**4M** Short Communication: Clinical Skills Training

**Location:** MR 120 – P1

**#4M1 (135339)**

Determining level of experience for sufficient EVAR sizing

*Michael Strøm*, Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark

*Lars Lønn* (Department of Radiology, Rigshospitalet, Copenhagen, Denmark)

*Bo Bech* (Department of Radiology, Rigshospitalet, Copenhagen, Denmark)

*Torben V. Schroeder* (Copenhagen Academy for Medical Education and Simulation, Copenhagen Denmark)

*Lars Konge* (Copenhagen Academy for Medical Education and Simulation, Copenhagen Denmark)

**Background:** The planning and sizing of Endovascular Aortic Repair (EVAR) is considered an expert task. The morphology of the aneurysmatic aorta must be carefully assessed in order to select a stentgraft that comply with the anatomy. We aimed to investigate how much experience is needed to plan and size for EVAR.

**Summary of Work:** We developed an assessment instrument for EVAR planning based on a protocol for measuring and stent selection. We gathered validity evidence from all five sources described by Messick. The assessment consisted of CT evaluations of three patients with increasingly complex abdominal aneurysms. A proficiency standard was established using the contrasting group method.

**Summary of Results:** Twenty-to consultants in vascular surgery and radiology were included. Participants were divided into three groups based on EVAR experience (novices, experienced, experts). Test scores were based on summed z-scores derived from the measurements and graft choice of the expert group, defined as having performed more than 100 procedures. Internal consistency of the assessment was high (Cronbach’s α=0.93) and internal structure was good with high correlation between log-transformed experience and score (p=0.004). An ANOVA test showed significant difference in score between the experts versus novices (p=0.001) and experienced (p=0.04) but not between non-expert groups. A proficiency score was established with the consequence that only two of eight experienced participants passed. Linear regression indicated more than 300 procedures was required to ensure proficiency.

**Discussion:** The level of experience needed to be proficient in EVAR planning has not been described before. The proficiency standard score indicate that a very high level of expertise is required to plan and size EVAR cases.

**Conclusion:** Based on Messick’s framework we found that the assessment including the proficiency score holds strong validity evidence. A standard for EVAR planning and sizing was established.

**Take Home Messages:** A validated method for EVAR planning and sizing with a proficiency level standard can be established.

**#4M2 (135391) (Postgraduate Travel Award Winner)**

Investigating the role of stereoacuity in dental performance using virtual reality simulator

*Loulwa Al-Saud*, School of Dentistry, University of Leeds, Leeds, UK

Faisal Mushtaq, University of Leeds, Leeds, UK

Matthew Allsop,University of Leeds, Leeds, UK

Isra’a Mirghani,University of Leeds, Leeds, UK

Mark Mon-Williams,University of Leeds, Leeds, UK

Michael Manogue,University of Leeds, Leeds, UK

**Background:** What value does the three-dimensional information afforded by binocular vision confer to dentists? This topic has produced considerable debate in recent years in the field of dentistry. In order to empirically address this question, we examined the impact of stereoacuity levels on dental task performance using a haptic virtual reality simulator under various conditions that provided, and removed 3D cues.

**Summary of Work:** Sixteen postgraduate dental students at the School of dentistry, University of Leeds, participated in the study. Stereoacuity levels were measured using an automated Random Dot Test. Each participant performed a total of 4 different dental tasks under two conditions (2D and 3D vision) using special glasses, each with 2 levels of difficulty (direct and indirect task) on a haptic virtual reality simulator.

**Summary of Results:** The stereoacuity levels of the participants were positively correlated with several performance parameters. We found a statistically significant interaction between stereoacuity levels and task performance under 2D and 3D viewing conditions (p < .001) for the error scores relating to cutting depth.

**Discussion:** In tasks that require depth information, removing cues that allow 3-D information impairs performance. Furthermore, individual differences in stereoacuity predict the amount of depth error in 2D and 3D information, as participants with typical levels of stereoacuity performed better than participants with low levels of stereoacuity. All participants performed comparably across other performance metrics indicative of compensatory strategies and utilization of monocular cues to complete the tasks.

**Conclusion:** The performance of simulated tasks in haptic virtual reality dental simulator was optimized under 3D viewing condition. Stereoacuity levels of the participants were positively correlated to their performance.

**Take Home Messages:** Stereoacuity levels influence the performance of dental training tasks that require complex hand-eye coordination in virtual reality simulated settings.
Andrew Darby Smith*, Imperial College, London, UK

Background: Every minute from the time of collapse that a patient in cardiac arrest with a ‘shockable’ rhythm isn’t defibrillated, mortality increases 7-10% per minute. Providing bystander CPR reduces this increased mortality to 3-4% per minute. It is clear that more bystanders need to be confident recognising and managing out-of-hospital cardiac arrest if we are to improve survival rates. Basic Life Support (BLS) is included in most undergraduate medical schools’ curriculum, however, focuses on the technique of providing CPR, rather than addressing psychological barriers to bystander response, risking a disconnect between ‘learning’ and ‘behaviour change’.

Summary of Work: ‘Basic Life Support & First Response’, a mixed lecture/simulation session, was delivered to 250+ Year 1 students at Imperial College School of Medicine, London in March 2015. The session focused on equipping students with the knowledge, but most importantly, genuine confidence, to approach collapsed members of the public and provide BLS if indicated. This was achieved through analysing the psychological barriers to approaching collapsed members of the public, including the ‘Bystander Phenomenon’, before simulating response in real time, out-of-hospital cardiac arrest scenarios. Detailed feedback was collected and analysed.

Summary of Results: 250 students completed pre- and post- session questionnaires and answers were analysed with the Mann-Whitney U test. Students reported they were significantly more likely to approach a collapsed stranger (p<0.01), more confident in the theoretical knowledge of BLS (p<0.01) and felt more confident to independently initiate BLS if faced with a member of the public who wasn’t breathing (p<0.01), after having attended the session.

Discussion: By not addressing psychological barriers to bystander response there is a substantial risk that BLS training will only provide students with theoretical knowledge and not change their behaviour.

Conclusion: BLS training needs to acknowledge psychological barriers to response.

Take Home Messages: Without behaviour change, what is the point of ‘training’ in the first place?

Take Home Messages: The development of discrete binomial metrics for assessment and training of tasks was successfully extended to surgical fracture care training, showing good face and construct validity and good ability to discriminate between novice and expert performers of the tasks.

#4M5 (136199)

Intimate examinations: UK students don’t do them any more

Jim Parle*, University of Birmingham, Birmingham, UK
Alexandra Watts

Background: Intimate examinations (IEs: female breast, male and female rectal, female pelvic, male genitalia) are a key part of clinical assessment but anecdotal evidence and some literature suggests medical students are performing few of such examinations in their training and yet are expected to be competent at qualification.

Summary of Work: A questionnaire survey of newly qualified doctors in the UK asked about their experience of performing IEs on patients during their time as medical students: how many IEs they had performed and how competent they felt. 2/3rds of UK medical schools took part. 1042 replies were received

Summary of Results: 90% had performed fewer than 10 male rectal exams, over 25% had performed none or one 95% had performed fewer than 10 female breast exams, ~ 30% had performed fewer than 10 female pelvic exams, over 60% had performed none or one ~75% had performed fewer than 10 male genitalia exams, ~ 15% had performed none or one ~80% had performed fewer than 10 female rectal exams, ~ 30% had performed none or one.

Discussion: Levels of IE performance are clearly very low and most doctors in this sample must be incompetent (although there is no consensus on how many such examinations are needed to become competent, it is clearly not 1 or zero!) It is not clear why rates are so low.

Conclusion: Our data from a large sample shows very low levels of performance of IEs among medical students. Further work is needed to elucidate the reasons, including qualitative studies and historical surveys. Although newly qualified doctors are still in a learning role, they are also delivering a clinical service and other doctors and patients may expect them to be at least minimally competent.

Take Home Messages: UK doctors are at qualification incompetent at IEs and we do not know why!

#4M6 (130650)

Professional activities, supervision and preparedness in clerkships of medical students from two different curricula

Josefin Bosch*, Charité - Universitätsmedizin Berlin, Berlin, Germany
Asja Maaz (Charité - Universitätsmedizin Berlin, Germany)
Tanja Hitzblech (Charité - Universitätsmedizin Berlin, Germany)
Harm Peters (Charité - Universitätsmedizin Berlin, Germany)

Background: Clerkships offer important workplace learning activities. This study aims to compare a competency-based and a traditional medical curriculum from one institution by focusing on clerkship activities, supervision level and preparedness based on the frameworks of EPAs and socio-cognitive theory. Particularly, perceived competence and stress as outcomes of preparedness are investigated.

Summary of Work: In a pooled cross-sectional analysis, medical students from two curricula (N=930) were invited to provide feedback about their clerkship experience via an online questionnaire. Preparedness was operationalized as 1.) confidence for clerkship activities, 2.) support coping, 3.) evaluation of being prepared through university teaching. Hierarchical regression analyses were applied.

Summary of Results: Data of n=342 students was obtained. Statistical analyses reveal a similar pattern of activities in both curricula. Differences between curricula are found in supervision level, evaluation of preparation by university teaching, perceived competences and perceived stress. Preparedness is influenced by individual, clerkship and activity specific factors and predicts perceived competence.

Discussion: Students from a competency-based curriculum are more often allowed to work under distant supervision, perceive their university teaching as more helpful and feel more competent compared to students of a traditional curriculum. They report a higher stress level, which is related to differing clerkship characteristics.

Conclusion: Students from the two curricula execute a comparable range of professional activities during clerkships. A competency-based curriculum seems to enhance preparedness and competence perception. This is related to a higher level of independent work, as reflected in more frequent distant supervision, but also to higher stress levels.

Take Home Messages: Clerkships offered similar learning situations for students from different curricula that are framed in a different way regarding supervision. Competency-based education enhances medical students’ preparedness, competence perception and level of independent work.