observation skills, interpretation of results, and supporting explanations. Two scenarios based on supposed conditions were devised. 1) Cerebrovascular accident (left hemiplegia), Medical interview and Observations of bathing activity. 2) Schizophrenia patient, Medical interview and Observations of beads work. With these scenarios, SP's performances were developed for: 1) SP acted to ignore the left side of his/her body, slow-

reaction. 2) SP acted speaking without expression (monotone voice), fidgeting, and fail to beading work based on specific rules. Additionally, the effective usefulness of these scenarios was verified by use in OSCE with third year OTS.
Summary of results: It was possible to evaluate the results of clinical training of occupational therapy.
Conclusions: The development of scenarios for OSCE in OTS has increased the range of conditions which can be used for OT education in Japan.
Take-home messages: OSCE, standardized patients (SP), occupational therapy education in Japan

8X16
Student collusion in Objective Structured Practical Examination (OSPE)
P Bjelogrlic and A Laidlaw (University of St Andrews, Bute Medical School, St Andrews, UK)*

Background: Several factors may create grade drift during an Objective Structured Practical Exam (OSPE), including examiner fatigue, simulated patient fatigue and student collusion. The aim of this study was to determine whether, during an OSCE such grade drift occurred, its relation to student collusion, and whether station titles should be revealed to the students in advance of the exam.
Summary of work: The grades of third-year undergraduate medical students (n=269 in two cohorts) completing a (6-station OSPE) were used in this study. One cohort had titles of stations released before the exam and a second did not. Average scores of students throughout the day were compared.
Summary of results: After comparing mean scores one station (Anatomy of the head and neck) had statistically significant increase in grades as the day progressed ($F = 2.7$, $n = 269$, $P = 0.008$) in both cohorts.
Conclusions: As the grades of both cohorts of students, those who had received the title of the station and those who had not, drifted upwards through the examination day it seems unlikely that student collusion is responsible. Putative reasons for this drift are further explored.
Take-home messages: Releasing titles had no effect on the grade drift during an OSCE.

8X17
Developing a Team Objective Structured Clinical Examination (TOSCE) to assess airway management competences of anaesthesia residents
M Rewers, M R Gätke, C Rosenstock, B Ruhnau, K Nielsen and Doris Østergaard (Danish Institute for Medical Simulation (DIMS, Herlev Hospital, University of Copenhagen, Denmark)*

Background: Objective Structured Clinical Examination (OSCE) has been used as a pre- and post-graduate summative assessment tool. We speculated whether Team OSCE (TOSCE) could be used as a formative assessment tool in a national mandatory 3-days airway management simulation course.
Summary of work: Aims: To develop and evaluate a TOSCE to assess anaesthesia residents' competences, with focus on reflective learning. Methods: Seven checklists, each comprising 8-12 items, were developed by a group of specialists to assess competences in airway management skills and non-technical skills. After a pilot test, the assessors refined checklists before implementation. The residents got immediate feedback in the end of each station.
Summary of results: Eighty four anaesthesia residents have participated in the 7-station TOSCE since 2008. A total of 94% rated the TOSCE content as "very good"/"good", and 96% rated the TOSCE form as "very good"/"good". The residents found this type of formative assessment to be very useful, because it summarized the main learning objectives of the 3-days course and gave room for reflection of their competence level.
Conclusions: TOSCE can be used as a formative assessment tool to assist learning and enhance the residents' awareness of their competence level, which might support transfer to clinical practice.
Take-home messages: TOSCE is useful for formative assessment.

8X18
The effect of formative directly observation procedural skills assessment on summative objective structured clinical examination in surgical skills

Ming-Ju Hsieh[1], Pyng-Jing Lin[1], Yi-Yin Jan[2], *Shih-Tseng Lee[3] and Jeng-Yi Wang[3] ([1]The Division of Thoracic and Cardiovascular Surgery; [2]Section of General Surgery; [3]Department of Medical Education, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan)*

Background: This study aims to explore how the formative directly observation procedural skills (DOPS) assessment influences junior resident trainees' performance of summative objective structured clinical examination (OSCE) in surgical skills.
Summary of work: Fifty-nine junior resident trainees (25 year-1 residents and 34 year-2 residents) participated in this study, 12 received formative DOPS assessment in basic surgical suture and aseptic concepts (DOPS S&A) before OSCE within one year. All trainees then took a fourteen-station summative OSCE which included a suturing and aseptic concepts assessment station (OSCE S&A).
Summary of results: There were significant improvement in OSCE S&A performance in DOPS trainees than non-DOPS trainees (p=0.048). There is also a highly significant association between in DOPS S&A performance and OSCE S&A performance in DOPS trainees (p=0.016).
Conclusions: Receiving formative DOPS of S&A before summative OSCE enhances the performance is OSCE S&A. DOPS seems a good assessment and training tool for OSCE performance in surgical skills. The trainees' performance of OSCE was effectively predicted by performance of DOPS in both the similar skills. Therefore more attention should be paid to those who perform poorly in DOPS before summative OSCE, since they would not do well in later summative OSCE without further training.
Take-home messages: DOPS is a good assessment and training tool for OSCE performance in surgical skills.

8X19

Item quality assessment in multiple stations examinations

Vitor Hugo Pereira, Frederic Ramalho, Isaac Braga, Nuno Sousa and João Cerqueira (School of Health Sciences, University of Minho, Campus de Gualtar, Braga, Portugal)*

Background: Multiple-station examinations are commonly used in anatomy to assess application of concepts in realistic settings. In the current project we describe a model for item-quality assessment in MSE.
Summary of work: Examinations are delivered at the end of each learning module (total 10). Students rotate through a variable number of 1 min "stations" of diverse materials (cadaveric specimens/imagiology films) and required to answer a question, point a structure or solve a clinical problem. Each item is rated according to an item-specific rating scale, partial responses being considered. We developed a set of item quality indexes, adapted from those commonly used to assess MCQs.
Summary of results: Item difficulty was estimated by the average item score. To assess item discrimination, we correlated (point biserial) each student's score for a given item with the inclusion of that student in the high- or low performance group (defined as >70th or <30th percentiles of total test score). Application of this analysis to the exams of a full year allowed us to identify items suitable for banking and problematic items that need to be improved before future use.
Conclusions/Take-home messages: Item quality assessment of multiple station examinations in anatomy is feasible and can promote effective item banking.

8X20

Rating scales for Standardised Clinical Assessments (OSCEs): Global rating versus checklists

K Hawthorne, R Knight* and M Selby* (Clinical Skills Assessment (MRCGP), Royal College of General Practitioners, London, UK)*

Background: Which is better for OSCE marking, checklists or global ratings? OSCEs have been marked by role players and clinicians using detailed checklists that ask binary questions - did the candidate perform the activity or not? But checklists don't seem to capture integrated, holistic consulting skills. Global rating methodology may superficially appear to lack standardisation and reliability, but has been shown to correlate well with more 'objective' measures of performance. The Clinical Skills Assessment (MRCGP) has been developing expertise in global rating methods, which we would like to describe in this poster. The presentation covers: (1) Summary of the evidence base for global rating; (2) Explanation of the CSA method and the tools developed to quality assure standards - calibration exercises, grade word pictures and melding generic indicators of performance with case specific marking schedules; (3) Tips for success: Opportunity to discuss application of the tools to your own marking situations.

Intended outcomes: (1) Summary of the evidence base for global rating; (2) Explanation of the CSA method and the tools developed to quality assure standards - calibration exercises, grade word pictures and melding generic indicators of performance with case specific marking schedules; (3) Tips for success.
Who should read the poster: Educators with experience of OSCEs who wish to explore the possibilities of global rating methods in their own assessment contexts.

8Y Workshop: The PBL Experience at the University of Glasgow Medical School (to be held at University of Glasgow Medical School)

J Burke, C Ditchfield*, M A Flynn*, S Jamieson*, A O'Dowd*, N Sartania*and L Willerton* (University of Glasgow, Wolfson Medical School Building, Glasgow UK)*

Background: PBL is used in many medical schools worldwide. Fourteen years ago, the University of Glasgow radically changed its curriculum to a student centred programme using PBL, largely in response to the recommendations made by the GMC. In PBL sessions the students work through seven "Glasgow Steps" based on those used at the University of Limburg, Maastricht. The students are encouraged to define their own learning goals by the facilitator, guided by pre-set learning objectives, and learn about all areas in an integrated manner.
Intended outcomes: This workshop will provide delegates with the opportunity to experience PBL as learners in a simulated facilitated session which will serve as a means to generate discussion on issues arising from the use of this learning approach. Participants will 1) Understand how students learn in Years 1 and 2; 2) Describe how a PBL session is structured including roles of group members; 3) Describe their experience as members of a PBL group; 4) Outline how knowledge is integrated via the PBL scenario.
Structure: Small group PBL activity with an experienced facilitator using a MBChB Year 2 scenario (1 hour) followed by a large group discussion and evaluation (30 mins).
Who should attend: Healthcare educators with an interest in PBL.
Level of workshop: Beginner.

SESSION 9

9A Plenary: Trends in Medical Education – why is there a need for a regulator?

Jim McKillop (Chair of Undergraduate Board, General Medical Council, UK)

This presentation will explore the role of a national regulator in medical education, which is of considerable relevance at this time of rapid and substantial changes in medical education. Following a discussion of the diversity of medical education and its regulation in Europe, the UK situation will be used to illustrate a number of generic issues.

The General Medical Council (GMC) now has a statutory responsibility for all stages (Undergraduate, Postgraduate and CPD) of medical education and training in the UK. The lecture will examine the importance of the regulator in encouraging innovation and in supporting appropriate changes through its key functions of developing standards and assessing delivery of them by those providing education. After outlining the requirements the GMC sets for the various stages of education and training, the approach will be illustrated in more detail by considering the standards set for undergraduate medical education in Tomorrow's Doctors. Following a discussion of some key principles of Quality Assurance by a regulator, the importance of professionalism and ensuring individual fitness to practise will be emphasised.

The presentation will finish with an analysis of some challenges facing regulators of medical education.

9B Plenary: Perspectives on Professionalism

Fred Hafferty (Professor of Medical Education, Program in Professionalism & Bioethics, Mayo Clinic, USA)

Professionalism is on today's agenda in medical education. There remains some confusion, however, about what is meant by the term, with a range of interpretations promoted from different perspectives. This presentation highlights the different professionalism movements including an international perspective with comparative studies from different countries. The significance of professionalism for the training of the doctor of the future has important implications for curriculum development, for the learning opportunities provided and for the assessment methods adopted.

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SESSION 10

10A Symposium: The Curriculum and Training the Future Healthcare Professional

Panel: Trudie Roberts (University of Leeds Medical School, UK) (Chair); Jim McKillop (Regulator, Undergraduate Board for GMC, UK); Elaine Brock (Patient); Klarke Boor (Netherlands); (Fedde Scheele (Netherlands); Cees van der Vleuten (Discussion leader) (Netherlands); Mereke Gorsira (Scribe) (Netherlands)

This symposium will look at how well present curricula are preparing the doctor for the future and who has a legitimate stake in dictating what goes into those curricula.

Following an introduction to symposium, there will be presentations from:
Professor Jim McKillop (Regulator; Undergraduate Board for the GMC in the UK) – What should medical school's curricula provide?
Elaine Brock (Patient) – What do you expect from a newly qualified doctor?
To be confirmed (Employer) – What do I expect from a newly qualified doctor?
Dr Klarke Boor (Resident) – Learning climate

Professor Fedde Scheele (Clinician) – Making clinical errors
After the presentations the audience will be invited to discuss with the panel the messages for the future curriculum. During the wrap-up the panel will be asked to prioritize one message. The session will be recorded by a scribe.

10B Symposium: Postgraduate Education and Continuing Professional Development

Panel: Stuart Macpherson (Former Chair of PMETB, UK) (Chair); John Collins (Visiting Professor, Nuffield Dept of Surgery, UK); John Jenkins (Queens University Belfast, UK); Bernard Maillet (Secretary General, European Union of Medical Specialists, Belgium); Al Aparicio (CPD Director, American Medical Association, USA)

Postgraduate medical education and continuing professional development have become issues of global significance, appeal and dimensions. This session will explore current trends internationally, and how postgraduate education and CPD can best contribute to the training of the doctor of the future. Issues discussed will include the expected learning outcomes and competencies, the application of new learning technologies, the use of performance-based and on-the-job assessment, the role of the trainer or tutor and the problem of the under-performing doctor.

10C Short Communications: Staff/Faculty Development 1

10C1

Making good doctors good teachers

K Foster[1] and R Laurent[2] ([1]University of Sydney, Sydney Medical School Northern; [2]Royal North Shore Hospital, Sydney, Australia)*

Background: Doctors are expected to teach but many are reluctant through lack of teacher training. In response to requests from clinicians who were keen but lacked confidence in their teaching skills we developed an education program tailored specifically to their needs. The emphasis was on developing expertise in teaching effectively in busy clinical environments.
Summary of work: The program had five ninety-minute modules. These were; Bedside Teaching, Feedback and Supervision, Teaching Physical Examination and Small Group Teaching, Facilitating Development of Clinical Reasoning Skills and Giving Effective Lectures. An experienced medical educator and a senior hospital clinician facilitated the course. It was practical, highly interactive and given in a supportive and collaborative learning environment.
Summary of results: Eighty-one clinicians have participated in the course. The main outcomes were increased confidence in bedside teaching, teaching more effectively on ward rounds and reduction in need for support with teaching. Participants reported a better understanding of basic educational theory and its relevance to clinical teaching.
Conclusions: All clinical teachers require guidance and encouragement in developing their teaching skills. A teaching course must be practical and provide skills relevant and applicable to their teaching environment.
Take-home messages: A short focused teaching course can improve clinicians' teaching skills and motivation to teach at all levels.

10C2

Creating master teachers with a nod to deliberate practice

L J Cooke[1], K McLaughlin[1], A Peets[2], T Donnon[1] and B Wright[1] ([1]University of Calgary, Alberta; [2]University of British Columbia, Vancouver, British Columbia, Canada)*

Background: Deliberate practice (DP) has been shown to enhance learning and performance in athletics, music, and procedural skills. This presentation describes how principles of deliberate practice were used to design a training program for medical teachers.
Summary of work: The University of Calgary, Faculty of Medicine initiated the Master Teacher program in 2007 to address the need for more preceptors to teach an expanding medical school class. All Master Teachers are expected to complete the Teaching Scholars in Medicine Certificate Program (TSIMP), a one-

hundred-hour program of faculty development blending educational theory with skills-based teaching experience, feedback, and reflection. The TSIMP curriculum design was centered on principles of DP. Evaluation occurred across all four of Kirkpatrick's levels (reaction, learning, behaviour, and results), using qualitative and quantitative measures, including semi-structured interviews, retrospective pre-post self-efficacy ratings, teacher ratings, and student performance.
Summary of results: The curriculum was favourably evaluated by all participants, with enhanced self-efficacy in teaching performance, the development of a spontaneous community of learning amongst the Master Teachers, and excellent teacher ratings by students.
Conclusions: The Teaching Scholars in Medicine Certificate Program enhances self-efficacy of medical teachers in their teacher role.
Take-home messages: Employing principles of DP in designing Faculty Development initiatives may enhance efficacy of the initiatives.

10C3

What is a teaching style, and does it matter?
A Stokes (University of Oxford, Department for Continuing Education, Oxford, UK)*

Background: Several inventories have been developed for use by health professionals to promote reflection on teaching. These tools involve a scoring mechanism and indicate a profile described variously in terms of 'teaching perspectives', 'teaching approaches' or 'teaching styles'.
Summary of work: A critical review of the literature has been undertaken to explore the theoretical positions, conceptual frameworks and empirical evidence associated with these inventories, and their use in faculty development.
Summary of results: There is considerable variation in the extent and quality of the evidence-base and in the explicitness and coherence of the associated theoretical frameworks. The evidence-base relates to two levels: the validity of the constructs employed in the inventory and the evidence of the value of using the inventory in developing teaching expertise.
Conclusions: The findings raise ethical and pedagogical issues relating to the use in faculty development of tools which lack an evidence-base but which have been found to have heuristic value in teaching development.
Take-home messages: Just because a faculty development tool lacks an evidence base does not mean we shouldn't use it, but the ways in which it is used and the point at which critical questioning of the evidence base comes to the fore need careful consideration.

10C4

To teach is to learn: The impact of bedside teaching on the clinical skills of clinician-teachers
M D Wenrich, M B Jackson and K Ajam (University of Washington School of Medicine, Seattle, WA, USA)*

Background: The relevance of bedside teaching for advancing clinician-teachers' own clinical skills has received little attention. If bedside teaching advances physicians' skills, then it has unique, extrinsic value. This study examined the impact of bedside clinical-skills teaching on faculty's skills and patient care.
Summary of work: Semi-structured interviews with 31 faculty at one medical school; maximum three interviews per faculty over five years. We elicited insights about a curriculum focused on year-long bedside teaching for pre-clerkship students. One question was: "To what extent has teaching influenced your own clinical skills?" Grounded theory guided analyses.
Summary of results: Nearly all faculties believed bedside teaching improved their own clinical skills. Three process themes emerged: 1) constructing knowledge/skills (relearning, refreshing, new learning); 2) deconstructing clinical experiences (slowing down, deepening/expanding practice, increased process awareness, practicing at more basic level); 3) reconstructing the mindful practice (held to a high standard, seeing patients through students' eyes). Two outcomes themes emerged: 1) skills improvement (physical examination, interviewing, critical thinking); and 2) implementing a mindful practice (increased self-confidence, enjoyment, patient-centeredness).
Conclusions: Faculty who performed sustained bedside teaching perceived substantial benefits for their own skills and practices.
Take-home messages: Sustained bedside teaching is an effective faculty-development tool and source of clinician-teacher skill enhancement in addition to teaching students.

10C5

Clinical teaching improvement: The transportability of the Stanford Faculty Development Program

J Johansson[1], K Skeff[2] and G Stratos[2] ([1]Department of Surgical Sciences - Anaesthesiology & Intensive Care, Uppsala University Hospital, Sweden; [2]School of Medicine, Stanford University, USA)*

Background: The Stanford Faculty Development Center (SFDC) developed a teaching improvement course for medical teachers that has been widely disseminated, using a train-the-trainer model. We were curious to see if cultural factors might influence the applicability and impact of the course when delivered to non-American participants by a facilitator from their culture.
Summary of work: A Swedish anaesthesiologist was trained in October 2004 at Stanford University School of Medicine. During 2005-2007 he delivered five faculty development seminar series at Uppsala University Hospital to 40 physicians. Participants rated the usefulness of the seminar series and retrospective pre- and post-seminar ratings were used to assess effects on participants' teaching skills and behaviours.
Summary of results: Participants rated the seminars as highly useful (M=4.8, SD=0.4). Participants' ratings of their teaching ability indicated significant increases across a variety of clinical and non-clinical teaching settings ($p<0.001$), and positive changes in self-ratings of teaching behaviours were found for all seven educational categories assessed ($p<0.001$).
Conclusions: This faculty development model is highly transportable to medical teachers in Sweden, and capable of producing positive results, consistent with those found in the United States.
Take-home messages: Cultural factors did not influence the impact of an American faculty development program when transported by a Swedish facilitator to Sweden.

10C6

Institutional Impact of Individual Faculty Development Projects

D Diserens[1], S Friedman[1], E Amaral[2], H Campos[3], T Chacko[4], T Singh[5], A Supe[6], P Morahan[1], W Burdick[1] ([1]FAIMER, Philadelphia, USA; [2]Universidade Estadual de Campinas, Sao Paulo, Brazil; [3]Universidade Federal do Ceará, Fortaleza, Brazil; [4]PSG Institute of Medical Sciences and Research, Coimbatore, India; [5]Christian Medical College, Ludhiana, India; [6]GS Medical College, Mumbai, India)

Background: A central element of the FAIMER fellowships is the education innovation project. Projects address change in curriculum, assessment, teaching methods, community activities and other areas. In implementing projects in their home institutions, Fellows apply change management and leadership skills gained through the fellowship. Projects, in addition to being vehicles for adult learning, also provide the opportunity to create and evaluate sustained institutional change.
Summary of work: Sixty-four percent of the 2007 classes from FAIMER's four regional programs in India and Brazil completed an online survey 6-9 months after fellowship completion, answering questions about institutional impact of their projects.
Summary of results: Data show that approximately one-third of projects were incorporated permanently in institutional curricula, policies or procedures. A majority indicated their project was replicated somewhere else; its scope had widened to other subjects, years, departments and/or institutions; and that it had involved faculty from other departments. The primary project facilitators were a core group of faculty and availability of pilot data. Project barriers included workload and faculty opposition.
Conclusions: Individual faculty development projects can have institutional impact, including permanent change in curricula and development of faculty groups focused on educational improvement.
Take home message: Across geographic regions, individual innovation projects have institutional as well as individual results.

10D Short Communications: Clinical Teaching 4

10D1

Patient-centered learning at an education ward-first year nursing students perceptions

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Background: Studies have shown that students appreciated patient-centered learning and education wards where they can practice their profession under authentic but controlled conditions. At an education ward at Karolinska University Hospital nursing students are on rotation during six weeks. Four nurses, one nursing assistant and one doctor participate in supervision. It is the first clinical placement for the students. The goal is to train students in their profession and to practice teamwork with other students and healthcare professionals.
Summary of work: In this study first year nursing students' perceptions of what they learn from their encounters with patients, supervisors, the clinical environment, other students and people with other professions during clinical practice at an education ward was analyzed. Semistructured individual and group interviews with 19 students after their first clinical practice were conducted.
Summary of results: The results show that patients are the main source for students learning. Taking care of patients independently and together with other students under support from supervisors supports their learning.
Conclusions: Practice at an education ward gives students a holistic perspective on patient care and running a ward.
Take-home messages: Practice under authentic but controlled conditions early in the education stimulates students understanding of the nursing profession.

10D2

The impact of a basic clinical and communication skills education during preclinical years on the anxieties of male and female students commencing clinical practice

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Background: Many medical students experience considerable anxiety that may have negative effects on their learning and performance when starting clinical practice.
Summary of work: We aimed to determine the impact of a basic clinical and communication skills education during preclinical years on the anxieties of medical students starting clerkships. The first group (n=86) entered the study in 2001 and took no basic clinical and communication skills education. The second group (n=142) entered the study in 2007, after the implementation of a 3-year basic clinical and communication skills education during the preclinical period. In order to evaluate the perceived anxiety researchers conducted a questionnaire with 39 issues presented as 4-point Likert scales.
Summary of results: The first group had significantly higher anxiety for 8/39 situations. More detailed analysis showed that females had significantly higher anxiety; 2001 female group showed higher anxiety for 22/39 situations, males had higher anxiety for 1/39 and 2007 female group showed higher anxiety for 12/39 situations. 2007 male and female groups expressed less anxiety for 2/39 and 13/39 situations respectively.
Conclusions: Female students showed significantly higher anxiety. Differences in rankings between males and females were consistent between 2001 and 2007. The preclinical training program was considerably more effective for females.
Take-home messages: Preclinical education helps reduce anxiety when starting clerkships.

10D3

Why parents and children become involved in medical student teaching

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Background: This is the first study to examine why parents and children of different ages admitted to hospital agree to become involved in medical student teaching. We wanted to establish whether they considered they needed to give consent before becoming involved, whether this was routinely sought and what influenced their decisions.
Summary of work: 105 parents of children less than 6 years old and 34 children between 10 and 15 years old and their parents completed a questionnaire. 32 children between the ages of 6 and 10 years and their parents were interviewed using a semi-structured interview.
Summary of results: Most parents and children are prepared to see medical students, consider they have a responsibility to teaching, however consent must always be asked for. Both are motivated by altruism, however, fear of emotional distress or pain can lead them to refuse. There were some minor ethnic

differences in the reasons given for seeing medical students. There were no major differences based on previous experience of seeing students or between parents and children.
Conclusions: It is reassuring that parents and children have such a positive attitude to student teaching.
Take-home messages: Our students can be reassured that children and parents admitted to our hospital that they are prepared to help them learn clinical skills.

10D4

Enhancing clinical learning in the workplace

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Background: The HEA-NTFS funded 'Enhancing Clinical learning in the Workplace' (ECLW) project seeks to gain a critical understanding of the clinical workplace from the student and placement provider perspectives. This is a collaborative project between the Royal Veterinary College (RVC) in London and the Schools of Veterinary Medicine and Science (SVMS) and Education in Nottingham.
Summary of work: Pilot studies were conducted in RVC and SVMS over two months with two groups of students and placement providers. A digital audio recorder, digital video camera and notepad were used to record interviews and unstructured observations.
Summary of results: Students and placement provider expectations were congruent, both valuing experience of surgical procedures and the chance to develop consultation skills. During the placements, students became more aware of the essential role of paraprofessionals in the workplace. They recognised that workplace learning is dependent on caseload and is therefore often 'unexpected'. They also reported a 'big jump' between theory and practice, valuing this experiential component of their training in an unpredictable and complex environment.
Conclusions/Take-home messages: The clinical workplace is of critical importance in preparing students for 'day one' of professional practice. Emerging themes from the pilot studies include student development of interprofessionalism, contextualisation of theory and practice and attainment of core competencies.

10D5

Effectiveness of an educational video as an instrument to refresh and reinforce the learning of a nursing technique: A randomized controlled trial

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Background: The Undergraduate Nursing Course has been using videos for the past year or so. Videos are used for many different purposes such as association, nurse refresher courses, reinforcement, sharing and comparison of knowledge with the professional and scientific community. However, there is little evidence on the efficacy that video has on learning.
Summary of work: The purposes of this study were to estimate the efficacy of the video (movement of a patient not collaborating from the supine to the lateral position) as an instrument to refresh and reinforce nursing techniques. A two arm Randomized Controlled Trial (RCT) design was chosen: both groups attended lessons in the classroom as well as in the laboratory; a month later while one group received a paper format as a refresher, the other group watched the video. Both groups were evaluated by blind evaluators with a measuring instrument that could supply a range of values between 0 and 53.
Summary of results: Two hundred and twenty-three students accepted to take part in the study. The difference observed between those who had seen the video and those who had read the technique turned out to be on average of 6,19 points in favour of the first ($p<0,05$).
Conclusions: The results of the RCT demonstrated better adhesion to the technique among students who had seen the video, obtaining greater performance. Therefore videos could be useful tools to refresh and reinforce concepts learnt during nursing courses.
Take-home messages: The use of educational videos could become a routine instrument for student training.

10D6

A study to investigate the effects of incorporating human factor training into immediate life support training for final year medical students

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Background: Resuscitation of patients in cardiac arrest is a particularly stressful time for healthcare workers. The incidence of human factor related errors is likely to be particularly high at this time. Formal human factor training in healthcare remains the exception rather than the norm and its impact is still not understood. The aim of this study was to evaluate the effects of interventional human factor training on team performance during cardiac arrest scenarios in the undergraduate population.
Summary of work: 24 final year medical students were randomised to receive either standard Immediate Life Support (ILS) training or ILS integrated with human factor training. Test scenarios were then video recorded and marked using the Anaesthetic Non-Technical Skills (ANTS) system by a blinded observer. Time to institution of Basic Life Support, rhythm recognition and defibrillation were also assessed.
Summary of results: Participants receiving human factor training showed significantly better non-technical skills both in aspects of task management and team working. They also showed a trend towards more rapid rhythm recognition and defibrillation.
Conclusions/Take-home messages: Incorporating Human factor training into intermediate life support training is effective in behavioural modification in final year medical students and may improve overall conduct of resuscitation. Further studies are required to ascertain wider applicability towards resuscitation training.

10E Short Communications: e-Learning Case Studies: Postgraduate

10E1

The engagement of postgraduate medical trainees with e-learning

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Background: In the United Kingdom, a proliferation of internet-based and other e-learning materials have been produced by the professional bodies responsible for the postgraduate accreditation of clinicians, learned societies, deaneries and other institutions involved in postgraduate clinical training. Despite this, it is unclear how fully trainees engage with e-learning materials.
Summary of work: We have explored the views of recent medical graduates and respiratory trainees using questionnaires (n=98), telephone interviews (n=13) and three nominal group technique sessions (n=21 participants). All the doctors were recruited from two hospitals in a single London-based NHS Trust.
Summary of results: Although over 90% of junior doctors reported using the internet at least once a week for educational purposes, fewer than half (41%) actually accessed the online material they were requested to study prior to a timetabled teaching session. Senior trainees seem to be generally enthusiastic about the use of e-learning tools, but stressed the importance of social interaction with peers and none was willing to substitute more than half of their face-to-face training days with e-learning activities.
Conclusions: Much remains be to discovered about the perceptions of e-learning materials by doctors in training.
Take-home messages: Despite apparent enthusiasm, there is a mismatch between reported and actual engagement with e-learning by postgraduate clinical trainees.

10E2

Mixing, Muddling or Meddling? Social engineering in group allocation on an online medical education programme

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Background: This paper explores the impact of group allocation on learner interaction on an online programme. Often learners are allocated groups on a random basis, or by determining categories of learners and assigning group membership accordingly. The Postgraduate Certificate, Diploma and Masters online programme at Cardiff has adopted a different approach in order to explore the effects of different group selection criteria on the levels of learner participation in online group discussions and activities.
Summary of work: Students were allocated groups using the following methods: 1) Random allocation of students, 2) Mixed groups of learners with high and low participation levels, 3) Separate groups of learners with high and low participation levels.

Summary of results: An analysis of the number and type of online postings made by students in different groups was undertaken. Levels of participation and interaction were considered. Posts were categorised and thematic analysis was conducted.
Conclusions: Manipulating the composition of discussion groups has impacted upon patterns of group behaviour. Issues are raised regarding potential for significant impact on the quality of learning experiences and the role and influence of the programme leader in assigning learners to groups.
Take-home messages: In order to ensure educational experiences are maximised for all learners, group allocation issues should be considered.

10E3

Electronic tools for tutoring residents

Teresa Martinez-Cañavate and Jose Luis de la Rosa (Iavante Foundation, Regional Ministry of Health of Andalusia, Spain)*

Background: More than 1500 tutors work in the public system of health in Andalusia in the education of around 6000 residents. The Regional Ministry of Health of Andalusia principal to provide electronic tools to improve education management.
Summary of work: The Regional Ministry of Health has developed a collection of electronic tools that support the tutors in the education of residents and monitoring the progress of learning, such as electronic interviews and meetings, continuous assessment in activities like clinical sessions, internal and external rotations, yearly and final evaluation, etc.
Summary of results: A centralized information system supports the activities of education has been deployed in a context with more than 10000 people working on residents education with an increasing 80% of satisfaction from all implied parties.
Conclusions: The electronic tools are a leading solution to increase the time that tutors dedicate to residents' education and provides a sound base to detect needs in the education system from a global point of view.
Take-home messages: Electronic tools for residents' education and tutoring provide an efficient way to improve the process of residents' education.

10E4

Impact of implementation of an e-Learning programme on Electronic Foetal Monitoring

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Background: In 2005 an e-Learning programme on Electronic Foetal Monitoring (EFM) was developed at a delivery ward with 4900 deliveries per year to enhance the quality of interpretation.
Summary of work: The programme consists of a theoretical module and a module with 16 interactive cases including tests. Midwives and doctors working at the delivery ward are expected to pass the programme within the first three months of employment. The head of the delivery ward has access to information on who completes the course. Midwives are reminded to complete the programme by the chief midwife, whereas less pressure is put on the doctors.
Summary of results: In March 2010, 94 midwives and 37 doctors worked at the delivery ward. Seventy-nine (84%) of the midwives and 19 (51%) of the doctors have completed the programme. The programme is well accepted by the midwives, whereas doctors are less likely to complete the course. Since implementation of the programme misinterpretation of EFM traces and the frequency of severely acidotic newborns have decreased.
Conclusions: Implementation of an E-Learning programme resulted in improved interpretation of EFM and a decrease in adverse outcome for the newborns.
Take-home messages: e-Learning programmes can enhance clinical practice. Support of the head of department is important for successful implementation.

10E5

Stroke Training: A partnership between the NHS and the voluntary sector

Lynn Reid (Chest, Heart & Stroke Scotland, Edinburgh, UK)*

Background: Following the Scottish Stroke Services Audit (1999) Chest Heart and Stroke Scotland (CHSS) commissioned the Scottish Association of Health Councils to undertake a survey of patient and carers' views of Scottish stroke services. Results from this survey suggested that staff caring for people following stroke often showed a lack of awareness of the specific challenges that stroke presented. In partnership with NHS Lothian a training and education needs assessment was carried out for all staff working in the area of stroke management.
Summary of work: Stroke training began in Lothian in 2001 and has since been developed in partnership with the stroke managed clinical networks in seven of fourteen NHS boards in Scotland.
Summary of results: The training is offered to all members of the MDT and to all grades and bands. Chest, Heart and Stroke Scotland, in partnership with NHS Education Scotland and the University of Edinburgh, have also developed a stroke e-learning resource on the WWW to ensure equity of training provision throughout Scotland.
Conclusions: The stroke training courses and the stroke e learning resource have been cited in the NHS QIS Stroke Services Review (2005) and the Better Heart Disease and Stroke Care Action Plan (2009) as examples of good practice.
Take-home messages: This stroke training partnership has proved to be extremely successful and is supported by the National Advisory Committee for Stroke in Scotland.

10E6

Assessment of learning achievements in an e-Learning course on Avian influenza, for official veterinarians
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Background: The Italian Ministry of Health and the National Reference Centres for Epidemiology and Avian Influenza, implemented an e-Learning course on avian influenza for official veterinarians involved in disease outbreak management, laboratory diagnosis and policy making. Tutor-supported self-learning, collaborative learning, and virtual classes were used. The course lasted 16 hours, spread in four weeks. Learning evaluation assignments required different skills: comprehension and memory for tests, problem solving for project work and case-study, and communication skills for press release.
Summary of work: Learning evaluation assignments required different skills: comprehension and memory for tests, problem solving for project work and case-study, and communication skills for press release.
Summary of results: All 705 participants completed the evaluation. 96.2% considered the course very good, nobody gave negative evaluations. Results also showed that Italian official veterinarians are improving their confidence with ICT. The increased expertise allowed them to manage different assignments requiring an enhanced level of expertise in the use of e-Learning tools and in the management of social dynamics.
Conclusions: Cross-competences directly influence the final outcomes of e-learning activities and affect the quality of learning results.
Take-home messages: The learning environment should be implemented so as to support the development of such skills being them relevant for achieving learning objectives.

10F Short Communications: Assessment: Feedback

10F1

Assessment driving learning: introducing formative workplace based assessments into the curriculum
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Background: Students request more feedback on their skills but the frequency of observed practice on clinical attachments is variable. Clinical attachment assessment was reshaped in order to give focused feedback to students via the assessment structure and introduction of workplace based assessments (wpbas).
Summary of work: A generic assessment structure was devised, comprising four elements (attendance; clinical practice; practical procedures and professional behaviour). In addition to supervisor grades and completion of formative wpbas (but not level of achievement) contribute to the element grade. The grades for each element accrue and an algorithm determines the final grade, except for professional behaviour where final grades are determined by a committee.

Summary of results: To date, 280 students have completed 562 clinical attachments. Of these attachments, 'attendance' was less than acceptable in six (1.1%), acceptable in 157 (28%) and excellent in 399 (71%) and 'professional behavior' was less than acceptable in four (0.7%). Regarding 'clinical practice', in 253 (45%) attachments students were excellent and in 4(0.7%) attachments were less than acceptable. Students completed 1496 practical procedures (range 0-14, median 5) although 15 (5.4% of 280) have completed none. Three (0.5%) students did not complete the minimum number of wpba. Half of the students described obstacles to achieving supervision for wpbas.
Conclusions: Increased and specific feedback to students has been achieved. Barriers to implementation have included workload for assessors; assessor availability; and variability in IT capacity necessitating a paper-based approach.
Take-home messages: Structuring assessments for clinical attachments can drive focused feedback to students on skills central to clinical practice.

10F2

Personal characteristics influencing feedback perception and feedback acceptance: A review of the literature

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Background: To understand the effectiveness of feedback it is necessary to be aware of influencing variables in the feedback process. In this process Feedback Recipients (FR) play an important role because they receive and have to internalize the feedback. However, research mostly focuses on variables related to task performance, observation instruments, observation methods, and the feedback communication. FR's personal characteristics and their influence on feedback perception and feedback acceptance receives less attention[1].
Summary of work: The goal of this study is to determine FR's personal characteristics which influence feedback perception and feedback acceptance. A literature search for English language, peer-reviewed journal articles, in PubMed, ERIC and PsycINFO was performed. Among the search terms were: 'feedback', 'individual differences', 'personal characteristics', 'feedback propensity', 'feedback preference', and 'feedback receiver'. Two readers independently rated the abstracts according to inclusion and exclusion criteria.
Summary of results: Empirical studies on feedback perception and acceptance show that FR's Sex, Self-esteem, Feedback propensity, Locus of control, and Shyness influence both perception and acceptance. FR's Age, Self-efficacy, and Mood influence feedback acceptance. FR's Performance and Social Anxiety influence their feedback perception.
Conclusions: Personal characteristics give further insight in understanding the feedback effectiveness.

[1] Ilgen DR, Fisher CD, Taylor MS. Journal of Applied Psychology 2006;64:349-371.

10F3

The structure of failure - an analysis of the patterns of consulting behaviour amongst failing candidates in a high-stakes postgraduate OSCE towards enhancing the quality of candidate feedback

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Background: Providing failing candidates with feedback is normal practice in high stakes assessment. After an OSCE, this can comprise individual case marks, possibly generalized from single cases (e.g. from myocardial infarction to 'cardiology' or 'emergencies'), through supposedly generic assessed domains (e.g. 'maintaining patient welfare'). This may be seen as perverse in view of the literature on case- and context-specificity of clinical skills. We explored another approach to combine fine-grain assessment data across candidates and cases towards providing candidates feedback on the pattern of their behaviour, without imposing a pre-conceived structure of clinical performance.
Summary of work: 8,352 of 36,296 candidate-case encounters in the MRCGP Clinical Skills Assessment in 2009 were failed. Examiners then have 16 feedback specifics which they can then tick to describe the reasons for failure (e.g. 'does not demonstrate an awareness of management of risk and health promotion'). These were subjected to exploratory factor analysis to ascertain patterns.
Summary of results: Four factors emerged: poor data-collection/diagnosis, but management shared; disorganised/unsystematic, generally; doctor-centred, but management alright; and case focus- and risk-blind. Factor scores showed differences amongst candidate sub-groups.

Conclusions: The factors are more complex than imposed domains.
Take-home messages: Analysis of the structure of failure may help develop more sophisticated feedback than that based on pre-conceived performance domains.

10F4

Trainees' perceptions of the educational value of feedback given in case based discussion assessments
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Background: Little information exists regarding the nature and quality of feedback in case based discussions (CBDs).
Summary of work: Paediatric trainees at ST1 and ST2 level within a deanery completed a semi-structured online questionnaire (n=27) and taped interviews (n=9) exploring the educational value of CBDs and associated feedback. Data from the questionnaire informed interview design and interviews were performed until saturation was achieved.
Summary of results: Qualitative data were analysed using a thematic frame-work analysis. Trainees viewed CBDs as educationally valuable, aiding reflective learning, improving decision making skills and effecting a change in practice. Opinions varied greatly regarding how useful they found the feedback and several contributing factors were identified. Feedback was perceived as more educationally valuable from assessors who had a positive attitude towards CBDs, understood the process and had experience in leading them. Time constraints and assessments performed in less suitable environments had a negative impact on feedback.
Conclusions: CBD assessments present an opportunity for good quality learning and feedback, which is valued by trainees, providing there is a commitment to the educational aspects of the process by both supervisor and trainee.
Take-home messages: Supervisors should be aware of the key elements that facilitate constructive feedback in CBDs and may benefit from specific training in this area.

10F5

Is feedback in work-based assessment useful for learning?
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Background: Providing feedback to trainees by supervisors, based on observation of daily practice, is the most common approach for assessment of trainees' clinical performance. To what extent this feedback is meaningful and influences learning is not yet fully understood. Therefore our research question was: Is feedback in work-based assessment seen as useful for learning? We wanted to know how observation and feedback are applied in these situations, and if structured feedback forms (like the Mini-CEX) are used.
Summary of work: We performed our study in the Dutch general practitioners (GP) training setting. Because the field is not highly explored yet, we conducted a qualitative study and interviewed 22 GP-trainees on two different institutions.
Summary of results: The study is still in progress. Preliminary results show that trainees see the benefits of observation and feedback, but they don't like to be observed. They use video-observation and direct-observation, but they feel that both interfere with normal practice. Trainees differ in their opinion about feedback forms. It can promote observation and give structure, but it was sometimes seen as obligation and hindrance.
Conclusions Take-home messages: The study gives insight in the way GP-trainees experience and appreciate observation of performance in daily practice and feedback based on that.

10F6

Applying language technologies to provide individualised formative feedback in group learning contexts
Alisdair Smithies, Isobel Braidman, Gillian Armitt, Fridolin Wild and Debra Haley (University of Manchester, Manchester Medical School, Manchester, UK)*

Background: In group learning contexts, learners often have difficulty identifying their individual learning objectives and requirements. This can be helped by personalised formative feedback from tutors. To provide this, tutors need to ascertain an individual participant's conceptual understanding.

Summary of work: Language technologies are being applied to conceptual diagnosis and delivered through a Web-based service, CONSPECT, which generates enhanced concept map visualisations, 'conceptograms', from text-based learning evidence. Learners submit their learning materials to the service which visualises the extent to which they have evidenced their understanding of concepts. Learners can compare their own conceptograms with those of other (anonymised) users, or to a reference conceptogram, generated from tutor materials. Learners can release their conceptograms to peers and tutors as prompts for feedback.
Summary of results: Early validation results, based on focus groups, interviews and a questionnaire, suggest that learners view the outputs of this service as both relevant and helpful to the support of their studies.
Conclusions: The CONSPECT service can be used by tutors and learners to identify opportunities for development of an individual's conceptual understanding in a given domain area.
Take-home messages: This application of language technologies has the potential to support diagnosis of conceptual understanding and improve tutor effectiveness through timely, targeted formative feedback.

10G Short Communications: Problem Based Learning 1

10G1

Using role plays to reinforce peer learning in PBL

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Background: Students come to medical school with the bias that what it is important to learn comes from the faculty. In a problem-based learning (PBL) environment, students need to develop the ability to learn from peers.
Summary of work: To assist students in this transition, we have added a role-play component to PBL cases. The role-play is written into a section of the case in a return tutorial to set up a situation in which students face being confronted by someone with questions, e.g., patient, family member, faculty member, or post-graduate trainee. In preparation for this encounter, students have 10 minutes to discuss with one another a list of possible questions that might be asked. After this period of student-to-student discussion, the tutor rejoins the group in the designated role. S/he directs two to three of the possible questions to specific students who had not previously demonstrated understanding of the issue. After the targeted student attempts an answer, the tutor opens the discussion to the entire group. The questions also indicate to students the core learning issues for which they can be held responsible in subsequent assessment.

10G2

Self-reflection and feedback in PBL

A Holen (Norwegian University of Science and Technology, Trondheim, Norway)*

Background: Self-reflection, feedback and other interpersonal evaluations of behaviour are essential parts of PBL, often referred to as meta-cognitive activities.
Summary of work: In this study, personality traits, gender and attitudes towards PBL were explored by questionnaires to explain how students regard this meta-cognitive activity.
Summary of results: It was found that neuroticism and openness to experience were important determinants in explaining how the students regarded these meta-cognitive activities.
Conclusions: The implications of the findings will briefly be discussed.
Take-home messages: Evaluations have to be delivered skilfully to serve their purpose.

10G3

Self, peer and tutor assessment in PBL at Bond University

C Tom (Bond University, Faculty of Health Sciences and Medicine, Gold Coast, QLD, Australia)*

Background: The Bond University incorporates the problem-based learning (PBL) approach in providing an integrated medicine program to its students. One aspect of the PBL at Bond is to assist students in their assessment of what is working well in their tutorial group and what needs to improve for successful learning outcomes for all students. An important aspect of the PBL tutorial process is where student evaluation occurs in the small group session and is derived from self, peer and tutor (Albanese, 2007).

Summary of work: Bond University has implemented a comprehensive, structured and systematic process for self, peer and tutor evaluation in PBL in the MBBS program.
Summary of results: Students reflect on the quality of participation and presentation skills of themselves and 2 others to the PBL process and formally record their feedback against specified criteria in weeks 3, 6, 9 and 12 of the MBBS program.
Conclusions: All students in the Bond MBBS program receive informal and formal peer assessment of their performance in the PBL process.
Take-home messages: Self, peer and tutor assessment and feedback using a structured approach enhanced students' reflective practices.

10G4

An e-PBL model to promote individual cognitive learning processes

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Background: Sungkyunkwan University School of Medicine has implemented problem-based learning (PBL) curriculum for over 10 years. e-PBL has been added in the renewed curriculum to supplement traditional PBL in fostering student knowledge acquisition and clinical reasoning skills.
Summary of work: Questionnaires were administered to a cohort of 2nd year medical students (N=37) before and after they were introduced to e-PBL and the responses were compared. The questionnaires consisted of 20 five-point Likert-scale items to solicit student opinions about e-PBL.
Summary of results: The results of paired t-test showed that there were significant changes in the students' opinions on e-PBL when they experienced e-PBL. They agreed more that e-PBL was helpful in fostering problem solving skills ($t = 3.323$, $p < .01$), and that e-PBL allowed them to learn in ways suited for their learning styles ($t = -2.651$, $p < .05$). They also agreed more that they did not need help from the tutor during the learning process ($t = 3.583$, $p < .01$), indicating that they got more confident in their ability to solve the clinical problem independently. Additionally, the students moderately agreed with the statements that e-PBL fostered their learning in terms of acquiring relevant knowledge, promoting clinical reasoning skills and the ability to find relevant information.
Conclusions: Students perceived the e-PBL learning environment more positively after they experienced it in terms of promoting clinical reasoning skills and supporting the individual's own learning style.
Take-home messages: e-PBL can supplement traditional PBL to foster the individual student's cognitive learning processes.

10G5

PBL: Factors influencing the successful implementation of PBL

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Background: Curriculum designing involves a skillful blend of educational strategies designed to help students achieve the curriculum outcomes. PBL may make a valuable contribution to this blend but attention needs to be paid to know how it can be implemented.
Summary of work: Focus group discussions (FGD) were conducted at the end of undergraduate first year MBBS Integrated Curriculum Program 2009 at IIMC as an ongoing activity of program evaluation & feedback. Semi structured interviews with preplanned questions were skillfully facilitated by the medical education experts with 30 faculty members, 15 trained PBL facilitators and 30 first year MBBS students. Interview data were transcribed, examined, categorized, coded, tabulated and analyzed in order to achieve the aim of the study. 'Krueger's (1994) Framework' analysis was used with thematic approach for focus-group interview data analysis.
Summary of results: Students support the facilitation skill of the senior faculty members as compared to junior and they acknowledge the better facilitation skills of clinical science faculty. They admit that PBL facilitates & promotes the acquisition of soft skills and of generic competencies, hence encourages a deep approach to learning. But they criticized the difficulty of some of the cases and its learning resources (multimedia, internet access etc). On analysis of faculty members' comments they acknowledge that there is need for faculty training for writing & facilitation of PBL, more faculty members should be inducted in this integrated system, there is a difference in performance of the students with different educational & social

backgrounds. Furthermore, they emphasize the importance of learning resources accessibility to the students and standardization of PBL evaluation process.
Conclusion: Successful implementation of PBL does not come easily; it needs great planning in milieu of staff development & motivation (in PBL case writing & facilitation skills) with adequate resources. It countenances with challenges of political impedance to bring a change, curriculum restructuring & reforming, level and domain of facilitators, student-teacher ratio, differences in student's educational & social background, cost and students assessment & evaluation through PBL.

10H Short Communications: Peer Assisted Learning 2

10H1

Peer Assisted learning (PAL) by FY1 tutors improves medical students' confidence and prescribing skills
S J Emerson, F Wallace*, P Burton, G McKay and M Field (University of Glasgow, Medical Education, Glasgow, UK)*

Background: Written prescription errors by foundation year (FY) doctors are reported to be ~8%. This study assessed whether peer assisted learning (PAL) tutorials delivered by FY1 doctors could improve students' prescribing skills.
Summary of work: Medical students at Glasgow undertake a 6 week 'preparation for practice' (PfP) ward attachment. Students at one hospital received 8 interactive tutorials by FY1s based on drug prescribing in acute clinical scenarios. At a second hospital students completed PFP with/without tutorials. Students completed a formative prescribing examination, confidence questionnaire before/after PfP and evaluation questionnaires as appropriate. A focus group of FY1 tutors critically appraised the training experience.
Summary of results: Twenty students received the tutorials, with 11 controls. Initial exam scores and confidence showed no significant difference between students at either site. Confidence and examination scores improved in both groups during PFP however, only those in the group receiving FY1-led tutorials achieved significance (confidence: $p<0.0001$, Examination scores: $p<0.0001$). All students recommended FY1-led tutorials. The focus group concluded that trainees felt more comfortable questioning peers and errors were more likely to be identified prior to students commencing work. FY1s felt PAL training also benefited their prescribing knowledge.
Conclusions/Take-home messages: FY1-led PAL is an effective method of improving both FY1 and final year student prescribing competence and confidence.

10H2

Peer-assisted learning by foundation year doctors in knee joint aspiration: A pilot study
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Background: To perform a pilot study of Peer Assisted Learning in aspiration of the knee joint with foundation year doctors.
Summary of work: 27 foundation year doctors participated. 3 (trainers) were trained by a Rheumatology Consultant and Specialist Registrar (SpR) to aspirate the knee joint. 24 (trainees) were assigned to 3 separate groups to develop a schema for knee joint aspiration, facilitated by the trainers and SpR. A combined schema was developed by all the groups and the technique was performed on mannequin models. Confidence questionnaires and nominal group technique were used for evaluation. The trainees have been offered an opportunity to perform the procedure on patients in a joint injection clinic, where an independent assessor will confirm their competence in the technique.
Summary of results: Pre and post training confidence questionnaires showed significant improvements ($p<0.001$, MWU test SPSS). Nominal group technique evaluation highlighted that the models were of good quality; group work was practical and facilitated learning. However, trainees commented that a video of the procedure would have been a helpful adjunct to learning and that both the opportunity to practice with real patients and further anatomy revision would be welcomed.
Conclusions: PAL for aspiration of the knee joint by foundation year doctors improved confidence in joint aspiration, is likely to be a helpful educational tool and help junior doctors diagnose and manage acute arthritis of the knee joint.
Take-home messages: Peer-learning by junior doctors can be used to teach aspiration of the knee joint.

10H3

Peer assisted learning and acute care skills: A pilot study at the University of Edinburgh

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Background: Previous research demonstrates that peer-assisted learning (PAL) can have beneficial outcomes for both tutees and tutors. Additional research highlights that acute care is an area in which medical graduates often feel unprepared when starting work as a doctor.
Summary of work: A new PAL initiative has been developed at the University of Edinburgh involving Foundation doctors facilitating scenario-based training in acute care skills for final year medical students. A pilot was undertaken in early 2010 involving the training of 20 Foundation doctor 'tutors' and the delivery of structured scenario-based sessions to students.
Summary of results: Detailed evaluation of the sessions from the perspectives of both the fifth year tutees and Foundation doctor tutors will be presented. It includes ratings of students' confidence and knowledge of acute care both before and after the training, as well as those relating to non-technical skills such as team-working and communication. Foundation doctors' evaluation of their own acute care skills, as well as their teaching skills and confidence, will be presented.
Conclusions: The perceived value and feasibility of the project will be analysed along with the potential for expansion and adaptation in light of the feedback received.
Take-home messages: This and other similar initiatives have a huge amount of unrealised potential within complex curricula.

10H4

Experiences with peer supervision for residents

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Background: Peer supervision as an approach to develop professional behaviour was introduced in the Obstetrics and Gynaecology training program at the University Medical Center Groningen in the Netherlands.
Summary of work: We work with groups of maximum four residents. The groups are supported by trained psychologist. Participation is on voluntary basis. A contract was signed ensuring confidentiality and participation. The essence of the method is that the residents discuss experiences. Peers ask clarifying questions, and the residents search for possible alternative coping strategies. Topics included emotional encounters, ethical issues, difficulties or conflicts in clinical settings, and work-life balance.
Summary of results: Peer supervision increased awareness about own feelings, values and beliefs in relation to the medical practice. Some residents rated themselves lower on certain skills after participation, due to increased awareness of own weaknesses. The Group structure fostered social support and thereby contributed to well-being of residents in the context of high work load and low work control.
Conclusions: Peer supervision is a promising addition to the existing learning modalities in specialist training.
Take-home messages: For residents peer supervision is an effective method to learn to deal with high work load and low work control and all the other work conditions that cause stress.

10H5

A student-led course in clinical reasoning in the core curriculum

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Background: There is growing evidence for the value of several forms of peer teaching in medical education. Little is known about the feasibility of such approach in courses of clinical reasoning. UMC Utrecht offers a clinical reasoning course for first and second year students which had been incidentally led by sixth year near-peer students.
Summary of work: In 2008-2009 this highly structured mandatory clinical reasoning course for second year medical students was fully tutored by final year medical students, as part of a teacher training course in their core curriculum. Routine evaluations before and after introducing near-peers as tutors were compared, a focused questionnaire survey was conducted as well as an interview with a group of students to evaluate the new format.

Summary of results: There was no difference in the ratings of the course before and after the introduction of the new format. In general, second year students are satisfied with the near-peer teachers. Strong points of the near-peers mentioned are their high motivation, involvement, enthusiasm, adjustment of cognitive level and stimulating skills.
Conclusions: Although our study cannot provide evidence for differential learning effects, the evaluation of our near-peer led clinical reasoning course shows encouraging results.
Take-home messages: It is feasible to run a second year case-based clinical reasoning course with final year medical students as tutors.

10I Short Communications: The Education Environment

10I1

Key elements of educational environment quality: A literature study

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Background: The educational environment has increasingly been acknowledged as vital for medical educational quality. Consequently, many educational environment instruments have been developed. Closer inspection shows that these instruments vary widely in content and structure. Therefore, it is not plausible that they all measure the same concepts. We studied the theoretical foundations of existing instruments to identify common theoretical bases. Our research question was "what are the key elements of educational environment vital to determining its quality".
Summary of work: We systematically searched 7 databases for publications describing the development of medical educational environment instruments, following the Cochrane and BEME guidelines. We investigated which theories and conceptual frameworks formed their basis.
Summary of results: Our search yielded 11 publications on the development of medical educational environment instruments. Most of these did not specify a theoretical basis. Further research into the referenced literature yielded Moos' conceptual framework as an apt, comprehensive and therefore useful theoretical framework.
Conclusions: Moos' framework covers three broad domains corresponding with trichotomies found in workplace climate and educational theories. Educational content/goal, relationships/motivational climate and organisation/regulation may be the key elements of educational environment quality.
Take-home messages: Given the aptness, comprehensiveness and universal applicability of these domains, we recommend covering content, climate and organization when measuring educational environment quality.

10I2

Understanding medical students' learning environment

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Background: The purpose of this study is to explore what student reported attitudes and scales can tell about the learning environment and begin to address solutions.
Summary of work: At the end of the clinical year, 3 validated instruments were administered to medical students: patient centered care (Krupat), moral distress (Miller) and professionalism (Reddy). The results of these instruments were explored to better understand the effect of the environment on the attitudes of students. Leadership is attempting to address some of the issues discovered.
Summary of results: Students were less patient-centered than expected. Students noted moral distress particularly around issues of 1) disrespectful/demeaning remarks about patients or team members 2) poor team communication negatively impacting patient care 3) patients with advanced disease due to barriers to accessing care. Most students observed unprofessional behavior such as 1) skipping events which attendance is required, 2) falsifying charts, 3) not reporting errors to supervising physician. Curricular leadership has implementing strategies to address some of these issues.
Conclusions: The results of the surveys administered to medical students can inform us about the environmental influences on behavior and attitudes of medical students. We are concerned about the potential negative influences at play.
Take-home messages: Attention to and addressing the learning environment is needed.

10I3

Medical students` perceptions of their educational environment at Al Neelain University

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Background: Al Neelain medical school is a unique among other Sudanese medical institutions in the sense that we believe that taking decision concerning the educational programme should be in part based on sound, reliable analysis of what students think about their educational environment.
Summary of work: We wished to objectively assess the undergraduate educational environment and our medical school using the DREEM inventory at the end of the academic year 2007.
Summary of results: The student sample comprised 41.4% male and 58.5% female. The overall mean DREEM score for the study group was 106/200 (53%). There was no statistically significant difference between males and females. The mean scores for the DREEM domains were as follows: perception of learning, 24/48 (50%); perception of teachers, 22.2/44 (55.4%); academic self-perception, 19.2/32 (60%); perception of atmosphere, 22.6/48 (47%), and for social self perceptions, 15.7/28 (56%). 53.83% of students` suggestions were centred around improving the school overall structure, lecture halls and library as these were the main source of dissatisfaction among students
Conclusions: This study provided base-line information on the educational environment at our school. Students indicated areas where they are most dissatisfied.
Take-home messages: Issues raised by students comprised priority areas for the school administration. Follow-up studies need to be undertaken in the future in order to be able to make valid comparisons, and hence ensure and maintain high quality educational environment.

10I4

Student views of their educational environment over time: Five years of DREEM'ing

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Background: An evaluation programme was established for the MB/BS at UEA's new Medical School. This included an Annual Evaluation for all students, incorporating the DREEM (Roff et al, 1997).
Summary of work: The third cohort of students (2004-5 entry) graduated summer 2009. Of the starting cohort (n=128), 77 students completed the DREEM for all 5 years and consented for their data to be reported externally (60%). Analysis compared DREEM scores over time.
Summary of results: Students rated their experience with the educational environment more negatively in Year 3 (137 out of 200, an ideal environment McAleer & Roff, 2001) than in other years. Year 4 was the most positively rated year (143/200). Further details of the findings, including results for subscales and individual DREEM items will be reported in the presentation/poster.
Conclusions: In-line with other evaluation data, evidence from the DREEM indicated that students were least happy with their educational experience in Year 3. This year is recognised by staff and students as having a particularly heavy workload. Furthermore, students may struggle with knowing that they have two more years to go whilst their friends on other courses are graduating.
Take-home messages: UEA medical students experienced a dip in satisfaction with their educational environment mid-way through their 5 year course.

10I5

Educational and learning environment: Faculty of Medicine Sucre, Bolivia vs Faculty of Medicine, Mendoza, Argentina

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Background: Medical schools of Latin America in the last time pretending to conform to the educational changes of regional and global context, have considered the importance of education and learning environment perceived by students. The aim of the study was to describe and compare the educational and learning environment in two faculties of medicine in Latin America, one with a traditional curriculum (San Francisco Xavier of Chuquisaca University, Sucre-Bolivia) and another with innovative curriculum (National University of Cuyo, Mendoza-Argentina).

Summary of work: A cross-sectional study was performed, the Dundee Ready Education Environment Measure (DREEM) inventory was applied to the students during 2008-2009. It was included n=438, 205 from Bolivia and 233 from Argentina, from years first/142, third/107 and fifth/189.
Summary of results: The overall score was 137/200 (SD ± 20.82), in the students from Bolivia it was 132.72 and in those from Argentina 140.54, the value p = 0.001 (T test). In the Registrars' Perception of Course organisers and of Atmosphere subscales p=0.001, in Social self-perception p=0.003 and Registrars' Perception of Learning and Academic Self-Perception p≥0.05.
Conclusions: The global perception of the educational environment is more positive than negative, students from Argentina had significantly higher perception. In the Perceptions of Learning, Atmosphere and Social self-perception those from Argentina scored significantly more. In the Perception of Course organizers and Academic self-perceptions had a positive perception and confidence with no differences by country.
Take-home messages: Both faculties should work even harder to improve the students perceptions of learning in those domains and subscales lower scored.

10J Short Communications: Selection for Medicine and the Multi Mini Interview

10J1

Can teamwork skill in admission test reflect good community doctors?
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Background: Many kinds of tests on select students in order to get those with professional potential like the test for learning ability skill, multiple mini interview, teamwork skill have been used for a couple of years in southern medical school in Thailand.
Summary of work: Learning skill test reflects wisdom for professional studying or let's say the IQ (Intelligence quotient), multiple mini interview reflects the MQ (Moral Quotient) or EQ (Emotional Quotient) while teamwork skill test reflect SQ (Social Quotient).
Conclusions/Take-home messages: Since Patil Award 2008, it is about time to look back whether the teamwork skill test is worth enough to fulfill the intention of producing doctors for rural communities where they have to the leaders, coordinators, communicators at the same time as the health providers.

10J2

Assessing the stability of the Multiple Mini Interview stations used by Alberta International Medical Graduate Program for selecting international medical graduates for residency training
L Baig and T Donnon (University of Calgary, Canada)*

Background: The multiple mini interview (MMI) uses a sequences structured encounters to assess the non-cognitive skills that cannot be adequately assessed through personal interviews. In 2006 Alberta International Medical Graduate Program (AIMGP) introduced MMI for assessing the residency readiness of international medical graduates (IMGs).
Summary of work: AIMGP uses 9 stations and 3 stations were repeated in the past 3 years. These 3 stations were used for assessing stability using IRT (Rasch method) and the repeated measures and construct validity was assessed using exploratory factor analysis.
Summary of results: Two stations (empathy and teamwork) had stability however overall a halo effect occurred within stations. In the IRT analysis (one and two parameters) there were inconsistencies across question sub-scales measures of ability across stations from year to year and low reliability within stations. We will present data showing errors of measurement and the construct validity measures for these stations.
Conclusions: We need to further refine our stations and do more research for improving the psychometrics on our stations.
Take-home messages: MMI is shrouded with Halo effect and not as objective as an OSCE.

10J3

A new MMI criteria for discarding medical school applicants: Examiners' worries
C Bourdy and R Gagnon (Université de Montréal, Québec, Canada)*

Background: MMI has been used since 2006 as a selection tool for applicants in many medical schools. This new method offers a better objective evaluation than the traditional long interviews. As many interviewers give their appreciation of a candidate, the MMI can gather various information on each candidate.
Summary of work: At Université de Montréal School of Medicine, we implemented a 9 stations MMI in 2009. Along with the non cognitive dimensions (communication, interpersonal relationship, etc.), we ask all interviewers to signal any worry they have or feel.
Summary of results: We revised all applicants' evaluations describing interviewers' worries such as rigidity, lack of authenticity, misjudgement and immaturity. 20 candidates were in this category. We decide to reject those with 3 or more worries detected by 3 different interviewers. After this revisiting of the MMI results, there were 15 candidates who were taken out of the pool of candidates to which we offer a place in our School of medicine.
Conclusions: Interviewers' worries are new tools to put away candidates demonstrating character traits that often cause problem in the patient-doctor encounters.
Take-home messages: Rigidity, immaturity and lack of authenticity are better detected before School of medicine's admission and the interviewers' worries seem to be an interesting new addition.

10J4

Implementation of a new admissions process at USD for medicine: Status on two years of experience with UniTEST and the MMI

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Background: Since 2008 50% of the students at medical school at USD are admitted on the basis of an admissions process consisting of a Multiple Choice Test, called UniTEST (Australian Council for Educational Research), that decides who qualifies for a 7 station Multiple Mini Interview. The other 50 % are admitted on the basis of their Grade Point Average.
Summary of work: Both UniTEST and the MMI have been subject to statistical analysis such as reliability, correlation with GPA and preliminary predictive validity.
Summary of results: UniTEST: Cronbach's Alpha 0,88 in 2009, 0,86 in 2008; correlation (Pearson's) with GPA 0,22. MMI: Cronbach's Alpha 0,56 in 2009, 0,61 in 2008; correlation with GPA 0,011; correlation with UniTEST 0,23. Preliminary predictive validity: lower dropout rate for students admitted on the basis of the two tests compared to students admitted solely on the basis of GPA.
Conclusions: The reliability of the MMI is a challenge. Results indicate that the two tests assess different abilities and that the predictive validity of UniTEST combined with the MMI is better than that of the GPA with regard to the dropout rate.
Take-home messages: The MMI is still to be refined, but the results so far are encouraging.

10J5

Does a selection centre process for entry to medical school predict future examination performance?

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Background: Selection centers were first used by the armed forces in World War II. Since then they have been used in a range of industries for selection. In medicine their use was pioneered in the selection of general practitioners. They were introduced for selection to two medical schools in the UK in 2006.
Summary of work: A retrospective quantitative cohort study was conducted at one medical school looking at students who started in 2006 and 2007. Logistic regression was performed to analyse the relationship between performance in written and OSCE assessments undertaken in their first two years of study and performance in the selection centre process, previous academic achievement and demographic characteristics.
Summary of results: 339 students were included in the study. Selection centre total score was shown to be predictive of passing the written examinations (OR1.008, $p<0.001$ and OR 1.010, $p=0.002$) and the first OSCE (OR 1.006, $p=0.049$). These results were independent of other factors measured including prior academic performance and demographic characteristics.
Conclusions: This study shows that selection centre score predicts early performance in examinations at medical school and does not simply reflect general academic performance or demographic characteristics.

Take-home messages: These results begin to provide information regarding predictive validity. Further research is required to look at later performance

10K Short Communications: The Teacher

10K1

Perception of the necessity of medical education qualification and professionalization of medical teachers in Saudi Arabia

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Background: A study of the key Saudi decision-makers' views of current status and future prospective of Saudi medical educations suggests the importance of education qualification for all medical teachers. It was suggested that medical teaching could be professionalized by registering medical teachers who are involved in training and teaching students and trainees. The study aims to investigate medical teachers' views of how to enhance excellent teaching practice and their perception of the proposed schema of education qualification and registration of medical teachers.
Summary of work: 450 medical teachers (representing 9 medical schools) were approaches to participate in the study and complete the electronic- questionnaire or e-survey.
Summary of results: 193 respondents complete the questionnaire with a response rate (43%): representing 7 medical schools. The majority are male, clinicians, 85% and 60 % respectively.
Conclusions: 71% of the respondents ask for formal training programme and 60 % agree with the idea of medical teachers' qualification of the basic medical education. Only 41% agree of the proposed schema of medical teachers' registration
Take-home messages: Professionalized medical teaching through registering of medical teachers is not preferred in the Saudi society. Nevertheless, qualifications in medical educations is considered essential for most respondents specially who comes from schools with active medical education Departments/Centers.

10K2

Measuring medical teachers' conceptions on teaching and learning

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Background: The literature on higher and secondary education suggests that conceptions of teachers on teaching and learning influence the results of staff development and the actual performance of teachers. In medical education however, there is limited attention for the conceptions of teachers on teaching and learning. To explore this, we constructed a questionnaire tailored to student-centered undergraduate medical education.
Summary of work: After literature research, an expert meeting, and six interviews a 60 item questionnaire was constructed. Subsequently we submitted the questionnaire to a Delphi panel (N=9) and administered it to a large group of teachers of two university medical centers (N=645), in order to assess its psychometric properties.
Summary of results: Based on the Delphi we deleted seven items. Preliminary results of an exploratory factor analysis indicate four dimensions in the questionnaire, each having sufficient internal consistency.
Conclusions: We developed an instrument to measure medical teachers' conceptions on teaching and learning which has demonstrated internal validity by showing a coherent structure of dimensions.
Take-home messages: This questionnaire enables further research in the conceptions of medical teachers on teaching and learning. The relation with contextual and personal factors, actual performance and the implications for staff development will be investigated.

10K3

Medical professor's perceptions of faculty evaluation system

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Background: In order to use a faculty evaluation system that is helpful and desirable, understanding and awareness among the professors being rated is important.
Summary of work: The data was collected through a questionnaire mailed to all medical schools in Korea. We received 1,856 responses on the 25 items questionnaire.
Summary of results: First, over 90% of the professors believe that they had a high awareness of the system; however, 20%–40% of the professors rated elements such as validity, reliability, fairness, satisfaction, etc., negatively. Second, professors work in medical care preferentially, but eventually intend to be actively involved research. Teaching is third in sequence for both the current action ratio and desired action ratio. Third, above 50% of the professors disagreed with peer evaluation as a measure of their achievement. Finally, many professors believed teaching to be trivial; 88% of the professors believed education to be trivial in relation to the sizeable research load and their medical care duties.
Conclusions: Although the evaluation system is aimed at the development of the professors' teaching abilities, it didn't function so.
Take-home messages: Faculty evaluation system moves forward to developing the teaching abilities and attitude of a growing number of medical professors.

10K4

Mediator, role model and teacher - doctors' perceptions of their role as supervisors in clinical rotations

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Background: The aim of this study was to explore doctors´ perceptions of 1) their role as clinical supervisors, 2) factors influencing quality of supervision, 3) favourable strategies for developing supervisory practice.
Summary of work: We conducted a qualitative study based on 4 focus-group interviews with a total of 21 doctors from Lund University teaching hospitals, representing 7 specialities. Data were analysed using a qualitative content strategy. Frameworks of social theories of learning were applied for interpretation.
Summary of results: The doctors perceived their supervisor role mainly as social and cultural mediators, supporting students' participation in work-place activities and partly as teachers and role-models. They stressed that high-quality supervision and learner-centered teaching methods strongly depend on organizational factors such as management priorities between production and education, physical environment, and emotional climate. In order to develop supervisory practice, doctors favour the opportunity to participate in communities formed around practice rather than formal educational activities.
Conclusions: In line with current learning theories, doctors perceived learning from participation in communities-of-practice as crucial to students' workplace learning as well as to their own learning/development as supervisors. Organizational factors determine doctors' confidence and commitment as supervisors and development of supervisory practice.
Take-home messages: Doctors need organizational support and recognition to commit to developing supervisory practice.

10K5

Resident as learner and teacher (RALT): An e-learning module

Daniel M Panisko, Hosanna Au, Stacey Bernstein, John Flannery, Linda Probyn, Audrey Yap, Molly Zirkle and Susan Glover Takahashi (Postgraduate Medical Education, University of Toronto, Canada)*

Background: A web based e-learning module that delivers a 4 hour self study curriculum, designed to enhance a resident's teaching and learning skills, has been developed and will be implemented in a large postgraduate training program with over 2000 trainees in over 70 disciplines. The curriculum was developed iteratively by a working group from a broad base of Royal College disciplines.
Summary of work: The RALT curriculum explores the topics of: Large Group, Small Group, and Clinical Teaching and Learning; Feedback and Evaluation; and Keeping Up to Date, in individual units that are all congruent with the CanMEDs Scholar role. Material is presented in an interactive fashion with the use of "games", critical analysis of clinical teaching vignettes, and prioritization of techniques and ideas that the resident can commit to an individualized and personalized toolkit. This toolkit is designed for ready, rapid, and practical implementation into the resident's teaching and learning practice. The RALT module is one of a series non-medical expert CanMEDs domains incorporated within a larger web-based e-learning program, PGCorEd(TM).

Summary of results: Evaluation of the RALT module, independently, and in the context of the PGCorEd(TM), will occur at Levels 1, 2 and 3 of the Kirkpatrick Program Evaluation hierarchy.
Conclusions: Enhancement of resident teaching skills will develop from this self-study web-based module.
Take-home messages: An interactive self-study web-based e-learning program to improve the teaching and learning skills of residents has been developed for use across a broad range of specialties and disciplines.

10K6

Control and adaptation of the educational atmosphere: Nursing teachers' perceptions and experiences
H Karimi Moonaghi, F Dabbaghi, S F Haghdoost Oskouei and T Binaghi (Mashhad University of Medical Sciences, Mashhad, Iran)*

Background: Control and adaptation of the educational atmosphere by teachers is less regarded in nursing education. This study was conducted to explore, describe and illustrate teachers' perceptions and experiences about their control and adaptation of the educational atmosphere.
Summary of work: In this qualitative study, 15 teachers in different academic disciplines were selected through purposeful sampling and interviewed using deep and semi-structured interviews. All interviews were tape-recorded, transcribed and then analyzed using constant comparison based on Strauss and Corbin's method.
Summary of results: Control and adaptation of the educational atmosphere as the main process (theme) comprised 4 sub-processes: 1) Teacher's perception of self, 2) Teacher's perception of the student, 3) Teacher's perception of the environment, 4) Teacher's perception of nursing knowledge.
Knowing and appraisal of self, students, environment and nursing knowledge can develop the right pattern for controlling of and adapting the educational atmosphere. Having the right knowledge and attitudes about the mentioned factors are necessary to be an effective teacher.
Conclusions/Take-home messages: Nursing teachers, students, and curriculum planners could use the introduced processes in this study in order to modify and promote the quality of nursing education.

10L Short Communications: Pot Pourri

10L1

Medical students' implicit and explicit attitudes to mental health: Relationship with communication skills
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Background: Mental illness (MI) is detrimental to sufferers' wellbeing and carries great stigma. As a result, the Royal College of Psychiatrists' 'Changing Minds' campaign has aimed to promote positive attitudes towards MI. Good practitioner-patient communication has been implicated in achieving better patient outcomes, greater physician satisfaction and the delivery of high-quality care and in treatment adherence. This study investigates relationships between implicit attitudes of first-year medical students towards MI, summative communication skills OSCE scores, and self-reported explicit attitudes.
Summary of work: Students (n=100) completed explicit and implicit (the Implicit Association Test) MI attitude measures, and were videoed in one 5-minute summative history taking OSCE station. Quality of communication will be rated using the Verona VR-CoDES which identifies patient emotional cues/concerns and health providers' associated responses. Examiner scores on the OSCE will also be collected.
Summary of results: The relationships between VR-CoDES ratings, examiner scores and students' attitudes towards MI will be analysed. Correlation between implicit and explicit attitudes will also be assessed. The presentation will report these findings in detail.
Conclusions: This is the first assessment of the relationships between communication skills and implicit-explicit attitudes towards MI in medical students.
Take-home messages: Assessment of students' implicit attitudes is important when implementing medical school curricula and in the development and assessment of professionalism.

10L2

Evaluation of a research training program for students in cancer research in minority and international settings

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Background: Our study questions examine: the feasibility of conducting a cancer education program in medically underserved populations at multiple US and international field; the merit and worth that students and faculty attribute to the program; and students' scholarly and cancer-related career outcomes.
Summary of work: Students rated the quality of their training and mentoring. Faculty rated the quality of students' work, professional attributes, and likelihood that students would succeed in cancer research careers. In addition, outcome measures included the proportion of the students who completed their internship and scholarly products.
Summary of results: A total of 30 students participated in the combined 2006-2009 training cohorts. The training sites include India, Israel, Egypt, Turkey, Jordan, Tunisia, Algeria, Morocco, Kenya, South Africa, Brazil, Mexico, Pakistan, and Hong Kong, and USA minority populations. All students indicated they "would recommend the program to others." Students completed of field experiences at multiple sites and their subsequent 70% project-related publication rate, with 79% of trainees reporting themselves as likely to pursue future cancer-related careers
Conclusions: This study established the feasibility and scholarly outcomes of a training program for cancer control in multiple field sites.
Take-home messages: A structured educational program with field experience program in medically underserved settings can prepare students for future research careers.

10L3

Reflection to action: Children's voices

M Grogan and D Sharma* (Ross Medical University, Dominica, West Indies)*

Background: This is a curriculum enhancing program that focuses on children's psychological needs and reflective practice: communication and interview skills, patient centered care responses, and a holistic approach to assessment and collaborative planning between physicians and families.
Summary of work: Within small group learning sessions, students will respond to individual case studies that use children's art. Awareness, shared reflections and effective questions will contribute to professionally competent interviews with the family to ensure planning that is aligned with the mental well being of the whole family. This incorporates children's perspectives into the planning for family changes e.g. death, separation, parenting, and alcohol treatment. Cultural competencies, communication skills, partnerships, critical thinking and creative problem solving will be features of the discussion.
Summary of results: Two resources: 1) a list of interview questions for students' use during the interview practice sessions. 2) a set of reflections that promote awareness of children's needs that can be used during reflective practice.
Conclusions: Reflective practice that includes Children's Voices enhances professional competence.
Take-home messages: Reflective practice enhances professional competence to ensure that Children's Voices are included in the collaborative planning process that promotes the holistic health of the family.

10L4

Foundation year elective experience: Working with individuals with intellectual disabilities

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Background: Foundation year students (medical and physiotherapy) in the Royal College of Surgeons were given a choice of 10 electives as part of their second semester curriculum. 21 students selected one of these electives based on intellectual disability.
Summary of work: Students volunteered once a week for 6 weeks in a community based special needs club with individuals with a range of intellectual disabilities including Down Syndrome, Autism, Fragile X Syndrome and Prader Willi Syndrome. Students designed intellectual disability databases which included; medical basis of disabilities, common traits, behaviours and support information for groups and families.

Summary of results: This elective was positively received by foundation year students, academic staff, and the community based club. Surveyed student feedback indicated the elective was a very positive experience with 100% of students agreeing they gained valuable skills and information related to their future careers. Qualitative feedback demonstrated an increase in student's confidence, interaction and communication skills in addition to improving team working skills.
Conclusions: In this format students successfully gained skills and knowledge that enables them better approach and communicate with an individual with special needs.
Take-home messages: Early curriculum based exposure to community project work and volunteering is an extremely effective means of enhancing the learning experience of health professional students.

10M Research Papers: Assessment

10M1

Challenging students with an interim assessment during an ongoing course on General Pathology results in a higher formal exam score

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Introduction: It is supposed that assessing drives learning, the so called testing effect expanding memory retrieval practice[1]. As only little experience has been gained on the testing effect in medical education[1] we evaluated the effect of challenging by an interim assessment during an ongoing course on General Pathology for 326 medical and 91 health sciences bachelor students.
Methods: The study was set up as a prospective randomized controlled trial comparing two groups of students that were randomized with stratification for gender and discipline. One group underwent an interim assessment, and the control group did not. The interim assessment consisting of 7 multiple choice questions was taken on a voluntary basis; all students participated. It took place in the final week of the course. The formal exam consisted of 15 multiple choice questions similar to those of the interim assessment and 7 open questions. Outcome measures were: grade of the formal exam, grade on the questions related to the theme of the final week, and grade on the remaining questions. All grades were expressed in a scale from 1 to 10. Statistical analysis was performed using linear mixed models.
Results: Students who underwent an interim assessment showed a 0.288 point higher score on the formal exam than the control group (p=0.037). For the questions related to the theme of the final week it amounted to 0.465 point higher (p=0.007), for the remaining questions 0.169 point higher (p=0.262).
Discussion and conclusion: Challenging students with an interim assessment in an ongoing bachelor course results in a higher formal exam score. As this effect is based on the questions related to the specific theme of the course that were part of the interim assessment, it may be explained by test-enhanced learning induced by the interim assessment. This further stresses that assessment can be considered as an educational tool[2].

[1]Larsen D P, Butler A C, Roediger H L. Test-enhanced learning in medical education. Med Educ 2008; 42: 959-66.
[2]Krupat E, Dienstag JL. Commentary: Assessment is an educational tool. Acad Med 2009; 84: 548-50.

10M2

Sources of variation for intern assessment when using the end-of-term supervisor assessment model as a summative assessment

D A McGill (The Cardiology Department, The Canberra Hospital, Canberra, ACT, Australia)*

Introduction: This paper addresses the question of identifying sources of variation in intern assessment and the methodology involved.
Methods: The population is all interns seconded to network for The Canberra Hospital by the Institute of Medical Education (IMET) NSW (Australia) for 2007. The intern is assigned to a term, and that term will have a specific supervisor in a specific hospital (one central and 4 peripheral).
The IMET Assessment form (14 competency items) is completed as a summative assessment at the end of each 10 week term. Each form completed by the pre-nominated term supervisor comprises the unit of analysis. Variance components analysis is with MINQUE 1 (SPSS). Hypothesis testing for identifying possible sources of latent variable was undertaken using standard comparison statistics. The potential latent variables identified were individually entered as fixed facet into the variance components model. A sensitivity analysis is

performed by comparison to optimal data for reliability assessment of a well known clinical competence assessment method (mini-CEX).
Results: Descriptive statistics of the 187 assessments performed involving 40 interns and 54 supervisors with full demographics are identified for all variables assessed including descriptive statistics of the 14 competency items. Variance components analysis of each of the competency items show the dominant main effects were the intern-supervisor interaction and the residual (or error) variance component. Apart from communication skills and clinical judgement competency, the variance contributions for the intern were less than 25%. The overall ANOVA identified significant differences for the variance within assessments and between assessments indicating that latent variables are affecting within and between assessment variations. The latent variables are the hospital type; the clinical type of supervisor; place of graduation; and term time. Further variance components analyses with these fixed facets show percent variance due to the intern is reduced further; and a redistribution of the variance proportions except for knowledge, clinical, emergency and procedural skills. Similar variance components are identified for all published workplace-based studies of the mini-CEX. From the comparative data, supervisors' assessments provide as much variability between trainees or more than that observed for a mini-CEX evaluation.
Discussion and conclusion: Variances not due to the intern are substantive but similar to that found with the mini-CEX. The results also demonstrate the existence of latent variables that effect the intern related variance of end-of-term summative assessments. This process provides an example for the evaluation of rater-based assessment methods using workplace data-sets; and for local educational assessment development and benchmarking.

10M3

An instrument to integrate feedback and assessment to support self-directed learning in clinical practice: A qualitative study of students' perceptions.

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Introduction: Clinical workplaces are hectic and dynamic learning environments which require students to take charge of their own learning. Competency development during clinical internships is a continuous process that is facilitated and guided by feedback. Limited feedback, lack of supervision and problematic assessment of clinical competencies makes the development of learning instruments to support self-directed learning necessary. The study aimed to explore students' perceptions about a newly introduced integrated feedback and assessment instrument to support self-directed learning in clinical practice. Students collected feedback from clinical supervisors and wrote it in a competency-based format. This feedback information was used for self-assessment which had to be completed before the final assessment. Our main research questions were: 1) What are students' perceptions of the effect of continuous and longitudinal written feedback on students' self-directed learning in clinical practice? 2) What are students' perceptions of the effect of the integration of feedback and assessment?
Methods: Four focus group discussions were conducted with second and last year midwifery students. Focus groups were audio taped, transcribed verbatim and analyzed in a thematic way using Atlas-Ti for qualitative data analysis.
Results: The analysis of the transcripts suggested that integrating feedback and assessment supports participation and active involvement in learning by collecting, writing, asking, reading and rereading feedback. Under the condition of training and dedicated time, these learning activities stimulate reflection and facilitate the development of strategies for improvement. The integration of assessment and feedback supports self-assessment and formative assessment. The students perceived a limited use for the final assessment. The quality of feedback and empowerment by motivated supervisors are conditional to maximize the learning effects.
Discussion and conclusion: The integrated Midwifery Assessment and Feedback Instrument is a valuable instrument for supporting formative learning and assessment in clinical practice but the effect on students' self-directed learning depends on the feedback and support from supervisors.

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10M4

The development and implementation of a competency-based assessment system: Systematic documentation and analysis of the process as an integral part of program design

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Introduction: Competence in medicine is not one-dimensional, easily measured by a multiple choice exam or by a one-time demonstration of a skill. Rather, competence encompasses knowing what to do, and when and how to do it. As such, determining both how to measure competence, and who should make the decision of whether competence has been achieved or demonstrated, is a source of debate in medical education. The most effective ways of measuring competence have not been clearly determined, although checklists have become a common practice. Checklist assessment of competencies has drawbacks: checklists do not offer the learner much in the way of formative assessment (specific information about what they are doing well and where they need to improve). In particular, if the rater does not offer any qualitative comments, the learner has little to work with. As well, checklists do not adhere to the intent of competency: development of a habitual approach to improving and using skills and knowledge. We developed a competency-based assessment system based on formative feedback (Competency-Based Achievement System – CBAS). We wanted a system that would be learner driven, so that residents would: a) Recognize when feedback was being given; b) Be able to act upon that feedback; and c) Assist themselves to progress towards competence by soliciting feedback in areas where they needed it. The key feature of CBAS is that assessment is not unidirectional: rather than clinical rotation-based summative evaluations, both advisor and resident meet regularly to review cumulative formative feedback of the resident's demonstrated skills and competencies across one or more rotations. From this evidence review, advisor and resident come to a mutual understanding of the strengths and weaknesses of the resident, establishing a summative evaluation. CBAS is designed as a multi-method participatory action research (PAR) project so that we can monitor, evaluate, and adapt CBAS as it is implemented. For the initial development and implementation phase, our research questions were: What are the barriers and enablers to developing and implementing an innovative approach to competency-based assessment? Are these barriers and enablers likely to generalize to other programs?
Methods: A series of 5 focus groups with the 5 key project team members was used to document the 15 month developmental and initial implementation process of CBAS. When clarification was needed, meeting notes and summaries were also reviewed. Team members were also presenting CBAS at other residency programs, and their experiences from those other contexts were incorporated into the analysis. Two focus groups were held with end-users at the 6 month point of the pilot to compare projected and actual outcomes of CBAS.
Results: Atlas-ti qualitative software was used to analyze the focus group data. Four major themes emerged: Barriers (e.g., understanding of CBAS among end-users, resistance to documentation); Enabling factors (e.g., time, space, resources, responsive approach - when preceptors asked for an electronic version, the team adapted the paper version); Characteristics of team members (e.g., background experiences, philosophies); and Emergent outcomes (e.g., faculty development, support for at-risk residents). End-user focus groups data consistently point to the need for faculty development around giving good formative feedback, and to continuous resident education around using formative feedback to develop competence. Consistent themes arose in terms of where communication about CBAS had failed, and where it had succeeded.
Discussion and conclusion: There are several barriers and enabling factors that when anticipated can impact the development process as well as implementation strategies for an innovative competency-based assessment system. These barriers and enabling factors are likely consistent across medical school program contexts, based on experiences of team members in talking to other residency programs.

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10N Workshop: Hands-on structured approach to effective Virtual Patient authoring

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Background: Virtual patient (VP) simulations complement clinical training through deliberate practice of complex clinical reasoning skills in a safe structured learning environment (Tworek, Freidman, Cook). Although VP authoring software is increasingly accessible and easy to use, designing educationally effective VPs remains challenging. To achieve anticipated learning objectives VP authors must base their design decisions and processes on existing theory, research and experience within and outside medical education.
Intended outcomes: 1. Identify educational challenges that can be solved with VPs; 2. Apply theoretical and evidence-based concepts to VP case design; 3. Acquire skills to author VPs that support specific learning outcomes; 4 Identify areas where research can inform improved VP case design.
Structure: 1. Facilitators briefly introduce the VP authoring literature and related educational theory; 2. Small groups engage in online, hands-on problem-solving by modifying partially constructed VP cases to address different educational challenges; 3. Facilitators guide a structured discussion addressing design of VPs supported by pedagogical theory, evidence, explicit and tacit knowledge; 4. Participants construct a map of techniques and methods of effective VP design; 5. Group identifies potential research issues related to VP design
Who should attend: Medical educators interested in the development and application of virtual patients.
Level of workshop: Beginner.

10O Workshop: Using web lectures and other streaming video applications in medical education

Peter GM de Jong, Peter G Anderson*, Alien W Riedstra, Andries JM de Man and Julie K Hewett* (International Association of Medical Science Educators (IAMSE))*

Background: Streaming video technology has highly increased the possibilities for using video in education. The technology has reduced many issues about delivery, file size and network load. Many schools around the world record their classroom lectures for future reference by the students as a standard procedure. In addition, other streaming video applications are employed, such as distributing recorded real life patient encounters for training purposes and incorporating in-house or public video materials into lectures, assignments or E-learning materials.
Intended outcomes: Participants will understand the possibilities and pitfalls of streaming video in education and see various scenarios of their use.
Structure: In the workshop, we will review the principles of the streaming video technology and we will show several examples of educational applications of streaming video in the universities of Leiden (The Netherlands) and Alabama at Birmingham (USA). Participants can bring into the discussion their own applications of streaming video in (medical) education. Together with the audience, we will discuss in small groups the benefits and possible disadvantages of web lectures and other video applications, and ways to make the video stream interactive for the students as part of blended learning scenarios.
Who should attend: Anyone interested in using streaming video technology in education.
Level of workshop: Intermediate.

10R Workshop: Encouraging mobility in medicine : can we apply spiral curricula and modules of excellence to our own university?

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Background: Although medical students are overwhelmingly in favour of intracurricular mobility, it is today far from being a reality in many universities across Europe. Possible solutions proposed include harmonisation of "spiral curricula" across the three cycles (joint statement AMEE, EMSA, IFMSA September 2009) and the creation of university specific modules of excellence (Bonn, DAAD Conference 'Learning Outcomes and Qualification Frameworks : Tools for Mobility', November 2009).
Intended outcomes: Participants will bring home ideas about how to apply the concept of spiral curricula, and identify and possibly develop modules of excellence specific to their university.

Structure: Concepts of spiral curricula, learning outcomes and modules will first be outlined in the context of encouraging mobility. Participants will then divide into groups and discuss practical implications for their home university, hopefully identifying several possible modules of excellence to be developed.
Who should attend: Students and professors keen to promote good teaching practices, international curricular development and increased mobility.
Level of workshop: Beginner.

10S Workshop: How to write an effective Team-Based Learning module

D Parmelee[1] and E Agamy*[2] ([1]Wright State University Boonshoft School of Medicine, Dayton, Ohio, USA; [2]University of Sharjah, Sharjah, UAE)*

Background: Team-Based Learning is a classroom strategy designed to fully engage students in increasingly complex problem-solving exercises using small groups. It was developed in the business school environment, but is now being used by over 40 US medical schools and schools in Asia and the Middle East. Because of its structure, one instructor can conduct a unit of study with a class as large as 200 or as few as 15. The strategy is very learner focused but instructor designed and directed.
Intended outcomes: By the conclusion of this workshop, participants will be able to: (1) Describe how to construct a Group Application Exercise (GAE) that promotes group cohesiveness; (2) Identify how to use the four S's in the design of a GAE Question; (3) Demonstrate at least two different formats for the display of team productivity; (4) Explain how the 'power of why' in question writing generates so much learner engagement.
Structure: This workshop is conducted in a Team-Based Learning format and therefore all participants are give preparatory materials, take a brief test upon arrival, are assigned to learning teams, and will engage in considerable discussion with each other and the workshop leaders through a series of small group assignments.
Who should attend: Course directors, clerkship directors, curriculum planners, faculty development specialists, any teaching faculty in medicine, dentistry, veterinary medicine, other health profession educators. Some familiarity with Team-Based Learning is helpful but not essential.
Level of workshop: Intermediate.

10U Posters: Simulated Patients/Evaluation of Clinical Teaching

10U1

Intimate examinations: Male and female specialised SPs teaching pre-clinical students

V O'Connor[1] and P Green[2] ([1]Bond University, Gold Coast; [2]University of Queensland, Australia)

Background: A specialised simulated patient (SP) program teaches female breast and pelvic examination (Clinical Teaching Associate Program - CTA) and male genital and rectal examination (Male Teaching Associate Program - MTA) to second year medical students.
Summary of work: The female 'Well Woman' check has been in operation for over 10 years. The program reflects clinical practice with a history, breast, speculum, and bimanual pelvic examination. Over 350 students attend the program each year. The recently piloted MTA program follows a similar format. In both programs the students record their hopes and concerns before the session. The students are assessed by the CTAs/MTAs and debrief or submit a reflection afterwards. The CTAs/MTAs teach and assess the students while being examined themselves without the presence of a clinician.
Summary of results: The main concerns before the session from the students are about hurting the SP and embarrassing themselves. The SPs find the maturity of the graduate and undergraduate students impact on the session and are able to identify a few students with individual problems. The students find the sessions challenging, are surprised that SPs would undertake this work, find the feedback valuable, and would like to have more sessions to reinforce the learning.
Conclusions: These specialised SP programs for intimate examinations establish a foundation of best practice for the clinical years.
Take-home messages: Intimate examinations taught by specialised SPs are a valuable educational exercise for pre-clinical students.

10U2

Training and quality assurance of simulated patients in a clinical assessment

R G Simpson and D Russell* (Royal College of General Practitioners, London, UK)*

Background: The nMRCGP CSA examination for licensing postgraduate doctors in family practice depends on cases representative of British General Practice being repeatedly and reliably simulated by role-players. Our presentation will explain the procedures we developed to train our simulated patients for their role, and how we quality assure their performance to ensure high standards.
Summary of work: We will outline the small-group/pair-work exercises used for training our role-players, 1)the priorities for simulated patients , 2) equality, diversity and fairness, 3)how to prepare for playing the 'patient', 4) 'calibrating' the case. We will also explain our monitoring procedures for quality assurance.
Summary of results: Successive reports on the quality assurance processes undertaken in the first two years of the exam, show that the performance of the simulated patients has consistently been of a very high standard and contributes to the reliability of the CSA examination.
Conclusions: Thorough training of simulated patients is necessary if they are to act as reliable and realistic 'patients' in a clinical assessment, and if the exam is to be fair to all candidates.
Take-home messages: This is how to prepare your simulated patients.

10U3

Professionalism, communication skills and bedside teaching

C Woranart (Pediatric Division, Khon Kaen Hospital, Khon Kaen, Thailand)*

Background: It is emphasized that a medical teacher should integrate professionalism and communication skills during bedside teaching. How the teacher follows this recommendation is still unknown.
Summary of work: The objective was to explore how medical teachers integrate professionalism and communication skills into bedside teaching. A questionnaire survey was distributed to 33 medical teachers. These teachers were labeled as average and role-model teachers by student feedback. The in-depth interview was done to explore teachers' views on integration of professionalism and communication skills into bedside teaching.
Summary of results: Teachers in role-model group had more teaching experience than in the average group. All teachers spent 70% of bedside teaching on medical knowledge and skills. The proportions of professionalism and communication skills during bedside teaching were 10%, 20% and 20%, 10% in average and role-model teachers respectively. All teachers were aware that professionalism and communication skills should be taught in bedside teaching. Role model teachers regarded themselves as good examples, while average teachers did not mention the importance of a teacher as a role model. Teachers in the role model group emphasized on demonstration, pre-and post session student evaluation and teacher self-assessment in teaching professionalism and communication skills. Average teachers focus on medical knowledge teaching and required training in teaching skills.
Conclusions/Take-home messages: There were some differences in teaching among role model and average teachers. Role model teachers had more experience in professionalism and communication skills and know how to teach these skills in bedside teaching.

10U4

The use of simulated patient scenarios in the teaching of basic clinical procedural skills

Elize Archer and A de Villiers (Centre of Health Sciences Education, Stellenbosch University, South Africa)*

Background: Part task trainers (PTT) and simulated patients (SP) are an integral part of procedural skills training and assessment in undergraduate medical education. The Skills Centre at the Faculty of Health Sciences, Stellenbosch University, South Africa, wanted to determine the value of these teaching resources.
Summary of work: A formative examination (OSCE) with individual tutor feedback was done. Two of the OSCE stations had only a PTT, while a SP combined with a PTT were used in the other. The aim of the study was to determine which of the stations offered the most realistic and valuable learning experience.
Summary of results: The quantitative data revealed significant, but contradictory results in the use of a SP with a PTT versus only a PTT. Qualitative data suggested that this difference could be attributed to the SPs' performance. Tutors and students reported feedback facilitated learning in all cases.

Conclusions: Using an experienced SP and a PTT can have a positive effect on the authenticity, however, when only PTTs are used valuable learning opportunities can still be provided.
Take-home messages: Training opportunities with PTT in simulation coupled with individual feedback empowers students in the early years of their medical training.

10U5

Comparisons of rating by standardized patients and physicians in an Objective Structured Clinical Examination in National Taiwan University Hospital

C W Yang[1], HC Chen[2] and H S Lai[1] ([1]National Taiwan University Hospital, Taipei, Taiwan; [2]University of California San Francisco, USA)*

Background: National Taiwan University Hospital has had an Objective Structured Clinical Examination (OSCE) and Standardized Patient (SP) training program for five years. In our program, due to shortage of resources and funding, SPs recruited were largely hospital volunteers. SPs have been trained as recorders to document completion of checklist items by learners. We assessed the ability of SPs in Taiwan to evaluate and rate learner performance in an OSCE.
Summary of work: In an eight-station OSCE held in May 2009, two physicians and one SP at each station evaluated thirty learners by submitting a global rating of learner performance using a 5-point scale. SP ratings for each learner were compared to faculty ratings.
Summary of results: Scores submitted by physicians (average 3.77, S.D. 0.33, range 3.00-4.25) were comparable to those submitted by SPs (average 3.86, S.D. 0.15, range 3.63-4.10) with a correlation coefficient of 0.365 ($P<0.05$).
Conclusions: SPs can provide valid global ratings of learner performance in an OSCE. However, SPs utilized a narrower range of the rating scale than physicians which might decrease ability to discriminate among learners.
Take-home messages: With appropriate training, even in the shortage of resources, SPs can be valuable candidates and a physician alternative for providing global evaluations of learner performance in an OSCE.

10U6

International survey of standardized patients: Who they are, what they do, and how they experience their work

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Background: Standardized Patients' (SPs) contribution to medical education is substantial. Despite exponential growth in SP participation, research has rarely focused on demographic characteristics, tasks, and concerns. This survey compares these features in the UK, US and Japan.
Summary of work: SPs were surveyed in the UK, n=235, US, n=570, and Japan, n=532, measuring demographic characteristics, attitudes regarding work experience and participation in physical examination.
Summary of results: The response rates were, UK, 69% US 45% and Japan 62%. The proportion of males and female SPs is 2 : 3 in UK and US, 1 : 4 in Japan. UK SPs are older and most work part-time. Most enjoyed their tasks, accept Japan only 50%, as Japanese SP's felt burdened. Many gave feedback to students, but feelings of satisfaction in performance and training in feedback varies between groups.
Conclusions: SPs' characteristics vary within and between countries. SPs report difficulty in performing feedback tasks. Feelings of being burdened may be caused by the in-balance of frequency between training and giving feedback. Additional support and training in areas of identified weakness may decrease their feelings of difficulty.
Take-home messages: SPs enjoy their work but may experience difficulty in giving feedback. Training in giving feedback to students is required.

10U7

Implementing a standardized patient program in a new medical school

M Gonçalves, A P Salgueira, M J Costa, T Frada, V Pereira, J M Pêgo, N J Sousa and J Cerqueira (Medical Education, Life and Health Sciences Research Institute, University of Minho, Braga, Portugal)*

Background: Our school is pioneering the first Standardized Patient (SP) program in Portugal. The objectives are to offer opportunities for students to practice and improve clinical skills and for the school to assess. A typical session with an SP consists of clinical interview followed by SP feedback, student self-assessment and facilitator feedback supported by the interview video. Facilitators are medical faculty and invited physicians.
Summary of work: This work explores the impact of 30 interview sessions with SPs offered weekly in an extra-curricular format, on preclinical/clinical students. Pre- and post-encounter questionnaires are used to evaluate the experience.
Summary of results: All students rated their encounters very positively and would recommend the sessions to colleagues. The usefulness of the feedback from the facilitator was unanimous. Interestingly, we found opposite effects on students' confidence in taking a history. Even though there was an overall increase – median increases from pre- to post-encounter from 4 to 5 (7 point Likert scale) – gains were marginal and negative for some students. Further results will be reported.
Conclusions/Take-home messages: Encounters with SPs may be appreciated extremely but not exert the wanted positive effects on all students. Post-encounter feedback emerged as a key educational aspect.

10U8

Quality assurance of SPs regarding assessment of medical students' communication skills in a clinical exam: Developing and standardizing tools

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Background: The recognition that standardized patients have the potential to assess more areas of the doctor-patient relationship than any other type of simulation has made them a popular subject. OSCEs incorporating standardized patients are increasingly used in the evaluation of students' performance. This cross sectional, descriptive and correlational study aims to develop a reliable and valid tool for assessing SPs´ quality assurance for assessing medical students´ communication skills.
Summary of work: The SPs were trained to portrait and fill in the Iranian version of Calgary Cambridge checklists. Then the observational rating scale for assessing the quality assurance of SPs´ portrayal was developed and validated. The SPs´ portrayal and checklist completion ability were assessed and compared with those of the faculty. The data were analysed.
Summary of results: The mean κ was 0.82 regarding the inter-rater reliability for the SPs filling the same checklists. The total score for the SPs' portraying was above the gold standard limit of 2.7 for validity for all SPs. The mean κ was 0.60 for the correlations between the ten SPs and the three faculties filling in the checklists. All SPs performed acceptably well. The mean κ was 0.72 for correlations between SPs' two assessments in the test-retest.
Conclusions: Cost effectiveness of the Sps makes their use preferable.
Take-home messages: SP is a valid tool for assessment of communication skill.

10U9

Use of simulated patients in performance assessment of basic medical sciences: An interdisciplinary approach in a resource constrained environment

M Saeed, A Hussain*, F Himmatullah, A Javaid*, R Shafi, M Mansoor, S Moazzam*and R Saeed (Shifa College of Medicine, Islamabad, King Edward Medical University, Lahore, Pakistan)*

Background: Transformation of healthcare delivery from individuals to teamwork concept demands a multidisciplinary approach to training & assessment of health care workers. Shifa has been delivering undergraduate programs through an integrated curriculum since 2008. Integrated performance based assessment (PBA) of 1st year medical students was carried out in November 2009 using an innovative tool termed "integrated practical examination (IPE)".
Summary of work: A 15-station IPE, having each station based on clinical theme and contained 3-integrated tasks, directly observed by faculty or simulated patients (SPs). A large number of SPs posed a logistic problem. The B.Sc Nursing students (volunteers) were selected for training as SPs after signing informed consent. All SPs underwent a training workshop and a short briefing prior to exam. A pre and post test analysis of perceptions of nursing students was done. A focus group was conducted after the exam. The examinees' perception about SPs were also analyzed.

Summary of results: The apprehensions of SPs underwent positive transformation after conduct of IPE, 96% appreciated effectiveness of their role for mutual benefit.
Conclusions: Use of nursing students as SPs in 1st year medical exam is cost effective and mutually beneficial.
Take-home messages: Interdisciplinary use of simulated patients in performance assessment is cost effective and mutually beneficial in a resource constrained environment.

10U10

Competing in clinical supervision: Can it be done?

P Kihlberg[1], M Perzon[1], P Blomqvist[1] and J Johansson[2] (Uppsala University, [1]Medical Student Council; [2]Institution of Surgical Sciences, Uppsala, Sweden)*

Background: Swedish Medical Education contains a lot of clinical practice. In order to provide feedback and highlight the importance of competent teaching, a need was identified to evaluate the clinical supervision.
Summary of work: A web questionnaire, with ten questions reflecting different aspects of clinical supervision based on a concept from Stanford University, was used. The average grades were used to rate the clinics and appoint a winner. The evaluation continues in order to study change over time.
Summary of results: The response rate was 67%. Twenty clinics were evaluated with an average of 30 replies per clinic. The rating varied between 3.4 and 5.5 with an average of 4.2 (six graded scale). The average difference between the highest and lowest rating of an individual clinic was 1.7.
Conclusions: The spread in grades within and between clinics indicate that students have answered the questionnaire with care. The specified feedback to each clinic and the rating provides incitements for improvements. Future results will be used for comparison over time, where a higher rating may indicate that the project resulted in improved clinical supervision.
Take-home messages: The introduction of an evaluation of clinical supervision and a competition between clinics has resulted in strong commitment from students, providing specific feedback to the clinics.

10U11

Students' evaluation for the obstetrics and gynecology teaching course in the College of Medicine at Taibah University in Al Madinah, KSA

F Habib, M Fath Elbab, M Laban, A Essam A and A Fayomy (Taibah University, College of Medicine, Al Madinah Al Munawaraha, Kingdom of Saudi Arabia)

Background: Teaching in the clinical environment is a demanding and complex task. Evaluating an educational program is a core responsibility for any course. Feed back is a crucial step in teaching and learning process. Without feedback, mistakes are uncorrected and good performance is not reinforced.
Summary of work: To measure the fifth year undergraduate medical student's views about the obstetrics and gynaecology teaching course. Using a 5-point Likert scale self administered questionnaire, was distributed to (42) males and (53) females. The first part of the questionnaire covered the lectures and the clinical sessions, while the second part covered the educational resources, and the third reflects the student opinion about the assessment methods.
Summary of results: The response rate was (78.9%). The male students best score (82%) was given to the first part of the questionnaire, and the lowest score was given to the second, while the third part was given (80%). The female students best score (87.5%) was given to the third part, and the second and the first part were given (58%) and (74.4%) respectively.
Conclusions: We should develop an action plan for improving the course especially our educational resources level.
Take-home messages: Monitor the quality of your curricula in order to fulfill the professional teaching requirements.

10U12

Student evaluation of clinical teaching sessions: questionnaire based quantitative analysis

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Background: To quantitatively evaluate student satisfaction of various types of teaching sessions based on anonymous feedback questionnaire.

Summary of work: Twenty-two 3rd year medical students were allocated in 5 blocks of 7 weeks each, to our department. Teaching rota was based on 4 consultants and 3 specialist registrars with medical students attending ward rounds, outpatient clinics, (Opportunistic Sessions - OS) or bedside teaching and lectures (Dedicated Sessions – DS). A formatted feedback questionnaire, filled out at the end of each session was used to device a scoring system to assess effectiveness and student satisfaction.
Summary of results: 321 feedback forms reflecting 127 teaching sessions were received. DS scored better with 'level' (99.6% vs 93.7%, 'content' (97.3% vs 85.3%) and 'quality' 1.47 vs 0.46, range -2 to +2) of teaching. Overall performance score, based on student selection of pre-marked attributes, showed significant satisfaction with DS (7.42 vs 5.41, max 14). This pattern of preference was consistently observed irrespective of the grade of the clinical tutor leading the session.
Conclusions: Retrospective analysis demonstrates better student satisfaction and preference for dedicated teaching sessions. Quality of teaching offered, with respect to content and depth, is better in dedicated sessions.
Take-home messages: Dedicated sessions should be preferentially incorporated to attain better learning outcomes.

10U13

Student attitudes to teaching on clinical attachments

A M Higton and Y E Ong (Dept Respiratory Medicine, St George's Hospital, London, UK)*

Background: We sought to clarify which modes of clinical teaching students found most helpful, and what deterred them from attending.
Summary of work: We surveyed 696 medical students regarding their attitudes towards clinical teaching.
Summary of results: We analysed 294 replies (42% response). Of these, 68% felt welcome in clinical areas. 96% thought patients were usually willing to discuss their medical problems with students and 91% felt patients were willing to be examined. 50% and 64% respectively felt consultants and junior doctors were willing to teach. Students ranked bedside teaching, tutorials and clerking acute admissions most useful, and ranked clinical PBL, clinics and ward rounds least valuable. 94% said they attend most available clinical teaching opportunities. The most common deterrents were administrative.
Conclusions: Students ranked bedside teaching, tutorials and clerking acute admissions the most useful activities. Most found patients were willing to interact with them. A significant minority did not feel welcome in clinical areas and found clinicians unwilling to teach.
Take-home messages: Students and clinicians find teaching in protected times highly beneficial and relatively easy to achieve. Teaching within busy clinical settings (clinics and ward rounds) is often more challenging and clinicians need to learn different skills to be able to teach effectively whilst maintaining service to patients.

10U14

A theoretical framework to describe development of expertise in clinical teaching

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Background: Empirically based criteria to describe quality of clinical teaching have not been reported [Steinert]. Furthermore, a theoretical framework based on respective criteria does not exist. However, a model might be of value as a basis to develop didactical expertise.
Summary of work: Empirically based criteria for teaching quality have been defined for school education. We transferred them to medical teaching and added criteria which are proven to be important for patient-physician relationship.
Summary of results: On a basic level of competence two fields of criteria were distinguished: (a) structural aspects of teaching and (b) interaction between student and teacher, and patient. Criteria related to (a) are: 'amount of true learning time', 'clarity of content', 'clear structure', 'variation of methods', 'prepared environment'. Criteria related to (b) were: 'climate facilitating learning', 'meaningful communication', 'individual promotion', 'intelligent practicing', 'transparent expectations', 'identification' (role modelling). On a higher skill's level (for which the basic level competences are prerequisites) were allocated the competencies of 'feedback', 'moderation of learning', and 'metacognition'. On the higher level structural teaching aspects (a) are linked to interaction (b).

Conclusions/Take-home messages: The described model might serve as a theoretical framework for training in clinical teaching. It needs to be proven by empirical data.

10U15

Self-perceived progress in clinical skills performance of medical students and interns during coursework and internship in Osijek, Croatia

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Background: Clinical skills performance is important for preparedness and competence in standalone work of graduated medical students. Traditionally in Croatia medical education involves 6 years of undergraduate study and one year internship. However, there is a proposal for internship's cancellation after Croatia joins EU.
Summary of work: A pilot study, self-grading survey on clinical skill performance on fourth to sixth (177) year medical students at Medical Faculty Osijek and interns (20) at Clinical Hospital Osijek, was carried out to determine their level of qualification and how the internship affects the same. The query examined basic surgical skills, intravenous access, airway management, BTLS, BLS and ALS related skills.
Summary of results: The results have showed increase in competence with the duration of study, but also some faint facts, such that 12% sixth year students have never seen a urinary catheter been placed, 46% of the same have never seen a primary wound management, just 30% of them have placed a intravenous catheter into a patient. A significant self-perceived improvement occurs in all skills after internship.
Conclusions: Our results showed that internship is important in preparation for standalone medical practice. It provides time for development of practical skills. If canceled, other teaching tools should be introduced in the medical curriculum to substitute it.
Take-home messages: Cancellation of the internship should be carefully reconsidered and some changes are necessary in undergraduate teaching. When it comes to that, mannequins and high-fidelity medical simulations could be appropriate teaching tools.

10U16

How to train and quality assure simulated patients

A Khan[1], D Russell*[2] and R G Simpson[2] ([1]London Deanery; [2]Royal College of General Practitioners, UK)*

Background: Since 2007 the MRCGP Clinical Skills Assessment has been part of the licensing exam required for General Practitioners completing their training. The CSA exam is based on patient simulation, using trained role-players to simulate consultations in General Practice. Because the CSA is such a high-stakes exam, it must be seen to be fair to candidates, and trustworthy in the eyes of governing bodies and patients. Such attributes could be compromised by inadequate role-player performance. The presentation will demonstrate some of the methods we use to train our simulated patients to role-play in a clinical assessment, to ensure the highest possible standards of performance and the observation procedures used for quality assurance.

10V Posters: Humanities/Public Health and Health Promotion

10V1

Medical Humanities: A patient-based approach

Z Playdon and J Winning (University of London Postgraduate Deanery for Kent, Surrey and Sussex and Birkbeck College, London, UK)*

Background: KSS Deanery and Birkbeck College have collaborated to develop a new, two year, part-time MA Medical Humanities that focuses on improving patient care through a deeper understanding of the humanities.
Summary of work: The programme draws together the emergent fields of medical humanities and integrated medicine to explore and develop the daily practice of individual doctors in their interactions with patients and cultures. This focus on 'the art of medicine' meets new national requirements from the NHS Next Stages Review and new directions signposted by the Crisp Report on Global Health Partnerships, as well as local needs for a more plural medicine in UK's diverse society.

Summary of results: Analysis of the field identified opportunities to focus on the 'third space' created between physician and patient, extending Michael Balint's work, and on processes for developing a new community of practice which integrates different medical practices to improve patient care. Prior research made available an optional placement working with the fusion of western and traditional medicine currently practised by the First Nations and settled communities in the Yukon Territory, Canada.
Conclusions: A novel contribution to an emergent field of practice.
Take-home messages: New horizons in patient care are emerging.

10V2

Students' perceptions of a medical humanities course delivered in a problem-based learning format

S Zhou[1], R D Cohen[2], J Kong[2], R Holden[2], R Mathias[2] and J Bates[3] ([1]Fudan University, Shanghai, China; [2]Faculty of Medicine; [3]Centre for Health Education Scholarship, University of British Columbia, Vancouver, Canada)*

Background: Problem-based learning (PBL) is well described as a format for delivery of science-based knowledge in undergraduate medical curricula, but does it work for the humanities? This research investigated students' perspectives on the delivery of a medical humanities course in a PBL format.
Summary of work: In 2008, the UBC Faculty of Medicine conducted a trial of PBL for delivery of part of its medical humanities course to medical students. The course directors designed a questionnaire exploring students' perceptions of PBL as a format for delivering the medical humanities. This questionnaire was sent to all the medical students (n=111) who attended the course.
Summary of results: There was a 52% student response rate. 90% of these opposed the future use of a PBL format for delivering medical humanities content. PBL was perceived as too closed-ended to allow free discussion of often controversial topics that had provoked students' interest and passions. This was especially evident when these topics were perceived as relevant to their future clinical practice. Learning objectives were perceived as essential to guide discussions.
Conclusions: PBL provides too structured a format for useful delivery of the medical humanities.
Take-home messages: Delivery format must be tailored to content. Objectives remain essential to guide learning.

10V3

From volunteer project to general education course: Learning through activities

Ronnaphob Uaphanthasath (Chiang Mai University, Chiang Mai, Thailand)*

Background: In 2009, the pilot study of volunteer projects was assigned to 1st year medical students, to develop professional and life skills for the making of the ideal Thai medical students. The goals of this project are to build good relationship between the students and the community, to increase morality of medical students and to create opportunity for students to be able to understand the problems happening in the society and how to deal with them.
Summary of work: Our concept is to do volunteer activity named "50 for SCI" (Social, Community and disadvantaged people), which aimed to improve and encourage medical students to be moral, voluntary, develop the community and help the underprivileged group of the society, students have to participate in this activity for student's quality development (no less than 50 hours). We divided 1st medical students into ten groups and assigned them to do various activities in social, community, such as a voluntary camp, natural and environmental conservation, public health service, working with disabled, elderly and disadvantaged children etc.
Summary of results: The result of this project comprises of 10 activities: four activities in social, three activities in community and three activities in inferior people. In this year, we integrate this project to curricular named General Education Course: Learning through Activities
Conclusions/Take-home messages: Take home message: we can teach humanism in medical students by using a volunteer project as curricular or extracurricular program.

10V4

Narrative based medicine in clinical medical education: A qualitative study of the experience of history taking

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Background: Autobiographical narratives are considered an effective strategy for a deeper understanding of the clinical experience. The patient history is traditionally discussed to assess the clinical information and students are rarely expected to narrate their own experience of history taking.
Summary of work: In the academic years 2008-2009/2009-2010 at Humanitas Teaching Hospital - School of Medicine of the University of Milan, 83 students attending the second semester of the 3rd year were invited to narrate in a written form their first experience of history taking. Written narratives were analysed following the Grounded Theory method.
Summary of results: Students experience of the first medical interview revealed the following meanings: (i) to acknowledge numerous events, (ii) to understand the patient illness, (iii) to shift from a theoretical model to a practical experience of history taking, (iv) to understand the complexity of the clinical relationship, and (v) to build a new medical identity.
Conclusions: Written narratives were an effective strategy to provide experience and increase student awareness of the complexity of the medical interview. These can be considered a successful strategy to learn how to manage medical interviews.
Take-home messages: Narratives facilitate students in recognizing the complexity of both patient illness perception and clinical relationship.

10V5

Death and dignity: Teaching medical humanities

M Phillips, R Pilkington*, A Patterson and M Hennessy (School of Medicine, Trinity College, Dublin, Ireland)*

Background: In 2010 The School of Medicine, Trinity College Dublin saw the roll out of its medical humanities programme. First year medical students were offered Student Selected Components (SSCs) in a range of humanities connected to Medicine. These were delivered on a small group basis (up to 12 students), over 10-12 contact hours.
Summary of work: The module on bioethics took the form of, 'Death and Dignity'. This saw the students examining the components of a good death through poetry, media and scientific articles. The students had two field trips, one was to a local hospice where they could talk to clinicians about their work, and see a venue where people chose to spend their last days. The second field trip was to the museum to see mummified bog bodies on display, which allowed them to explore the role and impact of death in society, and to consider the ethics of displaying human remains. The assessment for this module was based on a debate and the production of Haiku poetry.
Summary of results: Overall, the students found this a very positive and worthwhile experience.
Conclusions: Themes of bioethics do not have to be explored solely through material designed for health care professionals, nor legal material, to be effective.
Take-home messages: Death in medical ethics is often approached by considering medico-legal aspects, through using a variety of media, students can be guided to explore the concept of death

10V6

A new department to promote healthy lifestyles in medical students

Myrna Leticia Montemayor-Flores, Donato Saldívar-Rodríguez, Norberto López-Serna, Jessica Ortiz Huerta and Amanda Catalina Torres-Ramos (Universidad Autónoma de Nuevo León, Monterrey, México)*

Background: In Mexico, the prevalence of cardiovascular diseases at younger ages has been increasing because of three main factors: obesity, smoking and sedentariness. The young people who attend universities are not excluded from this situation. This leads us to ask ourselves the following question: How can our medical students work in health promotion, if they themselves belong to the same risk factor group?
Summary of work: With the mission of designing and putting into practice programs, which are opportunities for our students to adopt healthy lifestyles, the "Coordination of Programs for Healthy Lifestyles" was created. The fundamental idea consists in that the future physicians embody values related with prevention, health and well-being in such a way that they become living examples of the preventive practices of their professional practice. This would be done through programs, such as "100% smoke free spaces" "Correct use of a condom", as well as "You 2.0, a new version of you program". All of the directed towards the prevention of diseases, such as pulmonary cardiovascular, sexually transmitted, obesity and diabetes mellitus.

Conclusions: Adopting healthy lifestyles constitute a guarantee so that the physician assumes responsibility of his clinical practice professional competences. These would mainly be those related with health promotion and disease prevention.
Take-home messages: Offering a healthy environment, which promotes the formation of healthy life-styles and habits, also is a responsibility of the universities.

10V7

Health promotion in medical curriculum

*W Aekplakorn*and S Wanvarie (Ramathibodi Hospital, Mahidol University, Bangkok, Thailand)*

Background: Health promotion is a crucial topic in Thai medical curriculum. The development and providing training activities on health promotion for medical students is essential.
Summary of work: To describe the health promotion training approach for the final (6th) year medical students at the community medicine rotation of the faculty of medicine, Ramathibodi Hospital. During one-month 'on the job' training in a community hospital, each student is assigned to pick up a health problem to be studied in details on health promotion. Choosing of topic considered high priority of the local and related to clinical practice is encouraged. Students spent time in the afternoon of some working days to work on their project. Each student was evaluated based on individual's 3-page report focusing on recommendation of health promotion strategy based on Ottawa charter concept.
Summary of results: After one year of training, one hundred twenty health promotion reports were produced. Over thirty health problems were covered and reported. Among the most reported issues include: tobacco control, alcohol control, health promotion for diabetes and hypertension patients etc. All the papers were graded. More than half of the students were relatively satisfied with the assignment.
Conclusions: Exposing students to activities of a health promotion project enhanced their experience in the application of a health promotion concept.
Take-home messages: Assignment of health promotion project related to high priority, health problem and clinical work provided the opportunity for students to gain more experience in heath promotion practice.

10V8

A review of undergraduate public health-related course syllabi in Thai Medical Schools

R Tansirisithikul and S Wanvarie (Community Medicine Center, Ramathibodi Hospital, Mahidol University, Thailand)

Background: Many public health-related courses have been introduced into the medical curriculum to deepen understanding of community health and to inspire medical students to pursue such career options.
Summary of work: We reviewed the 2009 course syllabi of 11 Thai medical schools (61.1% of all schools), focusing on public health-related courses, credits, lectures and practice hours. Our review concentrated on current public health related subjects and credit taught by these medical schools.
Summary of results: All 11 medical schools required students to attend public health courses commencing in 1st through 6th year. The total credits in undergraduate medicine curricula ranged between 11-25 (mean=18, SD=4.9). The preclinical credit was between 3-11 (6.8, SD=3.0) compared to a range of 3-20 (12, SD=5.12) in clinical clerkship curricula. The proportion of practice to lecture hours in pre-clinical years ranged from 0-4.5 (1.98, SD=1.4) and the proportion in clinical years was between 2-7 (4.6, SD=1.73). We found preclinical credits, including preclinical practice credits in Bangkok and similar municipalities significantly lower than regional universities ($p<0.05$).
Conclusions/Take-home messages: A public health curricula is required in all Thai medical schools with varying degrees of emphasis depending on area, time and resource. These curricula are mainly developed by the social and preventive medicine / community medicine / community health department. The universities in regional areas tended to have more course credit especially for practice credit in preclinical years than those in Bangkok and similar municipalities.

10V9

A curriculum aimed at improving attitudes towards advocacy for individuals with disabilities

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Background: In 2008, approximately 36 million people in the US had a disability, a prevalence of about 20%. This study was designed to develop and evaluate the impact of a curriculum intended to improve attitudes towards advocacy in health care for individuals with disabilities, and to illustrate the need and opportunities for advocacy in health care through informed discussions.
Summary of work: The one hour educational session, part of an undergraduate course about women's health, used active and reflective learning methods in response to our DVD developed from semi-structured written and oral narratives from persons with disabilities. The Attitude Toward Patient Advocacy – Microsocial Advocacy (AMIA, a = .92) subscale was administered before and after the session.
Summary of results: Fifty four participants (18.1%) completed the pre or post-class AMIA. The pre-class mean on the AMIA was 220.43 (SD=14.50) and the post-class mean was 231.88 (SD=15.89). The increase in the post-class mean was statistically significant, $t(35) = -2.28$, $p < .05$.
Conclusions: Brief focused instruction using active and reflective learning can positively influence attitudes towards patient advocacy.
Take-home messages: Education promoting amelioration of disparities involving persons with disabilities can incorporate advocacy attitudes.

10V10

Educating tomorrow's doctors on health inequalities within disadvantaged groups
C Wilson and P Cotton (University of Glasgow, UK)*

Background: Health inequalities occur for disadvantaged groups due to inadequate provision of healthcare services or difficulties accessing these services. Thus, there are many barriers to accessing healthcare and inequalities can only be addressed when these are appreciated and understood by professionals.
Summary of work: Whilst studying the healthcare of prisoners, prostitutes, asylum seekers, refugees and homeless people, I grew to appreciate the perpetual cycle of deprivation, psychological trauma and substance misuse. One way of reducing health inequalities is through the education of medical students on the needs of marginalised sections of society.
Summary of results: I have outlined how these barriers can be taught in a practical and sustainable way within the undergraduate medical curriculum in the following areas: 1) Communication with disadvantaged patients. 2) Social and cultural differences in those from disadvantaged groups. 3) Holistic care. 4) Student selected components. 5) The influential role of tomorrow's doctors.
Conclusions: Health inequalities can only be addressed if health professionals are aware of the needs of disadvantaged groups. This awareness comes from making sustainable changes to curricula to ensure that there is a more universal and inclusive approach to the topics covered.
Take-home messages: Tomorrow's doctors must be able to care for all members of society to ensure equitable healthcare access for all.

10V11

Introduction of a health advocacy module into an emergency curriculum
A Lalani (University of Toronto, Division of Pediatric Emergency Medicine, Toronto, Canada)*

Background: The Royal College of Physicians and Surgeons of Canada have developed 7 CanMEDS roles including the Health Advocate role. This is a role that many specialties have found challenging to incorporate into their curriculum.
Summary of work: The Health Advocacy module in the pediatric emergency program at the Hospital for Sick Children includes different strategies to highlight this role. First the program director attended a Train the Trainer Health Advocacy workshop. Secondly, a Health Advocacy Day was introduced into the curriculum. This included an introduction to health advocacy session, grand rounds and local guest speakers who presented on different health advocacy programs. The day concluded with a workshop to develop a fellows' advocacy project. Another strategy was to make the health adovcate role more visible and explicit in the program. Therefore, the rounds schedule was annotated to label the Health Advocate role where applicable. Assessment was performed by developing an OSCE station on Health Advocacy, and by evaluating this role on the fellow ITER.
Summary of results: Fellows were more aware of the Health Advocate role, following implementation of the module.

Conclusions: This review details the manner in which one program successfully introduced a Health Advocacy module into its curriculum.
Take-home messages: Health Advocacy is an essential role for physicians. Development of a curriculum module on health advocacy can be successful in teaching and bringing awareness of this role.

10V12

Competency of the number 15 medical coordinator

C Bertrand, C Montandon, E Lecarpentier, L Boidron, C Ammirati, J P Farcet and M Barthout (UFR de Médecine, Université Paris Est Créteil, France)*

Background: In France, it is the doctors who respond to emergency medical calls through a free phone number – 15.
Summary of work: Interviews of doctors in practice and of doctors in post doctoral training aimed to identify the required competency needed in order to practice this function of telemedicine specific to France.
Summary of results: The resulting competency combines inter-disciplinary medical expertise, communication, collaboration, humanism, organization, leadership.
Conclusions: Competency attained by professionals permits the building of the formation of scenarios of simulated calls with virtual patients: the training does not however permit the reproduction of psychological and cultural interferences in the professional context.
Take-home messages: Qualitative study of interviews of the expressed competency by professionals demonstrate the complexity of decisional factors in telemedicine and shows that only a doctor can fill this role.

10V13

The need for DVT prophylaxis education in an Asian setting

S Tan[1], YO Kok[2], U De Silva[3] and P Robless[3] ([1]University of Glasgow, Faculty of Medicine, UK; [2]National University of Singapore, Yong Loo Lin School of Medicine; [3]National University Hospital, Singapore)*

Background: Deep Vein Thrombosis (DVT) has a high morbidity and mortality but there are variations in implementation and practices. Studies have suggested that Asians are at a much lower risk of DVT than Caucasians, hence an apparent downplay for routine DVT prophylaxis in Asians. The aim of our study is to assess clinicians' awareness and perceptions towards DVT prophylaxis in a Singapore Hospital.
Summary of work: We performed a randomized prospective survey of clinicians' attitudes and perceptions towards DVT at the National University Hospital, Singapore. A visual analogue scale was used in conjunction with white-space questions.
Summary of results: A total of 179 questionnaires were filled in appropriately. 48.6% (n=87) of the respondents did not have any guidelines advocated by the department for DVT prophylaxis, 30.7% (n=55) were unsure if there were any guidelines, and 20.7% (n=37) reported having guidelines in the department to refer to. 50 doctors (27.9%) said that they would never use prophylaxis guidelines. The mean score for perception of good management in the hospital was significantly lower in the junior doctors (5.9 ± 1.3) compared to consultants (6.9 ± 1.4) ($p<0.001$).
Conclusions: It will be prudent to incorporate rigorous DVT prophylaxis education in order to equip junior doctors with the necessary skills in providing prophylaxis.
Take-home messages: DVT Prophylaxis education must be emphasized in the Asian setting.

10V14

Developing teamworking skills: Medical students perceptions

S V Merrifield, C L Ward*, L Fraser, A Alcosie and M Marshall (Academic Unit of Medical Education, University of Sheffield, UK)*

Background: Team working is considered a key aspect of working as a doctor. This study aimed to explore what aspects both within and outside of the curriculum contribute to the development of team working skills, as part of a 2nd year medical student research project.
Summary of work: Qualitative focus groups were undertaken with fourth year medical students at one UK medical school. An interview guide was developed following a review of the literature. Discussions were recorded and transcribed verbatim. Data was then subjected to a thematic analysis.

Summary of results: Five key themes emerged: understanding of team work, small group work, placement experiences, roles and responsibility, experience and maturity. Participants identified the key characteristics of team working and indicated small group work as providing insight and development of team working skills in a relaxed environment, this provides a foundation for future work. Placement experiences either enhance team working skills or hinder them, with lack of role clarity being a barrier to students and the clinical team. Participants indicated that team working skills are learnt through experience rather than formal teaching.
Conclusions/Take-home messages: Team working skills are developed through a range of experiential activities, but clear roles and responsibility during placement are required to enhance the development of skills.

10V15

Do medical students develop an appreciation of healthcare structure and policy in the absence of a properly designed formal teaching programme?

F Martin[1], J Crane*[1] and R Jacoby*[2] ([1]Core Medical Trainees Year One; [2]Acute Care Common Stem Trainee, London Deanery, UK)*

Background: The GMC requires that medical students have a working knowledge of the NHS, healthcare policies and health economics, yet this remains a neglected area in many British medical schools.
Summary of work: We undertook a questionnaire-based survey to assess whether medical students' awareness improves as they progress through their training. They were compared with a similar cohort of architecture students. Both student bodies were also quizzed on the education sector to look for medical student and healthcare specific improvements in performance.
Summary of results: We found a small trend of improvement in healthcare sector awareness across the medical school year groups, with years one and two performing significantly less well than year five, and a non-significant trend elsewhere. This was not found with education sector knowledge, nor amongst the architecture students. The media were perceived to be their primary source for their knowledge.
Conclusions: While medical students do gain a specific and greater than average understanding of the healthcare sector without formal teaching, they primarily use the media as their source with all their inherent bias.
Take-home messages: More can and should be done to formally teach medical students about the healthcare sector to ensure a broad and unbiased awareness of these issues and enable their future engagement in clinical leadership.

10V16

Clinical breastfeeding teaching by a nurse: New model of an extracurricular educational program for last year medical students

J Achalapong, V Neeyalavera, A Natrae and C Thanapaisal (Chiangrai Medical Education Centre, Chiangrai Hospital, Chiangrai, Thailand)*

Background: In Thailand, breastfeeding has not been successfully implemented. Therefore, there was an idea of introducing medical team to stimulate breastfeeding rate, by developing curriculum for medical students.
Summary of work: Sixteen sixth-year medical students participated in breastfeeding course in breast feeding clinic teaching by nurse for 3 days. The course comprised of 1 hour lecture, 2 days on-the-job training in the clinic and 1day of breastfeeding round at post-partum ward. The evaluations were in 2 parts, the first part was the Pre and Post test of MEQ and MCQ and the second part was the evaluation of medical students to the lecturers and the lecturers to the medical students.
Summary of results: Average scores of MCQ was higher after the class, but not significant (paired t-test, p=0.33). The average scores of MEQ was higher after the class with statistical significance (paired t-test, p=0.00). Medical students evaluated the quality of the class in the rate of good to excellent. The lecturers evaluated interest of medical students at good to excellent.
Conclusions: Most of medical students were be able to improve their knowledge after attending the breastfeeding class, taught by a nurse. They were interested in the class and had close participation. Therefore, the implementation of breastfeeding class for the 6th-year medical students should be well established.
Take-home messages: Teaching breastfeeding by a nurse is very effective teaching method which should be covered in last year medical student curriculum in Thailand.

10V17

A study of how the Cuban health system integrates public health into community-based clinical practice

C Mactier (University College London, UK)*

Background: Cuba's world-renowned health system focuses on prevention and early detection of disease. This has potential relevance to healthcare provision in other countries, including the UK where at present an inexplicable division exists between public health and clinical medicine.
Summary of work: A 6-week placement in primary care in Cuba (2009) enabled participation in the work of: Family doctors, in surgeries and on home visits, Polyclinic Moncada, with comprehensive community-based specialist services, including 'Health Promotion', Community activities, including exercise classes and informal health promotion. The Vice Director of Hygiene and Epidemiology was interviewed and the local Statistics Centre was visited.
Summary of results: Intensive medical monitoring of the whole population, regardless of health status, facilitates prevention and early detection of disease. This assessment incorporates both individual and environmental risk factors. Widespread health promotion extends from individual patient care to community-based work in schools and work centres, coordinated by a 'Health Promotion' doctor. Decentralisation of epidemiological surveillance, collected first-hand by family doctors, tailors limited resources to the population.
Conclusions: The work of the Polyclinic, with its large team of community-based doctors, community participation and local epidemiological surveillance facilitates integration of Public Health into community-based medicine.
Take-home messages: Simple measures, focusing on health promotion, can have a great impact on population health.

10W Posters: OSCE

10W1

Digital video recording improves inter-examiner variation in OSCEs

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Background: Inter-examiner variability is a major problem in clinical skills exams such as OSCEs especially when multiple examiners are used.
Summary of work: A training session was set up to improve consistency between examiners using digital video technology. In round 1, 16 faculty examiners independently graded recordings of 6 stations from a recent OSCE exam using standardized marking forms. They then discussed the performance of the students. In round 2 they independently graded 6 recordings of different students at the same stations.
Summary of results: Average variance between examiners fell from 4.68 in round 1 to 2.98 in round 2.
Conclusions: Digital video technology promises to be a valuable tool in reducing inter-examiner variability and improving consistency in OSCEs.
Take-home messages: Variability between examiners in OSCEs can be reduced by training.

10W2

The introduction of an OSCE in Years 1 and 2 improves OSCE performance in Year 3 of the MBBS programme

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Background: Teachers reported poor Clinical Skills performance in students entering year 3 of Medicine despite Clinical Skills being taught in years 1 and 2. Prior to 2008 Clinical Skills were primarily assessed in written assessments and demonstration of 1 Clinical Skill.
Summary of work: To address the issue of student preparedness for year 3, reinforce Clinical Skills teaching and better align assessment to learning outcomes relating to skills, we introduced a 7 station OSCE at the end of years 1 and 2 which students had to pass to progress to the next year of the course.
Summary of results: From 2004 to 2008, the mean OSCE result in year 3 was 76.15 ± 6.14% (n=1693) which was significantly ($P<0.001$) improved in 2009 and 2010 (82.48 ± 4.92% [n=672]) when students had been exposed to the year 1 and 2 OSCE. In addition, Stage 3 teachers reported improved skills at entry and Clinical Skills teachers in years 1 and 2 reported significantly higher demand for access to the Clinical Skills department, particularly leading up to examinations.

Conclusions: The introduction of an OSCE to reinforce Clinical Skills teaching in years 1 and 2 significantly improves examination performance in an established year 3 OSCE.
Take-home messages: Assessment drives learning of Clinical Skills.

10W3

OSCE in Taiwan: Physicians' perceptions on the transition from a "low-" to "high-stake" examination

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Background: OSCEs have been used as a part of medical licensure examination in many countries but are at its infancy stage in many Asian countries. As a licensure requirement the examination raises many concerns for candidates, school administrators, and certifying bodies. This study investigated the willingness, feasibility, and availability of resources to create a certifying OSCE in Taiwan.
Summary of work: Representative physicians/medical educators from 23 teaching hospitals were invited to attend a 2-day workshop on the issues of creating and administering a high-stake OSCE. At the end of the workshop, interactive keypads were used to collect participants' opinions regarding whether, why, when, what, and how the high-stake OSCE could be used in Taiwan.
Summary of results: 117 participants, including 87 physicians, responded to the questions. It was decided that the goal of the high-stake OSCE was to ensure competency in basic skills prior to entering residency training. Preference was expressed for a centralized "headquarter" with multiple testing-sites using a mixture of short and long cases. Each track should contain 10-12 stations that measured core skills. Examiner and SP training were seen to be essential in order to standardize assessment at various sites. At the startup, pilot testing of cases, scoring and administrative procedures were deemed essential.
Conclusions/Take-home messages: Significant efforts are required before using a licensure OSCE. Finding sites with suitable facility is the least of the problems and challenges.

10W4

Development and validation of an OSCE to assess medical students' competence in evidence-based medicine skills

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Background: The appropriate use of clinically updated evidence is a crucial competence in modern practice. However, objectively measuring this competence remains a tough issue. The goal of this study was to develop an OSCE that assesses medical students' competence in EBM skills.
Summary of work: The OSCE was conceptualized as having 3 distinct components relating to: formulating a question, searching databases and critical appraisal. The checklist items were generated following a conceptual framework that incorporated the PICO format, seven items for searching specified databases, and three items for critical appraisal of a selected result. The measure was pilot-tested using standardized video by faculties who are experienced in teaching EBM. Item response theory models guided item refinement, selection, and provided evidence of instrument reliability. Upon revision, a larger scale validation study was performed in 47 medical trainees (25 interns and 22 junior residents).
Summary of results: Following pilot testing, 12 items were retained that demonstrated acceptable reliability (Cronbach's alpha =0.718). The convergent validity was supported by item analysis that demonstrated higher scores (83.04 vs 76.36) and pass rate (100% vs 88%) in students who had previous EBM exposure.
Conclusions: This psychometrically developed measure supports its use in assessing students' competence in EBM skills. Further validation to evaluate performance and quality assurance is recommended.
Take-home messages: OSCE could be a valid instrument in assessing competence in EBM skills.

10W5

Analysis of patient-physician interaction scores from annual OSCEs in Korea

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Background: In Korea, we have started OSCE as a summative assessment for the large group of medical students since 2006. This study aims to examine the educational outcomes according to the items of Patient-Physician Interaction (PPI) domain for the period of 2006 to 2009.
Summary of work: OSCE scores of the final-year students (total n=5314, 1342(2006, 1263(2007, 1283(2008, 1426(2009)) from 18 medical schools were analyzed. PPI items consist of 1) Intimacy, 2) Questioning and Listening, 3) Empathy, 4) Nonverbal communication, 5) Respectfulness, 6) Explaining and 7) Professional behavior. Each item was rated by 6-point Likert scale. Year-to-year variations of PPI scores were analyzed by One-Way ANOVA.
Summary of results: For 3 years, mean percentile-scores of all PPI domains were 62.12(2006, 61.27(2007) and 65.39(2008) respectively. Among the 7 items of PPI domain, the scores of "Intimacy", "Questioning and Listening", "Respectfulness" and "Explaining" showed significant improvement. Among the above 4 items, "Questioning and Listening" scores showed more significant increment compared to other items, mean scores were 2.8(2006, 3.09(2007, 3.20(2008) and 3.19(2009) points out of 5(P<0.0001).
Conclusions/Take-home messages: Compared with other skills in PPI, 'Questioning and Listening' skill seemed to be more significantly improved for the short term of so-called 'test-driven education' at clinical skills.

10W6

Practice OSCEs

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Background: This poster presents the work undertaken by the St. James's University Hospital Clinical Teachers to provide practice OSCEs for third year medical students on the MBChB at the University of Leeds.
Summary of work: Included on the poster are: 1) The rationale behind the exercise (pre summative OSCE interviews with 36 3rd year medical students revealed high self reported stress levels caused by "fear of the unknown"). 2) The process of preparing, running and administrating the practice OSCEs (pOSCEs). 3) The method of feedback on performance to the students.
Summary of results: Self reported improvements in psychological preparation for the summative OSCE.
Conclusions: It is feasible to provide practice OSCEs for undergraduate medical students using limited resources that leave students feeling better prepared for their summative OSCE.
Take-home messages: Undergraduate medical students benefit from a practice OSCE before undertaking their first summative OSCE and they are not particularly difficult to provide.

10W7

Order effects in third-year students' OSCE performance

J Park and J Ko (University of Kyung Hee School of Medicine Medical Education, Seoul, Korea)*

Background: The purpose of the study was to investigate whether there was evidence for order effects on third-year medical student performance in an OSCE.
Summary of work: Archival OSCE performance data (in the form of a 15-item binary content checklist) from one class of third-year medical students (n = 120) at Kyung Hee School of Medicine (2008) were aggregated and analyzed.
Summary of results: When students' scores were arranged in the order in which they encountered the 6 different cases, there was a gradual increase in average scores from the first case encountered to the last. Secondly, mean case scores were arrayed by encounter sequence in a 6 X 6. A Two-way analysis of variance showed significant main effects for case difficulty ($F=65.25$, $p<.05$) and encounter sequence ($F=7.54$, $p<.05$, but no significant interaction ($F=.92$, p= NS).
Conclusions: The results show that there is a practice effects in OSCE, but the leakage of station information could be a major cause of the score increase.
Take-home messages: It is clear that the presence of order effects in OSCE. We need to figure out what to do about them when they threaten the reliability of OSCE.

10W8

The validity of OSCE using standardized patients in occupational therapy education

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Background: There is very little enforcement of OSCE which used standardized patients (SP) in the occupational therapy education in Japan. At our university, OSCE before training has been carried out from last year. This time, the validity of OSCE in occupational therapy education is reported from the questionnaire result after OSCE enforcement.
Summary of work: Objects are 39 university students belonging to the 3rd grade. The questionnaire using Visual Analogue Scale was carried out. Carrying out three booths of subjects about occupational therapy evaluation, the time of each subject was for 7 minutes.
Summary of results: The validity of a check of the clinical skill before clinical practice is high. An effect is high at the point of making an own subject understanding about a student's clinical skill. The feedback from SP showed the tendency for validity to be higher than the feedback from a university teacher.
Conclusions: It was suggested that enforcement of OSCE using SP is useful in occupational therapy education.
Take-home messages: OSCE, standardized patients (SP), occupational therapy education in Japan

10W9

How to enhance physical diagnosis skills: Usefulness of teacher´s feedback in trauma Objective Structured Clinical Examination (OSCE)

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Background: Medical students were being evaluated with OSCEs from 2004, including a trauma section. Physical examination skills are essential to the decision- making process but evidence suggests that the quality and frequency of clinical examinations in teaching institutions have declined. In 2006, trauma teachers decide to introduce intensive instruction in physical examination after OSCEs.
Summary of work: To determine if intensive instruction in physical examination enhances student skills and evaluate those skills using specific trauma stations. Trauma OSCE stations were designed to test psychomotor skills with a combinations of history taking/physical examinations and problem solving skills with SP cases. Performance in the trauma section of a summative OSCE was compared before and after 2006. Data were analyzed using t-tests.
Summary of results: 428 5th year students (157 before (Control group)/271 after 2006 (study group) were evaluated at the end of the year. The marks of study group (7,5 +/-1,6) were significantly higher (p< 0,001) than control group in physical examination skills. There was no significant difference (p) in marks obtained by both groups in history taking and problem solving skills. Both group performed significantly better in one of history taking and problem solving skills when compared with physical examinations stations.
Conclusions: Intensive physical diagnosis instruction enhances physical examination skills. To analyze OSCEs scores permit modify students learning.
Take-home messages: OSCE´s impact can change the way of teaching after its implementation in a University.

10W10

Raters' reliability and consistency on the objective structured exam video for orthopaedic training: Using a fracture scenario

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Background: 1) to design a new, quick and efficient method for rater's evaluation using a pre-validated video tape in Objective Structured Clinical Examination (OSCE), 2) to evaluate rater's consistency from different subspecialties and from different level of seniority.
Summary of work: A scenario was videotaped including communication skills assessment of the students using pre-validated checklists. All the Orthopedic attending staff, fellows and senior residents were involved to evaluate the student's performance in the video tape at three different time points. Cronbach's Alpha coefficient was calculated to evaluate the internal consistency of the OSCE checklist construct. Kuder-Richardson-20 coefficient (KR-20) was used to investigate the raters' agreement. Expert validity was calculated by comparing the OSCE experts and other raters using independent t-test.
Summary of results: Cronbach's α for the entire 23-item scale was 0.932 for pre-test and 0.926 for post-test, and confirmed construct validity. KR-20 was 0.96 in pre-test and 0.968 in post-test, and revealed high internal

consistency. P-value in expert validity was 0.626 (independent t-test). The difference was not statistically significant.
Conclusions: A new video-based rater's assessment that is efficient and quick to administer was shown to be reliable, and to demonstrate raters' consistency and some evidence for validity.
Take-home messages: Rater's evaluation was performed using a pre-taped OSCE video to improve rating consistency in OSCE yet retain validity.

10W11

Consistency between the global ratings and checklists in OSCE station scores

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Background: This study assessed the construct validity of analytic global rating and checklists in OSCE.
Summary of work: A 2-hour, 14-station standard OSCE was administered to 120 examiners and 56 qualified raters. There were 30 interns scored on content checklists and these global ratings during a 11-station OSCE. Linear regression was used to assess differences between groups for overall checklist and global scores, and for each of the 5 fields.
Summary of results: The mean global rating correlated well to the checklist system in all 5 different catalog examinations. The correlation between global rating and checklist system was good. There were no differences between interns/junior residents (Year 1) and senior residents. However, higher failure rate was demonstrated by checklist than global rating scale (19.7 vs 9.8%, and the discrepancy was obvious in decision making (p=<.01) and procedure scale catalogs (p=<.05).
Conclusions: Analytic global rating demonstrated good consistency with checklists in OSCE stations, except in decision-making and procedures skill scores. Acknowledgement: The work was supported by Chang Gung Memorial Hospital grant, CMRPG390371.
Take-home messages: There is good correlation between global rating and checklist evaluation.

10W12

The application of objective structured assessment for the essential skills of junior surgical residency

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Background: In Taiwan, surgeons' training was divided into two-year general training, and three to four-year subspecialty training. For the first stage, residents were rotated in different subspecialty, they can obtain the essential surgical skills as well. However, the definition of essential surgical skills and related assessment were not clarified. We setup the essential surgical skills and proposed Objective Structured Assessment of Technical Skills (OSATS) to evaluate our residents.
Summary of work: The program has been underway since 2007. We defined the essential surgical skills for junior residents and evaluated those through a large animal surgery annually. Our faculty performed the OSATS after consciences meeting on porcine model. Two teachers scored same residency. The test takers filled in a questionnaire after test as well.
Summary of results: All the residents passed the assessment. The mean scores was 4.1, fulfilled the teachers' expectation. All the residents were more concentrated on assisting the operation before test. They satisfied the examination and results. They thought the feedback from the examiners such as the weak and the strong part of performance was very helpful.
Conclusions: Through OSATS cannot only examine the essential surgical skills but also provide more clear learning objects on this fragmented rotation residentship.
Take-home messages: OSATS can help junior surgical residents to obtain their essential surgical skills.

10W13

Discrimination of neurology OSCE among different levels of trainees

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Background: To establish high-stake OSCEs and to clarify the validity and reliability of a Neurology Station (NS).
Summary of work: The blueprint included 14 OSCE stations and covered 7 different fields of clinical medicine. The enrolled examinees were divided into three groups, including 29 interns, and residents from fields of Medicine (48) and Surgery (43). The goal of the NS is to test the ability of performance and interpretation of neurological examinations for trainees who have completed medical education.
Summary of results: 119 examinees performed the NS and the mean global rating score was 69.3 with 94 (79%) passed. The discrimination index was 0.381. The mean scores were statistically different ($p = 0.010$) between residents from Surgery (64.8) and Medicine (73.5). The scores among 8 examiners were also statistically different ($p < 0.001$). The difference in the examiners ($p = 0.001$) was independent after adjustment for factors from trainees and examiners.
Conclusions: Our neurological station differentiated well among different examinees. The training of examiners is our first priority to improve the reliability of future high-stake OSCEs.
Take-home messages: A station with well-organized neurological examinations is feasible to discriminate among different levels of trainees and can be used as a high-stake OSCE.

10W14

OSCE assessment analysis for surgical techniques and aseptic concepts before and after surgical training

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Background: Objective Structured Clinical Examination (OSCE) has become a definitive tool in assessing skills and basic competency in medical techniques. Medical interns can be regularly evaluated to ensure that their training and comprehension steadily improves and are thus prepared for future more invasive technical skills application.
Summary of work: The technical skills, namely suturing ability and aseptic concepts of Taiwanese medical interns were assessed and recorded. Scores were based on performance and knowledge before and after a three-month training program: a global rating score of 1-100 and a checklist liker/overall rating score of 1-5.Interns were presented with 6-9 items for assessment and results of their second OSCE determined the best way to evaluate overall comprehension.
Summary of results: Results showed a better, thorough assessment with nine items: Cronbach's Alpha was 0.747.Interns' skill and competency was more clearly defined by their checklist liker score: differentiation $r=0.75$. A paired-T test was also used to compare their scores before and after assessment, showing significant statistical differentiation ($p<0.05$).
Conclusions/Take-home messages: The OSCE can accurately ensure proper evaluation of medical interns' technical skills, such as suturing ability and aseptic concepts.
The work was supported by Chang Gung Memorial Hospital grant, CMRPG390371.

10W15

Comparison of the Objective Structured Clinical Examination with the performance of internal medicine and surgery residents in internal medicine problem

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Background: The purpose of this study was to use objective structured clinical examinations (OSCEs) to investigate the difference in performance of undergraduate medical students (UGY) with the performance of year 1 to 6 residents.
Summary of work: 29 medical students and 91 residents participated in this study. They were asked to take a history and diagnose a standardized patient with an internal medicine problem. Medical knowledge, communication skills and clinical findings were evaluated. A sum of the scores from the OSCE performance was used as an overall rating score.

Summary of results: Residents who trained in internal medicine showed significantly higher overall scores than those who trained in surgery, and other division, (including radiology, pathology etc) (83±11 vs 77±11 vs 72±11, respectively, P<0.05). The second-year residents obtained significantly higher scores than third, fourth, and fifth-year residents (81±10 vs 73±10, P<0.05).
Conclusions: Integrating OSCE into different years of resident training is useful and powerful to uncover the deficits of general practice in individuals who have received sub-speciality division training, especial in senior resident groups.
Take-home messages: OSCE is a useful tool to disclose the short comings in resident training.
The work was supported by Chang Gung Memorial Hospital grant, CMRPG390371.

10W16

Factors contributed to postgraduate residents' performance on pediatric Objective Structured Clinical Examination (OSCE)

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Background: The Objective Structured Clinical Examination (OSCE) has become a widely used tool for the assessment of clinical competence in medical education. We want to explore different residents' factors which might contribute to the pediatric OSCE performance.
Summary of work: A 2-station pediatric OSCE was given in 2009 for 90 residents (including 28 first-year, 36 second-year, 15 third-year, and 11 more than third-year residents) from pediatric and the other departments. Each station assessed the residents' history-taking, communication skills and medical counseling with one or two standardized patients.
Summary of results: Twenty-seven residents with first-year postgraduate pediatric training course have better performance than the others. It is not surprising that 11 pediatric residents have higher scoring than the other residents. The senior residents' scores were significantly (P < .05) higher than the first-year and second-year residents' scores. 15 married residents' scores (4 residents with a single child) were significantly (P < .05) higher than the other residents' scores. There was similar performance between the genders.
Conclusions: Postgraduate pediatric training may improve the residents' performance of pediatric OSCE. Married residents, with or without children, performed better on pediatric OSCE than the others.
Take-home messages: Postgraduate year-one pediatric training and marriage status can contribute to higher pediatric OSCE performance.

10W17

Comparison of the Objective Structured Clinical Examination performance in chest X –ray reading in the different years of residency

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Background: The aim of this study was to compare the objective structured clinical examination (OSCE) performance in reading chest X-rays in the undergraduate students (UGY, first- (R1, second- (R2, and third- to fifth-year residents (R3-5).
Summary of work: 120 subjects (29 UGY, 29 R1, 36 R2, and 26 R3-5) read ten standard chest X-ray films and were scored from 1-5. The scores were combined giving an overall score of 1-100.
Summary of results: A significantly higher score was observed in the R1, R2, and R3-5 than in UGY (mean ± SD, 50.05 ± 13.16, 48.58 ± 13.28, 46.69 ± 12.58 for R1, R2, R3-5 and 39.88 ± 11.73 for UGY, p<0.05). In contrast, there were no significant differences among residents from years 1 to 5 (p>0.05).
Conclusions: The OSCE performance in chest X-ray readings was significantly improved after resident training but there was no significant difference between junior (R1-R2) and senior (R3-5) residents.
Take-home messages: Residents performed better in chest X-ray OSCE than UGY.
Supported by Chang Gung Memorial Hospital grant, CMRPG390371.

10W18

Enhancing learning in resident physician sign-out communication through an Objective Structured Clinical Examination (OSCE)

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Background: Reduction in resident physician work hours led directly to an increase in transitions of patient care during hospitalization. Studies demonstrate that residents are not adequately trained in sign-out and poor quality communications have been linked to adverse patient outcomes. Regulations require healthcare organizations to implement standardized handoff communications.
Summary of work: To characterize our current sign-out procedure, we used direct observations and survey of resident physicians. Based on these findings, we developed an objective structured clinical exam (OSCE) and an interactive curriculum to evaluate and train sign-out techniques.
Summary of results: Sign-out duration varied from 4-19 minutes. Our resident survey (N=87) evaluating sign-out perceptions demonstrated that 56% had not had any prior training and 60% had experienced an adverse patient event during training which they felt could have been prevented by improved sign-out. These adverse events varied in severity from missed laboratory values to patient death. The sign-out OSCE and curriculum implemented was perceived as a helpful process learning experience.
Conclusions: Congruent with prior studies, our residents lacked formal sign-out training. Our sign-out OSCE and interactive curriculum was an effective training technique.
Take-home messages: A sign-out OSCE is a novel method for training physicians in sign-out technique, with the ultimate goal of decreasing errors during transfers of patient care.

10W19

Differentiating general medical ability for interns and residents with gynecologic case in a large scale Objective Structured Clinical Examination (OSCE) test

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Background: Chang Gung Memorial Hospital holds a large scale OSCE including clinical-rotating medical students and residents of various disciplines to assess the general medical ability of doctors of different grades.
Summary of work: In December 2009, 119 medics attended a 14-station OSCE test. We set a passing score of 60 points in the Angoff method. Checklist and global rating were used simultaneously.
Summary of results: The mean scores for intern (n=29, 1st year resident (n=28, 2nd year residents (n=36, 3rd year residents (n=16, 4th year residents (n=6) and fellows (n=4) were 75.5+_11.2, 72.7+_11.3, 72.1+_14.1, 71.6+_14.9, 74.2+_13.2, 62.5+-17.6, respectively. The score of fellows was significantly lower than intern ($P < 0.05$).
Conclusions: Ectopic pregnancy is a common disease in gynecologic emergency, and knowledge of this is required for differential diagnosis for acute abdomen. The low mean score for fellows from non-gynecologic departments might be due to unfamiliarity. Continuing education with a core curriculum containing common cases of different disciplines might be helpful for residents to maintain ability on general medicine.
Take-home messages: OSCE is helpful in assessing general medical ability.

10X Posters: Postgraduate Training in the Early Years

10X1

Mentoring F1 and F2 trainees - A new concept

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Background: In medical training there is currently no formal mentoring system. This leaves medical education trailing behind colleagues in nursing and teaching. Traditionally medicine has been an apprenticeship, tutored by consultants.
Summary of work: This work reviews the challenges of more junior trainees and less senior support available.

Summary of results: This gulf in support will have the greatest impact on the most junior members (F1 trainees). The first few months in work are the most stressful in any doctor's career and also leave a lasting impression which can impact on job satisfaction, retention and future career choices for some time to come. Offering peer led support at this stage has the potential to greatly enhance job satisfaction, acquisition of professional skills and educational advancement of the Foundation doctor. Using F2 doctors to be voluntary mentors to their F1 colleagues would be an effective way of providing peer led support. There is also the potential for the F2s to benefit from a symbiotic educational relationship with a colleague and enhance their own teaching and training skills for the future.
Conclusions: This provides opportunities for trainees to take responsibility for their own education and become self-directed, reflective and responsible practitioners – skills essential for a continuing career in medicine.
Take-home messages: Mentoring, F1/F2 trainees, Support, Becoming self directed/reflective learners.

10X2

Foundation programme doctors teaching medical students: Who's it for? Them or us?
Susan Kennedy (East Kent Hospitals University Foundation NHS Trust and KSS Deanery, London, UK)*

Background: Doctors must develop the skills, attitudes, behaviours and practices of a competent teacher (FP Curriculum 2007). Learners who prepare to teach others can learn more than learners who prepare only to take assessments or tests (Biswas et al, 2001). A learner-teacher who provides explanations learns more than learners receiving that explanation (Webb, 1989).
Summary of work: The Recognition of Teaching Programme was advertised in a large Trust to all FPDs: each participant was required to undertake three sessions teaching medical students, of which at least one was observed by the local Education Adviser (EA) with written or verbal feedback to the FPD. Evidence of planning and preparation, three pieces of reflective writing, and student feedback/evaluation of their teaching was submitted to the EA. Successful completion of the programme resulted in a letter to the doctor from the DME thanking them for their commitment to excellence in teaching.
Summary of results: Initial programme evaluation suggests participants gained confidence, and gave thought to improving their teaching. They felt they learned more about the subject being taught. Feedback from medical students was enthusiastic, recognising the time, energy and thought committed to FPD teaching sessions.
Conclusions: A programme which helps develop FPDs in their teaching skills will also help their learning.
Take-home messages: Developing teaching skills in FPDs should produce enthusiastic, committed educationalists amongst senior doctors.

10X3

Competency evaluation of clinical forensic medicine during the first year internship program
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Background: Thai general practitioners are legally assigned to co-investigate crime scenes with the police system. With various consequences of the Thai Medical Council Regulation for medical practitioners (2002), medicolegal workloads and relevant competencies have never been studied.
Summary of work: To accomplish the plan-do-check-act loop of curricular development, questionnaires were sent to 87 interns, who graduated from MEDSWU in 2008.
Summary of results: With 93.1% (81/87) return, most responders work in public hospitals and are satisfied with clinical experiences of forensic medicine. Most frequent medicolegal workloads (expressed as monthly frequency, with self-confidence of score 5 in clinical performance [P] and competency [C]) include writing medical records (58, 3.77), medical certificates (40, 4.09), death certificates (4.9, 3.61), wound investigation records (1.7, 3.77) and on-site body investigation (0.87, 2.95). The average self-assessment P+C is 2.9. The most frequently needed forensic reviews (score > 3.5 out of 5) prior to graduation are body assault, blunt/sharp/gunfire injury, traffic accident, rape, fall, toxicants and electrocution.
Conclusions: Based on practical medicolegal workloads, course syllabus in the last two years of clinical clerkships should be designed to enhance clinical P+C.
Take-home messages: According to inadequate cross-country forensic services, requirements of interns' competency should be relevant to knowledge, skill and clinical experiences within the first year internship.

10X4

To establish a framework for teaching program in the community

N Furugaki and A Hirai (Togane Prefectural Hospital, Chiba, Japan)*

Background: In Japan, many postgraduate residents have worked for, not only the Hospitals of the University but also the Hospitals in the community. To establish a framework for clinical education as a continuum from undergraduate clinical clerkships to postgraduate residency programs is an enormous challenge for Japanese medical education.
Summary of work: In Japan, some physicians are requested to seek a new model of postgraduate residency programs in the community.
Summary of results: In the postgraduate residency programs in the community, undergraduate clinical clerkships and postgraduate residents achieved most attitude objectives and performed well on the medical interview and basic physical examinations. They could also observe major symptoms and diseases.
Conclusions: Undergraduate clinical clerkships and postgraduate residents recognized the importance of postgraduate residency programs in the community. This program was suggested to be effective for postgraduate clinical education. It is important for some physicians to establish a framework for clinical education of the hospitals in the community.
Take-home messages: Community-based education (learning) is very important for undergraduate students and postgraduate residents.

10X5

Delirium: An interactive case for foundation year two (FY2) doctors

R Parikh (The Royal Oldham Hospital, Department of Geriatric Medicine, Oldham, UK)*

Background: Delirium is important and under-recognised. As the population ages, increasing numbers of frail patients will be at risk of developing this "Geriatric Syndrome". Thus, all doctors dealing with elders need to appreciate how to prevent or curtail episodes of delirium.
Summary of work: Two consecutive cohorts of FY2 doctors at a district general hospital were asked to consider a written case of a common "call" - an elderly lady with a fractured neck of femur who had become "confused". They analysed and interpreted the case before suggesting actions. A guidebook and interactive presentation helped them complete the task. Feedback was sought using a 6-point Likert scale including whether learners felt better equipped to look after such patients. Learners were asked to answer the question "what will you change in your practice?"
Summary of results: 1) 23 learners participated. 2) All felt better equipped to manage a patient with delirium. 3) Practice changes: a) Consider diagnosis, b) Search for reversible causes, c) Promotion of "conservative" treatment, d) - Need to explain diagnosis to nursing staff.
Conclusions: Using a realistic "call" is a useful vehicle to teach learners about delirium and prompt them to reflect.
Take-home messages: Realistic cases can engage trainees to meet the complex challenges of the "Geriatric Syndromes".

10X6

Embedding safe prescribing in F1 practice

N Walton, S Lord, L Clark and A Williamson (Newcastle Upon Tyne Hospitals NHS Foundation Trust, Royal Victoria Hospital, Newcastle, UK)

Background: Safe Prescribing is a vital F1 competence. Training should bridge the gap between theoretical knowledge and practical application.
Summary of work: F1 trainees undertake a regional Prescribing Assessment at the start of the year. Pharmacists provide written feedback which the trainee discusses with their Educational Supervisor for inclusion in their personal development plan. Pharmacists assess trainees ward prescribing at the end of the placement using a standardised checklist. Trainees attend 3 theoretical sessions, 1 practical injectables and 1 practical insulin session in addition to 2 anticoagulation BMJ online modules.
Summary of results: 1)100% of F1 trainees completed the Module. 2) 54% completed the checklist with the Ward Pharmacist. 3) 99% of trainees completed the Injectable assessment and 98% passed. 4) 97% of F1 completed the Insulin practical session and 100% passed.

Conclusions: A module which uses multiple teaching methods delivered by a multi-professional team is key to success and trainee engagement has been high.
Take-home messages: 1) The module allows trainees to proactively self direct their training within F1. 2) The prescribing checklist completed alongside Pharmacists promotes multidisciplinary working and respect amongst other professionals. 3) Assessed objective evidence of clinical practice is critical and it is important to involve Pharmacists in the design and application of this process.

10X7

Paediatrics during the first foundation year: Help or hindrance

A Moran and E Panayiotou* (William Harvey Hospital, Ashford, UK)*

Background: Traditionally, specialities such as paediatrics, A&E and ITU have been confined to FY2 doctors and above but, an increasing number of trusts now offer these specialities in the initial foundation year. With the introduction of Modernising Medical Careers, FY1 doctors need to make important career decisions at an increasingly earlier stage in their training.
Summary of work: Two doctors undertaking paediatrics in FY1 looked at the relevance of such specialist rotations and its benefits to career planning. The study looked at the views of the staff in the paediatric department and medical students' opinions on the subject were sought.
Summary of results: Initial results indicate that medical students are attracted to jobs that offer the more specialist rotations in FY1. Staff in the paediatric department found it useful to have a consistent extra member of staff but the educational aspect of the role was occasionally lost, with more senior colleagues allocated clinic and on call time ahead of the FY1.
Conclusions/ Take-home messages: Undertaking the more specialist rotations in the initial foundation year can be a good way to help tomorrow's doctors to make informed career choices. It provides practical experience of working the job and offers insight into the lifestyle available at senior level within the speciality.

10X8

A new 12 month Danish postgraduate basic training programme: The doctor's acceptance of the new programme

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Background: Until 2008, Danish postgraduate basic training programme consisted of 18 months mandatory training made up of six months internal medicine, six months surgery/orthopaedic surgery and six months general practice. In August 2008 this Danish 18 month internship training (Turnus) was replaced by a 12 months postgraduate basic training (KBU) with six months employment at a hospital ward (internal medicine or surgery) and 6 months in general practice/hospital ward. The intension was to ensure focus on few essential competences in a strong feedback culture, in order to make specialization faster and ensure the accession of specialists.
Summary of work: Acceptance of the new KBU was evaluated with questionnaires to 1034 doctors. Of these approximately two third followed Turnus and one third KBU programme. The response rate was 66%.
Summary of results: 82% who followed Turnus and 53% who followed the KBU programme felt that the basic training led them to feel ready to continue the specialist training. 0% thought that internal medicine should be spared.
Conclusions: Both Turnus and KBU doctors found the change from a homogenous 18 months programme to a more heterogeneous 12 months programme problematic.
Take-home messages: Further studies of the new KBU basic postgraduate training program in Denmark are recommended.

10X9

Preparation for professional practice for F1 trainees

Alys Burns and Adrian Jennings (East of England Multi-professional Deanery, Cambridge, UK)*

Background: Preparation for professional practice (PfPP) combines the concept of shadowing with a structured induction to working in the NHS, in a context that is both timely and relevant to the new doctor. Potential benefits include new doctors who are better prepared and reduction in clinical risk and improved

patient safety. The East of England Multi-Professional Deanery has introduced a fully funded PfPP week for all new F1 trainees.
Summary of work: Implementation of PfPP included Deanery funding of the basic F1 salary for one week, communications, programme guidance and development, and employment issues including contracts, GMC registration and medical indemnity. PfPP has been evaluated through programme review, and questionnaires for trainees and Trusts.
Summary of results: Positive feedback from Trusts in relation to programme development, organisational and employment induction, educational induction, and preparing new doctors for their role. Positive feedback from F1 trainees with trends suggesting improvement in confidence, reduction in concerns, with expectations of their role changing in a positive sense. They valued shadowing and establishing a support network.
Conclusions: PfPP that is fully funded and developed through a collaborative approach has been shown to benefit both new doctors and Trusts, with the potential to enhance patient safety enhanced and reduce clinical risk.
Take-home messages: PfPP should be introduced as a national initiative for all new F1 trainees in the NHS.

10X10

Promoting the principles of adult learning through small group, self-directed learning to deliver the foundation year 2 curriculum

M Todd (NES, Centre for Health Sciences, Inverness, UK)*

Background: Foundation trainees are asked to sign an Educational Agreement committing to the use of principles of adult learning. In order to promote adult learning and better meet trainees' learning needs whilst delivering the Foundation curriculum, a small group, self-directed learning approach was introduced for FY2 trainees in Inverness, North of Scotland Deanery.
Summary of work: Trainees had one teaching day per month. Groups used the mornings to cover curriculum topics and the afternoons to discuss cases in depth and plan for the following teaching session. One facilitator per group was provided for the afternoon sessions. Questionnaires were completed with every trainee after each teaching session.
Summary of results: Each group missed one topic from the curriculum over the course of the year but covered a number of additional topics pertinent to their group's specific learning needs. Using rating scales, confidence in the learning method and self-rated competence in contributing to the group's learning remained high throughout FY2. Confidence in the topics covered increased and work performance during FY2 was felt to be enhanced.
Conclusions: Self directed learning in FY2 has allowed trainees freedom to cover the curriculum in a flexible manner that matched their learning needs.
Take-home messages: Small group self directed learning has been well received by trainees.

10X11

What is the impact of remote and rural training during the Foundation Programme?

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Background: Foundation Programmes in the North of Scotland Deanery include a remote and rural placement. Each year, around 60 Foundation Doctors spend four months in a remote location and a further six spend one year.
Summary of work: Trainees' expectations of remote working were sought by postal questionnaire prior to the start of their placement/year. Their experiences and long-term career plans were explored by interview at the end. Educational Supervisors were also interviewed to ascertain if additional support was required.
Summary of results: Most trainees approached their placement with a positive attitude but some were ambivalent. All valued the experience and training they had been given. Very few who had not previously considered a career in remote and rural medicine had changed their minds as a result. Educational Supervisors thought benefits for trainees included: close supervision, a wide variety of different cases, cross-speciality working, and greater development of decision making abilities.
Conclusions: Early exposure during postgraduate training may result in some trainees considering a long-term career in remote and rural medicine.

Take-home messages: Whilst all trainees had found these posts to be a rewarding, enjoyable and valuable part of their training programme, only a small number thought they might pursue a career in remote and rural medicine.

10X12

The effect of residency training in internal medicine on quality of life and happiness

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Background: The sequential follow up of quality of life (QOL) and happiness has never been performed. We aimed to study the effect of residency training on QOL and happiness.
Summary of work: Thirty-nine first-year residents in internal medicine program were enrolled. At the beginning, at day 100 and at the second year, the residents answered the questionnaires: WHOQOL-BREF, Subjective Happiness Scale (SHS) and Happiness Measures. Repeated measures and analysis of variance was used to test the equality of means.
Summary of results: One resident resigned, 38 residents completed the study. Fourteen (36.8%) residents were male. Thirty-four (89.5%) were single. Sixteen (42.1%) reported financial problems. There was no change in confidence, expectation and anxiety during the study period. On the contrary, the significant decreasing of general health, SHS, Happiness Measure, all domains of WHOQOL-BREF (physical, psychological, social and environment) was found. The greatest reduction occurred at day 100.
Conclusions: After entering the program, general health, happiness and QOL were deteriorating. Although general health, happiness and environment domain of WHOQOL-BREF showed some improvement at the second year, they are still far lower than at the beginning. What is more worrisome is the continued worsening of psychological domain of WHOQOL-BREF.
Take-home messages: Residency training diminishes happiness and QOL

10X13

Reconstruction of the assessment of physical therapy residents of Hospital Universitário Pedro Ernesto: searching for formative assessment

A I Joia, D Dieguez, D Afonso and M Araujo (State University of Rio de Janeiro and Pedro Ernesto Universitary Hospital , Rio de Janeiro, Brazil)*

Background: This Residency in Physical Therapy is a pioneer in Brazil started in 1992. The new model, based on the concept of formative assessment, was implemented in 2007 after three years of reconstruction.
Summary of work: The process of professionals' educational development began with preceptors aware of the need for changes, participation in institutional regular activities of management and capacity building residence related and integration in external forums. These preceptors ensure the sustainability of these changes as multipliers of these practices.
Summary of results: We achieved knowledge of National Curriculum Guidelines for Physical Therapist graduation facilitating its implementation, building profiles of egress from the residency and candidate to be selected, reconfiguration of the selection process, reconstruction of the assessment model and instruments used, continuing education of preceptor team, strengthening of educational and care practices and institutional paradigm shift.
Conclusions: This process led to questions about the fundamentals, comprehension and organization of education in service leading to conceptual changes, redefinition of theoretical, practical and theoretical and practical concepts, competences and responsibilities of coordinators, preceptors and residents.
Take-home messages: This reconstruction is a powerful tool refining residency, allowing improvements in pedagogical practices of preceptors, in implementation of formative assessment and integral development of resident and qualifying health care.

10X14

Career and advice support at NHS Trusts in Mersey Deanery: More or less?

Alistair P J Thomson and Jeremy M Brown (Mersey Postgraduate Deanery, Liverpool, UK)*

Background: Mersey Postgraduate Deanery is responsible for careers advice and support (CAS) provision for all postgraduate trainees. Foundation Year (FY) trainees need focussed support before application to specialist

training (ST) posts in year 2 (FY2). To inform a Deanery Careers Support Strategy we identified CAS activity already offered in the deanery.
Summary of work: Open and closed questions on surveymonkey were emailed to Postgraduate Education Centre Managers (PECMs) and GP Course Organisers (GPCOs), who co-ordinated responses by NHS Trust/geographical area.
Summary of results: 10 PECMs and 6 GPCOs replied. All 10 Trusts provided CAS to FY2s, but only 9/10 to FY1s. Post career choice STs and GPTs received considerable CAS (70%, 66%), but Fixed Term Specialist Trainees and Staff and Associate Specialist Grades were offered CAS in only 5 Trusts (50%). Trusts also provided CAS to local sixth formers (60%), preclinical undergraduate (40%) and clinical undergraduates (70%). Types of CAS included: workshops, protected teaching sessions, weekly CAS 'clinics', ad hoc guidance for STs, one-to-one meetings and careers fairs. There was minimal inter-provider coordination.
Conclusions: Trusts are offering differing levels of CAS, but underprovide for target groups.
Take-home messages: A Deanery Strategy should standardise CAS provision by experienced staff.

10X15

Maximising medical meetings as educational opportunities for doctors in training

*Louise Bundock*and Janek Nawrocki (Brighton and Sussex University Hospitals, Dept of Medical Education, Brighton, UK)*

Background: With the recent overhaul of medical training in the UK under Modernising Medical Careers, learning in the hospital environment needs to be increasingly efficient if it is to accommodate shorter foundation training alongside increasing service demands. As imaging meetings and MDMs are commonly cited as learning opportunities for trainees we conducted a small study to assess their effectiveness in this regard.
Summary of work: Twelve clinical meetings within the Royal Sussex County Hospital in Brighton were analysed in terms of their effectiveness as team-wide educational opportunities. Common patterns and simple means for maximising their educational potential were identified.
Summary of results: Meetings to discuss patient management are overwhelmingly dominated by senior team members. Junior members of the medical team are rarely included in discussions, despite having important contributions to make. The physical space within which these meetings take place can potentiate or impede dialogue with the wider team.
Conclusions: The potential for these meetings as educational opportunities for trainees is not being met. Relatively simple strategies could be adopted to maximise these encounters, which need not create added time demands and which would both benefit trainees and improve patient management.
Take-home messages: Senior staff members need to be aware of opportunities to involve trainees during team-wide medical meetings.

10X16

Quality managing the delivery of the foundation curriculum to foundation doctors (FD) in the London Foundation Schools

D M McGuinness, M Adel-Singh, R Lee, I Hastie and A H Frankel (London Deanery, London, UK)*

Background: Foundation training is based on a defined curriculum and training providers are required to demonstrate that all of the curriculum can be delivered to trainees through direct patient contact or formal teaching sessions.
Summary of work: The London Deanery developed an automated Curriculum Mapping Matrix, dividing the curriculum into 59 sections. Supervisors and FDs within all Foundation Training Providers rated the ability of their post to deliver the competencies for each section of the curriculum on a four point scale, ranging from no opportunities to plenty of opportunities.
Summary of results: There was an 86% response rate from supervisors accounting for 2105 foundation programmes. Of these, 1721 (82%) programmes could access all the competencies, with 384 (18%) unable to access components of the curriculum. The commonest deficit was in the Epidemiology and Screening component of the curriculum where 205 (10%) programmes had inadequate exposure, other gaps were less frequent, but common across providers. FD responses suggested access to curriculum competencies within their posts was less than identified by their supervisors.

Conclusions: This curriculum mapping process revealed access to all parts of the curriculum may not be universal for all programmes.
Take-home messages: This process provides a method to meet the regulator requirement to quality manage curriculum delivery.

10X17

Computerized physician order entry systems and medical education: Balancing educational safety and opportunity

Brian M Wong[*1], Nicole Robinson[1], Edward E Etchells[1], Dante Morra[2], Robert Wu[2], Kaveh G Shojani [1] and Ayelet Kuper[1,3] ([1]Sunnybrook Health Sciences Centre; [2]University Health Network; [3]The Wilson Centre for Research in Education, University of Toronto, Canada)*

Background: Computerized Physician Order Entry (CPOE) for medication ordering is increasingly recognized as having unanticipated negative consequences. The overall impact of CPOE on medical education has received relatively little attention.
Summary of work: We conducted semi-structured interviews of postgraduate trainees and attending physicians at a large University's medical school. Trainees rotate through its five affiliated teaching hospitals, two of which have implemented CPOE. Data collection and analysis used Grounded Theory methods. We sampled purposively until we reached theoretical saturation.
Summary of results: Our study included 11 trainees and 7 attending physicians. CPOE had positive and negative impacts on five aspects of postgraduate training: learning (better for medication interactions and availability of learning resources, worse for medication dosing and rationale of medication use), teaching (more medication information available for case discussions, less face-to-face teaching), feedback (improved observation of behaviours to inform feedback), clinical supervision (facilitated supervision from a distance and enabled safer patient care, may impede trainee independence), and trainee assessment (better for assessment of clinical decision-making and organizational skills).
Conclusions: CPOE potentially enhances and harms the educational experience for postgraduate medical trainees.
Take-home messages: Educators should capitalize on the educational opportunities associated with CPOE and mitigate aspects of CPOE that potentially threaten the educational safety of postgraduate training.

10X18

What are the educational and pastoral needs of ST1 and ST2 trainees working in general practice? A focus group study

Laura Watson[*1], Jonathan Lake*[*1] and Samantha Scallan*[*2] (Wessex School of General Practice, [1]Portsmouth, [2]Southampton, UK)*

Background: In recent years GP trainees have been able to extend the time spent in general practice as part of their 3 year training, by the inclusion of posts in the early years (ST1 and ST2). This project will explore the educational and pastoral needs of these trainees, in order to identify the nature of the support required during such attachments.
Summary of work: Working with a group of trainees over 6 weeks, the researcher will explore their perceptions about their learning and development needs, and the role of the clinical tutor/educational supervisor during GP attachments. Areas such as clinical supervision, educational support and peer learning opportunities will be discussed, and consideration will be given to how this differs to their hospital experience.
Summary of results: The presentation will report the findings of the study in the context of the research questions.
Conclusions/Take-home messages: The research will consider the impact of GP posts in the early years of training on the educational and pastoral development of trainees, and the implications for GP educators.

SESSION 11

11A Short Communications: Transition from Student to Doctor

11A1

"They didn't teach us this in medical school". How best can junior doctors prepare new foundation trainees for professional practice?

J Williamson, J Pesic-Smith* and K Sritharan*(Basildon and Thurock University Hospital Trust, UK)*

Background: The progression from medical student to junior doctor is well documented as being a time of great educational, professional and emotional change. With the recent Dr Foster report looking at hospital mortality during this changeover period, questions relating to patient safety have also been raised.
Summary of work: A questionnaire to all current FY1 trainees working at an outer London DGH assessed key aspects of the hospital induction process; 1) How well informed the trainees felt for common ward based and on-call duties? 2) How well prepared they felt regarding certain key professional skills? 3) Evaluating areas of success and development of the junior doctors role in the current induction program. 4) Which learning methods were most effective at this time.
Summary of results: We identified a number of key areas in which the role of the junior doctors might have improved the process of induction to the hospital.
Conclusions: Delivery of a structured, topic focused and interactive teaching session to maximize the benefit of the induction period.
Take-home messages: How best can junior doctors help with the induction of new foundation trainees into professional practice? The results of an intervention looking at this question with a view to making this transition more efficient and effective.

11A2

Facilitating the transition from medical student to competent intern: How can the assessment of collaborative competencies help?

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Background: Preparedness to collaborate effectively with the healthcare team is essential for the transition from student to competent intern. Assessment strategies to improve competence in collaboration need to be explored.
Summary of work: Literature on collaborative competencies in healthcare and their assessment was reviewed. Semi-structured interviews with clinical supervisors and focus group discussions with final year students were conducted in Australia and Sri Lanka to explore the critical contexts and competencies for an intern, and related assessment needs. Purposive sampling and thematic analysis was pursued till data saturation through 14 interviews and 8 focus group discussions.
Summary of results: The competencies identified as critical, especially in the contexts of patient handovers, consults, emergency situations and seeking support after hours were: knowing own limitations; communicating with clarity and urgency; respectfully liaising with other professions; role adaptability and leadership in emergencies; and proactive decision making within limitations. Students valued assessment in clinical settings, especially when opportunities for feedback and reflection were included.
Conclusions: Performance-based assessments adapted to focus on these critical competencies in these contexts, and embedded within a process of feedback and reflection, may have a significant impact.
Take-home messages: Contextualised assessment of critical collaborative competencies, with support for feedback and reflection, may better prepare students for their role as interns.

11A3

Designing, evaluating and optimising an induction week for foundation year one doctors

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Background: An effective induction programme is essential to ensure safe practice. The information delivered can vary and must take into account the administrative obligations and clinical duties of the doctor. In 2009, Medway Maritime Hospital introduced an 'induction week' for the new intake of foundation doctors. The programme included clinical sessions, workshops, shadowing and administrative instruction.
Summary of work: After commencing work, the new foundation doctors were asked to complete an online questionnaire using 'surveymonkey.com' to rate the usefulness of the week. The responses (61.9%) were analysed, and changes proposed.
Summary of results: Some components were more favourably received than others. The clinical courses and workshops were highly rated, while administrative and lecture based talks less so. Information from 'peers' was enthusiastically received.
Conclusions: This study shows how hospitals can maximise the short time available to provide FY1 doctors with the skills and information helpful in making a smooth transition from final year student to junior clinician. It also illustrates a survey method for gaining feedback, used to ensure the induction programme is responsive, stimulating and well designed.
Take-home messages: Induction week for new doctors needs to fulfill certain criteria but also be relevant and tightly focused on the practicalities of starting work in a new environment.

11A4

Transition from undergraduate to postgraduate training: Views of trainees and supervisors on growth of trainee competence

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Background: Medical trainees face, during their training, several transitions with increasing responsibility. The focus of this study is how competency levels at different stages of training are perceived by trainees and supervisors.
Summary of work: We carried out a mixed method questionnaire and interview study. Questionnaires were completed by final year medical students (n=41), trainees of the first (n=44) and second (n=25) year of the Foundation Programme (FY1 and FY2) and their supervisors (n=45). They were asked to assess the trainees' ability to carry out 16 medical activities. We interviewed 10 final year medical students to explore their perceptions about the transition from student to doctor.
Summary of results: Mean scores for self-perceived competence of trainees are significantly higher on all activities than mean scores given by supervisors for expected competence. Both trainees' and supervisors' scores significantly differ between final year medical school and FY1, but between FY1 and FY2 they do not.
Conclusions/ Take-home messages: It is important to know whether trainees are ready to make the transition to the next educational level. Do trainees overestimate their competence, or do staff underestimate them? Further research is necessary to understand these findings, and relate them to education and patient safety issues.

11A5

Using the job demands-resources model to predict performance in veterinary professionals: The role of personal resources

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Background: Recently graduated veterinary practitioners in the Netherlands have difficulties with the transition from university to practice. We investigated how job and personal characteristics, related to wellbeing and (subjective and objective) performance.
Summary of work: The present study uses the Job Demands-Resources model (Bakker & Demerouti, 2007) to examine these relationships. A total of 865 professionals (73% females and 27% males) and 179 of their colleagues returned a tailor-made theory-based questionnaire.
Summary of results: The results of structural equation modelling did not support the hypothesis that exhaustion mediates the relationship between job demands and in-role performance, but confirmed that work engagement mediates the relationship between job resources and extra-role performance. It also confirmed

the hypothesis that job resources had a positive relationship with personal resources and that those personal resources had a positive relationship with in-role and extra role performance. This direct effect could be confirmed with other ratings.
Conclusions: Job resources influence extra-role performance through mediation of work engagement, while personal resources, powered by job resources, influence particularly in-role performance.
Take-home messages: To improve in-role and extra role performance of young veterinarians, we must focus on improving personal resources during education, but it is equally important to teach employers how to improve working conditions, especially job resources.

11A6

The residency practice-based small group learning program - applying a proven approach from CME
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Background: An important aspect of postgraduate training is to support the transition of trainees to professionals with the skills and commitment necessary for continuing professional development.
Summary of work: The Residency Practice-Based Small Group Learning Program began in 1997, using the approach and materials of its parent CME program with the goal of introducing concepts of effective CPD. Groups of 4-10 postgraduate trainees meet with a trained facilitator on an ongoing basis to discuss evidence-based modules of common interest. The facilitator focuses discussion on case-based experience, encourages active reflection on practice, and promotes practical ways to integrate new information into practice.
Summary of results: Membership has grown to 2300 family medicine residents from 16 Canadian and 3 US sites, and 200 Ontario Nurse Practitioner students. A pilot project is underway in Scotland.
Surveys reveal that the program is highly valued and enjoyed by participants and facilitators. 87% of residents feel it promotes lifelong learning skills, and 91% plan to use a similar CME approach upon graduation.
Conclusions: The Residency PBSG program is an example of a highly successful adaptation of a CME approach and introduces postgraduates to elements known to support practice change.
Take-home messages: Introduction of strategies and skills integral to effective CME is achievable in postgraduate training.

11B Short Communications: Training for Teamwork

11B1

Effects of high-fidelity team training
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Background: High-fidelity team training is considered to be a tool to improve individual technical and non-technical skills as well as team effectiveness. Overall goal is to optimize the recognition and treatment of children with severe illness by paediatric nurses and physicians. Literature suggests that realism of team training and learners' motives for participation, expectations, and self-efficacy may influence the results.
Summary of work: The purpose of this study is to determine changes that high-fidelity team training may bring to the attitudes, motives for participation, and self-efficacy concerning technical and non- technical skills of nurses, residents, and physicians in a pediatric department, and the importance of training realism. Three online questionnaires were constructed.
Summary of results: Data collection from about 150 participants from March - June 2010. Data analysis will take place in July 2010.
Conclusions: The questions will be answered whether participating in high-fidelity team training results in 1) more positive attitudes towards and motives for the training, 2) an increase in self-efficacy for the trained skills. We also conclude 3) how important realism is for this type of training.
Take-home messages: High-fidelity team training is challenging, fun, more useful and effective with an optimal realism level (to be specified after data analysis).

11B2

Adapt collaborative learning to a flexible and interactive (computer based) learning environment through the use of 'Belbin roles'

M Lauwers (University college Arteveldehogeschool, Gent, Belgium)*

Background: If we want to computerize collaborative learning then we must find a way to measure competences such as communication and cooperation.
Summary of work: The Belbin team roles model identifies and explains why some people work together better than others. The students were asked to complete the 'Belbin Self-Perception Inventory' test. This allows the student to identify what team role is most suitable for him/her.
During the sessions of cooperative learning, students are assigned a specific Belbin role which he/she has to use in a correct way at a correct time during the communication process. The qualitative value of this teaching method was investigated through interviews with student focus groups and supervisors.
Summary of results: The quality of the debate improves during the face to face as well as the on-line sessions. By being assigned a team role and having to act within that role, students become aware of different team roles. The problem of hitch hiking is countered. This in turn makes the assessment of the competences such communication and collaboration more transparent.
Conclusions /Take-home messages: Both students and supervisors agree that the Belbin roles help in achieving better collaboration in a flexible and computer based learning environment. Competences like communication and cooperation can be visualized.

11B3

Learning teamwork skills in medical school

A van der Markt, M Hartman* and P de Roos, (Vrije Universiteit Medical Center, Amsterdam, Netherlands)*

Background: Problem Based Learning claims to improve students' teamwork skills, yet the complexity of team tasks in hospital reality is of an entirely different magnitude than what students learn in medical school and practice during their internships.
Summary of work: Observations in the world of "active students" (students engaged in NGO work) showed that students are able to organise large events which require complex and high levels of teamwork skills. We created an elective course which aims to create an optimal learning environment to facilitate learning of teamwork skills in context of student led projects.
Summary of results: 1 team of students organised a national Leadership Summer School for healthcare students, another team organised an international summer School on the bridges between psychiatry and neurology in children and adolescents. Through different assessment methods (e.g. Multi Source Feedback) the teamwork process and outcomes were captured. Each group received 16 hours of skills trainings, to support the project development and teamwork skill development.
Conclusions: The robust assessment appeared to be both fun and demanding. Students appreciated the experience posed by this elective course pilot project. During the pilot one of our academic departments embraced the concept and support was obtained to continue for another academic year.
Take-home messages: Students are up to a challenge as big as they dare to dream. If passing the exam is the biggest dream, we miss out on quite some potential in our students.

11B4

Psychological factors affecting students' engagement with teamwork

J Carroll, J Hart, C Boggis, and I Braidman (The University of Manchester Medical School, Manchester, UK)*

Background: Teamworking is important in modern healthcare and students perceive it as significant in professional behaviour, but what influences their participation in teamworking activities is unclear.
Summary of work: We investigated students' intentions, attitudes and involvement in a teamworking activity, namely production of an assessed poster presentation. A Theory of Planned Behaviour questionnaire was devised investigating students' intentions and beliefs about teamworking, which was completed by 126 second year medical students before and after poster production. Students' reflections on their teamworking experiences were analysed thematically.
Summary of results: Intention and attitudes towards engaging with the teamwork activity significantly increased over the study ($p \leq .05$). The more positive the attitude, the more students contributed to the

activity. Factors concerning social and control beliefs remain unchanged. Students' beliefs did not relate to their overall assessment mark. Analysis of students' journals revealed that several themes such as work management and responsibility for themselves and others were encountered during the teamwork activity.
Conclusions: Students' engagement with teamwork appears related to their intention and attitudes but not to any social influences or perceived confidence. Engaging in teamwork challenges students' professional behaviour.
Take-home messages: Psychological factors are related to teamwork and more research into the area may provide insights into preparing students for teamwork activities.

11C Short Communications: Staff/Faculty Development 2

11C1

Institutional co-location and professional development among health professions education fellowship graduates

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Background: Factors contributing to professional development after medical education fellowships include a community of peers and mentors (Lown et al., 2009). A related question is whether institutional co-location is associated with professional development.
Summary of work: Forty-eight of 70 graduates (69%) from FAIMER Institute 2001-2006 classes responded to a post-fellowship survey. Questions addressed involvement in the FAIMER community and professional accomplishments.
Summary of results: Twenty (42%) were the only Fellow at their school, and remaining respondents were from schools with multiple Fellows. Almost all indicated they had applied skills/knowledge gained through the fellowship to projects and been asked to serve as educational advisers/consultants. Number of Fellows at the school was significantly correlated with number of FAIMER listserv postings read monthly ($r=.36, p<.05$) but not number of listserv contributions or number of Fellows or program faculty communicated with monthly. Number of Fellows at the school was not significantly correlated with number of respondents' publications, presentations, or conferences organized.
Conclusions: These preliminary data suggest that institutional co-location alone is not related in the short term to professional activities of fellowship graduates, except possibly listserv reading. Other/additional factors may differentially predict engagement in professional activities.
Take-home messages: While support networks may facilitate professional development, factors other than institutional co-location may determine network effectiveness.

11C2

Ten years of experience in faculty development as a National Center for Medical Education in Japan

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Background: Medical Education Development Center (MEDC), a national centre for medical education in Japan, was established in 2001 with the mission to promote faculty development (FD). Here we report our experience in FD.
Summary of work: We organized nationwide conferences every 3 months. Each of them was 2 to 3 days long and consisted of several workshops and seminars with different themes.
Summary of results: Thirty-five conferences including 157 workshops and 53 seminars were held since 2001, of those, 13 conferences were jointly organized with other medical schools in Japan. Total number of participants was over 4,000. Major participants were medical teachers, however, simulated patients, administrative staffs, and students also participated. Major themes were PBL, communication/behavioral science, community-based education, simulation, portfolio, clinical teaching, assessment, and so on. Organizers and task forces were not only from MEDC but also from all over Japan and from abroad. Visiting professors of MEDC greatly contributed. Over 50% of total participants strongly agreed that the theme and contents of these workshops met their needs.
Conclusions: MEDC served as a national FD center for 10 years and promoted medical education in Japan.
Take-home messages: National teacher training center is essential for the advancement of medical education.

11C3

Findings of a consensus conference on faculty development

N Searle and S Greenberg (Baylor College of Medicine, Houston, Texas, USA)*

Background: More than 70 national and international leaders in medical education participated in a conference hosted by Baylor College of Medicine February 26-28, 2010. The goal of the conference was to develop recommendations for training faculty who prepare future physicians.
Summary of work: Participants at "A 2020 Vision of Faculty Development across the Medical Education Continuum" conference worked in small groups on topics important in the field of faculty medical educational development including: the biology of learning, the hidden faculty agenda, barriers to effective teaching, teaching skills and attitudes, patient/relationship-centered care, CME, e-learning, bioinformatics, evaluation, and faculty development research. Thought-leaders in each area prepared papers prior to the conference as a starting point for each working group. Recommendations determined by each group were incorporated into the papers and will be published this year.
Summary of results: Preliminary recommendations include a call for centers of excellence in training for medical teachers, the development of a cadre of teachers whose primary mission is teaching, and possible changes to accreditations standards incorporating more training for and support of medical teachers.
Conclusions: A modified Delphi technique is currently being undertaken by the participants to achieve consensus concerning all of the recommendations.
Take-home messages: Final recommendations will be presented at the session.

11C4

Evaluation of a tailor-made postgraduate course in medical education for surgeons

Maha Iqbal, Madawa Chandratilake and Margery Davis (Centre for Medical Education, University of Dundee, UK)

Background: The Centre for Medical Education, University of Dundee, Scotland, UK and the Association of Surgeons of Great Britain and Ireland collaboratively offer a paper-based, distance-learning Postgraduate Certificate Course in Medical Education with tailor-made units for surgeons. Individual participants select 20 out of 70 options for the course. The effectiveness of the course was evaluated two years after implementation.
Summary of work: A questionnaire survey was administered online/post to 201 course participants. The questions focused on funding sources, reasons for enrollment, course content, delivery and overall satisfaction. Issues identified in the questionnaire were explored with telephone interviews.
Summary of results: Fifty-nine participants (29%) responded to the survey and out of them 15 took part in telephone interviews. The course is self-funded by 86%. Respondents felt the course was value-for-money. For the majority, the course was useful for personal/professional development; meeting the needs of surgical education; and self-reflection. Most of them preferred the printed material to e-learning and the flexibility of completion to imposed deadlines. They wished to have more interaction with peers and tutors.
Conclusions: The customized course met respondents' needs except those for interaction. The print-based delivery method and learner- controlled pace of learning seemed to be attractive to surgeons.
Take-home messages: Tailor-made units delivered appropriately enhance the utility of medical education courses.

11C5

Development and implementation of a medical education scholars program for house officers

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Background: We saw a need for preparing residents and fellows for clinical faculty positions involving medical education (ME) or healthcare administration (HCA), and developed a new program to meet this need.
Summary of work: Our ME curriculum covers education broadly, including theory of education, teaching skills, assessment, and educational research. The HCA track includes sessions on healthcare economics, law and regulations, hospital administration, human resources, and information technology. We recruited speakers from the Medical, Business, and Law Schools, as well as the School of Public Health, the IT Department, and

international contacts. Each track provides a 20-month fellowship-like experience, with prerequisite readings, seminars and scholarly projects.
Summary of results: Participation is very broad, including surgery, radiology, emergency medicine, pediatrics, cardiology, neurology, anesthesia, and psychiatry. Average attendance to date is 73%. Self-assessments of knowledge and confidence in applying key concepts showed significant improvement (mean effect size = 1.36 +/- 0.56), as did objective pre-post knowledge assessments (paired t-tests yield effect sizes ranging from 0.7 to 1.6).
Conclusions: We have successfully implemented a scholars program that can accommodate HOs from a range of specialty training programs with varying clinical scheduling challenges.
Take-home messages: A medical education scholars program is attractive to house officers and helps them prepare for future positions of leadership.

11D Short Communications: Communication Skills

11D1

The impact of communication training on communication skills in real practice: Peer role-playing vs. standardised patients

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Background: A used method proven to be effective in communication skills training (CST) is peer role-playing. CST with Standardized Patients (SP), is effective too but more complex and expensive. The comparative effectiveness of these methods has not been investigated extensively. The aim of our study was to determine if the students' perception of self-efficacy, the patients' perception of the students' communication skills and the clinical supervisors' observation of the students' communication differed according to the CST method with which students had been trained.
Summary of work: Subjects were 55 first-year students at the Educational Center of Nursing in Berne, Switzerland. A randomized post-test-only control group design was used. The intervention group underwent a CST with an SP. The CST consisted of one-to-one training with direct oral feedback by the SP. The control group practiced communication skills with peer role-playing and mutual feedback. For the post-test, students rated their self-efficacy, whereas real patients and clinical supervisors evaluated the students` communication skills with instruments established in the literature. The post-tests were scheduled at the beginning of the students' clerkship.
Summary of results: Our results showed no significant difference between the intervention and control groups regarding students' evaluation of self-efficacy and rating by real patients. However, the clinical supervisors rated the communication skills of the students in the intervention group as being significantly ($p<0.0001$) superior to those of the control group.
Conclusions/Take-home messages: In summary, the results of our study show that CST with SPs is superior to CST with peer role-playing when measured by clinical supervisors

11D2

The transfer of communication skills: From undergraduate medical training to post-qualification practice

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Background: Studies have recognised that communication skills' learning is not always transferred to the workplace. Experiential communication training has been shown to be more effective in improving doctor's skills in longitudinal work. This study investigated the skills of junior doctors and related their competencies retrospectively to their undergraduate training, to ascertain whether any particular method of communication skills training facilitated transfer more effectively than others. Does amount and type of undergraduate communication training have an effect on quality of consultation with patients post-qualification?
Summary of work: 105 real patient consultations (35 doctors providing 3 consultations each) were rated (by communication experts trained to reach inter-rater reliability) for the doctors' abilities to use key skills, gather/share information and respond to patient concerns (using a validated scale).

Summary of results: The majority of the samples were competent communicators. Undergraduate training had a significant effect upon postgraduate competence. Comprehensive, regular, small group teaching sessions correspond to the highest scores on all sections of communication, Informal and lecture based methods of undergraduate teaching correlated to less good communication.
Conclusions: Interactive comprehensive training of 8-12 hours per year, transfers most effectively to higher rated communication, confirming the benefits of training in communication at an undergraduate level.
Take-home messages: This study has shown that comprehensive training at the undergraduate level enhances skills displayed post qualification communication training post-qualification may be of worth, to increase and maintain skill level.

11D3

Initial evaluation of EPSCALE, a rating scale that assesses the process of explanation and planning in the medical interview

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Background: Explanation and planning is important for a successful medical interview. There are few instruments available that objectively assess skills in this area.
Summary of work: Objective: to evaluate the content validity, internal consistency and generalisability of EPSCALE, a rating scale to measure communication skills in explanation and planning. Content validity: consensus exercise and expert review. Internal consistency and generalisability: estimated (with124 clinical students at 4 OSCE stations with simulated patients, during finals examinations) by coefficient alpha, generalisability coefficient and variance components.
Summary of results: Content validity was supported by consensus exercise and expert review. Internal consistency was high: coefficient alpha > 0.8 for all 4 OSCE stations. Generalisability coefficient for 4 OSCE stations was 0.50.
Conclusions: EPSCALE has content validity and high internal consistency when used to assess explanation and planning skills in the consultation. It achieves reliability, in a 4 OSCE station examination setting, comparable to that of other assessments. Further work will explore the scale's validity by other measures.
Take-home messages: EPSCALE has content validity for assessing skills in explanation and planning with acceptable reliability. Subject to further work on its validity, EPSCALE holds promise as a practical tool for assessing explanation and planning in both formative and summative situations.

11D4

Teaching communication to medical students by a role-playing simulation of the digestive physiology

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Background: Spanish medical students are highly motivated. However, their communication skills have been pretty much unattended. To improve these skills, we carried out a role playing simulation about the digestive physiology.
Summary of work: Students were randomly distributed in small groups (4-5 students) (n=100) ascribed to one of the digestive functions (motility, secretion, absorption, nervous control and endocrine control), and several groups shared the same function. They discussed the physiological function and decided how to represent it. Furthermore, they communicated with other function groups that interact with their function. Three sessions of 1 hour each distributed in 15 days allowed to create the rules and the staging. All of the groups worked together in the definitive representation, after 2 rehearsals.
Summary of results: After the experience, the students completed a survey about their satisfaction. Most of them stated that it was positive for several items related to the group dynamic (70%) and the role playing staging (88%). Moreover, the students considered that both the appreciation for their classmates (73%) and the understanding of the physiology (69%) increased.
Conclusions: We found that the organization of a role-playing simulation of the digestive physiology, for the first grade medical students, was a motivated task to improve communication.

Take-home messages: A role-playing simulation about digestive physiology improves communication in medical students.

11D5

Improving the quality of patient care: Communication skills curriculum in training of anesthesiology residents

Arif Marsaban, Endang Basuki and Ratna Soenarto (University of Indonesia, Jakarta, Indonesia)*

Background: Communication skills mostly are taught to medical students, but in most resident training, these skills are no longer given. Observation in Anesthesiology Residency Training at Faculty of Medicine University of Indonesia showed that several ethical issues were occurred related to ineffective communication. Ineffective communication between doctors and patients and or the family could happen during the medical counseling, breaking bad news, or during preoperative period between health providers. Those problems could induce patient's dissatisfaction or health providers' inconvenience.
Summary of work: To achieve optimal results, communication skills should be taught along with the basic knowledge of humanities and bioethics. In our residency training, this subject is given one credit and spread throughout 7 semesters, with the concentration in the first semester.
Summary of results: The communication skills are given in 700 minutes, humanities 450 minutes and bioethics 500 minutes. The subject is given by interactive lectures, case discussion, role play, video demonstration, doctor-patient communication using simulated patient. Videotaping is also done for the purpose of learning process.
Conclusions/Take-home messages: With the combine knowledge of humanities, bioethics and communication skill, it is expected that anesthesiology trainees would become good anesthesiologists that administer a high quality of patient care and eventually will assure patients' safety.

11D6

Knowledge of medical interns and residents regarding skills of patient-physician communication: a gap in medical curriculum

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Background: The aim of this study is to assess the knowledge of residents and interns about patient-physician communication skills because of its important role in diagnosis and patient satisfaction which result in treatment.
Summary of work: A 15 item questionnaire was completed by 47 interns and residents in educational hospitals of Ghazvin University of Medical Sciences. This tool had two dimensions of basic communication skills and patient specific skills such as interview strategies, patient-physician communication models and etc.
Summary of results: The mean score was 7.14 (SD=2.51) from total score 15 with mean score 3.02 in patient-doctor communication skills and 4.14 in basic communication skills.
Conclusions/Take-home messages: These results show a remarkable gap in medical curriculum in Iran regarding communication skills in medical practice. It is suggested integrating some communication issues into the medical curriculum to remove this important deficit which leads to patient satisfaction and help doctors to reduce and prevent medical errors resulting from poor patient-physician communication.

11E Short Communications: Educational Research

11E1

BEME Review of the evidence linking conditions, processes, and outcomes of clinical workplace learning

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Background: We set out to synthesis an interpretation of how medical students learn in workplaces, how education and practice interrelate, what learning outcomes ensue, and how workplace learning environments foster outcomes.
Summary of work: A search covering 6 databases identified 72,000 articles in the period 1982-2006, which were hand-screened to identify informative English language articles. From the 2000-2006 subset, a final set was selected that fulfilled the criteria: Workplace learning; undergraduate medical education; empirical research. Causal relationships predicted by a model of 'experience based learning' were sought and coded to a web-based database, structured to represent the components of the model. Coding by 7 members of a multidisciplinary, international team preceded a qualitative evidence synthesis.
Summary of results: This review illustrates the strength of constructivist evidence synthesis, which allows conclusions to be drawn from a massive, mixed methods dataset. Of the many conclusions that can be drawn from it, one interesting example is that many learning outcomes are described in affective terms, whilst affective features of learning environments are not so often highlighted.
Conclusions: This review provides an example of constructivist evidence synthesis and illuminates how medical students learn in workplaces.
Take-home messages: Methodological developments in evidence synthesis provide rich insights into educational processes.

11E2

Phenomenology as research approach in medical education: Characteristics and empirical examples
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Background: In contemporary educational research learning is not necessarily determined by outcomes measured by scales or prefabricated instruments. Student learning is rather looked upon as a process where individuals learn in relation to what is meaningful to him or her (Marton & Booth). This implies that the students' perception of their learning environment is of importance for the researcher. Phenomenology is a research approach focusing on how individuals experience their environment and thus, suitable for such investigations.
Summary of work: The empirical phenomenological approach has been investigated regarding its aim and procedures. Elements of this approach will be presented illustrated by a recent study.
Summary of results: Phenomenology has characteristic core elements that the researcher must acknowledge.
Conclusions: Husserl's phenomenological philosophy constitutes an excellent base for a research approach that aims at taking a subjects standpoint as a foundation for the research. A medical education researcher can be overwhelmed by philosophical literature, but contemporary psychologists have worked out empirical methods making the philosophy feasible to carry out in practice.
Take-home messages: Empirical phenomenology is a research methodology highlighting individuals' experiences, adapted from Husserl's philosophical method. There are guidelines that break down the approach into practical procedures that make the approach possible to carry through in a medical education context.

11E3

Considering the 'trustworthiness' of taking an ethnographic approach to educational research
C Mann (University of Nottingham, School of Veterinary and Medical Sciences, Nottingham, UK)*

Background: This research reports on the implications of taking an ethnographic approach to educational research and of presenting this work to a Science based community.
Summary of work: The researcher is undertaking a PhD in 'The Student Experience of Learning to be a vet in a new Vet School'. At various times presenting the work to a scientific audience has raised unanticipated questions of the validity and reliability of the work. This paper reports on the methodological justification for the approach and the importance of describing this work in a voice relevant to the scientific community.
Summary of results: The research reports that validity and reliability are less suitable measures of 'trustworthiness' in educational research than translatability. Generalisability cannot be an aim in a context which is not replicable but findings can be useful if they can be transferred to other contexts.
Conclusions: The value of ethnographic educational research is through thick description in presenting findings to provide an understanding of learning in context which may then be transferable to other contexts.

Take-home messages: Presenting educational ethnography to a scientific audience requires an understanding of the audience. Ethnography may not be valid, reliable or generalisable but can demonstrate rigour using other constructs and add value through transferability.

11E4

Obser-view seen as a data-generating method and a learning space

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Background: Different types of qualitative interviews are described in publications about methods for generating data in qualitative research. Different types of observation are also described. Both interviews and observation are acknowledged and used tools for generating data in qualitative research.
Summary of work: Obser-view is a method of generating data, which is almost not described in literature about methodology, even though it is a tool which provides a link between observation and interview. The obser-view process is offering the researcher a deeper understanding of the empirical data than can be gained from observation and interview alone. Following the researcher's observation of the participant at work, both parties meet to reflect on, and discuss, the situation and the participant's approach to it. The researcher serves as a catalyst for reflection. In this way, the obser-view also becomes a learning space.
Summary of results: I will explain how I developed the obser-view process and illustrate how three methods, namely observation, obser-view and interview, were combined for a qualitative research project. Finally, I will argue that this integrated approach improves the internal validity of qualitative research, because each method brings a different perspective to the data obtained.
Conclusions: Combining observation, obser-view and interview in qualitative research improves the internal validity of the research, because each method brings a different perspective to the data obtained.
Take-home messages: Obser-view can be seen as a data-generating method and a learning space. Combining observation, obser-view and interview in qualitative research improves the internal validity of the research.

11E5

Applying developmental evaluation design to continuing health education

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Background: A method of evaluation will be described that can capture the complexities of learning as well as serve as a tool for enhancing learning "in the moment".
Summary of work: The Continuing Education Leadership Program (University of Toronto) was used as our field employing a Utilization-Focused framework (Patton, 2007). This framework allows for a blended approach that provides useful information for program development and contributes to the scholarship of curriculum development and evaluation. Appreciative inquiry (Preskill & Catsambas, 2004) sessions with primary intended users of the evaluation was conducted identifying questions that then provided the direction of the research. Learners, program planners and faculty are involved in the creation of questions, data collection, analysis and future action plans. This is a novel method for CHE program evaluation and will provide much sought after information on evidence-informed curriculum design and improvement.
Summary of results: This is work at early stages. The CELP program will begin mid March 2010 therefore at the point of writing this abstract no results are available. Preliminary results will be presented. The process of designing the evaluation plan including obstacles encountered will be discussed along with results.
Conclusions: To be determined.
Take-home messages: Education research needs to shift from a focus on linear outcomes to one that encompasses the complexities of effective learning.

11F Short Communications: Progress Test

11F1

Clinical exposure helps medical students develop higher order thinking

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Background: Complex (or higher order) thinking skills are essential for medical practice. Assessments such as the Progress Test (PT) act to assess this through multiple choice questions (MCQs). This study aims to measure the rate of students' acquisition of knowledge, and to assess the development of their higher order thinking by analysing longitudinal PT results.
Summary of work: The performance of students in the PT demonstrated a step-wise improvement. Performance in higher order cognitive difficulty MCQs showed a steep improvement at the start of clinical training, whereas lower order cognitive difficulty MCQs showed a monotonous increase. These differences were statistically significant.
Summary of results: Three student-raters independently tagged the cognitive difficulty level of eight consecutive PT papers (1000 MCQs) according to a modified Bloom taxonomy. Anonymised PT result data for a single cohort was obtained and repeated measures ANOVA and paired t-tests performed to analyse these results over time and by cognitive difficulty.
Conclusions: The results of the study corroborate those of previous studies. The steep improvement in higher-cognitive difficulty MCQs suggests that students rapidly develop higher order cognitive skills at the beginning of clinical training.
Take-home messages: These results seem to support the implementation of integrated early clinical exposure in undergraduate medical curricula.

11F2

Progress on progress testing: Barts and the London's initial experience of the UK Multi-School Progress Testing Project

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Background: Since 2007 Barts and the London (BL) have collaborated with the NBME and three other UK medical schools to pilot the use of web-based progress testing. Details of test administration and psychometrics will be published elsewhere.
Summary of work: BL began testing in autumn 2008. Tests are based on 960 single best answer questions recently retired from the USLME Step 2 question bank and edited into UK format by academic staff of the collaborating UK schools. Questions were carefully matched to provide several 'forms' of the test to minimise repetition of test material in each successive test. Secure web based tests for cohorts of 300+ students ran without administrative problems. The 120-item tests were equated and the results provided prompt and detailed personalised feedback (covering 21 test blueprint domains) to each individual student.
Summary of results: The tests, used formatively twice each year at BL, perform well. When several cohorts are tested simultaneously, results show clear performance increments with developmental stage. The expected stepwise progression of scores is also clearly seen as a single cohort progresses through the course. The data for Year 5 students also show a good correlation with our MTAS academic ranking scores.
Conclusions/Take-home messages: Sub-cohort differences (e.g. graduate entrants' performance) are measurable.

11F3

Progress Testing in postgraduate dental education

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Background: Progress testing (PT) has seldom been applied to student evaluation in postgraduate (PG) settings. Yet it is an ideal tool to study knowledge change during the transitional period from university to independent professional practice. UK dentistry provides a good model. After graduation practitioners enter a year of vocational training when they meet regularly and are accessible for PT. We studied this transition and used PT to compare the performance of vocational trainees (VDPs) to that of UGs.
Summary of work: PTs, comprising 30 questions drawn from the Peninsula Dental School question bank, were delivered to 64 VDPs from 3 UK regions. Prior to use, all questions were subjected to internal review. VDPs were invited to provide feedback regarding their PT experience.

Summary of results: VDP scores were normally distributed (range from 38-75%). VDPs from different regions generated comparable performance profiles, scoring significantly higher than UGs. VDPs found the test useful for self-evaluation.
Conclusions: VDPs from different parts of the UK performed equivalently suggesting equivalence in their training, and their scores represent a stepwise increase on those achieved by UGs. Nevertheless, the range of scores achieved is worrying.
Take-home messages: PT has great potential as an assessment and evaluation tool within postgraduate dental education. Financial support from COPDEND is gratefully acknowledged.

11F4

Comparison of single best answer and true-false items in testing students' knowledge accumulation
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Background: Tampere Medical School has used Progress test of true-false (TF) items in formative assessment. In January 2010 a study was performed comparing Single Best Answer (SBA) and TF format.
Summary of work: Teachers wrote SBA items with three to five alternative answers and corresponding TF items. SBA test was scored either right answer 1 point, wrong answer minus ½ point or wrong answer 0 points, the TF test right answer 1 point, wrong answer minus 1 point. Tests consisted of 220 items. 184 students performed a TF test, 203 students SBA with no wrong answer penalty and 207 SBA with penalty. Fifty two per cent of them took part in web-based voluntary evaluation.
Summary of results: The mean scores rose steadily according to year in all formats, achieving in the sixth year 63,6 % of maximal score in the SBA with no penalty, 41,6 % in SBA with penalty points and 43,6 % in the TF. The error rate in SBA without penalty peaked at third year and declined sharply in the fourth year. SBA format led to higher scores in basic sciences in all years.
Conclusions: Clinical relevance can be better achieved with SBA items.
Take-home messages: Balance between reward and penalty is important for successful testing.

11F5

Progress testing at St George's, University of London: Initial experience of the UK Multi-School Progress Testing Project
J W M Chow[1], D B Swanson[2], K Holtzman[2], M V Nelson[2] and M M Langer[2] ([1]St George's, University of London, London, UK; [2]The National Board of Medical Examiners (NBME), Philadelphia, USA)*

Background: St George's, University of London (SGUL), in collaboration with the NBME and three other UK medical schools, is piloting the use of jointly developed web-based progress tests built from recently retired USMLE material.
Summary of work: Since the test is done three times a year, it allows longitudinal tracking of performance of the students and provides feedback to students, tutors and the institution. Prompt and detailed personalised feedback covering 21 test blueprint domains is given to each student. This provides additional information to enhance the personal tutor system, adds a dimension to career guidance and highlights students who need extra support. Among the UK schools, SGUL is the only one that is using the test summatively. We have applied the Cohen method to set a pass mark for each test. This, together with algorithms of performance at each of the three tests determines academic progression to the following year of study.
Summary of results: Results of these tests also correlate with other SGUL tests.
Conclusions/Take-home messages: Progress testing plays a role in summative testing while providing regular feedback to staff and students. It also provides information for curriculum development and evaluation.

11G Short Communications: Problem Based Learning 2

11G1

Effective block coordination in a PBL curriculum
M Magzoub and N Ahmed (Department of Medical Education, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia)*

Background: Block coordination is one of the most important activities in a PBL curriculum. A lot of research has been carried out on the effectiveness of tutor, whereas little is known about the effectiveness of a block coordinator. The College of Medicine, King Saud bin Abdulaziz University for Health Sciences, is a newly established college adopting a strong PBL and web-based curriculum. The aim of this study is to identify the characteristics of a qualified coordinator, define the roles of the coordinator, and highlight the activities that should be conducted before, during, and after the block.
Summary of work: Focus group discussions were conducted with block coordinators in addition to direct observation and records review were used.
Summary of results: Results Six qualifications were identified for the block coordinator, such as participation in block planning group and familiarity with academic regulations. Thirteen roles were identified for the block coordinator, for instance monitoring the progress of activities in the block. Finally, nineteen activities were identified for the block coordinator before, during and after the block, such as conducting assessment items review meeting.
Conclusions: Identifying the role and activities of the block coordinator were found helpful in planning, implementation, and evaluation of the block.
Take-home messages: Active involvement of coordinators in identifying their roles was found to be helpful in setting policy and procedures which will be used for planning and evaluation purposes. This policy contributed a lot to the improvement of the different blocks implementation.

11G2

Introductory sessions enhance students' acceptance of PBL curriculum

A S Malik and R H Malik (Universiti Teknologi MARA, Selangor, Malaysia)*

Background: Faculty of Medicine, UiTM follows a hybrid PBL curriculum since its inception in 2003. The school leavers joining the Faculty not only have to cope with the challenging university life but also grapple with the change in teaching/learning approaches from a traditional to PBL curriculum.
Summary of work: To familiarise the students with the PBL curriculum, the Faculty introduced an interactive lecture and a PBL session in the orientation week of the MBBS course. Students' feedback about these sessions was analysed by using GraphPad QuickCalcs online software.
Summary of results: Interactive lecture: 1.8% students before and 13.6% after introduction of interactive lecture found PBL as MOST useful method of learning (P = 0.0101). PBL package: 8% students before and 13.8% after introduction of PBL package found PBL as MOST useful method of learning (P = 0.1357). Abolishing the PBL package: After abolishing the introductory PBL session, the students' acceptance of PBL as a useful method of learning dropped from 78% to 75% (P = 0.6220).
Conclusions: An interactive lecture enhanced students' acceptance of PBL curriculum significantly. A PBL session further enhanced students' acceptance but did not make a statistically significant additional difference.
Take-home messages: Introductory interventions in the beginning of a course enhance students' acceptance of PBL curriculum.

11G3

Innovative veterinary education at Western University of Health Sciences; A summary of the inaugural seven years

J Tegzes (Western University of Health Sciences, College of Veterinary Medicine, Pomona California, USA)*

Background: Western University of Health Science's College of Veterinary Medicine (WU CVM) admitted its charter class in 2003, becoming the newest veterinary program in the USA. Fully accredited in 2010, its successful and ground breaking program is based on its problem-based learning (PBL) and distributive model for clinical training, being the first American veterinary school without a teaching hospital.
Summary of work: The curriculum has been thoroughly planned and closely monitored for the past 7 years. Many internal and external measures have been used to evaluate the effectiveness of the curriculum, and to ensure the success of the graduates. Through continuous monitoring and improvements, our PBL curriculum is unique among veterinary curricula, and we have successfully delivered a dynamic and challenging clinical curriculum without a teaching hospital.
Summary of results: Measures of successful graduates, including pass rates on both the PAVE and NAVLE, have steadily increased in each successive year.

Conclusions: WU CVM has proved that PBL and distributive clinical training leads to successful veterinary graduates.
Take-home messages: Veterinary education can succeed without lectures, and without a teaching hospital, using a distributive clinical model.

11H Workshop: Measurement of clinical skills: Advanced topics

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Background: Assessment of clinical skills is a crucial part of undergraduate medical education, and the use of clinical skills examinations for both formative and summative assessment is now widespread. The United States Medical Licensure Examination (USMLE) series has included a clinical skills assessment since 2004, and there is a great deal of literature summarizing the psychometric properties of these types of examinations. A thorough understanding of these properties is essential, especially in a high-stakes environment.
Intended outcomes: This workshop will provide an overview of the advanced quantitative measures for clinical skills assessments using standardized patients, including potential equating/scoring processes for rating scales, comprehensive rater/score quality control measures, validity evidence for scores and outcomes, and generalizability theory applications (reliability and standard errors).
Structure: The workshop will open with an overview of scoring considerations, with time allotted for audience discussion of scoring concerns. Breakouts into small groups to discuss specific assessment examples will be used, with a final reconvening to share small group work.
Who should attend: Medical school faculty and assessment administrators who have a firm understanding of the basic quantitative issues surrounding clinical skills measurement and would like to advance their knowledge.
Level of workshop: Advanced.

11I Workshop: The wealth in silence - communication beyond conversation

Amy Flanagan Risdal (Assistant Professor, School of Medicine, Uniformed Services University, Bethesda, Maryland, USA)*

Background: Can you read someone's thoughts just by looking at their facial expressions? Common opinion would say No, and common opinion is correct... to a point. While specific thoughts can't be decoded by watching facial expressions, specific emotions play across the face constantly. Dr. Paul Ekman began researching facial expressions in the late 1960s, and through years of work created the Micro Expression Training Tool (METT). This tool has been proven to teach people with no previous experience how to recognize very brief (less than 1/4 second) facial expressions - a powerful tool that provides detailed insight into what a person may be feeling, even if he or she is unaware of the emotion.
Intended outcomes: Through individual, hands-on training, participants will learn: (1) The seven emotions with universally recognized facial expressions (Happiness, Sadness, Fear, Anger, Disgust, Contempt, and Surprise); (2) Micro Expressions (those that appear on the face for 1/4 of a second or less), and will practice their new skills by watching video clips and receiving immediate feedback.
Structure: 10 minutes: Introduction; 60 minutes: Training; 20 minutes: Applications and Discussion.
Who should attend: Those who are interested in enhancing interpersonal skills training for medical students, residents and beyond, or simply augmenting their own interpersonal skills.
Level of workshop: Intermediate.

11J Short Communications: Entry to Medicine and Graduate Entry Programmes

11J1

The present state and problems in graduate entry program (GEP) in Japanese medical schools

N Nara[*1], T Suzuki[1] and Y Nitta[1,2] ([1]Tokyo Medical and Dental University, Center for Education Research in Medicine and Dentistry; [2]Common Achievement Tests Organization, Tokyo, Japan)*

Background: There are 80 medical schools in Japan which regularly educate 18-19 years old high school graduates in 6 years programme. Forty-four schools are national, 8 are provincial or city, and 28 are private. Twenty-eight national schools and 8 private schools have partly introduced 4-5 years graduate entry programme (GEP) which accept graduates from non-medical colleges. GEP students are 5-40, while the regular course students are 80-120 per class in each school. It is of interest to compare which programme is better to foster medical doctors.
Summary of work: We visited 27 national medical schools which have partly introduced GEP and discussed about the state and problems in GEP with the deans and administration affairs.
Summary of results: GEP students are older and usually study harder than the regular course students. Therefore, they get the higher score at 1-2 year class than the regular course students. However, there was no definite difference at the graduation.
Conclusions: GEP has some advantages in medical education; the students with higher motivation can be educated, and they learn harder than younger students. However, there is no significant difference at the graduation between both courses.
Take-home messages: We should be careful to introduce GEP in all Japanese medical schools.

11J2

Do graduate and non-graduate medical students have different learning preferences?

Shihab Khogali (University of Dundee, School of Medicine, Dundee, UK)*

Background: There has been an increasing interest in graduate entry medicine programmes. It is important to discover if there are any differences in learning preferences between graduate medical students and students entering medicine directly from school.
Summary of work: Learning preferences of graduate and non-graduate Year 1 medical students were studied in the context of a problem-based learning (PBL) programme, involving the use of interactive learning resources. Students completed a questionnaire with 5-point (from strongly disagree to strongly agree) Likert-type items.
Summary of results: 160 responses were received from a possible 166 Year 1 students at Dundee Medical School. Of these 77.5% were school leavers and 22.5% were graduates. 88% thought the PBL programme provided opportunities to apply basic principles to patient scenarios. Graduates placed more value on PBL sessions which incorporated interactive learning resources (e.g. illustration boards, pictures, animations, videos, anatomical models). Graduates found such sessions more useful in helping them integrate biomedical principles (4.0 versus 3.5, $P < 0.01$) and principles of anatomy (4.1 versus 3.8, $P < 0.05$) into the context of patient scenarios.
Conclusions: Graduates valued, more than non-graduates, sessions during which interactive learning resources were used.
Take-home messages: Learning preferences should be taken into account in curriculum planning and instructional material design to maximise learning potential.

11J3

An investigation into the professional behaviours of medical students on graduate-entry vs. non-graduate-entry courses in the UK

Laura Wark and Helen O'Sullivan (CEDP, School of Medical Education, University of Liverpool, UK)*

Background: Medical professionalism is an important component of undergraduate curriculae.
Hilton and Slotnick (2005) describe professionalism as "an acquired state, rather than a trait…that takes a number of years to attain". It is proposed that graduate-entrants to medical school poses different levels of moral and psychosocial development than school-leaving-entrants, which may be evident in their professional behaviours. This investigation will explore the professional behaviours of graduate and non-graduate entry medical students in both first and final years of study.
Summary of work: A multi-institutional study running in four UK medical schools with recruitment ongoing (currently n=500). The study is a comparison-between-group design, based upon a validated and piloted questionnaire. Quantitative questions examine a variety of professional behaviours, encompassing themes of ethical/moral values, behaviours, relationships, technical/scientific skills, personal attributes and responsibilities.

Summary of results: Preliminary results suggest differences between groups. The presentation will discuss significant findings in detail. Independent samples t-tests will identify significant differences between graduate vs non-graduate participants within and between year groups, with consideration of further variables e.g. degree type.
Conclusions: This research will discuss the differences and similarities between the professional behaviours of graduate-entry and non-graduate entry students.
Take-home messages: Differences in the development of professionalism in graduate and non-graduate entry students.

11J4

Predicting progress and attainment in a graduate-entry medicine programme

Paul Garrud and Gillian Manning (University of Nottingham, The Medical School, Royal Derby Hospital, Derby, UK)*

Background: The GEM (graduate-entry medicine) programme at Nottingham recruits students with degrees in any subject. After 18-months, they merge with students taking the 5-year undergraduate programme for the last 2.5 years. It's important to assess the success of this broad recruitment policy by establishing how success is related to educational background, demographic and selection measures, and comparing attainment between GEM and 5-year programmes.
Summary of work: Attainment of the first five cohorts of GEM students (n=450) and the comparable cohorts of 5-year students (n=500) on summative assessments throughout the course were analysed using multivariate techniques.
Summary of results: Progress and success on the GEM course is strongly related to GAMSAT score, more weakly related to interview grade, prior degree subject and class, and inconsistently with gender, but not age. In comparison with the 5-year programme, completion rates are higher for GEM, but attainment in some later knowledge-based exams is weaker.
Conclusions: The results provide empirical support for the GEM admissions policy: students from non-science backgrounds succeed; selection measures have significant predictive validity; attainment is broadly comparable with the 5-year undergraduate students.
Take-home messages: A broad entry gate and student profile in graduate-entry medicine is both feasible and justified by attainment at each phase of the programme.

11J5

The influence of gender and culture on clinical practice - Perceptions of final year medical undergraduates

J van Wyk[1], K Moodley[1], S S Naidoo[2] and S Higgins-Opitz[3] (Nelson R Mandela School of Medicine, University of KwaZulu Natal, [1]Department of Medical Education; [2]Department of Family Medicine; [3]Department of Physiology, Faculty of Health Science, Durban, South Africa)*

Background: Aligned with provincial demographics, the Nelson R. Mandela School of Medicine adjusted its student admission policy to improve equity and social transformation. Female enrolments have outnumbered males resulting in debates around the impact of feminisation on clinical practice. This study explored whether a diverse student population perceived gender and/or culture as obstacles to future practice.
Summary of work: In 2008, a cross-sectional descriptive study was conducted by means of a semi-structured interview. Eighty two interviews were conducted with final year medical graduates. Excel was used for quantitative data analysis while qualitative data were coded using QSR Nvivo 8 software.
Summary of results: Female and African Blacks accounted for 70% and 65% of the sample, respectively. Most of the participants perceived South African practice as male-dominated. Both genders thought females faced more obstacles to practice. The majority identified fluency in isiZulu as a problem while cultural obstacles included family and peer pressures and social stigmas.
Conclusions: Female graduates fear that cultural values and attitudes of senior staff and patients would greatly impact on their clinical practice and interactions. These factors may influence future decisions towards public practice and choice of residency.
Take-home messages: Social redress policies should be accompanied by patient and staff education in the teaching and clinical environment to improve effective policy implementation.

11J6

Entry requirements as predictors of future performance in an Undergraduate Medical Course

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Background: The University of Malta undergraduate course in medicine accepts A-level results as sole criteria for admission. Debate to increase course input suggests lowering requirements to admit greater numbers. We propose to compare performance on admission to performance throughout the course.
Summary of work: Examination results of 94.1% (n=384) of students qualifying between 2001 and 2008 were analysed, excluding students admitted with foreign examination board results for ease of comparability. Entry requirement exam results were compared to non-clinical and clinical finals results. Possession of a previous degree was taken into account. Grades were converted to integers and analysed using SPSS.
Summary of results: Entry qualifications correlated well with both non-clinical ($p<0.001$) and clinical ($p<0.001$) exam results. Both Biology and Chemistry A-level results positively correlated, with Chemistry being a stronger predictor (Pearson Correlation = 0.25 vs. 0.23)of future performance. Holding a previous degree did not predict future performance ($p=0.440$).
Conclusions: Performance at admission is positively correlated with future performance throughout the undergraduate course. We postulate that lowered entry requirements may lead to course candidates who perform at a poorer level in course exams.
Take-home messages: Alterations to entry requirements should not be driven by logistical exigencies, but should be instituted following careful assessment, to ensure maintained quality and not quantity of graduates.

11K Short Communications: The Student as Author of Teaching Resources

11K1

Students as primary virtual patient case authors: The University of British Columbia model

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Background: Virtual patient (VP) cases are rich, multi-layered, self-directed and dynamic teaching resources. They standardize and address disparities in educational experiences, and support schools with distributed multi-campus programs. VP case authoring can be challenging for educators. Faculty with content expertise lack time, proficiency with authoring applications, and familiarity with the development process.
Summary of work: A team consisting of faculty, fellows and residents as content experts; instructional designers and technical experts; and first and second year medical students as primary authors, was constituted to develop each VP case.
Summary of results: Over 3 years, during a summer program, 30 students, supported by residents and faculty, created 80 VP cases in urology and paediatric surgery for a first-year curriculum in a geographically distributed program. Assigned clinical presentations based on scripts addressed: (a) presenting complaint, (b) patient history, physical exam, and differential diagnosis and treatment options. Cases included pre and post case quizzes, patient narrative, radiology imagery, hyperlinks, videos and expert commentary. Each case required approximately 100 student hours to create.
Conclusions: A collaborative approach utilizing students as primary case authors is a time and cost-efficient way to support peer-reviewed VP case development.
Take-home messages: Faculty interested in VP case authoring should explore different approaches to the process and utilize all available resources.

11K2

Video-based online tutorial developed from the students' insider perspective – A Students' Project at Heidelberg Medical School

H Hudalla[1], J Lübbert*[1], R Pjontek*[1], P Riedmaier*[1], F Scheibe*[1] and M Kadmon[2] (University of Heidelberg [1]Faculty of Medicine; [2]Department of General, Visceral and Transplantation Surgery, Heidelberg, Germany)*

Background: Imparting complex skills and examination techniques benefits from audiovisual teaching aids including videos for good illustration. Five medical students developed an online tutorial including checklists

and videos. The students focused on skill training from the greenhorn/insider perspective and anticipated possible difficulties in achievement of new skills. The correct medical standard of the tutorial was assured through cooperation with experts from the various surgical disciplines. Some films were given a humorous spirit.
Summary of work: 424 medical students evaluated the tutorial for its content and relevance for preparation of an OSCE (Objective Structured Clinical Evaluation) in a study based on a Likert scaled questionnaire and free comments.
Summary of results: 247 students had used the tutorial for OSCE preparation, and 57,2% found it very helpful. 67,2% ranked films with humorous spirit as very good. Free text comments expressed mainly high acceptance, though with technical difficulties.
Conclusions: We found a wide acceptance and positive response to our video-based online tutorial. The influence of this complementary learning tool on student's performance in the OSCE will be subject of future studies.
Take-home messages: We consider the video-based skills online tutorial developed from the students' perspective a useful learning tool for fostering the internalisation of medical skills and for OSCE preparation.

11K3
Multiple choice question writing by students is useful for formative assessment
R Towers, C Ditchfield, M A Flynn and J Burke (Medical Education Unit, University of Glasgow, UK)*

Background: Multiple-choice questions (MCQs) are reliable, objective and cost effective means of assessment. They can assess higher order cognitive skills if constructed well and are useful for formative assessment in medical education. As part of a Year 2 student selected component (SSC) at Glasgow University, 4 students constructed MCQs using guidelines from the literature, based on knowledge of the curriculum.
Summary of work: We aimed to investigate the effectiveness of using these MCQs for formative assessment using peer group volunteers. Using rules from the literature, the four students formulated individual questions. Following review, 34 MCQs were selected. The year group was then invited to answer these questions.
Summary of results: A total of 59 students out of 236 sat the test on one of two consecutive days. No significant difference was found between results obtained from each day, topic or tester. Analysis of the results showed the MCQs were well constructed and feedback from evaluation suggested students found them useful for formative feedback.
Conclusions: Formulating and completing MCQs for formative assessment is a useful revision tool for students. This study supports MCQs for formative assessments in medical education, allowing consolidation of students' knowledge.
Take-home messages: Involving students in the development and implementation of MCQs is a useful formative assessment exercise.

11K4
Leaving a legacy: Supporting student innovations to enhance engagement
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Background: Student satisfaction with their education can be enhanced by engagement that expands opportunities to shape their academic, interpersonal, and extracurricular experiences.
Summary of work: Medical students were offered the opportunity to work with a medical school administrator over the summer on self-identified projects that they thought would improve outreach and recruitment, and enhance the educational environment. Project proposals were solicited, with those judged to be soundly planned and likely to be completed during the work-study period accepted.
Summary of results: Recent exemplar projects that have been designed and implemented include: Lexfinder: a Google-based system of maps and photographs of favorite medical student locales in our city; Leadership Legacy: an interprofessional course promoting team-building, collaboration, vision, communication, and problem-solving; Ambassadors: an outreach program targeting school-aged children from medically underserved communities; and Rural Medicine Lectureship: a series on rural medical careers. Data from the different project evaluations will be presented to demonstrate outcomes.

Conclusions: Medical students were pleased to be offered the opportunity to work with and be mentored by an administrator, and leave a program in place that could be continued as a legacy of their engagement in and contributions to the school.
Take-home messages: Medical student engagement in mentored program development can enrich an institution and leave a legacy.

11K5
Creating an online peer-reviewed medical student journal: barriers and opportunities
D Robinson, M Moneypenny and H O'Sullivan (University of Liverpool, School of Medical Education, Liverpool, UK)*

Background: In "Tomorrow's Doctors" the General Medical Council (GMC) recognises the role of the doctor as a scholar and a scientist. The GMC expects the graduate to be able to: appreciate the ethical issues surrounding research, critically appraise the literature, and design studies to answer relevant research questions. In order to assist in achieving these outcomes we created an online peer-reviewed medical student journal.
Summary of work: We created a management structure including an editor-in-chief and an editorial board. We interviewed for two student editor posts and selected an additional four associate editors and 20 student reviewers, based on their ability to write a short article on reviewing. Lastly we recruited a student webmaster.
Summary of results: Obstacles overcome included defining the roles and responsibilities of the medical undergraduates and ensuring the reliability and security of the site. The Liverpool Student Medical Journal (LSMJ) is now live and accessible at www.lsmj.org. The first edition will be available in June.
Conclusions: Although the creation of an online peer-reviewed medical student journal is a demanding process, the rewards in terms of increasing student participation in publishing, reviewing and submitting articles is worth the effort.
Take-home messages: A peer-reviewed online student medical journal is a useful addition to any medical school.

11L Workshop: Dealing with more difficult doctors in difficulty

Alistair Thomson and Peter Harrison* (National Association of Clinical Tutors UK (NACT UK), Milton Keynes, United Kingdom)*

Background: NACT UK represents Directors of Medical Education (DMEs) who coordinate Postgraduate Medical Education in UK hospitals. Previous workshops have explored the role educational supervisors have in managing trainees in difficulty. With improving supervision and assessment a wider and more complex range of difficulties are being identified. This workshop will explore these more difficult scenarios and identify strategies for management and remediation.
Intended outcomes: Issues of professional competence are often the most common presenting feature, but may indicate more serious problems. These may involve issues for the employer and the regulator. They require a systematic and multidisciplinary approach and require DMEs to have the knowledge and skills to lead the management of the process and facilitate a successful outcome.
Structure: After a brief introduction, delegates will have the opportunity to explore the scenarios in small groups and present strategies for discussion in a plenary feedback session.
Who should attend: All clinical and educational supervisors with responsibility for trainees and those with a role (or considering a role) as DMEs.
Level of workshop: Intermediate.

11M Workshop: Organising Open Educational Resources (OOER): the UK Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine (MEDEV)

Suzanne Hardy, Megan Quentin-Baxter* and Lindsay Wood (Newcastle University, Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine, UK)*

Background: A Subject Strand project led by MEDEV was awarded to a consortium of 18 UK Higher Education Institutions (HEIs) as part of a one-year £5M OER pilot programme, funded by the Higher Education Funding Council for England and administered by the Joint Information Systems Committee and the Higher Education Academy.
Intended outcomes: This non-technical workshop will explore policies, challenges, barriers and solutions to releasing teaching materials as Open Educational Resources (OER) on the Internet. These include copyright and IPR, patient consent, institutional policy, quality and pedagogy status, and resource discovery and re-use. You will explore and evaluate the practical interactive toolkits, in relation to your own situation, contribute advice and expertise to enhance these free tools, and become part of a community interested in releasing teaching materials as OER in an international discipline specific context. You will receive these toolkits, plus a pack of teaching resources, contributed by consortium partners which can be freely used in your own teaching.
Structure: After introducing the context, small group work will explore key issues, plus short toolkit presentations, discussion, sharing of good practice and networking.
Who should attend: Academic, clinical and support staff interested in releasing teaching materials as OER.
Level of workshop: Beginner.

11N Workshop: How to plan and run effective workshops

C Savage and Salmaan Sana* (Medical Management Centre, Institutet for Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden)*

Background: Ever been to one of those workshops where someone talks shop and then throws in a little collaborative work at the end? There are a lot of different forms of workshops and facilitation techniques that can help us avoid this common trap. Many of them can be used not only at conferences, but also in the classroom, such as World Café (and related spin-offs), Open Source Technology, Adaptive Reflection, and Appreciative Inquiry. Welcome to a workshop where you will work hands-on with different types of methods to facilitate successful workshops and learning.
Intended outcomes: After the workshop, you should be able to: 1. Choose a method that suits your and the group's aim. 2. Explain, based on first-hand experience, the principles behind at least three common workshop techniques and how they can be used in different settings. 3. Feel comfortable facilitating a workshop.
Structure: Orientation; Short introduction; Workshop planning; Host your workshop; Wrap-up - Went well/Do differently; Examples of how we've used the techniques.
Who should attend: Anyone who plans to hold a workshop.
Level of workshop: Beginner.

11O Workshop: Portfolios in medical education: Design decisions for competency-based training

J R Frank and L Snell (The Royal College of Physicians and Surgeons of Canada, Ottawa, Ontario, Canada)

Background: This session is designed for academic teachers, program designers and anyone interested in physician competence. Portfolios are increasingly popular in clinical education around the world, but they are not useful for every program. This session will guide beginners in developing and using portfolios in medical education, with a special focus on competency-based education using the CanMEDS framework.
Intended outcomes: By the end of this session, participants will be able to: 1. Define portfolios as they are used in medicine; 2. Describe the steps in designing a portfolio in medicine; 3. Describe how portfolios could be used to assess the CanMEDS competencies; 4. begin to design a portfolio to use in a medical education program.
Structure: This 1.5 hour workshop is a practical, interactive session which will involve several discussions and exercises. Principles of portfolio design will be introduced using a step-by-step model. Each participant will then work through a formula for developing their own portfolio.
Who should attend: Medical educators with an interest in competence assessment and competency-based education Clinician Teachers Program Directors Directors of Education Associate Deans of Education Department Chairs.
Level of workshop: Beginner.

11R Workshop: The patient voice as a means to improve validity and reliability in clinical assessment

A McGoverin, R Fuller*, M Homer, R Lane, P Morris*, G Pell* and J Symons (University of Leeds, Leeds Institute of Medical Education, Leeds, UK)*

Background: In the quest for increased levels of validity, the input of patients, carers and communities to assessment and feedback in professional learning is desirable. Given changing roles and responsibilities for patient and clinician alike, the development of high validity together with reliable methods of formative and summative assessment is imperative. We have been working with diverse groups of patients and carers, building their and our own capacity, to ensure an authentic patient perspective and voice in assessment. We expanded their role in the final year medical student OSCE towards true co-production of stations and developed, with them, cross-professional competencies for the assessment of work-based learning of students and practitioners.
Intended outcomes: Participants will be supported to review their own practice or possibilities for working with the patient voice, while recognising the challenges they face.
Structure: We will share the effects of this engagement and our understanding of the processes needed to ensure success: the protocols of working together, reinforced by mixed media support materials; illustrate the learning identified through our action research of these processes, including the 'patient learning journey', as well as the evidence for improved reliability of OSCE stations; underpin the theory through interactive, modelling exercises and reflection.
Who should attend: Developers of assessment.
Level of workshop: Intermediate.

11S Workshop: Using action research to improve practice in medical education

T Bindal[1], D Wall*[2] and H Goodyear*[2] ([1]Alexandra Hospital, Department of Paediatrics, Worcestershire; [2]West Midlands Deanery, Birmingham, UK)*

Background: Action research is a well established methodology where action (implementing changes) and research (process of enquiry for problem understanding) can be achieved simultaneously in order to improve practice. Its unique feature is that participants of a study are turned into the co-researchers through communities of enquiry who are engaged in working with the principal researcher. In medical education, Action research is used to close the theory-practice gap. Examples include curriculum change, improving training programmes, teaching of professionalism and addressing the needs of clinical teachers. This workshop is designed to increase knowledge of action research as a qualitative research tool.
Intended outcomes: This workshop will provide 1) understanding of the basic principles of action research, 2) help participants know how to design an action research project and 3) give useful hints and tips on avoiding pitfalls in conducting action research.
Structure: After an introduction to action research methodology, participants will work in small groups putting methodology in practice for given topics. This will be followed by plenary discussion including hints and tips to improve research.
Who should attend: This workshop is designed for both clinicians and researchers interested in qualitative research as a means of improving practice.
Level of workshop: Beginner.

11U Posters: Student Challenges and Student Support

11U1

Impact of remedial courses on the percentage of students who pass the final exam of basic-medicine subjects

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Background: The complexity of subjects during the first two years of Medical School, together with the great amount of information, low self-esteem, stress and lack of study methodology causes poor performance and subsequent dropout of students.
Summary of work: We decided to search if remedial courses improve student performance at the final exams of Basic-Medicine Subjects: Development Biology, Biochemistry, Pharmacology, Physiology, Immunology, and Microbiology. The strategies adopted included the identification of underachieving students and reinforcement of their academic knowledge by remedial courses given the previous ten Saturdays prior to final exams. To assess the relationship between the remedial courses and the increase in the number of students that successfully approve the final exams, we statistically analyzed (chi-square) the data of two scholar cycles prior and after to remedial courses.
Summary of results: Remedial courses were successful for Biochemistry (an increase of 14.8%, $p<0.005$), Pharmacology (23%, $p<0.001$), Physiology (21.5%, $p<0.001$) and Microbiology (32.8%, $p<0.001$). Developmental Biology and Immunology did not show a statistically significant increase in student performance.
Conclusions: Results obtained during this investigation suggest that remedial courses are effective in those subjects with high rates of student failure.
Take-home messages: The remedial courses before the final exam are a good strategy to rescue students in difficulty.

11U2

Cleanliness Champions: Is failure to meet deadlines associated with other indicators of academic and professional behaviours?

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Background: The Cleanliness Champions (CC) programme in infection control is introduced to students in their initial year of study as a compulsory component. Units of the programme are integrated into our curriculum. Deadlines for work submission are defined, and timeliness recorded. We analysed whether the incidence of students who fail to meet deadlines for CC correlates with poor academic performance and other determinants of professional behaviour. We assessed whether intervention by interviewing students failing to meet deadlines is effective in improving student performance.
Summary of work: Students who failed to submit work by CC deadlines were invited for interview(s) to explain reason(s). We correlated the number of deadlines missed with data defining other markers of performance: examination results and recorded instances of unprofessional behaviour. We assessed whether interview affected future performance.
Summary of results: We will present data showing correlation between students' failure to meet deadlines and their academic and professional performances.
Conclusions: The act of intervention, by interviewing students to emphasise the importance of deadlines and to warn against future indiscretions, may be beneficial in improving future compliance and improved performance.
Take-home messages: Implementation of disciplinary interviews may be a valid way of instilling professional values in students thus improving subsequent levels of academic and professional performance.

11U3

Plagiarism and how to avoid it - A study exploring the perceptions of staff and students

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Background: With increasing access to IT, the Internet and other electronic sources of information has come a concomitant increase in the levels of plagiarism. Alongside this, we have seen increasingly more sophisticated methods to detect plagiarism. Despite the efforts of higher education institutions to inform students about plagiarism, many still lack an understanding of it. The aim of this study is to explore staff and students' perceptions and understanding of, 1) what constitutes plagiarism, 2) how to avoid it, and 3 crucially, why it is important to avoid it.
Summary of work: Questionnaires and focus groups explore the perceptions and understanding of students and staff. Our research will help to develop a simple set of practical tools designed to enable students to recognise and understand plagiarism and avoid it.

Summary of results: Our data addresses the key issues surrounding the student perspective of plagiarism, these include what it is, and the institutional support provided to help them avoid it.
Conclusions/Take-home messages: Students appear not to be fully aware of the negative impact that plagiarism can have on learning and professional practice. We anticipate the toolkit we develop as a result of our findings will help to provide the skills needed to avoid plagiarism.

11U4

Changes in the values of medical students of the Universidad Andrés Bello Viña del Mar Chile, before and after the earthquake of February 27, 2010

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Background: The objective of this study was to describe the changes in the values of first year medical students of the Universidad Andrés Bello Sede Viña del Mar before and after the earthquake of February 27, 2010, by gender and religious intensity.
Summary of work: A cross sectional study was performed. 45 students answered Schwartz Value Inventory (scale -1 to 7), the religious intensity was measured with the Valenzuela questionnaire (scale: 0 to 13 maximum). The statistics analysis was done with tests of paired data. Study group: 19 men and 26 female, mean age 19 years old.
Summary of results: The values that changed were: Universalism (4,88 to 4,98, $p < 0,015$), Conformity (4,89 to 4,98, $p < 0,012$) and Security (4,42 to 4,56, $p < 0,001$). Power, Achievement, Hedonism, Stimulation, Self Direction, Benevolence and Tradition, did not present significant changes. Females changes: Universalism (4,69 to 4,54, $p < 0,009$), Conformity (4,79 to 4,91, $p < 0,016$) and Security (4,35 to 4,50, $p < 0,006$). Males: Security (4,51 to 4,65, $p < 0,05$). Religious intensity score: low, Conformity (4,67 to 4,84, $p < 0,02$), Security (4,12 to 4,22, $p < 0,04$), medium score: Security (4,30 to 4,55, $p < 0,02$), high score: no changes.
Conclusions/Take-home messages: The earthquake of February 2010, produced changes in the values of medical students, (Universalism, Conformity and Security). These changes include 3 of 10 Schwartz values inventory in females and 1 of 10 in males. No changes were observed in the group with high religious intensity. Gender and religious intensity are important variables in the changes of values.

11U5

Stress and coping among Arab medical students: The need for a research agenda

Margaret A Elzubeir, Khalifa Elzubeir and Mohi Eldin Magzoub* (King Saud bin Abdulaziz University for Health Sciences, College of Medicine, Riyadh, Saudi Arabia)*

Background: Research conducted in the past ten years in the area of stress and coping among Arab medical students has identified some important issues. However, some significant aspects have not yet been explored.
Summary of work: We conducted a systematic review of studies reporting on stress, anxiety and coping among Arab medical students and identified implications for future research. Demographic information on respondents, instruments used, prevalence data and statistically significant associations were abstracted from English language sources published between 1998 and 2009.
Summary of results: Eight articles were identified meeting the authors' specified inclusion criteria. Studies indicate students have a high prevalence of perceived stress, depression and anxiety among a limited range of Arab medical students, with levels of perceived psychological stress as high as those reported in the international literature. Limited data were available regarding coping strategies, the impact of stress on academic performance and attrition. No data were available regarding the impact of problem-based learning on stress and coping.
Conclusions: The existing literature identified indicates stress, depression and anxiety are as common among Arab medical students, as for students elsewhere. Little is known about the contribution of different curricula approaches to perceived stress and what coping strategies institutions and students apply to help alleviate stress.
Take-home messages: Large, prospective, multicenter, multi-method studies are needed to identify personal and curricula features that influence stress, depression, anxiety and coping strategies among medical students in this socio-cultural context.

11U6

Undergraduate preclinical and bedside performances are related? A logit model

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Background: Prediction of clinical performance based on pre-clinical assessments is commonly feasible in medical schools. We tested the effect of different types of assessment scores and sub-scores in predicting poor clerkship performances.
Summary of work: This study analyzes the clerkship scores of Professionalism and Clinical Competence and looks for associations with sub-scores and aggregate scores in the most extensive preclinical course: "Biopathology and Introduction to Therapeutics" (42 ECTS). Student sex, age and GPA at entrance were also used. A logit binary choice model was used in the quest for predictors.
Summary of results: Lower probabilities of being a "problematic student" are associated with being a female student and obtaining higher preclinical attitudinal scores. The remaining independent variables did not exhibit statistical significance.
Conclusions/Take-home messages: The attitudinal sub-scores of the pre-clinical course were predictors of student clerkship professionalism and clinical competence. "Attitude" sub-scores result from weighing faculty evaluations of student attitudes in multiple encounters with a global rating form. The method should be applicable in other schools as long as a crucial course (or aggregate scores of several key courses) in the early years are identified. Finally, the study provides evidence that GPA at entrance is very weak in predicting professionalism and clinical competence.

11U7

Starting a family during medical education: Results of a pilot study at the University of Ulm

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Background: Work-life-balance is one of the most important issues of modern life. The international comparison shows the time for starting a family depends on regional understandings of family and the financing authority of education: parents or state.
Summary of work: The results constitute the foundation for an evidence-based medical curriculum and a selection of consulting issues for a modern career and family planning. Methods: qualitative problem oriented interviews (37 participants) a paper-pencil questionnaire (98 participants).
Summary of results: The majority of the participants (61%) were convinced that parenthood is more compatible with medical studies than with medical specialist training. The data suggests that the last two years of medical education are especially suitable for child birth since it allows continuing ones course of study without 'losing time' and simplifies later the building of successful career later on.
Conclusions: In most German universities 2/3 of the young doctors are female. Family friendly medical education therefore is an important and yet to be approached topic, providing universities with the challenge to develop new concepts that counteract the increasing childlessness of women in academic career positions.
Take-home messages: Career planning while starting a family should be made possible in medical education considering the benefits of a better work-life-balance in medical professions.

11U8

Building physical environment in dormitory well-being in daily life affects medical students' satisfaction

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Background: One of the most important factors in students' enjoyment of their studies is living in a dormitory. To fulfill the "Happiness" in one of our 6 H's core competency (Head, Heart, Hand, Health, Happiness and Humanistic), we provided well-equipped technology and also focused on living environments.
Summary of work: Regarding dormitory well-being inquiry, we distributed 200 self-administered questionnaires to medical students. Half of them stayed for 1 year and the remaining for 2 years.
Summary of results: We analyzed 164 questionnaires (82% response rate with 75 males and 89 females). Most were satisfied with the built environment, environmental quality, services and facilities (mean score of

2.49 out of maximum 3). No sex preference was found in all facilities, except wireless provision which was higher in male (p=0.044). Students who stayed longer were higher satisfied with wireless (p=0.001) and television room (p=0.024). Ones who did not have notebooks were not satisfied with wireless and vice versa (p<0.001).
Conclusions: This study found that physical environment affects students' satisfaction and also compromises most of their technology and luxury of living styles.
Take-home messages: Importantly, the more they know the means to live sustainable lives, the more happiness they earn, all in the hopes of providing for a better environment and future.

11U9

Stress in clinical year

C Sujjapongse and S Phansaksiri (Saraburi Medical Education Center, Saraburi Hospital, Saraburi, Thailand)*

Background: The rural medical students studied the first three preclinical years in Thammasat University, in urban environment. The next three clinical years they studied in Saraburi Hospital, in a rural area. They underwent much change and this adaption caused stress.
Summary of work: The crossectional study was done in 4th, 5th, 6th year medical students at Saraburi Hospital. The questionnaire, developed by Department of Mental Health Ministry of Public Health was given to them. The data was analyzed and compared the background of each student.
Summary of results: About 84.6 percents of the student had a mild scale of stress compared to the 13.4 percents student that had moderate stress. The background of the group revealed many different aspects about academic capability and social background.
Conclusions: The ability of the students to cope with change varies from student to student. The factor of good adaptation depends on type of student.
Take-home messages: The early detection of stress and poor adaptation ability can help to plan the appropriate approach for each student, this can help them to succeed in their life.

11U10

Empathy, depression and academic performance

M Maillard, J Reynaga, G Heinze and M Perez* (National Autonomous University of Mexico, Mexico)*

Background: The success of daily medical practice depends greatly on the knowledge, sensitivity and capability of the physician to perceive and comprehend his patients' emotions. It is important to teach medical students to be empathetic, beginning in the first year of medical school. Empathy is a quality that is cultivated since infancy and develops throughout life. The learning process is correlated with a student's empathy and emotional state, as they influence the acquisition and recovery of information from the memory. Recalling a particular emotional state facilitates recalling the information learned while being in that specific mood. The emotional factor is influential to the learning process. Depression can hamper the learning experience.
Summary of work: We explored the empathy levels of 86 first year medical students at UNAM, using Gudykunst's empathy test. We specifically studied the relationship between empathy and academic performance, empathy and depression, and empathy and gender. We also addressed the correlation between depression and scholastic performance, depression and gender.
Summary of results: 60% of the students are empathetic. 17.44% of the students qualify as depressive, 13.3% men and 19.64% women. The incidence of severe depression is 3.33% in men and 8.93% in women.
Conclusions/Take-home messages: Having depression is correlated with a poorer academic performance.

11U11

Mental distress among medical students and university college students: The role of gender

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Background: There is more emotional distress and suicide in physicians than in other academics. Comparisons at an undergraduate level have shown discrepant findings.

Summary of work: In two Norwegian cities (Oslo and Trondheim) medical students (N=531), 61% women, were compared with university college students (e.g. physiotherapy, education, business, engineering, nursing, journalism) (N=1370). Distress was measured by the General Health Questionnaire – 12-item version (GHQ-12). Factors linked to distress were analysed by linear regression.
Summary of results: Response rates were 67% for medical students and 77% for university college students. There were significantly more GHQ-12–cases (cut-off: 3/4) among female medical students (34%) than among female university college students (25%) (p = 0.006), but no such difference was found among men. Adjusted predictors of mental distress in the medical students were higher age (p=0.002), female gender (p<0.001) and living without partner (p=0.044), we found no gender interactions.
Conclusions: Female medical students report more mental distress than other students. Higher age and living without a partner were linked to distress in medical students of both genders.
Take-home messages: 1) One out of three female medical students is considerably emotionally distressed. 2) Female students of higher age and those living alone may be at particular risk.
3) Measures to prevent and counteract such distress should be taken.

11U12

Medical students' identities: Ethnicity, learning and the impact on achievement
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Background: Students performing least well academically are more likely to come from an ethnic minority background. This has not been adequately explained.
Summary of work: Using the theoretical framework of Communities of Practice, which places identity as integral to learning, we aimed to investigate how ethnicity impacts on the way students negotiate their identities in practice and the implications for achievement. Qualitative semi-structured interviews were undertaken with 15 4th year medical students. Data were analysed using the constant comparative method.
Summary of results: Three key processes emerged: 1) identity being brought into focus: salient moments in which the emphasis shifts from participation and forces students to renegotiate their identity, 2) identifying and being identified: processes by which students associate themselves with certain identities and how they are labelled by others, 3) negotiation of identity: how social and cultural capital is 'constructed' by individuals.
Conclusions: Medical students have different ways of negotiating their identity that both enable and constrain learning. Ethnicity appears to have a clear impact on these, which may explain differential achievement.
Take-home messages: The identity of ethnic minority medical students may be crucial to understanding why and how these students under perform.

11U13

What's the story with class attendance? Perspectives from first-year health sciences students
S C van Schalkwyk (Stellenbosch University, Centre for Teaching and Learning, Stellenbosch, South Africa)*

Background: The class attendance patterns of undergraduate students are the source of perennial debate in higher education. Much research has focused on this issue and responses from students show a fair amount of congruence across the studies (Friedman et. al. 2001, Webb, Christian and Armitage 2007).
Summary of work: Institutional research in this regard was conducted among first-year students at Stellenbosch University in 2009. Students completed an online survey which explored their perspectives on class attendance. Their responses were analysed in faculty context. This paper shares the findings for the Health Sciences Faculty, highlighting how these compared to those of students in other faculties at the university.
Summary of results: Students rated their class attendance as more regular than any other faculty. Reasons for attending class included the fact that this contributed to their understanding of the work and enhanced their learning. In comparison with other faculties, aspects such as getting 'tips for tests', were less likely to act as motivators.
Conclusions: Students reasons for attending class differ across faculties. These differences appear to be attributable to aspects such as nature of programme and the students' academic standing.
Take-home messages: Facilitating a meaningful learning event encourages good class attendance.

11U14

Personal mentorship for medical students: A space to develop the elusive parts of professional competence

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Background: Previous evaluations at Karolinska Institutet have shown that medical students felt anonymous in the clinical environment and wanted to share experiences with a person from their own profession. In order to meet these needs and facilitate their professional development a mentoring program was set up. All students in four subsequent courses were offered a personal mentor for two years.
Summary of work: Twelve individual student-interviews were analyzed by latent content analysis to get a deeper understanding of the meaning of mentorship for professional development during clinical courses.
Summary of results: The result consists of three themes, Space, Belief in the future and Transition. Having a mentor gave a sense of security and was like a 'free zone' alongside the undergraduate programme. It gave hope about the future and increased the study motivation. The students were introduced to the new community and began to identify themselves as doctors. They became aware of different behaviours and reflected on how they wanted to act as doctors themselves.
Conclusions: Mentorship during clinical courses can facilitate medical students´ development of necessary dimensions of professional competence, dimensions which are elusive and difficult to point out and to integrate in an educational program.
Take-home messages: Mentorship can facilitate development of the elusive parts of professional competence.

11U15

How to easily find a suitable mentor: Matchmaking online

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Background: One-to-one mentoring relies to a great extent on the quality and durability of its mentor-mentee-relationships. Thus, finding a suitable mentor plays a key role in the success of any mentoring programme. However, classical matching is not feasible at faculties with many mentors and mentees.
Summary of work: We developed a match-making algorithm to automate the matching process. Mentors and mentees complete online matching profiles, which are numerically matched and weighed according to criteria like medical specialty. Mentees can then choose among ten proposed mentors. Each semester we evaluate the resulting mentoring relationships.
Summary of results: 70.5% of mentees considered their proposed mentors a suitable match. Mentees found profile criteria such as medical specialty (89.1%) and free text (90.0%) important in their choice of mentor. Prior acquaintance with the mentor only mattered to 12.5% of the mentees. Two years into the programme, 88.8% of mentees kept their mentors and 87.0% of mentors found their mentees to be good matches.
Conclusions: We have developed a feasible method to match large numbers of mentors and mentees through online-based profiles. Both mentors and mentees were satisfied with the selection of their partners.
Take-home messages: Online matchmaking is an affordable method to facilitate sustainable mentoring relationships at faculties with many mentors and mentees.

11U16

Formal mentoring programs for medical students in Germany – a cross-sectional study

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Background: Mentoring is increasingly recognised as a key factor contributing to career success in medicine. However, little is known about the prevalence of mentoring for medical students in Germany.
Summary of work: This study assesses the availability and profiles of mentoring programmes for medical students in Germany.
Summary of results: We found that 20 out of 36 medical faculties in Germany offer 22 formal mentoring programmes with a mean of 125 and a total of 5843 medical students (7.4% of all medical students in

Germany) involved as mentees. These programmes have been running for an average of three years, the oldest one existing for 14 years. 14 out of 22 programmes have been established within the last two years. Six out of 22 programmes (27%) offer mentoring in a one-to-one setting. Most programmes 17 programmes, 77%) feature faculty physicians as mentors, nine programmes (41%) involve students as mentors (peer-mentoring).
Conclusions: Most of the mentoring programmes at German medical schools have emerged within the last two years. Their definition of aims is very heterogenous. We have analyzed the status quo of the different mentoring programmes and discuss recent developments as well as basic guidelines for mentoring programmes.
Take-home messages: Mentoring is a key factor for successful careers 22 of 36 medical faculties in Germany offer mentoring. 14 of 22 have developed in the past two years.

11U17

Medical student views on paper handouts and the on-line learning support environment
S Sadasivam and N Kumar (University Hospital of North Durham, County Durham and Darlington NHS Foundation Trust, Education Centre, Durham, UK)*

Background: Providing handouts for a short "Foundations of Clinical Practice" course for third year Newcastle University medical students costs approximately £1,500 and uses around 67,200 sheets of paper. The student learning support environment (LSE) is a web-based service which has the facility for teachers to upload lectures for student access which could avoid paper use.
Summary of work: A questionnaire was distributed to 79 medical students rotating through the hospital to assess views of paper handouts and the LSE.
Summary of results: 68% felt that lecture notes on the LSE were an acceptable alternative to paper handouts. All students had a broadband internet connection at their term time address. 89% of students use the LSE at least once a week. However, there were many free text comments on the difficulty of using the LSE and 38% of students rated the LSE difficult to use or "gave up using".
Conclusions: The free text comments about the LSE have been fed back to the university to facilitate LSE improvement. With improvement, it may be feasible to upload presentations onto the LSE and offer printouts only to those who request them. However, lecturers may be worried about others copying or scrutinising their work and a separate research questionnaire has been designed to survey lecturers in the near future.
Take-home messages: Save paper. Save money. Maybe students don't need paper handouts!

11U18

Poor performance of medicine students, lack of cognitive strategies and previous knowledge
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Background: The deficiency of cognitive strategies and previous knowledge of some students entering medicine school can cause a low performance in the early years of their training.
Summary of work: Application of 406 questionnaires during workshops with medical degree professors, the purpose of knowing their opinion. One of the variables analyzed was the lack of previous knowledge required by students upon entrance, made it harder to learn the subject.
Summary of results: Professor's opinion of the first three years: 78% found lack of learning strategies and previous knowledge in students of first three years, which prevented them from having a significant learning ability. Professors from first, second and third years, 29%, 22% and 10% respectively expressed the lack of previous knowledge in biology, chemistry, statistics, and grammar, 37%, 30% and 14% and deficiency of study strategies and cognitive skills, such as analytical capacity, ability to research for information: reading comprehension and general culture. 50% of the fourth year professors mentioned lack of interest in ethics and humanitarian matters, and 43% of third year professors mentioned that they have forgotten: anatomy, biochemistry, histology, immunology and physiology, knowledge acquired during the first two years of medical education.
Conclusions: It is essential to develop strategies to solve students' deficiencies and avoid future poor performance.
Take-home messages: It is essential to take into consideration these aspects that diminish good performance of the students, and offer them alternatives and solutions.

11V Posters: Curriculum Evaluation

11V1

Undergraduate skills in ENT: Give us more!

E J R Hill and S Al-Himdani (The University of Manchester, UK)*

Background: Undergraduate skills in ENT are a compulsory part of the curriculum in over 75% of UK medical schools. Average length of exposure to ENT at undergraduate level is 8 days. An intensive ENT skills day was organised to provide students with focussed exposure to relevant skills.
Summary of work: An idiosyncratic questionnaire was administered to 90 medical students in attendance at an ENT study day. Questions assessed students' motivations for attendance at the course and the best and worst aspects of the day. An open question asked students to offer advice to a fictitious medical school about planning ENT in a curriculum.
Summary of results: Students indicated the study day was an important learning resource for ENT skills. Some students reported that it was their only exposure to the specialty. Skills workshops were the best feature of the day for over 70% of attendees. Students would advise medical schools to provide more opportunities for exposure to ENT.
Conclusions: The ENT study day was popular with students who valued the focussed exposure to skills training in the specialty.
Take-home messages: Focussed study days may warrant further investigation as a method to provide undergraduate skills teaching in ENT.

11V2

Evaluation and quality improvement of obstetric skills training at patient level - using routinely collected data

Susanne Schiang[1], Charlotte Holm[2], Jens Langhoff-Roos[2], Astrid Nørgaard[3], Birgitte Rode Diness[4] and Jette Led Sørensen[2] ([1]Dept Anaesthesiology; [2]Dept Obstetrics; [3]Section for Transfusion Medicine, Capital Region Blood Bank; [4]Dept Clinical Genetics, Rigshospitalet, Copenhagen University Hospital, Denmark)*

Background: Evaluation of medical education is a methodological challenge. One outcome parameter at patient level can be the reduction of severe postpartum haemorrhage (PPH), requiring blood transfusion.
Summary of work: A register based study was followed by audit of records before (2003), during (2005), and after (2007) the introduction of training in management of postpartum bleeding. By linkage of local transfusion database and the Danish Medical Birth Registry 171 cases of postpartum transfusion were identified for audit in a total of 10,907 deliveries.
Summary of results: In 2003 the transfusion rate was 1.8%, in 2005 1.7%, and in 2007 1.3% (p=0.09). The number of transfusions, volume of bleeding, pre- and post transfusion haemoglobin values, time lag (30 minutes) from a decision to perform operative intervention and the causes of PPH did not change over time.
Conclusions: There was a non-statistical decrease in the transfusion rate after training, but it was still higher than in other countries. The audit indicated a need for a change to a more proactive postpartum management, appropriate transfusion policy, and improved collaboration with anaesthesiology staff.
Take-home messages: A combination of register-based information and audit of records before, during and after training is needed to evaluate the effect at patient level and to improve training.

11V3

Combination of data for quality assurance and accountability

A P Salgueira, E Magalhães, E Gonçalves, CP Brito, M Portela and M J Costa (Medical Education, Life and Health Sciences Research Institute, School of Health Sciences, University of Minho, Braga, Portugal)*

Background: Quality assurance data is essential for the accountability mandate of medical schools. We report data originating from a combination of testing students with a valid and reliable examination (A) and survey results of recent graduates (B).
Summary of work: (A) We assessed our 1st graduates' knowledge competency with an external examination with standards set by an international faculty – the "International Foundations of Medicine". (B) All alumni (3 entering classes, n=127, 89% response rate) were surveyed on "Global satisfactions" (see categories below) of their undergraduate education.

Summary of results: The combination of approaches generated a wide range of concurrent data. Some highlights are (A) All students met the standard of competence. (B) Students were "satisfied" or "very satisfied" the curriculum (globally and with each individual year, faculty, the teaching and learning approaches, least appreciated were adaptation to medical school, training of interprofessional skills and specific disciplines like nutrition and health economics. Further results will be presented.
Conclusions/Take-home messages: The two types of data were complementary, giving important feedback and contributing to the accountability of our medical school.

11V4

How to create a medical students survey with the aim to address educational shortcomings with empirical data

Maria Ehlin Kolk and Martin Holmbom* (Swedish Medical Student's Association, Stockholm, Sweden)*

Background: The Swedish Medical Students' Association (SMSA) is the largest voluntary organization for medical students in Sweden. When addressing issues regarding the quality of education, we work extensively with producing statistics. SMSA has for several years conducted a survey at the late semesters of the medical education. This survey is the only independent evaluation that allows direct comparisons between the Swedish medical schools. During 2009 SMSA has worked with producing a similar survey concerning the earlier semesters.
Summary of work: Initially the local divisions of SMSA at each medical faculty were asked their opinion regarding what kind of questions those were to be included in a future survey. This resulted in a draft and after feedback the final version was sent out on trial to student groups at each medical faculty. The aim of this first round was to find possible teething troubles but also resulted in significant statistics.
Conclusions: For a student organization to be an important part in the debate regarding medical education, being able to show statistics on the students' opinion is a valuable tool.
Take-home messages: It is not an insurmountable task to create a good survey to measure medical students' opinions and the profits of being able to show statistics are numerous.

11V5

Students' opinions at the end of the internship regarding their undergraduate education

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Background: Medical curriculum takes 6-years, which starts with two years of basic sciences followed by four years of clinical courses. In the sixth year, students carry out the mandatory social service in rural zones of the country. Research has shown students have a wide range of opinions regarding how well prepared they are.
Summary of work: The study aims to determine fifth-year medical student's perception about their undergraduate education at the end of the internship. Method: participants were a total of 1,424: they were 797 from class 2001-2005, 503 women and 294 men. From class 2002-2006 were 327 students, 203 women and 124 men. From class 2003-2007 were 300 students, 192 women and 108 men. Instrument: a 68-multiple-choice questions survey was administered to explore their perception about three main categories of analysis: a) learning, b) teachers, and c) learning environment.
Summary of results: Statistic analysis: reliability was determined with Cronbach alpha coefficient. ANOVA showed differences among the analysis categories and gender, mainly in class 2001-2005.
Conclusions: Results can be used to improve fundamental areas of the students' training programs and teachers' continual education.
Take-home messages: The main objective of undergraduate education is providing knowledge and skills to reach a successful future professional development.

11V6

Evaluation of students' satisfaction with the "Aachener Modellstudiengang Medizin"

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Background: In 2002 the German government created a new Medical Licensure Act. This included the "Modellstudiengangsklausel", which means, that Medical Faculties had the options open to design new

curricula. Medical Faculty of RWTH Aachen University took the chance to develop an organ-centered curriculum with organ-centered modules and implemented it during the last seven years. The novelty was that students were taught in small groups and that the content of teaching was organized interdisciplinary instead of the classic manner. This study was created to evaluate the students' contentment.
Summary of work: Since 2005 students contentment is evaluated continuously via an electronic device "EVAluna". We show the results of the academic year 2007/2008. The items we focused on are: quality of the organ-centered modules, their comprehensibility, structure, communication between teachers and individual learning outcome (6-point scale).
Summary of results: Results of this evaluation show discrepancies: organ-centered modules 2.6 (±0.92), comprehensibility 2.4 (±0.9), structure 2.6 (±1.1), communication of teachers 2.7 (±1.04) and learning outcome 2.4 (±0.98). Altogether the evaluations of all courses range from 1.7 to 3.8.
Conclusions: Within the Aachener Modellstudiengang the contentment of students is evaluated well.
Take-home messages: The communication of teachers and the individual learning outcome should be forced.

11V7

Compulsory questions on University Student Evaluation of Course (SEC) instruments may not be applicable to a graduate entry medical program: The Griffith University experience

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Background: It is common practice throughout the world for University students to be asked to complete standardised course evaluation instruments as part of the regular curriculum monitoring and staff development processes. However, are standardised instruments that have been designed for stand-alone, semester-long courses appropriate for integrated, year-long courses characteristic of many medical programs?
Summary of work: This paper discusses data collected as part of the University-wide Student Evaluation of Course (SEC) surveys for the four year graduate entry MBBS program during 2008 and 2009 plus data collected through other evaluation systems specifically designed by the School of Medicine for different years of the program.
Summary of results: Student comments reveal 1) some confusion regarding interpretation of questions and 2) in at least the Year 3 and 4 course evaluations, the students' Likert scale ratings appear to be referring to aspects of the whole program not just the course that the SEC instrument is supposed to be rating.
Conclusions: Our data suggest that some of the compulsory, standardised SEC questions are inappropriate for curriculum monitoring and staff development in an integrated MBBS program.
Take-home messages: Care must be taken with the use and interpretation of data collected using standardised University-wide Student Evaluation of Course instruments for integrated medical programs, especially in relation to comparisons with stand-alone semester long courses.

11V8

The development of a questionnaire for 2nd year medical students to provide feedback on clinical skills teaching: Benefits for both the learner and the teacher

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Background: Currently, students provide feedback on clinical skills teaching annually. The feedback is not teacher specific and therefore is not meaningful to individual teachers. Students have previously commented that they do not think their feedback will result in any meaningful change.
Summary of work: A simple questionnaire consisting of six questions using a Likert scale and two, optional free text boxes was developed and intensively promoted. Students gave an overall grade for each teacher. Initially the questionnaire was provided in paper form. Recently it has been made available electronically.
Summary of results: The initial return rate was 52%. We provided individualised feedback to the teachers within four weeks of the session. Feedback from the teachers was that this process was very useful. Poorly performing clinical leads have been offered support to improve their teaching.
After introducing the electronic format the return rate has increased significantly.
Conclusions: The process has been beneficial to both teachers and learners. Students feel they are providing meaningful feedback to specific teachers. Teachers are able to reflect on the medical student's perception of their teaching and have been provided with the opportunity to develop their teaching skills.

Take-home messages: Weekly, learner centred evaluation has become integral to the monitoring and improvement of teaching service provision.

11V9

Evaluation of medical education program, Faculty of Medicine, Srinakharinwirot University, between 2006-2009

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Background: The Medical Education, Faculty of Medicine, Srinakharinwirot University aims to produce qualified doctors who work as professionals. To attain this goal, the graduates have been sent to work all over Thailand since 1975, with the main objective of being responsible of the community.
Summary of work: The batches qualification 2006-2009 was analyzed by depth interview and questionnaire.
Summary of results: Analysis findings: a) quality of being a doctor as appraised by the many hospital staff marked quite good under the categories of basic medical knowledge, holistic treatment with professionalism. b) good relevant medical curriculum and clinical practice. c) pride and honor for being a student of Faculty of Medicine, Srinakharinwirot University, for there is no difference in knowledge, ability, communication skills and treatment compared with another Medical Universities. However, they took little time in adapting themselves to thrive in being members of the team. Based on their experiences, the important thing needed would be to add more cases on practical skill treatments to prepare them well before being sent to work in hospitals.
Conclusions: We prepare qualified and ethical doctors for society.
Take-home messages: Continuing graduates' evaluation is needed to improve the medical education curriculum.

11V10

Main teaching strategies for sophomore students in the school of medicine: Comparative, observational study in two generations

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Background: There are changes in the curriculum of the School Medicine of the UNAM, Mexico.
The evolution of the predominant teaching strategy in these two generations of sophomore students is unknown; we don't know whether it is student-centered or teacher-centered.
Summary of work: The SPICES instrument, modified to our context, was used for the evaluation. This instrument identifies the predominant type of teaching strategies and their differences can be evaluated with the Likert scale.
Summary of results: There is little difference between the two generations with a tendency towards the student-centered approach.
Conclusions: This phenomenon is due to the transition the School has been going through over the last three years, the aim of which is to change the curriculum from a traditional one to a student-centered curriculum. The workshops and sessions to support this change are reflected in the answers to the questionnaire.
Take-home messages: We propose to follow up in the following generations.

11V11

Changes: Voices of medical students and curriculum planning

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Background: The 4th year medical students have to attend 10-week internal medicine clerkships in Prapokklao Clinical Medical Education Center. The curriculum and timetable have not been improved or adjusted for a long time despite the student feedback every year.
Summary of work: Student comments and suggestions in the past three years (2007-2009) were reviewed. The issues considered as important and correctable by undergraduate team were discussed for the solution before the year 2010 curriculum and timetable planning. The issues mentioned were also sent as questionnaires to medical students for evaluating their agreement.

Summary of results: There were 8 topics considered as the important and correctable issues. After the discussion based on student feedback, there are many changes in the new curriculum and timetable. The major change is about morning rounds, many students would like to have more time in this learning activity. Instead of a fixed number of lecture topics (about 6 lectures/week) and working times 10 hours/day, students would have more time for morning rounds with their senior doctors, from 48 hours to 110 hours in 10 weeks (time for this activity increase about 129% from the previous year). Other changes would be further discussed.
Conclusions: Considering student feedback should improve the curriculum planning.
Take-home messages: Thinking of the student before planning curriculum.

11V12

Internal evaluation of educational quality: Jahrom University of Medical Sciences, Iran

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Background: Internal evaluation is a suitable method for judgment about educational quality, the achievement rate of educational objectives, and to determine weaknesses and strengths. Evaluation of the educational program quality gives feedback of how the educational process performs at various stages.
Summary of work: This study has been designed as an internal evaluation project by cooperation of internal ward and educational development center of Jahrom Medical School. In this study we have evaluated several educational factors of internal clinical wards by using objective based model, including: clinical setting, manager feature, outcome teaching and learning process and research activity of internal faculty members. Data were obtained by a valid and reliable questionnaire and checklist that were filled out by medical students and internal faculty members. The collected data were analyzed by descriptive statistics.
Summary of results: About 80% of students were satisfied with the educational process in teaching progress note and history taking but only 30% of students stated the clinical teaching in the out-patient center is good. Also 56% of students stated that morning report is desirable. 60% of students indicated educational rounds by faculty members are a good and effective educational activity.
Conclusions: According to the results based on the viewpoint of clerkship and intern students, internal groups in educational and learning process factors have had a semi desirable to desirable effect.
Take-home messages: It seems making a change in the education program is necessary and in developing the clinical setting.

11V13

Educational evaluation of School of Dentistry, Tehran University of Medical Sciences

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Background: Educational evaluation is a process which deals with gathering data and assessment for the improvement of academic activities.
Summary of work: In this research, the efficiency of the department was studied based on the internal self evaluation. For this purpose, pre-determined indices with relative modifications were used. This study was conducted with the collaboration of the 10 departments of the School of Dentistry, faculty members, all of the students (residents, PhD and M S Students) and the graduates. A questionnaire was used covering 9 areas: 1) aims and objectives 2) organizational and management structure 3) faculty members 4) students 5) teaching and learning process 6) educational courses and curriculum 7) graduates 8) research and educational facilities and equipment and 9) research were studied using 61 criteria and 172 indicators. Five-point Likert scale was used for the responses in the questionnaire.
Summary of results: The mean of the areas under study was 70% which was considered as approximately satisfactory.
Conclusions: According to the findings, atmosphere and educational facilities which were identified as the weakest field needing more consideration and investigation.
Take-home messages: Experience at the national and international level show that the process of internal evaluation, especially at the level of academic departments, can play a critical role as an efficient method in warranting high standards.

11V14

Internal evaluation based on basic standards of medical education in Ahvaz University of Medical Sciences, Medical School, 2009

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Background: Ahvaz University Medical School is currently undertaking a renewal of its Medical Doctor (MD) program. As part of this renewal an assessment was conducted to identify gaps in the current Undergraduate Medical Education program and to make recommendations for changes based on its findings. This study was conducted based on indicators for evaluation extracted from basic standards of medical education.
Summary of work: Based on past indicators for each area, we acquired data on the current situation by identifying data sources and the way of getting data.
Summary of results: In mission and goals area the current situation was good. Educational programming was good in 50%, medium in 30% and unsatisfactory in 20%. Staff and resources area current situation was medium in 20 and 90% respectively and in assessment area in 80% the current situation was medium.
Conclusions: In all areas the situation is less than ideal; this gap is different in different areas.
Take-home messages: Internal evaluations help to study the present situation, find out challenging points and help in planning to improve the situation.

11V15

Comprehensive evaluation of MD program in Tehran University of Medical Sciences: A lever for change

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Background: In 2005, the School of Medicine of Tehran University of Medical Sciences decided to conduct a comprehensive review of its MD program for the first time from its inception in 1934. The results of this review would be the foundation for a critical decision for necessity of radical reform in MD program.
Summary of work: During 2006-2008, four major projects were conducted to find the major strengths and weaknesses of our MD program. These included a self-study by the national standards for MD programs, focus group projects for finding out the stakeholders' point of view, a graduation survey and assessing the educational environment by DREEM inventory. The results of these studies have been collated in a single report and have been classified in 13 areas. In each area, strengths, weaknesses and suggestions for improvement have been defined. The results of the review have been discussed in several meetings with faculty members and administrators.
Summary of results: The review documented the strengths and also shows very frankly the deficits of our curriculum to all the stakeholders in a systematic manner. After frank and deliberate discussions the Faculty Council agreed on a radical reform in MD curriculum.
Conclusions/Take-home messages: Evaluation of the current situation can provide the required momentum for change and convince the stakeholders of the need for such a painful experience.

11V16

A study of nursing specialists' and students' views regarding the required revisions and appropriate pattern in B.S. Nursing curriculum

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Background: Nursing curriculum requires an appropriate framework within which a dynamic education can take place. Despite much effort in recent years, we are still far away from the intended objectives. This research study is an attempt to determine the ratio of the need for fundamental revision in the nursing curriculum (in the input, process and outcome) as seen by the experts and students of nursing.
Summary of work: The study was descriptive in which a questionnaire was used. 200 senior nursing students and 100 nursing instructors and professors, randomly selected (cluster random sampling) from Isfahan, Tehran, Shiraz, Mashhad, and Ahwaz Universities answered the questionnaire, whose validity and reliability had been established with a reliability coefficient of .90 arrived at using test-retest method. The data were subjected to SPSS, chi-square and frequency statistics were also obtained.

Summary of results: Cases such as need to revise the curriculum in relation to input, process, and output from the perspectives of teachers and students were investigated.
Conclusions/Take-home messages: The findings of the research study indicate that the nursing curriculum requires revisions in terms of input, process, and output. A new paradigm of change has been suggested and further research studies are recommended to cover the issue more broadly.

11W Posters: The Context and Approaches to Clinical Teaching

11W1

Positive experiences in psychiatry clerkships: Lessons from five years of experience

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Background: Positive experiences in psychiatry clerkships will likely nurture the development of better attitudes toward mental patients.
Summary of work: The aim was the identification of factors underlying a highly rated Psychiatry and Mental Health clerkship, recurrently one of the top student rated clerkship (n=256) in all of its 5 years of experience. We review the educational design of the program.
Summary of results: Students rotate 96 hours through 2 departments in 4 weeks. The ratio of tutor: student is 1:4. Patient encounters are logged in a paper booklet. 14 introductory and case base seminars - each focused on a specific common mental pathology - are presented, in parallel, to the whole class. The whole programs are designed and delivered collaboratively by the same team. Assessment of student achievements involves multiple tools: written MCQ tests with stems of clinical vignettes, rubrics of professionalism and clinical skills, and patient clinical reports. During clerkships, the departments prioritize education as one of the main tasks. The tutors display very positive attitudes towards the students and improve from one edition to the next.
Conclusions/Take-home messages: Positive educational experiences in psychiatry clerkships can be generalized to whole classes. Taking care of multiple educational and organizational dimensions seems to pave the right way.

11W2

Health service organisation and student learning opportunities

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Background: In clinical placements, health service staff supervises students in an environment where service organisation and work priorities are centred around patient care rather than student learning. In this project, the extent to which different health care services could respond to student learning needs was explored.
Summary of work: A business model of leadership development within work teams (Team Management Systems) was used. Members of three health care teams (dental, aged care and rural hospital) completed a suite of profiling tools and workshops to clarify 'who is doing what and why' for student learning, and to develop quality improvement strategies. Evaluation included pre and post intervention questionnaires, interviews and field observations.
Summary of results: Dental team (7 participants): re-oganisation of patient care to improve student learning, increased dental assistant roles in supporting learning. Aged care team (9 participants): improved student orientation and clarification of learning objectives. Rural hospital (8 participants): articulation of a commitment to quality improvement.
Conclusions: The ability of individual clinical teams to make changes varied according to the complexity of the health service. In addition, workload pressures reinforced a strongly discipline based approach to managing student learning.
Take-home messages: The complexity of the health service should be taken into consideration when planning and supporting student clinical placements.

11W3

Spend a week with a surgeon

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Background: The poor exposure of medical students to real-not virtual-clinical scenarios is growing. Focused in trees (diseases and, sometimes, patients) they lost opportunities to see the forest (student's ignorance about the lifestyle of a general surgeon). Besides, surgeons usually involved in teaching residents are not involved in teaching medical students. The consequences are clear: less motivated and uninformed students.
Summary of work: 21 students spent a week in an Endocrine and Morbid Obesity Surgery Unit in Miguel Servet Hospital (Zaragoza, Spain) with an associated professor of surgery in 2008-2009. A 5 days scheduled program was developed with activities classified in three areas: hospitalization unit, outpatient clinic and operating room. Assessment was prospectively established and a final student commentary demanded. Commentaries were analyzed and compared.
Summary of results: Students embedded in a surgical unit with highly motivated staff learn autonomy, cooperation in simple tasks and the ability to think freely about the specialty.
Conclusions: Prejudices about surgery and surgeon´s lifestyle change after one week in a surgical unit. Students become better informed for professional decision making and, if not future surgeons, they understand our work or at least don´t have the impression of a waste of time.
Take-home messages: Direct student-surgeon interaction for a week can change students' surgical exposure.

11W4

Optimising the learning experience on the coronary care unit for medical students
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Background: Fourth year medical students at the University of Liverpool are required to provide evidence of attendance at a Coronary Care Unit ward round. Students have an inconsistent experience, and feel the educational aspect of the ward round could be optimised.
Summary of work: To evaluate the educational value of the Coronary Care ward round we obtained feedback from students to identify their learning needs and determine whether they were being met.
Summary of results: Students provided feedback that they would prefer a higher level of interaction on the ward round. They felt interactive sessions facilitated effective learning. It was perceived that the unit could be too busy at times for the cardiology doctors to devote time to teaching. Opportunities to practice cardiovascular clinical examination and obtain feedback were valued. Bedside teaching on acute cardiac care was appreciated.
Conclusions: At busy times students should liaise with the medical team to identify an appropriate time for a "teaching round". Doctors should encourage students to elicit clinical signs, interpret ECGs and discuss imaging. Students are advised to express their personal learning needs to maximise small group learning opportunities.
Take-home messages: Coronary Care Unit ward rounds are a valuable undergraduate learning experience in cardiology.

11W5

Obstetric dictionary
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Background: Students embarking on their clinical rotation in obstetrics often feel overwhelmed by the mass of new words, names and abbreviations that they face. We have created an electronic dictionary that they can consult and test their knowledge against.
Summary of work: We collected about 600 words, names and abbreviations that students have to understand and defined them with short explanations. Students are invited to study the words presented then ask the Medical School computer to test their ability to define them correctly.
Summary of results: The new students enjoyed the way the vocabulary was presented and found it useful to test themselves electronically. They were able to take the test as many times as they wished - each time the computer selecting 100 fresh items for them to define.
Conclusions Take-home messages: This electronic self-testing dictionary is a useful adjunct to learning and will be made available to other universities for their adaptation and use.

11W6

Patients' views on student participation in general practice consultation

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Background: Finding enough general practitioners (GPs) to host students for their clerkship is a problem. Perhaps GPs think patients dislike consulting a student-doctor. The question we studied was: How do patients appreciate the presence/participation of a student during a GP-consultation?
Summary of work: Literature search (Pubmed 1990-2010), studies to fulfill the following criteria: 1) structured questionnaire, 2) concerning patient's opinion on presence/participation of medical Student, 3) in general practice.
Summary of results: Ten articles fulfilled the criteria. The majority of patients gave permission for the presence/participation of a student doctor. Previous experience was a predictor for giving permission. Emotional or sexual problems, and the need for an intimate examination were the main reasons for refusal. Satisfaction was high. Benefits patients experienced were: more time, a more thorough examination, better patient education and getting a second opinion. Besides, altruism played a role.
Conclusions: The attitude of patients towards student-doctors is generally positive. The weakness of some of the studies was a low or unclear response, introducing selection bias, and possibly a too positive result. Future research should go into ways of asking patients permission, and their relation to the degree of acceptance.
Take-home messages: Patients in general practice appreciate consultations with student-doctors!

11W7

Development and preliminary evaluation of a new orthopaedic clinical attachment for medical students

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Background: From previous work we identified medical students perceive a need for more emphasis on orthopaedics in their courses. We present results from an innovative problem based learning (PBL) attachment in orthopaedics for final year students.
Summary of work: Following the introduction of a two-week orthopaedic teaching programme based on PBL scenarios, we prospectively collected details of student confidence using a five-point Likert scale. The PBL scenarios were based on five core topics in orthopaedics (trauma, back pain, painful joints, acute swollen knee and peripheral nerve entrapment). Student confidence was compared with other clinical specialties (cardiology, respiratory, gastrointestinal and neurology). Structured feedback regarding student opinions on the teaching was also collected via questionnaires and focus group discussion.
Summary of results: Nineteen students (79%) completed all feedback forms. At the beginning of the attachment, students were least confident in orthopaedic clinical assessment compared to all other specialties. After completion of the attachment, student confidence improved to a similar level to cardiovascular and respiratory assessment ($p<0.05$). Of the five core topics, students were least confident in the assessment of back pain and of the traumatic patient (2.42 and 2.05). After completion of the attachment, their confidence increased to 3.84 and 3.57 respectively ($p<0.05$).
Conclusions/Take-home messages: Integration of traditional clinical teaching and PBL increases student understanding about orthopaedics and confidence in clinical assessment, particularly trauma patients.

11W8

A new modified 4:1 clinical placement model: A pilot project

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Background: Clinical placements are a key feature of undergraduate physiotherapy programmes, traditional models of supervisor-to-student ratios have been evaluated (Moore et al, 2003, with no one model having been deemed superior to another (Lekkas et al, 2007). We introduced a new modified 4:1 clinical placement model to meet the challenge of reduced placement capacity.
Summary of work: Four final-year physiotherapy students were placed in a rehabilitation gym supervised by the practice tutor and/or practice educator. Qualitative data were collected by face-to-face interviews with all

participants after the placement. Quantitative data were recorded by Physiotherapy staff and the pilot was approved by the hospital Research Ethics Committee.
Summary of results: The model resulted 340.2 hours of staff redeployment creating the equivalent of 1.62 posts. Themes identified by students that had a positive effect on the learning experience included: peer learning and joint treatment sessions, supervision and teaching while gaining independence, the pre-placement planning and organisation. Challenges for the tutor and educator included organisational issues and ensuring the standard of care for patients.
Conclusions: This placement model may be a valuable option when placement capacity is limited, contributing to the physiotherapy service while maintaining, and possibly enhancing, the learning experience for students.
Take-home messages: This model may increase placement capacity, contribute to physiotherapy services and provide a high-quality learning experience for students.

11W9

Factors influencing teaching in clinical environment: A qualitative study

Roghayeh Gandomkar, Mahvash Salsali and Azim Mirzazadeh(Tehran University of Medical Sciences, Tehran, Iran)*

Background: Clinical teaching is at the center of medical education. It is impossible to train competent physicians without effective clinical teaching. Complexity of clinical teaching, current changes in medical environment and the diverse and competing roles of clinical teachers have highlighted some concerns for them in the clinical environment. This study aims to explore clinical teachers' perception of the clinical teaching context.
Summary of work: A qualitative study has been conducted. Data derived primarily from interviews with clinical teachers, using purposive sampling, informal interviews and observations. A content analysis approach was used to analyze the data.
Summary of results: ''Educational structure', 'professional duties' and 'Motivational factors' were contextual factors affecting clinical teaching. Time constraints, diverse and overloaded clinical teachers' duties, low payment, lack of teaching recognition, research highlighting in faculty promotion and teachers' role challenges were the most important factors impacting clinical teaching.
Conclusions/Take-home messages: These findings have implications for policy makers of medical education and clinical faculty members to improve quality of clinical teaching.

11W10

The effect of a gender limitative policy in medical education in Iran on knowledge, performance and learning

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Background: In the last decade, a policy was made by policy makers to limit male medical students from performing some special procedures and examinations in Gyneco-obstetrics wards/emergencies. In this study we want to assess how medical students reached their educational objectives after their period of attendance in the Gyneco-obstetrics ward regarding their gender.
Summary of work: 81 intern medical students from Ghazvin University Medical School attending Gyneco-obstetrics ward were included. Knowledge and performance about some skills such as external and internal genital examination, NVD and etc, was assessed via MCQs and expert observation.
Summary of results: There was a significant difference between the genders. Reaching knowledge based objectives was good in 40% of female interns and 12.5% of males. Reaching practical objectives was good in 80% of females and 12.5% of males. The most important problems were with communication with patient and performing the techniques.
Conclusions/ Take-home messages: As shown, in male medical students we have a remarkable deficit in skills and also in learning even cognitive objectives in Gynecology field. The above mentioned limiting policy resulted in such deficit that may cause some problems for male medical students and future doctors. A policy analysis and change is necessary.

11W11

'Firm Tutors' improve medical students' clinical placements

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Background: Early clinical placements are challenging for medical students. Anonymity causes problems with Trusts teaching across several sites. We describe the results of introducing 'firm tutors' overseeing small groups (5-6) of 48 third year students during two 14 week placements.
Summary of work: Students' views were evaluated by questionnaire, 20 statements were rated, 5 point Likert scale, (0-strongly disagree, 4-strongly agree), high scores indicating excellence. Tutor's views were evaluated by 1:1 interviews.
Summary of results: Student overall mean scores remained similar to historical data, autumn 08/09[2.64 v 2.64] spring 08/09[2.76 v 2.84]. However, areas influenced by firm tutors improved in relation to clinical teaching in medicine and surgery (>3.5). Four questions on overall quality of placement improved. The students' perception of the value of professional behaviour assessment and SSAs fell (< 2). Tutors enjoyed getting to know 'their' students and helping them develop. All the tutors have continued into a second year. Arranging mutually convenient meeting times was the greatest challenge.
Conclusions: Firm tutors improved our medical students' introduction to, and perceptions of, their initial clinical placements in a large tertiary teaching hospital across two sites.
Take-home messages: These findings have supported the College of Medicine including the concept of 'firm tutors' in the new clinical curriculum for 2010/11.

11W12

Role playing: A potential technique to enhance humanistic attitudes and behaviors in medical students

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Background: All medical schools need to produce compassionate doctors, but none is ready to practice in real life. Role-play is widely used to learn assertive behavior through practice.
Summary of work: To create excitement and engagement in class of medical English, 120 MEDSWU students were divided into 6 groups for taking 6 assigned scenarios, including chest pain, upper airway obstruction, ankle injury, premature membrane rupture, fever with rash and swallowing foreign body in esophagus. Each studied a person's life story and performed as if one were doctor, nurse, patient, relatives and officers. All scenes were videotaped. After class, learning outcomes were assessed in domains of knowledge and communication skills, as well as their satisfaction on this activity.
Summary of results: In addition to passing the examination regarding signs, symptoms, clue diagnosis and managements, all students were satisfied, well-responded and enjoyable.
Conclusions: Role playing technique can be a very flexible and effective tool to anticipate some of the sensitive conditions and rehearse our students' performance in order to influence the outcome. Learner's feedback and comments is a crucial means to change one's behavior to fulfill a social role.
Take-home messages: To use variety of skills beyond expected, role playing technique is a challenging method to achieve humanistic views in medical students.

11W13

Self-directed practice scheduling is equivalent to instructor guided practice when learning Z-plasty

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Background: Medical educators look for more efficient ways to teach technical clinical skills. The literature in self-directed (SD) motor learning suggests that this is an effective approach. Our purpose was to look for equivalency between SD and teacher lead practice when learning the skill of Z-plasty.
Summary of work: Surgical residents learned three Z-plasty repairs on a synthetic model: a 30°, 45° or a 60° repair. Performance was evaluated on a pre-test of a 45° repair, followed by an hour of practice, and a post-test of a 45° repair. Fifteen participants were randomly assigned into one of two groups: SD, where they could choose to practice any of the three types of repairs in any order, or Guided where the practice order was prescribed.

Summary of results: ANOVA results showed improvement in completion time and expert based ratings from pre-test to post-test for both groups. There was no learning advantage of guided practice over SD practice ($p < .05$).
Conclusions: Many skill centers are offering 24 hour access, but, teaching staff are often not available leaving trainees to manage their own practice sessions. Our findings suggest that self-directed practice schedules may be suitable for learning complex technical skills.
Take-home messages: Self directed learning is as good as instructor guided practice.

11W14

Successful cannulation by medical students: Does it require supervision?
A M Gwozdz, M Klingenberg and D Gill (University College London Medical School, Division of Medical Education, London, UK)*

Background: Cannulation, often performed by junior doctors, is the second-most common invasive procedure for hospital patients. However, medical students' competency/preparedness for unsupervised cannulation has not been assessed. European Working Time Directive implementation has resulted in loss of supervised teaching for undergraduate students.
Summary of work: We assessed cannulation performance by 1st year clinical students to quantify the impact of supervision. Cannulation was taught to all students by the end of their first attachment as part of the competency in the practical skills curriculum. At the end of the year, students were invited to complete a self-reflective questionnaire that attempted to establish how many supervised/unsupervised cannulations were performed clinically, and how many of each were successful.
Summary of results: 277 students completed the questionnaire. 8 students did not attempt cannulation, while 21 students reported not having any supervised cannulation attempts. Linear regression analyses were used to compare the number of successful cannulation outcomes with the number of supervised attempts (slope=0.82, 95% confidence interval (CI)=0.76-0.87, P<0.0001) and unsupervised attempts (slope=0.78, 95% CI=0.74-0.82, P<0.0001). Overall, cannulation performance was not improved by supervision.
Conclusions: Although students often request more supervised cannulation, these results demonstrate the importance of initial practical skills teaching.
Take-home messages: Cannulation success appears to be independent of supervised practice.

11W15

Rational clinical examination: A survey of the application of clinical skills taught in respiratory medicine
R H Kassamali[1], S Noor[2] and R Mukherjee[1] ([1]Birmingham Heartlands Hospital, Birmingham; [2]School of Medicine, Morriston Hospital, Morriston, Swansea, UK)*

Background: Current research defines precision and accuracy of items of clinical examination[1]. We set out to examine if doctors naturally carry out the more precise items of respiratory clinical examination from the repertory they learn as medical students.
Summary of work: An online questionnaire was emailed to doctors in the Heart of England NHS Foundation trust to all grades of doctors.
Summary of results: Responses were from 105 participants from a range of specialties and grades. The majority frequently carried out the respiratory examination as a routine with some items of high precision.
Conclusions: The kappa values (signifying precision) correlate with items of routine respiratory examination. Practicing doctors tend to develop their own rational examination routine which can be improved by adding items of high precision (e.g. crico-sternal distance) which are not routinely taught.
Take-home messages: Explicit teaching of the rationale for clinical examination based on evidence can be included in the clinical teaching of undergraduate medical students to make it relevant and useful.
Stone H, Mukherjee R. Evidence based clinical teaching in respiratory medicine. Proceedings of the Association for Medical Education in Europe 2007, 2: 5. (AMEE 2007: Trondheim, Norway).

11X Posters: e-Learning, Technology, Virtual Patients and Evaluation

11X1

Exploring knowledge, attitudes and behaviors of medical students towards using computer technology in learning

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Background: Computer literacy is no longer an issue for debate. Therefore developing countries' medical schools are adopting strategies for integrating medical informatics into their curriculum. The School of Medicine at Cairo University is considering such strategies in view of the high enrollment numbers.
Summary of work: The pattern of internet and computer use of three different grade levels was investigated in terms of frequency, purpose and self-rating skills of use.
Summary of results: Findings showed that the majority of students owned a computer. 40% reported its use for internet surfing, and 28% for entertainment. The number of weekly internet browsing hours ranged from 2 to 10, with males showing significantly longer browsing hours than females ($P < 0.001$). Students considered the internet the main source for information research with minimal numbers mentioning the library or instructors. Students that registered for online courses were 19% and about 80% of students agreed to the appropriateness of integration computer technology into their education, with no statistical significance between males and females.
Conclusions: Our results indicate that students favour the use of computers and the internet over traditional teaching methods.
Take-home messages: Hence, incorporation of adequate computer enhanced courses should be introduced into the medical curriculum at Cairo University and other similar universities.

11X2

From reality to fantasy – Perceived value of virtual learning resources by medical undergraduates

Rachel Lindley, James Giles and Kurt Wilson (University of Manchester, Community Based Medical Education, Manchester, UK)*

Background: Rapid evolution of technologies in online environments has the potential to offer enhanced virtual learning. However, little is known about current student perceptions regarding value and utility of this technology.
Summary of work: 4th year undergraduate focus groups explored current and future use of virtual learning resources. These were led by a peer interviewer. Semi-structured group interviews[2] with a total of ten students were conducted. Data were transcribed and analysed using constant comparative methods.
Summary of results: Students valued internet learning resources. Most useful were resources that had been endorsed by medical professionals. Other resources, although helpful were perceived as less reputable and students expressed guilt and uncertainty in their use. Students' ideal technology would include features allowing a single point of access for endorsed resources, immediate communication with peers and tutors, and self-assessment with instant feedback.
Conclusions: Tutor endorsement of high quality internet learning resources with a single point of access to these would be highly valued by students.
Take-home messages: Whilst technology exists to support student learning further development must focus on the assessment and endorsement of resources and ease of access for students. This warrants further discussion.

11X3

Learning in the virtual environment, even on a 'rough day'?

James Giles, Kurt Wilson and Rachel Lindley (University of Manchester, Community Based Medical Education, Manchester, UK)*

Background: Experiential learning, starting in year 1, is a common feature in UK medical curricula. How do students anticipate that a virtual learning environment (VLE) could support their experiential learning?

Summary of work: A pilot VLE was designed to outline our vision of this medium to support experiential learning. A clinical record system was a key component, populated with patient medical histories. Other resources included records of investigations, results and medication. Videoed interviews were provided for some patients. Students were informed that a fully operative system would allow them to upload their own experiences and compare these with existing resources.
Student-led focus groups totalling ten 4th year undergraduates explored the VLE. Semi-structured group interviews were conducted to capture their impressions.
Summary of results: Initial results suggest the VLE was seen as a novel approach to enrich experiential learning. Anticipated benefits included tutor involvement for direction. They feared over-assessment of their online activity, particularly on 'rough days'.
Conclusions: The VLE was seen as an environment in which experiential learning could be enriched and guided through tutor involvement. They worried about assessment through this medium.
Take-home messages: How can we maintain benefits of the VLE for experiential learning, whilst minimising student fears?

11X4

Open-access e-Learning courses: Potential for implementation

M Pellinen, M Kaila, L Teikko and J P Turunen (The Finnish Medical Society Duodecim, Helsinki, Finland)*

Background: We started to offer online courses for all Finnish physicians in 2004. The aim was to design practical tools for work and medical studies.
Summary of work: Open-access courses are available on different topics for self-studying. Courses consist of text, pictures, videos, podcasts and animations. Topics are selected from proposals by physicians, national evidence-based clinical practice guidelines or medical textbooks. After acceptance by an expert panel, the content of the course is produced by clinicians. All courses are evaluated and piloted before publishing. Most courses include an exam and a certificate for specialist education.
Summary of results: We have published 17 courses, average of 4 new courses per year. 5 -10 new proposals are received annually. The user feedback has been very encouraging. The number of visitors on the web site has stabilized to 1,5 -2,0 million hits per year. The most popular topics have been Basic Infection Control in Healthcare, Resuscitation and Injection of Medicines. Also nurses and other professionals are active users of our courses.
Conclusions: Our free of charge e-Learning courses are widely used by health care professionals in Finland.
Take-home messages: Open-access, free of charge online courses attract a broad user base and may therefore be highly efficient educational tools for implementation.

11X5

Development of an interdisciplinary blended learning course using virtual patients and skills training for advanced pediatric emergency training

R Lehmann, A Simon, B Toenshoff, G F Hoffmann and S Huwendiek (University Childrens Hospital Heidelberg, Germany)*

Background: Studies show deficiencies in the emergency treatment of children. Therefore a blended learning course including virtual patients (VPs, www.virtualpatients.de) as preparation for a skills training is planned according to Kern et al. "Curriculum development for medical education: A six-step approach". So far there are only limited data available on using VPs as cognitive preparation for an interdisciplinary skills training involving physicians and nurses.
Summary of work: The overall course design is preliminary planned according to Kern et al. In summer 2010 we will perform a needs assessment of the targeted learners to further specify the design. Among others, the following questions will be addressed using quantitative and qualitative approaches: Where are most urging areas for further training? How can this training be designed to best suit both nurses and physicians as preparation for pediatric emergencies? In specific: Should VPs designed for nurses and those for physicians be designed differently in terms of content or design?
Summary of results: The overall course design will be presented including the results of the needs assessment of the target learners (physicians and nurses).
Conclusions Take-home messages: The design of an innovative blended learning team training course incorporating VPs and skills training will be presented.

11X6

Virtual patient journeys in undergraduate medicine

K Taylor and C Jackson (Bute Medical School, St Andrews, UK)*

Background: A number of demographic and policy drivers, require future doctors to understand patients experience of living with long term conditions. This necessitates an understanding of health and disease as a process or 'journey' rather than as isolated episodes. It also requires an appreciation of the inter-disciplinary and cross-sectoral care required and the role that patients have in managing and caring for their own well-being.
Summary of work: A new course was developed for undergraduate medical students which offered the opportunity to choose from a menu of 'virtual patient journeys'. The course took place for one afternoon a week for 5 weeks. Each journey explored different points in the care of a patient through experiential clinical learning. Thus students were exposed to different patients in different contexts and with different professional perspectives. Students were encouraged to compare, discuss and question their learning by means of an educational blog.
Summary of results: The course has been favourably evaluated in terms of its educational value, efficiency, cost and utility.
Conclusions: This course is a cost-effective and educationally powerful means of introducing medical students to patients' longitudinal experience of health and illness. It also demonstrates the potential to broaden students' experience of primary care and include the wider community in medical education such as the voluntary sector and patient support groups.
Take-home messages: There may be wider value in this approach as a means of encouraging students to develop a holistic approach to patients' experience of living with a long-term condition.

11X7

Mapping virtual patient cases based on knowledge type and cognitive depth

Shekhar Kumta, Lester Critchley, Alex Yung, Yan Jin and Joseph Leung (The Teaching and Learning Resource Centre, The Chinese University of Hong Kong, Hong Kong)*

Background: Virtual Patients (VPs) or Computer based interactive cases are being increasingly used in formative and summative assessments in health care. In order to become effective learning tools, VPs should demand higher cognitive skills of those who attempt them and should be reviewed for their educational content and cognitive dimensions before they are used in the curriculum.
Summary of work: We reviewed 90 active VPs from a repository of 210 cases and mapped them using a modified Bloom's taxonomy for a) Type of Knowledge -Factual, Conceptual, Procedural and metacognitive and b) Cognitive depth - recall, analysis, evaluation. Content experts in 6 disciplines assessed VPs for instructional design and educational objectives, content validity and quality of feedback. We tracked 212 students over a 3 year period for the frequency and type of VPs used.
Summary of results: Majority of our VPs (74%) involve higher cognitive demands. More students re-attempted and returned to VPs that required higher cognitive skills - Analysis/Application 64% (n=135), Evaluation 80% (n=170), Metacognitive knowledge 54%, in comparison with Recall Cases 12% (n=25).
Conclusions: Students generally welcomed VPs provided they were demanding enough in terms of cognitive depth. Indeed, Good quality VPs should require the students to do much more than recall facts. Thoughtfully constructed cases should reflect different depths of learning and demand higher cognitive skills or else students do not find them engaging.
Take-home messages: Students generally welcomed VPs provided they were demanding enough in terms of cognitive depth.

11X8

Comparison of virtual patients and traditional case-based discussion in a neurology rotation

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Background: An expected outcome of virtual patients (VP) over traditional paper cases is increased students' engagement. This work evaluates students' perceptions on the introduction of Virtual Patients (Imperial College, London) versus slide-based case-discussion in neurology seminars.

Summary of work: Annually, our 5th year (6 year curriculum) neurology rotation includes two seminars, with the topics "Patient with disturbed consciousness" and "Patient with limb weakness", each consisting on presenting and discussing 4 cases, routinely delivered with powerpoint slides. We compared the impact of replacing the cases of the second seminar by VP, discussions ensuing only after each student had individually completed the case in a computer. Students' perceptions were collected immediately after the seminars (7-point Likert scale) and compared in the two contexts (non-parametric tests).
Summary of results: VP had superior ratings ($p<0.05$) on: "overall session", "case presentation format", "case clarity" and "session usefulness". "Opportunity to actively participate in the discussion" was identically rated with or without VP. Overall most students preferred the VP to the traditional slide-based seminars (57%).
Conclusions/Take-home messages: The VP conquered student engagement in neurology case discussions.
Acknowledgements: Maria Toro-Troconis and Ashish Hemani (Virtual Patients program at Imperial College London).

11X9

Evaluation of different designs of virtual patients using the eViP design evaluation instruments
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Background: Electronic virtual patients (VPs) are increasingly used in medical education. So far, VPs of different design have seldom been compared using the same standardized evaluation instruments. The presented work summarizes the evaluations comparing different designs of VPs set up for different educational scenarios.
Summary of work: 7 VPs got adjusted due to the needs of each scenario they were meant for including use within seminars, as wrap up of seminars and as preparation for skills training. Subject areas included anatomy, biochemistry, child and youth psychiatry, surgery and paediatrics. Approximately 200 students and 5 VP designers evaluated the VPs using the eVIP (electronic Virtual Patients project, www.virtualpatients.eu) evaluation instruments http://www.virtualpatients.eu /resources/evaluation-tool-kit/). The usefulness of the evaluation instruments was evaluated qualitatively by VP designers.
Summary of results: Feedback of students and VP designers will be presented in detail with respect to each scenario the corresponding VPs were made for. The overall feedback was positive and helpful to further improve VP design according to the VP designers.
Conclusions: VPs can be adjusted in design to suit different educational scenarios. The eViP design evaluation instruments proved to be helpful to further optimize VP design.
Take-home messages: The eViP design evaluation instruments help improving VPs.

11X10

Using interactive video-cases as a source for reflection
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Background: Frequently used methods to evaluate reflection (e.g. reflective writings, interviews) are all limited in linking the reflection to the actual situation. Filming the situation can make this link observable, but is unsuitable to use in large populations and/or multiple measurements.
Summary of work: Interactive video-cases (doctor-patient encounters filmed through doctor's perspective) were developed as a source of reflection. Each case had six stops with an appearing countdown timer and a question (e.g. What would you answer/do/investigate now?). Subsequent to the case, student reflections were facilitated by six questions and assessed using scoring rubrics based on the case and a three factor reflection model (awareness- and understanding the experience and reflective outcome). Each factor was scored on 10 with a maximum score 30.
Summary of results: The reflection was assessed for 273 fourth and fifth year medical students at Ghent University by completing two video-cases on two occasions. Reflection scores had an inter-individual distribution between 0-30 with an average of 19.29 (SD 4.48).
Conclusions/Take-home messages: Interactive video-cases are feasible in large populations and/or multiple measurements and can be used as a source for reflection, resulting in reflection scores with sufficient inter-individual distribution.

11X11

Major incident tabletop exercises: 'The Next Generation'

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Background: Major Incident (MI) and Emergency Planning tabletop exercises conventionally rely on paper plans to deliver scenario-based training. We have utilised an inexpensive, electronic whiteboard to display bespoke interactive software created to examine MI planning within a particular environment.
Summary of work: Connecting a Nintendo-Wii handset to a computer and projector provides a proprietary-comparable, highly portable, improvised interactive whiteboard surface. Utilising this technology we ran an exercise to determine our new Paediatric Emergency Department's MI Plan. The software was purpose-built to permit scrutiny of patient flow within our own physical environment and captured the team's output. Questionnaires were retrospectively completed by participants.
Summary of results: Both the 'whiteboard' technology and the software used were readily accepted by the Medical clinicians running and participating in the exercise. The main outcome was whether the setup facilitated MI Plan development. The collated data found strong agreement with this and allowed action cards to be developed for future MI use.
Conclusions: We positively applied the feedback generated to develop the new Paediatric Unit's MI Action Cards. Future work will involve retesting this new MI Plan.
Take-home messages: We developed a unique electronic system for updating and delivering bespoke MI training that was readily accepted and used by medical clinicians without a Computer Science background.

11X12

Podcasting practical skills?

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Background: For a few years now, podcasts have been seen as an inexpensive and effective teaching modality. Recent times have seen the number of podcasts available to medical students soar, but most of these are based around the discussion of general medical topics and theoretical knowledge. I aimed to investigate the feasibility of using a podcast for revision of practical skills taught as part of the clinical teaching in a UK medical school.
Summary of work: I wrote a brief podcast revising the abdominal examination, and e-mailed the download link to twenty 3rd and 4th year Keele Medical Students who had asked to be involved in the trial. I then e-mailed them all a link to an on-line survey engine, on which I had constructed a questionnaire regarding the podcast.
Summary of results: There was a 100% completion rate for the questionnaires. All felt that podcasting had a role to play in provision of a medical undergraduate course, though only 45% currently used them. The situations in which the podcasts were used varied significantly. All felt that podcasts would be beneficial to students learning abdominal examination, and 72% of the sample felt that podcasts could be used to teach or revise practical skills.
Conclusions: Despite the fact that all of the students had volunteered to be involved, only 45% are using podcasts, and so there is still a large potential for this modality to expand in provision of coursework.
Take-home messages: From this sample practical/clinical skills can be feasibly taught with podcasts.

11X13

How often do students use Wikipedia as a source of anatomical information?

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Background: Wikis are collaborative website tools, the most popular example being Wikipedia. As anatomists, we are concerned about the accuracy and reliability of this resource which students increasingly rely upon.
Summary of work: Students were surveyed to determine their use of Wikipedia. Wikipedia entries relating to upper limb anatomy were accessed on a specific date and reviewed by expert anatomists. The information was assessed for accuracy, usefulness and clinical relevance.

Summary of results: Surveys were designed to determine how often students consulted Wikipedia and other online resources, what type of information they accessed and their opinion of the quality of information retrieved. Our findings will be discussed.
Conclusions: Wikipedia is a readily available resource, widely accessed by students in the early years of their training. The anatomical information reviewed suggests that it is of variable quality. Our scientific skills curricular theme is designed to raise student awareness of the limitations of such online resources and direct them to more reliable information.
Take-home messages: Wikipedia contains some impressive anatomical resources, the basis of which is a renowned anatomical text. Despite this, students should be educated to treat the resource with caution although there is potential for a Wiki based anatomical text.

11X14

The uptake of podcasting and portable media players amongst UK medical students

T A Coughlin, K I Jones*, J N Lund, R G E Clement and C L Longman (Royal Derby Hospital, Derby, UK)*

Background: There is an increasing drive to utilize technology in augmenting teaching and improve learning. Web based learning is well established but portable media players (PMPs) are now becoming vehicles for learning media with the advent of podcasting.
Summary of work: A questionnaire was submitted to medical students studying at Nottingham University to evaluate the uptake and their opinions of podcasts and PMPs.
Summary of results: One-hundred responses were obtained. All students had heard of podcasting [1]00%) and the vast majority are already using audio podcasts (98%). Video podcasts are used by 54%. Students overwhelmingly own PMP capable of playing audio (94%) with many (60%) capable of playing video. Students were keen to use podcasts to revise for both knowledge and clinical skills (7.29 / 10 and 7.76 / 10). They were against the idea of replacing teaching sessions with podcasts (2.59 / 10) but were very much in favour of them supplementing traditional teaching (9.11 / 10 - $p = <0.0001$)
Conclusions: Podcasts are already used by nearly all students to augment their learning. They wish to see them used to supplement rather than replace existing teaching.
Take-home messages: Podcasting is popular and used by nearly all students on their existing PMPs.

11X15

Features of e-learning instruments used by the students of the "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, Romania

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Background: Using e-learning instruments is now a tendency in medical learning. The differences between the type of medical students and the local cultural differences, may requires different techniques for implementing those instruments.
Summary of work: A Claroline-type e-learning platform was used and the educational material created was appropriate for the distance learning of bio-statistics. This material was made available to 1st-year students of the Faculty of Health Sciences, specialty dental technicians from our University. These students were studying biostatistics as a compulsory subject as part of the 1st-year curriculum. Study of this material was not compulsory, although the students were constantly advised about its existence and usefulness.
Summary of results: Access to this educational material was monitored for establish a pattern of the students' access to it and the way that they used it (how many days/week, how many hours/day, number of hits, which type of material etc).
Conclusions: The authors establish an "e-learning profile" for the target population which can be useful for other institutions of the same type, who wants to implement e-learning techniques.
Take-home messages: To ensure the success of implementing e-learning instruments in medical learning we consider that is important to take care of the specific "e-learning profile" of the target population.

11X16

How to incorporate your basic science e-learning program into existing courses of an integrated medical curriculum

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Background: Apart from appropriate design, educational setting and content of e-learning programs, also integrating e-learning in courses of the medical curriculum requires full attention. Without adequate integration into courses e-learning is ineffective and learning goals will not be met.
Summary of work: This “tips & tricks” poster provides practical tools for basic scientists, faculty, and e-learning developers in order to successfully incorporate their e-learning program into existing courses / an existing curriculum. We have been struggling for many years with the practical course integration of our curriculum-wide pharmacology e-learning program. Unwilling course coordinators, content disagreements, e-learning without recognition or assessment are common problems with integration. We provide criteria and monitoring parameters in order to solve these problems.
Adequate integration involves collaboration with different people, co-creation of teaching materials, practical course incorporation, blended learning, continuous assessment and update of the e-learning, and assessment of students on content. Each criterion has its own monitoring parameters, which vary from logging program utilization, and content evaluation to assessment of the students.
We developed criteria and monitoring parameters which help determining whether an e-learning program is successfully integrated in a curriculum.
Conclusions: Each medical curriculum should evaluate whether e-learning and its integration are successful and (cost-) effective.