KEYNOTES AND
STATE OF THE ART LECTURES
Michael Good, M.D.
Dean, College of Medicine
Professor of Anesthesiology
University of Florida

Title: Planning for an Unknowable Future

Abstract: For several decades, innovative clinician educators have used human patient simulators and related technologies and curricula to help clinicians prepare for rare, unplanned events and situations which threaten the safety of their patients. Prior to the wide-spread adoption of simulator-based education, it was difficult to plan for these unknowable future events. While it is anticipated that active, experiential learning approaches will continue, the highly dynamic state of health care globally makes it difficult to predict and therefore plan for the as of yet unknowable changes in health care delivery systems and venues, and similarly, the educational strategies that will emerge going forward. The experiential learning theater is one approach that allows the innovative clinician educator the ability to plan for unknowable futures in health care and health care professional education.
Michael Good, M.D.  
Dean, College of Medicine  
Professor of Anesthesiology  
University of Florida

**Title:** Planning for an Unknowable Future

**Abstract:** For several decades, innovative clinician educators have used human patient simulators and related technologies and curricula to help clinicians prepare for rare, unplanned events and situations which threaten the safety of their patients. Prior to the wide-spread adoption of simulator-based education, it was difficult to plan for these unknowable future events. While it is anticipated that active, experiential learning approaches will continue, the highly dynamic state of health care globally makes it difficult to predict and therefore plan for the as of yet unknowable changes in health care delivery systems and venues, and similarly, the educational strategies that will emerge going forward. The experiential learning theater is one approach that allows the innovative clinician educator the ability to plan for unknowable futures in health care and health care professional education.
State of the art lecture SESAM 205

Presentation Jan-Joost Rethans, Professor of Human Simulation

Title
Building bridges by using Simulated and Standardized Patients: why would you want to use them?
Facts and fantasies about the use of Simulated and Standardized patients as educational tools for the delivery of quality in health care.

More than 50 years ago Barrows and Abrahamson introduced the use of ‘the programmed patient’, soon thereafter named the simulated patient. A simulated patient (SP) is defined as a ‘normal person who has been carefully coached to accurately portray the characteristics of a specific patient’.

Originally SPs were exclusively used in medical schools but nowadays they are used in many other areas as for example in nursing, physiotherapy, dentistry, pharmacy, dietetics, veterinary medicine and also outside the medical domain.

Despite SPs long history and it’s widespread use there are still many issues to be clarified or resolved in the use of SPs. Ignorance about the use of SPs leads to myths and fantasies about SPs, whereas in modern teaching one should focus on facts.

Amongst the issues to be clarified in the use of SPs are: where do SPs have a place in simulation?, what is the link between human simulation and non-human simulation?, what is the difference between simulated and standardized patients?; are SPs only useful in the teaching of communication?; how does feedback by SPs compare with feedback of staff?, how does the use of SPs compare to the use of real patients?, and ‘SPs can only be used in small schools, isn’t it?’.

In this presentation I will try to get rid of the myths, while beholding some fantasies (one must always have a dream!) but foremost I will focus on the facts and experiences about the use of SPs.
I hope I can inspire those of you who are in doubt about introducing SPs to start with them and thus bridge the gap between non-human and human simulation. Finally I hope to show you all that working with SPs and students in an inspiring educational atmosphere is great fun for all!
Low fidelity interdisciplinary ward simulation with limited staffing: how feasible and effective is it in undergraduate healthcare training?

Authors: Kennedy J 1, Ellis A 1, Berragan E 2, Morgan J 1

Institution: North Bristol Academy, University of Bristol and the University of West England

Introduction: It has been shown that 40% of UK medical students feel un-prepared for their foundation jobs. (1) A key reason for this is lack of experience in prioritisation and on-call skills. (2) This has been postulated as a contributing factor to increased death rates in patients presenting when new doctors start in august. (3) (4) Busy on-call shifts often result in friction between nursing and medical teams due to difficulties managing workloads and increased stress levels.

Objectives: We have piloted a new collaborative program between Bristol University and the University of the West of England delivering multi-disciplinary ward based simulation teaching to a cohort of 70 final year medical and nursing students. The program aimed to improve prioritisation skills, management of on-call jobs and inter-disciplinary team work. We delivered this with realistic staffing levels to assess the feasibility of rolling the program.

Material : A mock ward with eight simulated patients (4 acted 4 Manikin) was created. Medical and nursing students took turns to run the simulated ward together. Observing students acted as patients in the scenario. Facilitators acted in the scenario as a patient’s family member and as a ward manager and medical registrar. Handovers were given to students at the start of each session and between role changes. A maximum of twelve students took part in each half day session.

Nursing students assessed patients, referred to the ‘doctor’ and initiating treatment. Medical students worked as the junior doctor on-call; triaging bleeps, undertaking a variety of ward jobs, and managing sick patients. At several ‘time out’ points during the ward simulation all students gathered to discuss issues that emerged and developed suggestions and solutions.

Results: Students self-rated their confidence receiving handovers, prioritising tasks, and calling for help, on 10 point likert scales, before and after the simulation.
Students rated the session compared to previous sessions involving multidisciplinary learning.

Qualitative data collected from students and staff overwhelmingly suggests that not only is on-call ward simulation an effective way of improving confidence in prioritisation and on-call skills, it is also a preferred method of understanding the roles of allied health care professionals and how to best support each other to promote patient safety. This pilot project also showed the effectiveness of students acting as patients in the scenarios which allowed them a fresh perspective, decreased running costs and promoted humour. This reduced nerves and encouraged a friendly learning environment.

Conclusion: We hope to better equip medical and nursing students for the challenges of on-call shifts. By understanding co-workers roles, challenges and limitations we hope to foster more effective interdisciplinary communication and in turn improve patient safety. This project shows that on-call ward simulation is an effective and achievable way of delivering this.

References:

(1) Goldacre M et al (2003) Preregistration House officers views on whether their experience at medical school prepared them well for their jobs: national questionnaire survey

(3) Jen M et al (2009) Early in-patient mortality following trainee doctor’s first day at work

(4) Keogh B et al (2013) NHS seven days a week forum, Evidence base and clinical standards for the care and onwards transfer of acute in-patients.
Developing and providing work experience in a simulated environment for A-level students with an interest in medicine.

Dr James Farrant¹, Professor Judith Hall¹, Dr Cristina Diaz-Navarro²

1. Department of Anaesthetics, Intensive Care & Pain Medicine, Cardiff University, Cardiff, UK
2. Department of Anaesthetics, University Hospital of Wales, Cardiff, UK

Introduction:
An international sixth form college asked the Bill Mapleson Centre simulation team at Cardiff University, to develop a tailor made work experience day for their A-Level students considering a career in medicine.

Objectives:
Learning objectives were identified in collaboration with the school. We aimed to provide a different perspective to traditional hospital based work experience. This was to be achieved by medical skills and simulation workshops of progressive complexity, and interactive lecture content providing insight into studying medicine, life as a doctor and the role of simulation in medical education.

Material (Patients/Methods):
Interactive lectures included purpose made videos of consultants reflecting on their specialties. Workshops included basic skills such as measuring pulse and blood pressure, progressing in complexity to more advanced sessions exploring patient-doctor communication by reflection on standardized patient based consultation videos, and participation in high fidelity scenarios using patient simulators. We designed a simulation scenario where students helped look after a severely ill
patient. The students were allocated simple specific roles including recognising and recording changes in patient status and vital signs. Students consented to be videoed during workshops for further reflection.

Results:

This pilot course was extremely well received, and provided a beneficial experience for the 6th form students. Average feedback scores (0=not at all, 5=very much indeed) for enjoyment, usefulness and relevance of the course were 4.9, 4.9 and 4.7 respectively. Simulation components rated particularly highly, with an average enjoyment score of 5.0. Comments were positive such as “The practical bits put us into real life situation showing the spectrum of skills a doctor needs to deal with different situations.” “The hands-on activity was very useful, giving a deeper and broader insight into what a doctor really does in work.”

Conclusion:

Designing this course forced us to change our perspective when identifying learning objectives. Experiential components were successfully adapted allowing full participation without prior medical knowledge. Enjoyable, useful and relevant work experience can be successfully provided in simulated environments. Developing this course has also allowed us to explore our original motivation and drive in choosing medicine as a rewarding profession.
Title: TALK®: A quality improvement project using structured clinical debriefing
A. Hadfield, S. Pierce, K. Empson, M. Rossiter, M.A. Price, C. Diaz-Navarro

Background
A structured approach to debriefing is used in a number of fields, including aviation and the military. However, in healthcare there is only limited use of debriefing tools in specific contexts (e.g. DISCERN post-resuscitation). Recent meta-analyses support the use of clinical feedback and debriefing to improve performance. There are also beneficial effects of structured debriefing after planned learning events in the context of simulation-based and specific clinically centred educational exercises. After a thorough literature review we have found no evidence of a tool such as TALK® designed to guide structured multi-professional debriefing for use after unplanned learning events in any clinical environment.

Objectives
Our tool aims to promote guided reflection within clinical teams as a way to improve and maintain patient safety, increase efficiency and contribute to a supportive culture of dialogue and learning, and in turn enhance staff wellbeing.

Key elements to achieve this include early identification of system errors and potential untoward events, recognition and encouragement of successful strategies and behaviours with improved communication at a multi-professional level.

Material
We are introducing an end to end process:

The TALK® framework: a simple and practical approach to multi-professional structured feedback and debriefing, to be used after unplanned learning events in clinical environments.

Learning to TALK®: An education and training programme led by multi-professional champions, and focused on the 3 key elements described above.
This project has been developed by a multi-professional group of anaesthetists, emergency physicians, clinical psychologists, senior nurses and quality improvement experts. It has been peer reviewed by undergraduate and postgraduate medical educationalists.

Results

The TALK© framework proposes an easy way to guide a short focused learning dialogue between team members after a case or clinical session whenever new insights might be learnt, facilitating reflection in a constructive and non-judgmental way. This includes occasions where things went well but also near misses and untoward events. This conversation may be prompted and facilitated by any team member familiar with TALK©. The framework:

T: Tell the team what happened and target what is important to discuss or learn from to improve patient care.
A: Analysis. An exploration of successful and unsuccessful team roles, behaviours, communication, decision-making, situational awareness and system processes.
L: Learning points. What can be learnt from the experience by the team members?
K: Key actions. What can be done to improve and maintain patient safety? E.g. identifying ways to support team members, sharing examples of good practice, signposting to further learning, discussions at quality and safety meetings, incident reporting.

Conclusions

We are ready to commence project implementation, initially in our emergency department.

Trained multi-professional leads will deliver ‘Learning to TALK©’ workshops to practise environment specific guided reflection exercises as described above. Implementation of the TALK© approach to clinical feedback will include engagement of team leads and project champions, presentations and workshops, use of flashcards, posters, web and app based guidance. We will measure qualitative data as well as patient safety outcomes through currently collected performance monitoring parameters.
Low-cost laparoscopic simulator “eLaparo4D”:
primary validation process of basic skills.

F. Mandolfino(a), M. Sguanci(b), M. Gaudina(c), G. Vercelli (d), E. Bellanti (e)
S. Marcutti (f) M. Minuto(g), V. Rumolo(h), G. Marcocci (i), M. Frascio(l)

(a)DISC (Department of General Surgery - Genoa University – School of Medicine)
(b)DISC (Department of General Surgery - Genoa University – School of Medicine)
(c)DIBRIS (Department of Informatics, Bioengineering, Robotics and Systems engineering Genoa University - School of Natural Sciences, Mathematics and Physics)
(d)DIBRIS (Department of Informatics, Bioengineering, Robotics and Systems engineering Genoa University - School of Natural Sciences, Mathematics and Physics)
(e)DIBRIS (Department of Informatics, Bioengineering, Robotics and Systems engineering Genoa University - School of Natural Sciences, Mathematics and Physics)
(f)DIBRIS (Department of Informatics, Bioengineering, Robotics and Systems engineering Genoa University - School of Natural Sciences, Mathematics and Physics)
(g)DISC (Department of General Surgery - Genoa University – School of Medicine)
(h) MD – No affiliation
(i) Med student
(l)DISC (Department of General Surgery - Genoa University – School of Medicine)

Introduction
The use of simulation in laparoscopic surgery training appears to be qualitatively effective if supported by a suitable evaluation system. The increasing demand of more complex laparoscopic simulators has inspired the creation of a 4d simulator which is a physical low-cost laparoscopic training platform that reproduces the tactile feedback: eLaparo4d) integrated with a software for virtual anatomical realistic scenarios (Unity3D V 4.1).

Objectives
The aim of the present project is to show the platform validation results using two instruments: the face validity and the construct validity.

Material:
The hardware platform consists of three main features:

1. Ability to work in immersive virtual reality and augmented: the user can perform the laparoscopic tasks through the use of real instruments (matched for weight, degrees of freedom and ergonomics). The environment in which the simulation develops recreates an operating theatre and allows to work "immersed" in a real "operating Room.

2. Ability to work "as a team": the simulator allows to perform laparoscopic tasks by two operators. This makes possible to develop the capacities of interaction between the first and second operator. The management of the laparoscopic tools is interchangeably

3. The tactile feedback is present in each hand piece; virtual instruments have been implemented with this feature; interaction with virtual anatomical tissues creates a tactile sensation that allow the student to gain sensitivity and force management.

This was made possible through the use of systems "phantom" cheap and adapted for use with laparoscopic instruments. The validation process of the simulator has been possible through the use of two techniques: Face Validity and Construct Validity.

The first technique has allowed us to collect data about the physical-ergonomic aspects of the platform (ergonomics, structure, realism, tactile feedback and image quality).

In this sense, we have created a questionnaire to answer closed (12 items) administered to the sample expert. The second technique was used to define the system's ability to differentiate between expert users (experienced laparoscopic) and inexperienced users (medical students inexperienced laparoscopic) analyzing the scores obtained about the execution of four basic skills.

For this validation has selected a sample of 30 subjects (15 surgeons, 15 students).

Results
The validation process has provided important results in terms of effectiveness and efficiency of the simulator. Specifically, the Face Validity confirmed the suitability of the hardware components and the system's ability to recreate a good ergonomics of structure and environment.
Construct Validity of basic skills has provided significant data on many exercises; that confirm the ability of the platform to identify the experience of users; This validates the evaluation system.

Conclusion
These results are encouraging if evaluated in relation to the future validation dedicated to a virtual laparoscopic surgery (laparoscopic cholecystectomy) currently developing.
Finally, it can be said that the total ergonomics of the simulator and the tactile feedback have had positive results in terms of satisfaction from the whole sample who participated in the test.
Contribution of a virtual hysteroscopic simulator in the learning of hysteroscopic myoma resection

AUTHORS
Marie-Charlotte Faurant, Guillaume Legendre, Sophie Francois, Pierre-Emmanuel Bouet, Laurent Catala, Céline Lefebvre-Lacoeuille, Philippe Gillard, Loic Sentilhes, Philippe Descamps

INTRODUCTION
Uterine myomas are a frequent pathology affecting 20% of womens of reproductive age. Myomas induce abnormal uterine bleeding, pelvic pain and increase the risk of infertility and obstetrical complications. Symptomatic sub-mucosal myomas are classically treated by hysteroscopic resection. Simulation is a method of education and training. It could be improve quality and security of cares.

OBJECTIVES
The aim of this study is to assess the interest of a hysteroscopic simulator for the resection of myoma by novices surgeons.

MATERIAL, PATIENTS AND METHOD
All medical students in maternity were recruited, in a prospective study, in august 2014. The virtual-reality simulator VirtaMed System (VirtaMed AG, Zurich, Switzerland) was used to perform the hysteroscopic training (Figure 1). Every student received a short demonstration of myoma resection. The practice consists of a submucous myoma type 0 resection. The procedure and the evaluation were performed before and after a specific training in hysteroscopic resection of sixty minutes long. The main outcome criteria was time for the resection before and after training. The second criteria concerned fluid quantity used and the number of contact between optic and uterine cavity. Students’ satisfaction was evaluated too.
RESULTS

Twenty students aged from 22 to 24 years were included. The time for the procedure was significantly reduced after training (170s versus 335s, p<0.01). The results are resumed in the table 1. All students were satisfied.

CONCLUSION

The results suggest that hysteroscopic simulator enhances and facilitates hysteroscopic resection for novices surgeons.
Implementation of a cognitive simulation process for healthcare professionals

Guillaume Alinier, John Meyer, Vernon Naidoo, Craig Campbell

Hamad Medical Corporation Ambulance Service, Doha, Qatar

Introduction:
Nowadays simulation is almost synonymous with interactive patient simulators and audio-visual technology although they are not always essential components of the learning experience. Simulation covers a very wide spectrum of media and processes and what often matters most is the facilitation process of the learning experience rather than the technology.

Objectives:
Visually Enhanced Mental Simulation has been developed by our team to help staff concentrate on cognitive skills and put in practice decision making skills away from the practical skills aspect. It is complemented by parallel skills sessions, and ultimately both aspects are demonstrated through full-scale scenario-based simulation. This low-tech approach also allows us to reduce pressure on equipment demand.

Material (Patients/Methods):
VEMS is a simulation approach that involves the use of a whiteboard, laminated cards and a poster to represent equipment and the patient. Whiteboard markers are used to write information such as physiological parameters and interventions by the crew taking part in the simulation. Scenario participants are oriented to the VEMS process before a session. It requires participants to verbalise all thoughts and actions including equipment settings, and actual communication with the patient and bystanders represented by the facilitators. All scenarios use the same scripts as what is prepared for full-scale simulation and are followed by a debriefing.
Results:
VEMS has been facilitated with uni and multiprofessional teams of healthcare professionals for prehospital, interfacility, and handover scenarios. Evaluation of the process comparing VEMS to the standard approach of running scenarios with an interactive patient simulator is ongoing. Participants engaged very well with VEMS. They rated it highly, although slightly less than our standard simulation. All would like to be further exposed to VEMS, especially prior to full-scale simulation. Similar clinical mistakes (Treatment, equipment “use”) were made by participants in both types of simulation approaches.

Conclusion:
VEMS can be run almost anywhere as it does not require real equipment but still requires time and experienced facilitators. Briefing of expectations and the process are as important as the preparation of the scenario script and clinical knowledge and facilitation style of the facilitator. VEMS can be used for interprofessional education scenarios and has been found to be highly engaging for participants. It addresses learning outcomes similar to what would be achieved in a full-scale context.
Development and Improvement of Simulation-Based Medical Education
In A Chinese Clinical Skill Training Center
Fenghua Qian, Hongyu Liu, Mingzi Guo, Jing Mang
China-Japan Union Hospital of Jilin University, Changchun, China

Introduction:
Simulation-based medical education has been shown to increase knowledge, provide opportunities for practice, and allow for assessment, especially in clinical practical curriculums for medical students and residents. Nowadays, in middle-income countries, Simulation-Based Medical Education is rapidly gaining ground in clinical training due to the technological advances. Although a number of Chinese medical universities have established clinical skill training center in recent years, is still at its seedtime. In this paper, we summarize the experience of our college clinical skill training center operation system, aim to provide references and theories for the construction and development of clinical skills training center in middle-income countries.

Objectives:
The purpose of this study was to research and summarize Simulation-Based Medical Education operation system in a Chinese clinical skills training center.

Material (Patients/Methods):
Sum up the data of test score and clinical ability within a group of students enrolled in our center during the past three years, and a group of students in another center as a control group. Summarize and analyse our experience literally.

Results:
In a 3-year review of our center, we found that the student enrollment growth rates were 7.5%, 12.1% and 13.7% respectively. Compared with the control group (in another Chinese clinical skill training center), the post-training ability of students in our center were much better: the pass rate for CPR (Cardiopulmonary resuscitation) and tracheal intubation were 97.8±1.9% VS 82.6±3.3% and 91.5±2.4% VS 70.7±5.1% (n=308) respectively. The score of OSCE test (using a percentage grading system) was 82.9±6.4 VS 70.3±8.5 (n=385). We summarized the operation system of our center in three
aspects: 1. Construction of Curriculum System: In an effort to provide training and assessment strategies for caregivers at all levels of expertise, we constantly upgrade our capabilities and develop new applications and approaches; 2. Construction of Teaching System: Combining basic mannequins, Sinman/3G computer-driven mannequin and standardized patient (SP), five training platforms were established, including basic Skills Practice Platform, animal surgery simulation platform, endoscopic special skills practice platform, integrated simulation practice platform and OSCE (Objective Structured Clinical Examination) assessment platform. 3. Construction of management system: We standardized the assessment parts of teaching-quality management system. Besides, the training system and entry-principle for new teachers were also established.

Conclusion:
The operation system of our clinical skill training center can satisfy the local requirement of medical education, help span the gap between theoretical learning and clinical practice, but still fall behind compared with the developed countries.
Perspectives on Patient Safety. A qualitative study on how graduate nurse students navigate through complex medication administration

Pia Keinicke Fabricius 1, Mette Gaard 2, Janne Orbæk 3, Tom Møller 4
Department of Development & Quality University Amager -Hvidovre Hospital Denmark 1, Department of Medicine, University Amager –Hvidovre Hospital Denmark 2, Department of Gastroenterology University Amager –Hvidovre Hospital Denmark 3, University Hospitals Center for Nursing and Care Research Denmark 4

Introduction: Medication administration in healthcare is a dynamic, interdisciplinary and complex process involving several professional competencies, theoretical knowledge, critical reflection, use of advanced technologies and patient cooperation- and participation. Medication errors are frequently reported, with nurses implicated in 26-38 % of in-hospital cases. (Leape et al., 2002, Bates, 2007). This could point to a need for new and better ways of educating nurse students in this field.

Objectives: The aim of this study is to explore nurse students’ experiences and competences with the technology-driven medication administration process after completing a 3 days mandatory medication simulation training program.

Material / Patients & Method: In 2012 a study was carried out at Hvidovre Hospital, a University Hospital in Copenhagen, Denmark. The study was designed as a qualitative investigation and evaluation after medication simulation training was given to nurse students 8 months prior to their graduation.

The medication simulation training combines theoretical teaching by pharmacists, clinical tutors and physicians, with full-scale simulation and skill training workstations in the hospitals simulation center “Learning Lab”. The students’ curriculum contains a mandatory clinical medication activity right after the medication simulation training, where the clinical tutor observes the students’ medication administration in clinical practice.

The study included two focus group interviews with 16 nurse students, which were recorded, transcribed and analyzed using the systematic horizontal
phenomenological hermeneutic template methodology. The first interview occurred immediately after the medication simulation training (baseline). The second interview was held 10 weeks after participating in the training program. Empirical data were collected from the interviews using a semi-structured interview guide.

Results: The final template uncovered 3 major themes: 1) Patient Safety, 2) Technology and 3) Professionalism as crucial elements in the safe medication administration process. The nurse students find themselves balancing and maneuvering in a complex clinical practice, trying hard to emerge as credible and confident professionals. The students are already familiar with technology and had easily adapted the technology-driven medication process, which include Electronic Patient Medication (EPM) and Personal Device Assistant (PDA) / Barcode scanner. The students did not doubt the technology as a tool for improving patient safety, but were still fearful of committing serious medication errors. From the nurse students’ perspective, experienced nurses deviate from existing guidelines, leaving them feeling isolated in practical learning situations.

Conclusion: Nurse students face difficulties in identifying and adopting best practices, because they do not have a clear nursing role-model for the technology-driven medication process. The technologies implications on nurse professionalism, and the impact on the frequency, type and severity of medication errors still remains to be studied.

Simulation: an innovative approach to the delivery of end of life education?

Claire Lewis, Joanne Reid, Rory Ingham, Ruth McLernon, Marian Traynor.

Introduction

The provision of end of life care is a known area of concern for undergraduate medical students and nursing students. Yet end of life education has traditionally been poorly delivered within undergraduate medical and nursing curricula. Traditional didactic teaching approaches such as large group lectures are now thought to be less suited to the delivery of end of life education as students get less opportunity to engage with their learning and reflect on their own experiences and concerns [1]. Rather, students should engage in teaching activities which promote experiential learning. As a result there has been increased attention on the use of simulation as an innovative method of teaching end of life care [1].

Objective

To evaluate the use of simulation as a teaching method to deliver end of life care education to undergraduate nursing and medical students.

Method:

19 undergraduate nursing (n=15) and medical students (n=4) participated in an end of life simulation session facilitated by academic staff with a background in palliative care and simulation. Each session consisted of two simulated scenarios; students participated in one and observed one. The simulated scenarios reflected some common challenges in end of life care including communication and symptom management. Actors were employed to role play family members, with the high fidelity manikin used for the role of the patient. Each scenario lasted approximately 20 minutes followed by a period of debriefing and discussion.

Results:

Simulation was evaluated positively as a method of delivering end of life care education. Students reported it as a useful exercise to help develop their skills of communication and teamwork in end of life care. The use of actors to role play family members helped make the scenarios more realistic, with the debriefing exercise considered a vital contribution to their learning.

Conclusion:

This small study demonstrated that simulation is a viable and innovative method of teaching end of life care to undergraduate nursing and medical students. It was regarded as a safe and non-threatening environment to assist the application of theory to practice.
SESSION 2
Performing perfect the first time.

-Training pre-hospital stroke diagnostics including cranial computer tomography and blood analysis in the Norwegian mobile stroke unit

Dag Erik Lutnæs 1, Elsa Søyland 1, Maren Ranhoff Hov 2, Kristin Tønsager 2, Thomas W. Lindner 2.

1: Stavanger Acute medicine Foundation for Education and Research, Stavanger, Norway

2: Department of Research and Development, The Norwegian Air Ambulance Foundation, Drøbak, Norway

Introduction: Using simulation to validate the implementation of a new concept of diagnostics and decision-making.

Objectives: To implement new concepts without the possibility of real life testing is challenging. One example is spaceflight, anesthesiologists performing pre-hospital cerebral CT (CCT) scanning for cerebral stroke (CS) diagnosis is another.

A research collaboration wants to study whether a Mobile Stroke Unit (MSU) can diagnose CS out of hospital. (MSU: an ambulance vehicle equipped with CCT and blood analysis equipment, staffed with an anesthesiologist, a pre-hospital trained nurse and paramedic). This concept is novel. Fast and accurate diagnosis is paramount and critical for patients with CS symptoms and the diagnostics must function perfect the very first time. Full-scale simulation was chosen as tool to validate and prepare the MSU teams as well as possible.

Material (Patients/Methods): The design of the simulation-based validation was done in close collaboration between researchers, clinicians and simulation facilitators in multiple steps:

- Presenting the MSU system and a run through of the technical procedure for the simulation facilitators.

- Evaluation between the main researcher, the main clinician and the simulation facilitators.
- Scenario design, implementing goals and tactics.

The validation was executed by 3 days of simulations for six MSU teams.

**Results:** Despite traditional anticipating through theoretical concept design, experiences through simulation revealed new insights. Gaps in: Technical, organizational, team, safety, decision making, and communication structures appeared. This enabled a dynamic improvement and internalizing of the procedures in the MSU teams.

**Conclusion:** The first MSU based pre-hospital stroke diagnose worldwide performed by an anesthesiologist was executed on an actual patient October 24 2014, without adverse events or delay.

The combination of research, clinicians and simulation was used to implement and validate this novel diagnostic procedure in the Norwegian MSU. We believe that using simulation for validating an implementing process is a powerful tool.

A close collaboration and interaction between the different professionals in the design and execution is essential.
From Theory to Practice: Prioritising key patient safety skills and behaviours to rehearse in simulated practice.

Nick Woodier 1, Emma Poynton-Smith 2, Ella-Grace Kirton 2, Andrew Buttery 1, Swe Khin-Htun 1, Malcolm Chambers 1, Eamonn Ferguson 2, Bryn Baxendale 1.

1 Trent Simulation and Clinical Skills Centre, Nottingham, 2 University of Nottingham.

Introduction:
Effective teaching and translation into practice of key patient safety skills and behaviours amongst new doctors is important. Simulation offers an educational intervention that can promote performance of skills important to patient safety improvement.

Objectives:
Our study aimed to:
- identify and incorporate key patient safety skills and behaviours into designed simulation scenarios
- explore whether pre-emptive teaching on these skills and behaviours enhances performance in simulated practice

Material (patients/methods):
An expert group of educators and clinicians reviewed patient safety curricula and, using a modified nominal group Delphi method, identified a cadre of professional capabilities deemed as essential, but difficult to attain, for new graduates. This was triangulated with survey data from a cohort of final-year medical students about their self-predicted ability to demonstrate these when newly qualified.
We designed simulation scenarios to enable these capabilities to be demonstrated, and prepared specific teaching sessions to illustrate their importance. Coding frames were developed (Figure 1) to create an observation matrix for two of the ‘essential’ capabilities: use of cognitive aids in emergencies, and raising concerns if given conflicting advice.
Final-year medical students were observed during the simulation scenarios. A one-way between groups design was used to explore the effect of brief pre-emptive teaching on performance of the specified capabilities, with participants randomised into three groups: Group A had teaching on cognitive aids and raising concerns, Group B cognitive aids only, and Group C raising concerns only.

Results:
Survey data indicated 81% of medical students would use cognitive aids and 78% would raise concerns with a senior. Observation data from 11 scenario episodes designed to encourage use of cognitive aids (e.g. referring to algorithms) showed that no group physically used the key cognitive aid available, although Group B students made verbal references to the clinical algorithm most frequently. Performance of the tasks outlined in the algorithm was high in every group. Observation of 6 scenario episodes designed to encourage raising concerns with seniors showed Group A students performing this most often (75%) and Group B least likely (35%).

Conclusions:
The two behaviours selected are capable of reducing harm in healthcare [1, 2]. In a simulation setting these behaviours can readily be observed and performance debriefed, but students’ subjective belief about their use does not necessarily translate to observable practice. A focused pre-emptive educational intervention can improve performance of raising concerns, although physical referral to cognitive aids was not improved. This might differ if the clinical management algorithm concerned a less familiar aspect of emergency practice. Future work will consider how best to blend patient safety educational interventions to improve self-awareness in students as well as practical performance.

In-hospital pediatric cardiopulmonary arrest: usefulness of a video link through the looking Glass between the intensivist and the resident attending the event.

Drummond D1, Arnaud C2, Guedj R2,3, Duguet A3, de Suremain N2, Petit A3,4

1 Université Paris-Descartes Paris 75006, 2 AP-HP HUEP Hôpital Trousseau Service des Urgences Pédiatriques, 3 Sorbonne Universités UPMC Univ Paris 06 &Groupe PEPITE Paris 75005, 4 AP-HP HUEP Hôpital Trousseau Service d’hémato-oncologie pédiatrique 26 avenue du Dr Arnold Netter Paris 75012 France

Introduction: Survival from in-hospital pediatric cardiopulmonary arrest (pCPA) does not exceed 50%. Recent data suggest that the quality of basic life support delivered to children during the first five minutes of resuscitation does not meet performance standards set by the American Heart Association. The first responder often prepares for the arrival of the code team instead of beginning cardiopulmonary resuscitation (CPR). Google Glass is a wearable technology with an optical head-mounted display and a camera allowing video transmission.

Objectives: The objective of the present study was to evaluate if an audio-video link between the first responder and a remote intensivist though Google Glass could improve the management of pCPA before the arrival of the code team.

Material (Patients/Methods): A randomized controlled study involving first year pediatric residents was conducted. Participants were evaluated during a simulated pCPA using a high-fidelity mannequin. Residents from the Google Glass group were allowed to receive help from a remote intensivist at any time through the activation of the audio-video transmission. Residents from the control group were asked to provide usual care; they were allowed to phone the intensivist who had to advise to sustain the CPR until the arrival of the code team. The main outcome measure was no-flow and no-blow fractions. The quality of ventilation and chest compressions was also recorded.

Results: 42 residents (21 per group) were involved in the study. All residents from the Google Glass group found that the audio-video transmission was a great help in the management of the simulated pCPA. There was no difference between the groups for no-blow and no-flow fraction. However, ventilation quality was improved by the
use of Google Glass (p=0.04), along with the improvements in chest compression technique (p=0.02) and rhythm (p<0.001).

Conclusion: This is the first study to demonstrate the usefulness of a video transmission through Google Glass to improve CPR quality. Children exposed to a rare and severe event such as a cardiopulmonary arrest should benefit from an intensivist expertise from the very first minutes. However, an intensivist may not be physically present all the time. Despite the unpredictable nature of CPA, new technologies like Google Glass enable virtual presence of the intensivist for the benefit of the patient.
Ethical challenges in prehospital care

Nyström Patrik 1, Paakkonen Heikki 1, Lorentzen Helge 2, Newton Andy 3
Arcada 1, SAFER 2, SECAMB 3

Introduction: The use of simulation has traditionally mainly focused on the training of skills and non-technical skills such as leadership, teamwork, situational awareness and decision making or in other words CRM-principles. There is obviously also a growing need to address the ethical difficulties that professionals meet. These situations are difficult due to many reasons and many struggles with them due to that we have not properly trained to meet them nor have they had a chance to reflect over different solutions to the problem and how these might help.

Objectives: The objective is to share and discuss best practice of ethical scenarios made for prehospital care. Participants are welcome to take part in the discussion in order to share innovations and what have worked in the area of training ethical challenges.

Material (Patients/Method): The authors will give a short description of the difficulties that are met in the prehospital care, how we could visualize the theory of ethics for simulation participants and how they have tried to address this using the simulation.

Results: Participants will get a framework of how to train ethical difficulties met in prehospital care.
Simulation-based mental rehearsal to enhance emotional learning and performance: A strategy for student nurses in assessing and managing clinical deterioration

Jeanette Ignacio¹, Diana Dolmans², Albert Scherpbier², Jan-Joost Rethans², Sok Ying Liaw¹
National University of Singapore¹, Maastricht University²

Introduction:
Physicians and nurses have used mental rehearsal training to improve clinical skills performance. It has also been shown to be a vital component of stress management training for some specialties. As novice nurses are often faced with stressful clinical events that require not just performance of certain technical skills, but also processing of various information essential to patient management, a mental rehearsal strategy was developed and implemented in a Year 3 nursing simulation program to enhance the performance of deteriorating patient management. Inherent to mental rehearsal is imagery which facilitate cognitive and affective modification and a reduction of extraneous cognitive load. As such, it was expected that mental rehearsal can improve students' performance and reduce stress in managing deteriorating patients.

Objectives:
To develop, implement and evaluate a mental rehearsal strategy that can be used together with simulation to improve nursing students' clinical performance and stress management during critical clinical events, such as patient deterioration.

Material (Patients/Methods):
The study consisted of two phases. Eighteen Year 3 nursing students participated in phase 1 and five Year 3 nursing students participated in phase 2. Phase 1 was the development and implementation phase. Phase 2 was the evaluation phase. During the implementation phase, a pre-and post-test design was used. Participants went through deteriorating patient simulations for the pre-test and the post-test utilizing the mental rehearsal intervention. Outcome measures of performance and stress levels were used to determine the benefits of mental rehearsal on these two domains. The
Rescuing A Patient In Deteriorating Situations (RAPIDS) Tool was used to assess performance. Physiologic measures of stress were used such as heart rates and systolic blood pressures. The State-Trait Anxiety Inventory (STAI) was also used as a psychological measure of stress/anxiety. A qualitative appraisal through focus group interview comprised the evaluation phase.

Results:
There was a significant improvement in performance ($t=-2.52$, $p<0.05$) assessed using the RAPIDS tool. Physiologic stress measures such as post-test heart rate and systolic blood pressure showed no significant difference from pre-test measures ($t=0.715$, $p=0.484$ and $t=0.000$, $p=1.000$). A comparison of STAI results did not show significant differences between pre-and post-test state anxiety ($t=0.460$, $p=0.652$), and pre-and post-test trait anxiety ($t=0.149$, $p=0.883$). Emerging themes from the focus group interview focused on gaining confidence, knowing what to do, having less stress.

Conclusion:
A mental rehearsal protocol incorporated in deteriorating patient simulations is of benefit to learners. It can serve as an adjunct to physical practice to enhance performance. Its role in reducing stress, however, needs further evaluation.
Hiding in Plain Sight—Advanced Physical Diagnosis—An Innovative Curriculum to Teach Advanced Techniques in Physical Examination to Senior Medical Students, Residents and Faculty

Dale Berg MD1, Katherine Berg MD, MPH2

1. Co- Director, University Clinical Skills and Simulation Center
Medical Director, Standardized Patient Program
Thomas Jefferson University
Professor of Medicine, Sidney Kimmel Medical College
1001 Locust St, Philadelphia, PA, 19107, USA

2. Co- Director, University Clinical Skills and Simulation Center
Director, Advanced Physical Examination Course
Thomas Jefferson University
Professor of Medicine, Sidney Kimmel Medical College
1001 Locust St, Philadelphia, PA, 19107, USA

Introduction: Proficiency in physical examination is central to high-quality medical care. Every medical school has a course in pre-clinical years in which the fundamentals of physical diagnosis are taught. There is, however, little systematic reinforcement of these skills during the clinical years. Thus competence in this skills set often plateaus and remains at that level, or even deteriorates during their clinical years. A recent publication in Academic Medicine1 reported that U.S. medical students are demonstrating poor performance on the physical examination tasks in the USMLE Step 2 CS exam. To address this need we describe an innovative curriculum for teaching physical examination in a structured systematic way for senior medical students and residents. This Advanced Physical Diagnosis (APD) elective is based on our pilot work at Medical College of Wisconsin and Harvard Medical School (HMS) and is now an established curricular intervention for senior students and residents at the Rector Clinical Skills and Simulation Center of Thomas Jefferson University.

Objectives:
1. To introduce, demonstrate and provide a platform for skills attainment in advanced techniques of physical exam
2. To provide the learner with framework to integrate the basic and advanced outcomes into their diagnostic and follow-up management schema
3. To allow the learner to use anchors and metrics to define, delineate and interpret findings

Material (Patients/Methods): Over the past 21 years the course has been at 4 different medical schools including MCW, HMS TJU and has over 1100 alumni. This academic year 61 student-physicians and 3 residents at TJU have taken the course. Each student receives 70 hours of demonstration, skills attainment using standardized checklists, evidence to support use, context, contraindications to performance and outcome recognition, 30 hours of deliberate practice on specially trained standardized patients under the tutelage of faculty who coach and provide formative hands on feedback, and 10 hours faculty teaching at the bedside in 40 different physical exam domains, e.g. medial knee pain, red skin entities, red eye, systolic heart murmur, etc. Skills attainment in point-of care ultrasound for many of these topics is integrated into the curriculum to complement physical exam. A subset of APD students completed a pre and post course physical examination OSCE that uses stations composed of simulated patients, hybrid-based cases and patients with real findings. A faculty development workshop on teaching APD using this curriculum starts in Fall, 2015.

Results:
Over 200 learners have completed the OSCE. The overall rate of identification of physical findings in simulated, hybrid and real patients improved from 39%, before the course to 63.2% after (p<0.01). The OSCE was not performed in all sessions of the course. The students expressed increased self-confidence in their clinical skills using a Likert-type post-course survey.

Conclusion: We describe a course that allows learners to evolve and further develop acumen in performing physical exam. This course is exportable, has efficacy and has been well received by learners.

Planning for and lessons learnt from a Major Incident Response Exercise from the perspective of an Ambulance Service

Guillaume Alinier, Sean Graham, John Meyer, Joel Sayo, Oussama Daoussi, Sue Spohr, Craig Campbell, Brendon Morris.

Hamad Medical Corporation Ambulance Service (HMCAS), Doha, Qatar

Introduction:

From an educator perspective, simulation should never be totally improvised and should always be developed with specific learning objectives for the participants. As in many domains where simulation is used, the stakes are usually high, either in terms of human lives or monetary value, and is usually even more so when the scale of the simulation is amplified to involve several hundred participants from multiple organisations.

Objectives:

The objectives of the exercise were to: Implement and test the HMCAS Major Incident Response (MIR) plan with multiple agencies; Provide an opportunity for our staff to work in an unfamiliar and highly secured environment; Determine the efficacy of the current MIR plan and identify what improvements could be made to ensure the safe and effective response of all parties involved should a real incident occur.

Material (Patients/Methods):

The exercise took 5 months of planning with regular multiagency meetings. In addition to 32 dummies representing deceased casualties, one of the participating agencies provided 38 volunteers as simulated patients, and about 80 other uninjured civilians. HMCAS Training Department was responsible for the casualties’ moulage and preparation of individual scenario cards (Chief complaint/Vital signs upon initial
assessment/Hidden information about deterioration for some of them). HMCAS engaged in two tabletop simulation sessions with the same team that were going to be on duty the day of the exercise so they could rehearse radio communication protocols and the various command roles.

Results:
The multiagency response major incident took place and was followed by an HMCAS debriefing session. It helped identify a number of teamwork and system issues. Subsequent collaborative debriefing sessions have also been planned between the various agencies, as well as globally with all parties involved and the event critiques. All the objectives of the event were achieved in the sense that it provided a unique experience for staff to: Implement the MIR plan and become familiar with a highly secured and regulated environment; Put in place the MIR command structure in a crisis situation. From a simulation point of view, the expected level of response should have been more strongly emphasised with the rescuers to encourage the initiation of treatment. Similarly the casualties should have been further explained about the consequences of their acting (or lack of) on the triage process, especially with regards to their potential deterioration.

Conclusion:
Such exercises require a lot of preparation to be effective and fully test the various aspect of a MIR. Although a lot of attention was given to the casualties’ moulage, the clinical aspect of the simulation was not properly considered by participants. Staff expected to take on a command role should be explicitly briefed about expectations with regards to resource and equipment utilisation to also test on-scene casualties’ secondary assessment and treatment. Other key issues identified were on scene and radio channel communication, as well as coordination with other agencies regarding scene management, highlighting the need for more regular large scale table top exercises.
Title: Innovative Central Venous Catheter Insertion Training

Introduction

Central venous catheter (CVC) insertion is necessary for aggressive fluid resuscitation, monitoring, and administration of parenteral nutrition and medication. Traditionally, the technique is trained using torso manikin with or without ultrasound application. And there is no formal training curriculum for step-by-step standardization of CVC insertion using a structured and integrated curriculum.

Objectives

In order to teach CVC insertion effectively, we set objectives for each phase of CVC insertion, invented and conducted an integrated training curriculum using diverse materials related to the objectives.

Material (Patients / Methods)

Interactive lecture and buzz group discussion:

Focused on the knowledge content needs to be transferred to trainees, including indications, contraindications, monitoring, variable venipuncture sites and related anatomy, procedure-related and late complications, etc.

Standardized patient (SP)-based hands-on interactive discussion:

The SP then lay on a bed allowed regulation of height and position. The trainees were requested to demonstrate the correct positioning during CVC insertion, illustrate the anatomical landmarks, and outline the intended approach method. They then used a marking pen to locate the intended skin puncture site on the right neck and explained the needle direction and related maneuvers.

Ultrasound Application:

The instructor used ultrasound to survey the accuracy of the skin puncture site, observe the enlargement of the IJVs in the Trendelenburg position, observe the effect in terms of decreasing the overlap of the IJVs and common carotid artery by turning the head to the contralateral site, compare the diameters of the IJV at different levels, observe the visible respiratory jugular venodilation, observe the easy collapse by external compression. Then, the trainees had the opportunity to use ultrasound to scan the bilateral IJVs, subclavian veins and femoral veins. The frog-leg position during femoral catheterization was also emphasized.

Step-by-step Demonstration and Hands-on Practice

1. Hand washing, disinfection, donning gloves, wearing a sterile gown, placing a skin towel and upper body drape, preparation of medication and related sterile techniques.

2. Standard insertion technique using self-made manikin:

   The manikins were made of pediatric breathing circuits covered by Laerdal neck skins that could be thumbtacked on boxes. A rectangular hole was cut...
into the circuit (1×1.5cm) in order to be easily palpable to simulate the RIJV venipuncture site. The detailed techniques and tricks of CVC insertion were demonstrated and practiced on the manikins.

3. All-in-one CVC insertion training on human anatomy CVC simulators with simulated scenarios by remote control software to simulate procedural complication, such as tachyarrhythmia.

Free e-learning for formal CVC insertion process by video clips

Evaluate the outcomes by Direct Observation of Procedural Skills (DOPS) with checklist

Results

Questionnaires were obtained from participants. Overall evaluation of the curriculum was extremely positive. The questionnaire revealed that the training program were useful. They updated their knowledge of CVC insertion, gained more confidence, improved performance, and provided effective assistance in handling CVC insertion. The data of DOPS after training revealed high score without complications.

Conclusion

Training for specific technique is necessary for physician training, especially invasive procedures. Perform task analysis and divide the technique into several crucial steps, select or invent teaching methods and materials for each step, set up simulation scenarios to conduct decision making, all-one procedure practice and complication management are the systemic approach for technique training. The majority of technical training can be conducted by task analysis and innovative curriculum.
“You learn to anticipate and ignore”: Building resilient healthcare by enabling two way communication between workforce and hospital with a course on integrating electronic prescribing in ward rounds

Liesbeth Beeckman¹, Amy Dewar², Andrew Clark², Peter Jaye¹

¹ Simulation and Interactive Learning (SaIL) centres, Guy’s and St Thomas’ NHS Foundation Trust – a King’s Health Partners simulation centre, London, United Kingdom; ² Guy’s and St Thomas’ NHS Foundation Trust, London, United Kingdom.

Introduction:
A large central London teaching hospital (Guy’s and St Thomas’ NHS Foundation Trust) is rolling out electronic prescribing and medicine administration (ePMA). At the same time, a group of medical consultants and a Clinical Leadership fellow in the Trust are reviewing their ward round practice for efficiency and patient safety. This course attempts to assist in the delivery of both issues, based on a safety II approach. Safety II considers errors to be the result of normal variation in human performance – the same variation that leads to excellence. It strives towards a “resilient” healthcare by propagating a holistic view and aiming to maximise the things that go right, both under expected and unexpected conditions.¹

Objectives:
• to organise a course on integration of ePMA in ward rounds
• to explore how electronic systems affect daily workload
• to understand the role of human factors and non-technical skills in system design
• to develop strategies to efficiently integrate electronic systems in ward round practice

Method:
Pharmacists, the ePMA team, IT trainers, the patient safety team, medical consultants and registrars, the ward round Clinical Leadership fellow and nursing management were engaged as stakeholders. A one day course was developed for
doctors, nurses and pharmacists. It consists of a mix of simulation, discussion and workshops.

In the first half of the day, the ePMA team run a workshop on efficient and safe use of the ePMA software. This is followed by a simulated ward round. Debriefing of and feedback from the participants focus on the integration of ePMA in the ward round, task allocation and sharing the mental model. Subsequently the ward round Clinical Leadership fellow runs a “productive ward round” workshop.

The afternoon consists of two more simulated ward rounds. Debriefing of and feedback from the participants focus on the efficient use of electronic systems during disruptions and clinical emergencies; the tension between process standardisation and an unpredictable environment; reallocation of tasks in order to safely deal with emergencies; who and how to call for help.

The day ends with a workshop on how participants can transfer the learning of the day into their own clinical area.

Results:
We present results of our pilot course.

The participants were 2 nurses, 1 consultant, 2 registrars, 1 junior doctor and 1 pharmacist. Faculty were 1 course lead, the Trust’s ward round Clinical Leadership fellow, 2 ePMA team members, 1 medical registrar, 1 nurse, 1 pharmacist, 2 medical consultants and 2 simulation technicians.

In their feedback on the course, participants agreed that the programme matched their learning needs and was relevant to their clinical practice; that they had identified specific and achievable things they hoped to change in their clinical practice and that these changes would benefit their multidisciplinary team working and patient safety.

Their feedback on ePMA included: irrelevant warnings of drug interactions and overdoses that “you learn to anticipate and ignore”; concerns about the patient experience with too many laptops on wheels interfering with human interaction; concerns about delay in patient care. The ePMA and medical teams are currently reviewing this feedback.

We are currently redeveloping the course based on feedback from stakeholders.
Conclusion:

We found that organising a course based on safety II and resilience principles requires a lot more effort, input and resources than traditional courses from all parties involved: stakeholders, course organisers, faculty and learners. However, it can lead to very interesting two way communication between workforce (participants) and hospital (ePMA and medical team). From a safety II and resilience point of view, it can give invaluable information on the reasons for and background of observed variation in clinical practice. This information can be fed back into the system to benefit patient safety.

Simulating Safer Central lines

Authors: Dr Nicola Weatherup; Dr Colm Watters; Dr Olly Bannon; Dr Claire Martin; Dr Gavin Brown; Dr Lynda Magowan.

Institution: SimBel, Royal Victoria Hospital Belfast, Belfast Health and Social Care Trust.

Introduction: The old adage in healthcare of ‘see one, do one, teach one’ is now increasingly outdated. The ‘Learning through doing’ of potentially hazardous procedures in a safe simulated environment, is now recognised as the future of medical training. Novel ways to simulate the clinical environment are increasingly required to allow trainees to develop mastery of core skills. Central line insertion is a critical procedure with potential complications which can contribute to significant morbidity and mortality for patients. Emergency Medicine and Anaesthesia colleagues in the Belfast Trust have developed a simulation based Central line Insertion course to train junior doctors in the intricacies of this skill.

Objectives: Studies have shown that introducing simulation training for central line insertion can increase Anaesthetic trainee’s skill and decrease complication rates. Our key aim was to improve the safety of patient’s receiving central lines within our organization by delivering a course which not only improved knowledge base but also allowed trainees to practice this skill in a safe simulated environment. We aimed to deliver this training to not only Anaesthetic trainees but those from other key specialties which utilize this skill including Emergency Medicine, Renal and Cardiology.

Material (Patients/Methods): Moureau’s article in the British Journal of Anaesthesia detailed evidence based recommendations for training in central venous access device insertion. These had been collated by the World Congress in Vascular Access (WoCOVA) task force.
This paper advocated 13 recommendations including teaching on indications, infection control and recognising complications. It also advocated training in ultrasound use and practice in a simulated environment.

We developed a course which incorporates 3 lectures focusing on clinical anatomy, ultrasound use and application to clinical scenarios. The majority of the course time was devoted to skill acquisition on ultrasoundable vascular access task trainers under the supervision of experienced faculty.

On successful completion of an OSCE (marked against a validated global rating scale), candidates were awarded a certificate of competence in a simulated environment.

We approached leaders in Patient Safety in our region for support with this project and secured funding from the Public Health Agency in Northern Ireland. This was vital to invest in equipment and keep the cost to attendees low.

**Results:** Qualitative feedback was sought from the candidates. 47 candidates have so-far completed the course. Feedback has shown that all would recommend it to a colleague. Candidates rated each aspect of the course from 1 (very poor) to 10 (excellent). Mean scores for the lectures ranged from 8.8-9.5. Manikin practice averaged 9.5. Candidates were very satisfied with the assessment process which scored 9.4.

**Conclusion:** We believe that the safest way to improve performance in high risk procedures is to ‘learn by doing’ through the use of Simulation training. This course has taught junior trainees the principles of safe central line insertion. By delivering this course we have improved the knowledge base and skills of trainees prior to them performing observed insertions on real world patients. This should lead to a more consistent safe practice with both decreased variation and decreased complication rates in our Trust.
Using ‘In-Situ’ Simulation to Prepare New Foundation Doctors to Work in an Acute Setting: A pilot study

1Dr Emma Welfare, 2Dr Bethan John, 2Dr Tanja Beament, 1Dr Annemarie Brown, 2Dr Rob Jones, 1,2Dr Simon Mercer

1Centre for Simulation and Patient Safety, Merseyside, 2University Hospital Aintree, Merseyside

Introduction: Patients who are admitted on the first Wednesday in August to NHS Hospitals in England with a medical primary diagnosis have a higher early death rate [1]. New doctors will invariably lack practical experience in dealing with patients within their new work setting. In-situ simulation provides the opportunity to acquire this experience in a safe environment [2] and to identify latent errors [3].

Objectives: The overall aim was to identify what barriers in the form of latent errors exist which could impact on best treatment being given by the new doctors and subsequently patient safety.

Material (Patients/Methods): We designed a high fidelity in-situ simulation scenario concentrating on sepsis and acute kidney injury for the foundation year one doctors (FY1) in our trust. In August 2014 all FY1 doctors were invited to participate. They received a short briefing on the learning objectives prior to the scenario. The scenario was immediately followed by a video assisted debrief focusing on both technical and non-technical aspects. A lecture was delivered five days later to re-emphasise key areas identified. The exact scenario was repeated in November 2014. On both occasions the videos were reviewed to assess key aspects.

Results: This exercise was felt to be beneficial and useful (average 4.3/5.0 and 4.81/5.0 respectively on Likert Scale). Other key results are outlined.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Aug % (n=34)</th>
<th>Nov % (n=27)</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Emergency Team was requested</td>
<td>53.13 (17/34)</td>
<td>96.15 (25/27)</td>
<td>43.03</td>
</tr>
<tr>
<td>Implemented full sepsis bundle</td>
<td>17.65 (6/34)</td>
<td>48.15 (13/27)</td>
<td>30.50</td>
</tr>
<tr>
<td>Lactate was specifically requested</td>
<td>29.41 (10/34)</td>
<td>59.26 (16/27)</td>
<td>29.85</td>
</tr>
<tr>
<td>Blood cultures were requested</td>
<td>76.47 (26/34)</td>
<td>92.59 (25/27)</td>
<td>16.12</td>
</tr>
<tr>
<td>Urine output monitoring requested</td>
<td>55.88 (19/34)</td>
<td>77.78 (21/27)</td>
<td>21.90</td>
</tr>
<tr>
<td>The correct choice of antibiotics was made</td>
<td>66.67 (20/34)</td>
<td>92.00 (17/27)</td>
<td>25.33</td>
</tr>
<tr>
<td>A fluid challenge administered</td>
<td>100.00 (34/34)</td>
<td>100.00 (27/27)</td>
<td>0.00</td>
</tr>
<tr>
<td>Oxygen was administered</td>
<td>97.06 (33/34)</td>
<td>100.00 (27/27)</td>
<td>2.94</td>
</tr>
<tr>
<td>SBAR handover used</td>
<td>29.41 (10/34)</td>
<td>59.25 (16/27)</td>
<td>29.84</td>
</tr>
</tbody>
</table>

**Conclusion:**

This project was deemed beneficial by new FY1 doctors working in our trust. The key barriers identified were predominately due to deficiencies in knowledge of local systems and policies which were addressed in the post scenario debrief and lecture along with any clinical knowledge deficits. Following this and three months of work there was an improvement in the implementation of the ‘sepsis six’ [4], utilisation of the local antibiotic policy, calling for the Medical Emergency Team and the use of the handover tool SBAR. The initial induction process will be addressed for August 2015 and the project repeated annually.
References


Simulating Safer Sedation

Authors: **Dr Olly Bannon**; Dr Colm Watters; Dr Nicola Weatherup; Dr Peter Shortt; Dr Stuart Lutton; Dr Philip O’Connor; Dr Richard Wilson; Dr Louise McKee; Dr Eoughan Ferrie; Dr Andrew Hamilton

Institution: SimBel, Royal Victoria Hospital, Belfast Health and Social Care Trust

**Introduction:** The Never Event list highlights 3 events which can occur during moderate sedation. Overdose of midazolam, opioid overdose in opioid naive patient and failure to identify oxygen desaturation have led to multiple serious adverse incidents and patient deaths. An NPSA Alert indicated that all healthcare professionals involved in the delivery of sedation should have the required knowledge and skills. A team from the Royal Emergency Department where concerned about the potential for inconsistent and unsafe sedation practice within the Belfast trust and they have developed the Introduction to the Principles of Safe sedation course in response to these concerns.

**Objectives:** The aim of this course is to educate all multidisciplinary staff who are involved in the sedation of patients within in our trust in the principles of consistent safe sedation techniques.

**Material (Patients/Methods):** A group of experienced Emergency Medicine physicians undertook a literature search and reviewed the evidence for the practice of safe sedation. We modelled our course on up to date guidance including that from the RCOA and CEM document on Safe sedation and guidance from the Combined Royal College’s consensus document on sedation. The course is a combination of interactive lectures, skill stations and high fidelity simulated scenarios. It highlights key clinical points including pre-procedure assessment, pharmacology and management of complications. There is also a strong focus on non-technical skills such as effective communication and situational awareness, which are vital to the provision of safe patient focused care.
**Results:** 21 candidates have completed the course and qualitative feedback has been globally positive. We have also gathered data in relation to improvement in confidence using pre and post course questionnaires. Post course questionnaires indicate that candidates have improved confidence in all key areas following completion of the sedation course. This is particularly evident in management of sedation complications and effective communication with assistants during provision of moderate sedation. The course has also prompted the introduction of accreditation for safe sedation in the Emergency Department and participants in the course from other specialties have developed checklists for safe sedation practice.

**Conclusion:** We firmly believe that the safest way to improve performance in high risk procedures is through the use of Simulation training. By developing an engaging simulation course we have not only taught individuals the methods of safe sedation practice but have also highlighted the risks of inconsistent sedation practice throughout our trust. Feedback has indicated improvement of candidate’s skills in key components of sedation practice. This course has led to a decrease in practice variation and resulted in improved safety for patients undergoing sedation within our trust.
SESSION 3
SimBel – Enhancing patient safety, quality of care and patient experience

C Watters, O Bannon, N Weatherup.

SimBel - Belfast Health and Social Care Trust

Introduction:
Patient safety, quality of care and patient experience in the acute and unscheduled care sector is under intense scrutiny at present from the public, the media and regulatory bodies. In view of this, reviews of the sectors risk register, serious adverse incidents and complaints were carried out identifying both technical and non-technical skill failings. Common themes within the review included issues around procedural/therapeutic interventions, communication and handover of care, among others.

Objectives:
In order to address these failings, a group of simulation based educators from across the sector formed an organisation; SimBel (Simulation in the Belfast Health and Social Care Trust). Our aim is to enhance patient safety, quality of care and patient experience, through the development of healthcare personnel and improvement of the systems within which they work, utilising simulation based clinical education.

Material (Methods):
Interventions comprise innovative educational programs and quality improvement projects across the common themes identified within the review. Areas of focus included: evidence based technical skill training, interprofessional team training highlighting non-technical skills, quality improvement initiatives, checklist development and implementation, and faculty and staff development.

Results:
Adherence to evidence based guidelines and protocols has improved, with a corresponding reduction in practice variation evidenced across central venous catheter insertion, chest drain insertion, lumbar puncture practice and procedural sedation. Clinical staff self reported confidence has increased across domains such as communication, team-working and handling of emergency scenarios.
Interprofessional and cross specialty working has also been improved across many specialties in the sector.

Conclusion: Through the endeavours of SimBel over the past 2 years we have seen a change in both the risk profile on the sectors risk register and a positive trend across the serious adverse incident reports. There has been positive feedback from service users, clinical and non-clinical staff, with changes evident in patient orientated outcomes.

With coherent strategy and visionary leadership to address problems related to patient safety, quality of care and patient experience, simulation based clinical education can be an effective tool for change and lead to improvements in key patient orientated outcomes.
SESAM PH-SIG CPR Quality Study - Can competition and real time feedback during training improve CPR quality?

Kranz, Kai 1, Smart, Jonathan 2, Carmona Francesc 3, Lindner, Thomas 4, Newton, Andy 5

Swiss Institute of Emergency Medicine (SIRMED), Nottwil, Switzerland 1, Laerdal Medical AS, Stavanger, Norway 2, Sistema Emergencias Mediques (SEM), Barcelona, Spain 3, Norwegian Air Ambulance Foundation, Drøbak, Norway 4, South East Cost Ambulance NHS Trust (SECAmb), Banstead, UK

Introduction:

The quality of CPR (chest compressions and ventilation) has been shown to be important for the survival of every victim of a cardiac arrest. There is evidence that scenario training and CPR feedback improves CPR quality amongst healthcare providers. To find out if real time feedback during CPR training using simulation can improve CPR quality amongst pre-hospital care providers a research project was being coordinated by the Pre-Hospital Special Interest Group (PH-SIG) of SESAM. This competition-based project involved 10 different ambulance services around Europe.

Objectives:

To objectively assess the CPR performance of professional responders using a standardized protocol and using manikins to simulate an adult and a pediatric out of hospital cardiac arrest (OHCA) scenario.

To objectively re-assess the CPR performance following a period of time when manikin real time CPR feedback training has been made available. Determine which ambulance service improved the most.
Material (Patients/Method):

This was a ‘before-after’ study of simulated adult and pediatric out-of-hospital cardiac arrest. Data have been obtained by manikins recording CPR quality metrics such as compression depth, compression rate, incomplete compression release, hands on time, hand position, ventilation volume and ventilation rate. Stage 1 (April-July 2014): At each ambulance site, undertook adult and pediatric simulated OHCA with 10 crews (2 person) and recorded key CPR metrics but without real time feedback. At the end of stage 1, the manikins have been left at each of the ambulance sites and crews have been instructed and encouraged to practice with real time feedback switched on. Stage 2 (October-January 2015): Repeat Stage 1 using the same crews where possible or other crews who have had the opportunity to practice the scenarios since end of stage 1. Compare the difference in mean performances by each ambulance site.

Results:

The overall performance score (OPS) in both, adult and pediatric, increased significantly from stage 1 to stage 2. In the adults there was a mean difference of 14 % (CI 95%, p <0.01). Investigations at stage 1 showed an OPS of 81 % (SD 20.9) and stage 2 an OPS of 95 % (SD 8.9). Even better results have been collected in the pediatric setting. The mean difference from stage 1 to stage 2 was 31.4 % (CI 95%, p<0.01). OPS increased from 55.1 % (SD 21.2) at stage 1 to 86.5 % (SD 12.1) at stage 2. The competition between the countries as well as between the colleagues did not have had an major influence on the motivation to practice. However the objective feedback was found as a good help to improve CPR-quality.

Conclusion:

Real time feedback during CPR-training of professional ambulance staff can improve CPR-quality in simulated adult and pediatric OHCA. However the influence of competition between ambulance services and colleagues seems to be not a strong motivator for the individual to practice CPR.
The Digital Patient and Simulation in Healthcare 2025

C. Donald Combs, PhD
Vice President and Dean, School of Health Professions
Eastern Virginia Medical School

Introduction

The dramatic growth in data about the human body and the human in social context combined with the progress in informatics, and modeling and simulation present an opportunity to realize a thirty-year old vision for a virtual human. This virtual human, however, will be far more sophisticated than the initial vision in that it will be capable of serving as a platform for research, education, patient care, drug and device testing. It will also be capable of accurately representing individuals and populations over time for purposes of screening, prevention, treatment, and analysis. The more accurate descriptor is to think in terms of a Digital Patient platform with infinite combinatorial possibilities.

Objective

The Objectives of this presentation are to provide an update on the status of a variety of international research efforts to extend human physiome research to include the social, behavioral and societal systems necessary to construct the Digital Patient and to discuss the developmental requirements for the models and simulations that will use the digital Patient platform.

Material

The goal of the Digital Patient is to develop a database and software framework that avoids a reductionist approach and seeks to integrate biological systems in by dimensional scale (body, organ, tissue, cells, molecules), by scientific discipline (biology, physiology, biophysics, biochemistry, molecular biology, bioengineering or
social science), anatomical sub-system (cardiovascular, musculoskeletal, gastrointestinal, etc.) and social context.

Biological and physiological systems are highly complex. This complexity results in large measure from the following factors:

Non-linearities: Many responses have upper and lower boundaries with different levels of sensitivity in between.

Redundancy: Many physiological states are the result of multiple mechanisms pushing and pulling on the observable response. Redundancy makes it difficult to identify important causal mechanisms.

Disparate time constants: The importance of an observation often depends on the timing of the protocol. For instance, the control of arterial blood pressure is a mix of fast-acting neural mechanisms, slow-acting hormonal mechanisms, and long-term effects of body fluid volume and compositions. Individual variation: Physiological responses are a qualitative and quantitative function of sex, age, body composition and other individual characteristics.

Emergence: Many high-level, integrative behaviors of the biological system cannot be described solely by the sum of the respective inputs from basic processes.

Biomedical researchers are increasingly using integrative physiological, biological and social models to better understand the fundamental relationships that have been hidden in the complexity.

Conclusion

This presentation provides an overview of the major research initiatives that are underway, the potential impact on education, patient care, research, drug discovery, and device testing, and the challenges that must be addressed.
Combining an educational video and simulation to teach pediatric cardio-pulmonary arrest to medical students in a French medical faculty: a prospective controlled study

Drummond D¹, Arnaud C², Thouvenin G³, Guedj R²,⁴, Duguet A⁴, Grimprel E⁴,⁵, de Suremain N², Petit A⁴,⁶

¹ Université Paris-Descartes Paris 75006, 2 AP-HP HUEP Hôpital Trousseau service des Urgences Pédiatriques, 3 AP-HP HUEP Hôpital Trousseau service de pneumologie pédiatrique, 4 Sorbonne Universités UPMC Univ Paris 06 & Groupe PEPITE Paris 75005, 5 AP-HP HUEP Hôpital Trousseau Service de pédiatrie générale, 6 AP-HP HUEP Hôpital Trousseau Service d’hémato-oncologie pédiatrique
26 avenue du Dr Arnold Netter Paris 75012 France

Introduction: Compliance to pediatric resuscitation guidelines is low among pediatric residents. Improving the teaching methodology of cardiac arrest to medical students may improve their future performance. In many French faculties, pediatric cardiopulmonary arrest (CPA) is still taught to medical students by a one-hour traditional lecture. We developed an innovative pedagogic course combining a 23-minute educational video and 3 hours of simulation exercises that may improve knowledge and skills of medical students.

Objectives: The objective of this study was to evaluate the innovative pedagogic course in terms of knowledge and skills acquisition.

Material (Patients/Methods): A prospective controlled study was conducted in a French medical school with fifth year students. Students’ level of knowledge was assessed by a multiple-choice questionnaire filled by students before, just after, and 12 months after the innovative course. Results were compared to those of a previous cohort who attended the traditional lecture. Students’ skills were assessed during a pediatric cardiopulmonary resuscitation using a high-fidelity mannequin, and compared to a control group who had no intervention. The number and the sequential order of the resuscitation steps (performance score), the time to compression and to ventilation, and no-flow and no-blow fractions were recorded.
Results: 809 of 860 (94%) medical students were assessed for knowledge. 12 months after the courses, the median score was significantly higher for the innovative group than for the traditional lecture group (p<0.001). A subgroup of 69 students was assessed for skills. The innovative group scored higher on the performance score than the control group (p<0.01), but no differences were observed for time to ventilation, no-flow and no-blow fractions. Surprisingly, the control group began chest compressions earlier than the innovative group (p=0.03).

Conclusion: Combination of video and simulation allows better retention of knowledge than a traditional lecture. To improve future medical students’ skills, faculties should highlight the importance of minimizing “no blow” and “no flow” fractions on equal basis.
Simulated Patient Communication with Dummies

Temple West, Lorraine Lyman, Amelia Wallace
Eastern Virginia Medical School (EVMS), Eastern Virginia Medical School (EVMS), Eastern Virginia Medical School (EVMS),

Introduction:
Simulated Patients (SPs) are being asked to interface in increasingly diverse medical simulations in order for students not only to practice and be evaluated on skills firsthand, but to interact with patient stories as well. Integrating SP components into

Objectives: Participants will be introduced to:

- Identifying specific challenges for setting up and training manikin-SP based simulations
- Exploring ways of managing the challenges
- Identifying the rewards and benefits of new considerations in manikin-SP training
- Considering training approaches to optimize SP contributions to manikin-based scenarios
The role of simulation in advancing undergraduate nursing and medical education

Dr Ben McNaughten¹, Doris Corkin², Pauline Cardwell², Dr Dara O'Donoghue⁴

1. ST3 Paediatrics, Craigavon Area Hospital, Craigavon.
2. Lecturer (education), Children’s Nursing, School of Nursing & Midwifery, Queen’s University Belfast.
3. Consultant Paediatrician, Senior Lecturer in Child Health, Royal Belfast Hospital for Sick Children and Queen’s University Belfast.

Aims:
Since inception in 2006 an Inter-professional Education (IPE) project has become embedded within Children’s Nursing and Medical Curricula at an internationally recognised university. Inter-professional high-fidelity simulation teaching using simulation (SimBaby®) has been developed to provide an integrated approach to student learning and highlights the importance of teamwork, mutual respect and understanding of the roles of other professionals. It aims to assist students in developing the fundamental knowledge and skills required to assess and manage children presenting with common medical emergencies while enhancing student’s use of clinical tools such as the SBAR framework.

Methods:
Fourth year Medical students, undertaking their Child Healthcare module, alongside third year children’s nursing students, each participate in a simulated scenario based on a common paediatric emergency. The student group are observed by both facilitators and their peers, who provide constructive feedback on aspects of performance including patient safety, situational awareness, communication, clinical skills and decision making.

Results:
Students were invited to complete a validated questionnaire composed of Likert-scales to determine their reactions to the simulated learning experience. Focus
groups were used to further explore these experiences. The results suggest that students evaluate this learning activity very positively and have stated that they value the opportunity to exercise clinical judgement and decision making skills without endangering the child. Other comments have included:

‘I think we should have much more exposure to SimBaby training’
‘SimBaby is a very useful, practical and memorable learning tool’.

A recent evaluation revealed that 94% of paediatric trainees who helped facilitate at the sessions felt it had improved their teaching skills, whilst 82% stated that this project had enhanced their ability to provide constructive feedback.

To-date this project has achieved two prestigious prizes, a University Teaching Award in 2008 and a Research award (2009).

Conclusions:
Simulation (SimBaby®) is an important initiative within a portfolio of IPE projects, providing a highly valued learning opportunity for both medical and nursing students and those healthcare professionals involved in facilitating the sessions.
SESSION 4
Blended Interprofessional Education: Quantifying the Advantage of Simulation

Demian Szyld, MD, EdM*, Maja Djukic, PhD,RN+, Jennifer Adams, MD^, Terry Fulmer, PhD, RN, FAAN^, Sabrina Lee, MPA^, So-Young Oh, MS^, Marc M Triola, MD^  
*NYU School of Medicine, +NYU College of Nursing, and ^Northeastern University

Introduction: A recent Institute of Medicine report has highlighted the importance of interprofessional education (IPE) in bridging gaps in quality and safety. Simulation specifically has been recognized as a key methodology within IPE curricula. However, simulation can be costly and few have implemented and scaled up simulation-based IPE. Several studies report on large, complex multimodal interventions, yet specifying the individual value of simulation methodology for IPE is lacking. Determining the value added by simulation is essential to help educators and curriculum designers choose when to implement simulation-based curricula.

Objectives: In this study we examined differences in self-reported teamwork knowledge, skills, and attitudes (team value, team efficiency, and shared leadership) between medical and nursing students who participated in 3 required portions of an IPE curriculum (N= 215) versus those who also completed the optional simulation session (N= 62). We used quasi-experimental, pre-post design. We collected the data using valid and reliable instruments and electronic survey. For data analysis we used independent-samples t-test and significance level was set at p <.05.

Materials: We designed and implemented an innovative web-based IPE curriculum: NYU3T: Teaching, Technology, Teamwork. This program, funded by the Josiah Macy Jr. Foundation, builds on 2 evidence-based teamwork and collaboration curricula: TeamSTEPPS and Geriatric Interdisciplinary Team Training. Over 1 year, pre-clerkship medical students and final year students in the Bachelors in Nursing program completed blended course work in 5 core IPE
topics (team member roles and responsibilities, teams and teamwork, communication and conflict resolution, informatics, and IP care planning). This curriculum was delivered through 3 required activities: (1) in-person seminar and faculty-facilitated small-group team-building activities; (2) 5 web-based modules in core teamwork and collaboration topics; and (3) virtual patient care assignments; and 1 optional IP teamwork simulation exercise. The simulation experience comprised 30-minute uni-professional orientation and patient handoff and 60 minutes for teaming-up, 2 cases, and 2 debriefings. The sessions were conducted in a realistic environment in a large university-based simulation center with mannequin simulators. IP faculty pairs consisting of one from the College of Nursing and one from the School of Medicine led the sessions. Faculty teams completed a 2-hour faculty development session where they reviewed the curricular goals and content, the teaching methodology and the technology. Detailed description of the program is available online on the website: http://www.med.nyu.edu/iime/research-and-publications/grants/nyu3t-teaching-technology-teamwork

Results: There were no statistically significant differences in self-reported teamwork knowledge, skills, and attitudes at time 0, before simulation, between students who did and did not participate in the simulation. At time 2, after simulation, both groups achieved significant improvements in team skills and there were no significant differences noted for this measure. For teamwork attitudes, students who participated in the simulation reported a significantly higher score in team value (M =5.19; SD = .53) compared to those who did not (M =4.96, SD = .84). Further, students who participated in the simulation achieved significant improvements in team efficiency, while students who did not participate did not. However, students who did not participate in the simulation showed significant improvements in shared leadership, while students who did participate in the simulation did not. For teamwork knowledge, students who participated in the simulation had significant higher scores in all but the domain of IP care planning at time 2, compared to students who did not participate in the simulation.
Conclusion: A single simulation-based learning activity can provide significant added value to blended learning curricula for IP teamwork, especially for gaining knowledge and valuing teamwork. However, our study showed no apparent advantage of simulation for improving students’ teamwork skills.
Technical skill and Non-technical skill of anesthesia residents for peri-operative malignant hyperthermia management
Polpun Boonmak, Suhattaya Boonmak, Jakapong Kotawong
Department of Anesthesiology, Faculty of Medicine, Khon Kaen University, Khon Kaen, 40002, Thailand.

Introduction: Malignant hyperthermia (MH) is a potentially fatal, inherited disorder usually associated with the administration of inhalation anesthetics and succinylcholine result in acceleration of metabolism in skeletal muscle. Immediate recognition and treatment with dantrolene usually reverses the signs of MH. Presently, there is growing awareness that both non-technical skills and technical skill are essential for competent practice.

Objective: Our study aims to evaluate both technical skill (TS) and anesthesia-non technical skill (ANTS) during peri-operative MH management resulted in patient safety and curriculum improvement.

Material: This study is prospective, descriptive study. After receiving approval from our institution’s Research Ethics Board, we included all first, second, third year anesthesia residents who trained at Department of Anesthesia, Faculty of Medicine, Khon Kaen University during February 2014 into study. Each residents were assign to manage anesthesia case in simulated operating room with their team (nurse anesthetist, surgeon, scrub nurse, helper). We used iStan ® manikin (CAE health care, USA) in simulation based operating room with three camera monitors to evaluated resident in twenty minutes-scenario. Video recorded their management of the situation. Two anesthesiologists independently evaluated their TS by checklist that modified from Malignant Hyperthermia Association of United State (MHAUS) and ANTS by Anaesthetist’s Non-Technical Skills system (University of Aberdeen), which is composed of four parts: decision making, task management, situation awareness, and teamwork. The scores were rated as poor, marginal, acceptable, and good. Acceptable and good scores were classified as acceptable performance. Each anesthesiologist standardized and
set the goal performance before scoring. Data analysis was performed using Stata/SE 10.0 for Macintosh (Stata Corporation, TX, USA). We analyzed data and reported as mean (SD). The number of residents who performed acceptably was compared using Fisher’s exact test. P value < 0.05 was needed for statistical significance.

**Results:** We included 17 anesthesia residents into study. Fifty-seven percent were female. The mean (SD) age was 27.2±1.0 years old. Seven first year, 6 second year, and 4 third year residents were included in the study. Most unaccepted technical skills were dantrolene dosage, dysrhymia treatment, hyperkalemia treatment, patient cooling. 70.6 percent (95%CI 44.0-89.7) of residents performed acceptably in task management, 58.8 percent (95%CI 33.0-85.6) in situation awareness, 23.5 percent (95%CI 6.8-49.9) in teamwork, and 23.5 percent (95%CI 6.8-49.9) in decision making. One resident who had acceptable performance in all 4 parts was a third year resident.

**Conclusion:** Effective malignant hyperthermia resuscitation during anesthesia requires the integration of technical skill and non-technical skills. Anesthesiology residents must be able to work together in teams of healthcare professionals. This study found that our residents had more acceptable task management and situational awareness skills as they gained more experience, which is concordant with previous studies showing better situation awareness associated with more experience. However, we found undesirable outcomes with regards to their decision making and teamwork. Despite previous studies reporting that technical skills and non-technical skills were associated, we did not find this association. Finally, our data showed unacceptable performance in residents, so a requirement for team training including crisis resource management should be considered for all residents to assure acceptable management of malignant hyperthermia in the operating room.
Ethical Simulation Scenarios – what Awakens Empathy and Compassion?
Heikki Paakkonen¹, Eivor Wallinvirta¹
1 Arcada – University of Applied Sciences

Introduction. Ethics and simulation is all about self-discovery and self-acceptance, to question, examine and change one’s own self-concept. Simulation settings provide the student with the opportunity to practice applying the whole ethical field of knowledge to a variety of scenarios from a caring and nursing perspective. Prehospital ethical simulation started in 2007 for the 3rd year undergraduate nurse paramedic students at Arcada, University of Applied Sciences in Helsinki. The ethics course and ethical dilemmas for simulated scenarios are developed from repeated evaluation of the theoretical ethics course. Today, the ethics course includes 10 cases all of which can be simulated and varied so that the total number of useable cases is approximately 15. The instructors will act as models for how to analyze a situation, and offer the student an opportunity to see how various responses to a specific situation can be expressed or played out from an ethical point of view.

Objectives: To understand which cases and what content in the cases deeply affected the students, and raised an ethical sensitivity and willingness to act ethically. The research questions were: 1) What content in the cases affects and awakens empathy and compassion? 2) What are the motives or the driving force to act ethically based on outer and inner ethics?

Material (Patients/Methods): The number of students was 16. They completed one prehospital case scenario in pair, and observed 7 other scenarios in total. The study included a total of 8 cases. The study took place in autumn 2014. Students provided written narrative text, one month after the simulation experience (T1) and three months post course (T2) via open-ended questions on their learning experience from ethical issues in the simulation scenarios. The qualitative data were analyzed using content analysis.

Results: The content in the cases which has deeply affected the respondents, involves complicated ethical questions that has awakened strong personal
emotions, such as hopelessness, annoyance, inadequacy, ignorance, inferiority, shame as well as colleagues’ impolite manners towards patients or relatives’ and patients’ emotions of sorrow (T1). Participating in an ethical case awakens many reflections in the student. Ethical knowledge needs dialogue which the debriefing situation provides through self-evaluation of the scenario, and as a spectator, and through joint discussions. Those ethical cases that have a practical characteristic giving rise to strong feelings among students, awakens an ethical sensitivity. This strong feeling becomes primarily the driving force of an ethical motivation and problem solving (T2).

**Conclusion:** The knowledge dimension in ethical cases is important but so is the emotional dimension, as well. The ethical cases that affect students’ emotions become memorable situations for the students. When ethical conflicts occur, just as patients need more time in the caring situation, students need time and space for a dialogue after the simulation case. Students are given the opportunity to become aware of their own emotions, and dare to use them in the future as knowledge in problem solving situations.
Professional accuracy in the evaluation of post partum blood loss using a collector bag: A French prospective simulation study.

Author Name: G. LEGENDRE¹ (MD), M. RICHARD¹ (MD), P-E BOUET¹ (MD), M. CHANCEREL¹ (Ms), S. MATUSZEWSKI¹ (Ms), L. SENTILHES¹ (MD-PhD).

Institution: ¹ Department of Obstetrics and Gynecology Angers University Hospital, Angers, FRANCE

Introduction: Objectives: Post partum hemorrhage (PPH) is one of the most common causes of mortality in obstetrics all over the world. The accuracy in the estimated blood loss is, as a fact, a priority, in determining appropriate treatment. The collector bag is one of the objective tools used to estimate blood loss. The aim of this study was to evaluate the accuracy of estimating blood loss by medical professionals working in the delivery room during simulated training sessions.

Material (Patients/Method): A prospective study occurred in a level three maternity ward in a teaching hospital between October first and October thirteenth 2013. All of the medical staff of the department (midwives, residents of obstetrics and gynecology, and obstetricians) were invited to participate to the study. Simulation training sessions occurred in which a vaginal delivery was recreated. During the training, six scenarios were proposed to each participant for them to determine the blood loss (350, 550, 1100, 1600, 2100, and 2500 ml). The primary endpoint was to determine if participants could accurately evaluate blood loss within a 20% error margin.

Results: 90.7% of the medical staff participated, including 77 midwives, 12 obstetricians and nine residents. Ninety three to 98% of the participants were accurate in their answer depending on which volume they had to estimate. For the lowest volume (350ml), there was 11.1% overestimation between the estimated volume of blood loss (EBV) and the real volume of blood loss (RBV). However, there was an 8.8% underestimation between the EBV and the RBV found for the highest volume of 2500ml. The only significant factors associated with a decrease in estimation accuracy for the
estimated blood loss was for participants to worked in another section of the department (p=0.02) or to work for less than 50% of a work shift in the delivery room (p<0.001).

**Conclusion:** The accuracy of the estimated blood loss for the obstetrical medical staff, using the collector bag, is more than 96%. The collector bag is a useful and dependable tool to diagnose PPH and estimate blood loss.
The Process of Creating a Validated Checklist for Teaching Invasive Procedures Using Simulation

Katherine Berg MD, MPH 1, Dale Berg MD2, LeeAnn Reisenberg PhD, RN 3

1. Co- Director, University Clinical Skills and Simulation Center
Medical Director, Standardized Patient Program
Thomas Jefferson University
Professor of Medicine, Sidney Kimmel Medical College
1001 Locust St, Philadelphia, PA,19107, USA

2. Co- Director, University Clinical Skills and Simulation Center
Director, Advanced Physical Examination Course
Thomas Jefferson University
Professor of Medicine, Sidney Kimmel Medical College
1001 Locust St, Philadelphia, PA,19107, USA

3. Director Medical Education Outcomes & Research
Associate Professor, Department of Anesthesiology
The University of Alabama at Birmingham
619 South 19th Street, JT909
Birmingham Alabama 35249-6810, USA

Introduction
Invasive procedures, such as thoracentesis and paracentesis, are commonly performed in inpatient and outpatient medical care. The traditional model for procedure skills teaching has been, “see one, do one, teach one.” This apprentice-type model has been used for decades. However, because of the pressing need for quality and patient safety
improvements, a more robust paradigm that includes simulation, skills attainment, and structured deliberate practice is required. Within this new paradigm, checklists are central to teaching and assessing procedural skills. The incorporation of a checklist for invasive procedures into a simulation-based, blended curriculum for procedural instruction may result in a decrease in procedure-related iatrogenic complications. Our literature review revealed very few published validated checklists for invasive procedures. Hospitals have developed checklists, but many are guidelines that are specific to the institution and thus may not be generalizable. In addition to individual institution checklist variation, there is often variation of checklists within the institution by specialty. Thus, there is a need for the creation of validated checklists for simulation-based training of invasive skills.

**Objectives:**

1. To describe the validation process for the development of a checklist for teaching and assessing invasive procedures using simulation

**Material (Patients/Methods):**

We used a modified Delphi method to develop our checklists. The Delphi method for validation of procedure checklists involves an iterative process of review (1) by experts that is designed to achieve consensus. The experts are blinded to the identity of other experts to prevent any one individual from influencing the group’s decisions about items. A preliminary checklist is developed and is reviewed by experts from multiple institutions. In each checklist study, multiple experts, from two separate academic medical centers, participated in the Delphi process. Experts included emergency medicine physicians, internal medicine hospitalists, critical care and pulmonary intensivists, and interventional radiologists. We used our experts’ ratings to calculate internal consistency of the checklist using Cronbach’s alpha in SPSS® statistical software.
Results:
Using this validation process with eight experts from multiple disciplines and two institutions we developed a 23-item thoracentesis checklist for teaching and assessing using simulation for thoracentesis. The internal consistency coefficient using Cronbach’s alpha was 0.94. We also developed a 24-item checklist for teaching and assessing paracentesis using simulation. The internal consistency coefficient using Cronbach’s alpha was 0.92.

Conclusion:
We describe the first step of the validation process for the development of a checklist for simulation teaching and assessing invasive procedures such as thoracentesis and paracentesis. The use of a validated checklist could lead to fewer complications, and an overall increase in the quality of health care provided. Future studies should further validate these checklists by implementing and studying it in the simulation and clinical environments.

The Educational Handoff: Blending Digital Learning and Standardized Patient-Based Assessment to Measure and Enhance Core Entrustable Professional Activities (EPA's) for Entering Residency

Demian Szyld, MD, EdM*, Kristen Uquillas, MD*, Brad Green, MD†, Steve Yavner, MS^, Hyuksoon Song, PhD#, Mike Nick, MS*, Halley Ruppel, RN%, Grace Ng, RN, CNM$, Martin V. Pusic, MD, PhD†, Thomas Riles, MD†, Adina Kalet, MD, MPH*

*NYU School of Medicine, +The Ohio State University, ^Fairfield University, #Georgian Court University, %NYU Langone Medical Center, $City University of New York

Introduction: Undergraduate Medical Education (UME) and Graduate Medical Education (GME) medical educators must ensure that new residents both demonstrate competence in 13 core Entrustable Professional Activities (EPAs) recently defined by the American Association of Medical Colleges (AAMC) and are able to recognize and safely manage common "coverage" conditions among hospitalized patients on day one of residency as defined by the ACGME. However, there is no consensus on how this should be addressed, assessed, and documented.

Objectives: Our goals in this project are to 1) understand and maximize the readiness for residency of our graduating medical students (MS4s) 2) develop and benchmark high quality and clinically meaningful, educationally responsive measures and methods to assess core EPAs 3) pilot and evaluate an efficient and scalable blended digital learning and performance based assessment strategy to address gaps in readiness for internship.

Material (Patients/Methods): In the week prior to medical school graduation we recruited 52 MS4s to participate in a 3-hour “readiness for residency” event held in our simulation center. The study of this event was IRB approved. For this pilot we assessed intern’s readiness to assess and manage oliguria in the acute care setting and designed two simulations with a Standardized Patient (SP) and a Standardized Nurse (SN) and built measures of 10 of 13 core EPAs. Students then saw one case before (post-operative) and one after (“rule out MI”) spending up to 40 minutes interacting with the Oliguria WISE on Call computer based module (W-OC). In each case the student returned a
page to the SN (5 min), evaluated the SP with the SN in the room (20 min) then wrote a “coverage note” (10 min). Students could request lab values, ECGs and imaging results and simple bedside procedures (Foley placement, IV fluids) from the SN. Student EPA assessment data was captured in 3 ways; SPs completed checklists measuring Communication Skills and Physical Exam both scored as % of items well done (intrarater reliability .55-.81); SNs completed checklists measuring Care Quality and Safety, Collaboration and Interprofessional Communication Skills (intrarater reliability .47-.52); Clinical Reasoning was assessed based on the “coverage note” and scored using a structured framework (intrarater reliability .54-.72). W-OC, a series of case-based multimedia digital modules, aims to prepare interns for common clinical coverage issues. It is designed to promote clinical reasoning of novice clinicians by building and refining diagnostic schemas or scripts. To assess students’ oliguria schema before completing W-OC we gave them a blank piece of paper with the following prompt; “In the next 5 minutes, please write or draw how you think about oliguria”. Two clinicians scored the results using a 3 level rubric (Kappa .78).

Results: Baseline core clinical skills of these motivated volunteer MS4s were highly variable; Communication skills (73%, SD 27.5%) and physical exam (51%, SD 15.5%), SN ratings (36% SD 14.5%) and clinical reasoning (.94, SD .52 on a 3 point scale). Before viewing the oliguria W-OC modules 59% of students were able to present a clear and organized semantically sophisticated schema for oliguria (e.g. Pre-Renal, Renal, Post-Renal) with mention of related key features, diagnostic and management implications; 21% represented only a basic set of diagnostic categories; and 17% of these students could not convey an organized structured approach. We observed moderate to large gains in all clinical competency areas measured pre/post W-OC-communication (Cohen’s d .41), physical exam (1.5), communication with the nurse (.61) and clinical reasoning (.64), supporting both the immediate educational impact of W-OC on performance and the responsiveness of our measures to instruction. In general, students appreciated being able to practice skills and reported that this 3-hour event was highly educational, time well spent and challenging but enjoyable and asked us to host more on other topics.
Conclusion: We were able to assess 10 of 13 core EPAs and demonstrate that W-OC used in this manner addresses significant skills gaps. Although they need to be refined, our assessments were reasonably reliable measures, with the advantage of being authentic and synthetic. Medical schools hoping to handoff medical students formally could use these strategies and measures to support educational continuity between UME and GME.
SESSION 5
Evaluation of an immersive simulation course focusing on non-technical skills for a multi-disciplinary undergraduate team.

Jared M Wohlgemut, Simon J Mercer
Centre for Simulation and Patient Safety, University Hospital Aintree, Longmoor Lane, Liverpool, L9 7AL

Introduction: Junior healthcare staff are often first at the scene of an unwell patient. It is vital that they can recognise and escalate the treatment of unwell patients. Simulation-based medical education with debrief has demonstrated improved recognition and management of medical emergencies [1], self-confidence [2], leadership and crisis management skills [3]. Multidisciplinary simulation courses have been shown to improve teamwork and clinical performance [4,5].

Objectives: To evaluate using pre- and post-course questionnaires, our multidisciplinary undergraduate ‘Simulated Team Based Learning 1 Course’ (STABILISE 1). This will specifically look at the understanding of non-technical skills (NTS), the anticipated impact that attendance on the course will have on future practice, and perceived level of knowledge and confidence in managing acutely unwell patients.

Methods: Each medical, nursing and pharmacy student attending STABILISE 1 at the Centre for Simulation and Patient Safety from 16/2/15 – 20/2/15 completed pre- and post-course questionnaires. STABILISE 1 consists of an introductory lecture introducing NTS, an introduction to the environment and the mannequin (SimMan 3G, Laerdal, Stavanger, Norway), and 7 immersive simulation scenarios concentrating on the management of an acutely unwell patient, each followed by video-assisted debrief focussing on NTS.

The pre-course questionnaire enquired about students’ understanding of NTS while the post-course questionnaire addressed if this had changed, and if so, how, and how this change might influence future practice. Both questionnaires asked students to rate (using a visual analogue scale [6]) their level of knowledge and confidence managing acutely unwell patients, and the value they place on simulation and NTS. Student paired T-tests were used to compare scores.
Results: 65 students completed both questionnaires and 97% (63/65) stated their understanding/perception of NTS changed due to the course. There were statistically significant improvements in perceived level of knowledge (p<0.05, standard deviation (SD): 1.89, mean difference (MD): 2.2) and confidence (p<0.05, SD: 1.97, MD: 2.0) when managing acutely unwell patients. There were also improvements in self-perceived value of simulation (p<0.05, SD: 1.22, MD: 0.6) and NTS (p<0.05, SD: 1.1, MD: 0.7).

When asked ‘What do you understand by the terms Non-Technical Skills / Human Factors?’ in the pre-course questionnaire the following themes were mentioned: communication 20/38, prevent human error 10/38, team work 9/38, leadership 7/38, situational awareness 6/38.

In the post-course questionnaire, when asked how their understanding of NTS changed, they reported several themes including: communication skills 25/60, teamwork 22/60, importance of NTS 17/60, leadership 12/60, situational awareness 7/60 and delegation of roles 6/60. When asked how this change will influence future practice, themes mentioned included: communication skills 24/64, increased knowledge/confidence 17/64, leadership and delegation of roles 13/64, teamwork 12/64, know limitations 8/64 and stay calm 7/64.

Conclusion: Students reported increased confidence and level of knowledge in dealing with acutely unwell patients after having been on the STABILSE 1 course. Nearly all students’ understanding of NTS changed and most students reported expected impacts on future practice. There was a small increase in their self-perceived value of simulation and value of NTS.

References:


Gamification of the emergency dispatcher logistics

Tessa Postuma
VGGM (Arnhem, Netherlands)

Introduction: This serious game is developed because of the lack of training and assessment methods for the difficult task of handling the logistics at the ambulance dispatch.

Objectives: Goal of the game is, to use the fun of gaming, to train new dispatchers and assess the dispatcher throughout his entire career. All the necessary competences and procedures can be trained and assessed. There is also an exam level so that the dispatchers can be tested on his skills every year and, if necessary, be trained there where there is need for training. At this way we can personalize the training needs per dispatcher.

Material (Patients/Methods): Computer Game

Results: The new dispatchers are trained in a safe environment where there is room for error. Because of the fun factor the dispatchers will show themselves at their best and use these skills in their real job. Because the game can be built entirely like your own region and specifications, it is very realistic to the dispatcher.
Title: Effectiveness of a high-fidelity simulation training in managing cardiac arrhythmias in children

Institution: University Liège, Belgium

Authors:
Schumacher Katharina¹, Etienne Anne-Marie², Baugnon Thomas³, Fahrat Nesrine², Shayan Yasaman⁴, Seghaye Marie-Christine¹, Bragard Isabelle²

Department of Pediatrics¹, University Hospital Liège, Belgium, Psychology², University of Liège, Belgium, Department of Pediatric anaesthesiology³, University Hospital Pierre et Marie Curie, Paris, France, Department of Pediatrics⁴, University Hospital Ste Justine, Montreal, Canada

Category: Interprofessional/Team education

Presentation Type: oral or poster

Introduction: Cardiac arrest is a rare event in the pediatric population. Cardiac arrhythmia can be one of the causes. Their management needs very specific skills which can cause high emotional stress. They require a high cognitive load; for example dose adjustment of drugs related to the weight, which all can influence the effectiveness of resuscitation.

This implies that it is important to provide a specific pediatric team training for both technical and non-technical skills. Simulation training with debriefing has been recommended to learn these skills.

Aim: Does regular high fidelity simulation training with debriefing have an effect on managing cardiac arrhythmias in children?

Methods: 4 groups with 4 participants each (1 pediatric Registrar and 1 emergency Registrar, one pediatric nurse and 1 pediatric emergency nurse) participated in our pilot study from June -October 2014.

The two experimental groups (EG) had 5 high-fidelity video recorded simulation session with debriefing. The two control groups (CG) had 2 high-fidelity video recorded simulation session without debriefing. Scenarios were ventricular fibrillation (2), asystolie and pulseless electric activity (2).

Subjective changes such as confidence, perception of stress and attitudes were reported by the participants filling in a questionnaire, during the first and last session.
Objective changes in knowledge, clinical skills, leadership and communication strategies are analysed by two independent experts. They are evaluating the videos using a validated grid (Grant et al. 2012).

**Results:** Participants have an average age of 33 years (SD = 10.8).

We did not measure any significant differences regarding their attitudes or the group interaction between the two groups. In contrast satisfaction about managing a clinical case, communication with patients/their relatives as well as the coordination of the tasks and the stress control increased significantly in the EG from the first to the last scenario $F=6.01$ ; $p=.028$ . There were no significant changes in the CG.

In both groups, participants have positive attitudes vis-à-vis the interdisciplinary team training through simulation and positive expectations in the benefit of this type of training (ceiling effect: not much increase possible between before and after).

There is no significant difference in the confidence in their skills between the two groups (Avg: 3.5 / 5 in Q1; 3.9 / 5 in Q2).

The analysis of the objective changes will be finished at the beginning of April 2015 and will be presented at the conference.

**Conclusion:** Regular high fidelity simulation training has a significant positive effect on the level of stress and satisfaction. The participants felt also more comfortable communicating with the patients and their families as well as coordinating the team.
Evaluation of immersion in high fidelity simulation

Lars Lundberg¹, Anders Sterner¹, Henrik Engström², Ilona Heldal² & Hanna Maurin Söderholm³.

¹ Centre for Prehospital Research, University of Borås, Sweden, ² School of Informatics, University of Skövde, Sweden, ³ The Swedish School of Library and Information Science, University of Borås, Sweden.

Introduction:
There are many challenges to effective and realistic training of EMS personnel. Because accidents may occur anywhere, work activities and provision of care will take place in a wide range of environments, including transportation between them. The work situation is often characterized by stress and lack of information. Because of the complexity of the prehospital care process, current training approaches are not sufficient for effective training. At present, different aspects are typically trained in isolation, e.g. medical skills using patient simulators. In order to create an enhanced learning environment covering all aspects of the prehospital chain, a collaboration between research teams from the University of Borås (Centre for Prehospital Research, and The Swedish School of Library and Information Science), The University of Skövde (School of Informatics) and the regional ambulance services is established. A more advanced training process covering the entire prehospital chain of events with integrated technology support is enhanced by game based training. These game components include rich scenarios with high contextualization and different challenges, e.g. related to problem solving, decision-making, scene safety, communication and interaction, to further enhance immersion and engagement.

Objectives:
The objective of the present study is to compare the degree of immersion and user experiences in traditional simulation scenarios vs. rich simulation scenarios.

Material (Patients/Methods):
The standard crew of a Swedish ambulance consists of two nurses, whereof at least one has a specialist training in emergency care. The present study is a within subject
design where 12 ambulance pairs (24 nurses) from regional ambulance stations performed simulation training in both a traditional and a rich scenario. The teams were randomized to start with either the traditional or the rich scenario. Both scenarios covered the entire prehospital process, including alarm, on-scene activities, transportation and hand-over. After each scenario, participants responded to a previously validated post-test immersion questionnaire and participated in an interview.

Results:
Initial analysis shows the overall immersion score to be higher in the rich scenario than the traditional (M = 4.08 > 3.36, p = .001, response scale 1-5). Realism was also rated higher in the rich scenario, in particular interacting with the patient (mannikin), and participants’ interactions with the surrounding environment and people. All these results are statistically significant (p < .05).

Conclusion:
The degree of immersion, engagement and perceived realism is higher in the rich simulation scenario, as compared with the traditional simulation scenario. The increase in contextual cues makes training scenarios more intuitive and less dependent on instructor information and instructions. Our further analysis will focus on video data and performance measures to better understand the impact of using gaming components and more immersive technologies on learning outcomes.
Interprofessional team training with focus on geriatric patients in the ED using SPs

Monika Brodmann Maeder¹, Uwe Meyer¹, Fabienne Gerber¹, Christine Durrer², Sibylle Matt²
¹ Department of Emergency Medicine, Inselspital Bern University Hospital, CH-3010 Bern / Switzerland
² Bern University for Applied Sciences, Health Division, CH-3008 Bern / Switzerland

Introduction: Since 2009 the University Emergency Department (ED) runs an interprofessional education program to improve collaborative practice. Since the beginning the focus lies on interactive learning activities like manikin simulation and the use of SP to foster the learning “with, from and about each other” (WHO 2010). The growing number of elderly patient presentations represent a growing problem for the EDs, as the length of stay is longer, due to the multimorbidity and complexity of this patient group (Desy & Prohaska, 2008). This results in the risk of overflow situations in EDs with negative consequences on patient outcome (Hastings & Heflin, 2005; McCusker & Verdon, 2006; Shanley, Sutherland, Stott, Tumeth, & Whitmore, 2008).

Objectives: The objective of the project was to sensitize the ED staff to the special challenges and needs of geriatric ED patients and to improve their competence in the care of elderly patients. The training should help to improve the collaborative practice in the ED towards high-quality teamwork and improved patient safety.

Methods: In 2013 an interprofessional faculty with geriatric experts, ED staff and educators developed an interprofessional education program for the nurses and physicians in the ED. After a one-day faculty development program 22 half-day trainings took place within two months. Core elements of this interprofessional education were two SP scenarios with an elderly actress, followed by a moderated debriefing with feedback from the SP and short theoretical inputs on medical topics (sepsis, delirium and dementia), home care or end-of-life decisions. Evaluation consisted of a questionnaire covering questions about content of the training, competence of the facilitators, learning methods and atmosphere.

Results: 78/100 nurses and nurse assistants, 16/20 consultants and 8/22 residents attended the training. 81/102 questionnaires were ready for evaluation. All the elements of the evaluation were rated “good” to “very good”, with the best ratings for the course atmosphere. The simulations with the SP got excellent ratings, and here mainly the chance to get a direct feedback of a patient on the performance of the individuals and the teamwork was the most important factor for these ratings.

Conclusion: SP scenario on aspects of the care of elderly patients in the Emergency Department are an excellent learning tool for interprofessional education in order to improve collaborative practice and are highly appreciated by the participants. The aspect of getting a direct feedback from the “patient” was very important for the participants and is one of the key factors for the success of our program.
In Situ Simulation: Team Training at an Emergency Department

Anders Thais Bjerregaard, Susanne Slot, Charlotte Paltved, Peter Musaeus.
SkejSim Medical Simulation and Skills Training, Centre for Medical Education Aarhus University

Introduction:
In situ simulation offers on-site training to healthcare professionals. It refers to a training strategy where simulation technology is integrated into the clinical encounter. Training in the simulation laboratory does not easily tap into situational resources, e.g. individual, team, and organisational characteristic. Therefore, it might fail to fully mimic real clinical team processes. Though research on in situ simulation in healthcare is in its infancy, literature is abundant on patient safety and team training¹. Patient safety reporting systems that identify risks to patients can improve patient safety if coupled with training and organisational support. This study explored the use of critical incidents and adverse events reports for in situ simulation and short-term observations were used to create learning objectives and training scenarios.

Method:
This study used an interventional case study design of in situ simulation tailored to an emergency department in the Central Denmark Region.
The project had a triple strategy:

1) A thematic analysis of reported critical incidents and adverse events in the Central Denmark Region.
2) A needs assessment consisting of short-term observations, questionnaires and interviews in an emergency department
3) In situ simulation with evaluation of the team training effort with the SAQ (Safety Attitudes Questionnaire)² and TEAM (Team Emergency Assessment Measure)³.

Reported critical incidents and adverse events were collected from the Danish Patient Safety Database and analysed using the qualitative software program NVivo 10. Four researchers performed short-term observations and distributed
questionnaires based upon The Critical Incident Technique for added insight. Data from the UTH analysis and from the needs assessment was used to design scenarios for the in situ simulation program. Three scenarios were written and were double-checked by two medical experts. One researcher observed the training to score events and fill out the Team Emergency Assessment Measure (TEAM), a validated team observational tool set for measuring teamwork skills during medical emergencies. It contains 12 questions, which are rated using a five-point scale, and covers four categories; leadership, teamwork and task management, and an overall score on team performance.

Results:
16 simulations were conducted with 16 different teams of 10 doctors and 32 nurses. First, this study took reported critical incidents and adverse events to form learning objectives. Second, these critical incidents and adverse events coupled with short-term observations were used to write contextual scenarios. The preliminary analysis points to the importance of teamwork situation awareness and quality of handovers. The team performance varied greatly according to how well the team members knew each other professionally as confirmed by video recordings. SAQ, and TEAM observational data are being analyzed by the research group with focus on correlation with teamwork and handovers. In summary, this study offered in situ simulation faculty with a model for integrating reported critical incidents and adverse events with contextual needs analysis and short-term observations. Furthermore the research group is working on detailing the barriers of in situ simulation such as resources for team training despite acceptance from department heads, immature organization, and the formation of ad hoc teams for the in situ simulations.

Conclusion:
In situ simulation provides a way to study team interactions associated with effective interprofessional teamwork and gives rise to team-specific training such as handover and SBAR (Situation, Background, Assessment, and Recommendation). This study generated knowledge that might lead to changes on the individual, team, and organizational level and thus has the potential to enhance patient safety.

References:

(3) Cooper S. et al. Team Emergency Assessment Measure (TEAM). Resuscitation. 2010;81:446-452

(4) Flanagan JC. The critical incident technique. Psychological bulletin 1954;51:327-359

SESSION 6
THE ODP TAKES THE LEAD

Background

Simulation in healthcare is continuing to gain popularity and is recognised in anaesthesia as an invaluable method of teaching anaesthetists both non-technical and technical skills. (1). Evidence of similar training for Operating Department Practitioners (ODPs) is lacking. We designed and piloted a unique multidisciplinary high fidelity simulation course aimed at teaching student ODPs clinical skills and human factors.

Methodology

This course took place in situ in the theatre complex. Six high fidelity scenarios were designed with specific learning objectives. These included; local anaesthetic toxicity, high spinal, anaphylaxis and malignant hyperpyrexia. Key learning objectives included early recognition of an emergency and the importance of communication during critical incidents.

Results

Ten student ODPS participated in this pilot course. They were given a questionnaire pre and post course with questions related to the course, and a few generic anaesthetic questions thrown in. The mean pre course questionnaire score was 46% (11%- 63%) and this improved to 94% (84% - 100%) following the course. All students rated the course as ‘excellent’, and all students felt ‘more confident’ when dealing with anaesthetic emergencies after the course.

Potential Impact

There was a 48% improvement in questionnaire results, which would suggest that the students had learnt from the scenarios. Our next step is to regularly carry out this course for all student ODPs rotating through this hospital and to map this specifically to the University syllabus.

References

Simulation-Based Education: How is Knowledge Constructed in the Debrief Setting?

Dr Ranjev Kainth¹ BSc MBBS MRCPCH MAClinEd FHEA

¹. Simulation and Interactive Learning (SaIL) Centres, Guy’s and St Thomas’ NHS Foundation Trust, London.

Introduction
Patient safety concerns and the changing landscape of medical education have facilitated the emergence of simulation in healthcare education. Although there is evidence for the use of simulation in niche areas such as psychomotor skill acquisition [1, 2], evidence for the impact of human factors and non-technical skills training through simulated clinical scenarios is lacking.

The debrief discussion which occurs after a simulated scenario is recognised as the most important element of simulation with focused research demonstrating improved clinical outcomes[3-5]. However, little is known about the activity of debriefing and how it leads to learning[3]. This challenge has been hampered by multiple debrief models which ignore the social dimensions (group interactions) of debriefing[3]. The Debrief Diamond Model focuses on this social aspect[6].

Objectives
This research examines the debrief setting to understand how participants construct knowledge, specifically answering: ‘how are non-technical skills specified and qualified through on-going debrief interaction’.

Material (Patients/Methods):
The research involved participant observation and video recording of 24 ‘diamond’ debriefs from five different simulation courses. The sample population consisted of postgraduate interprofessional participants. Field notes were taken for each debrief and then extended in to detailed descriptions.
Each debrief video was then viewed twice and relevant moments of interaction were transcribed using recognised standards[7] followed by coding into broad groups. Groups were then examined in detail to uncover the more concrete discursive patterns and devices present in the debrief.

The research complied with the ethical standards set out by the British Educational Research Association (BERA, 2014). Ethics approvals was granted from the Institute of Education and approval from individual hospitals.

Results
Data analysis revealed a range of discursive practices which occur in the debrief setting which facilitate knowledge construction. Specific practices included revoicing; providing a cognitive scaffold; forming consensus and corroboration with faculty, participants and subject experts; employing disclaimers and stake inoculators; and the use of silence and humour as linguistic devices. Features relating to the creation and maintenance of psychological safety were also identified.

Conclusion
This study identifies the discursive interactions which occur during the debrief setting and offer insight into how knowledge is constructed discursively– an area which has not been previously explored by the simulation community. It is these features that contribute to knowledge construction and enable participants to make sense of NTS.

References


Learning from major harm and/or death in the simulator

Martinus Meela ¹, Piret Hamer ¹, Louise Kelly ¹, Crina L. Burlacu ¹

1. Simulation Training Centre, College of Anaesthetists, Ireland

Introduction: In a recently published randomized controlled study, Goldberg and colleagues have shown that anaesthesia trainees permitted to manage a simulated crisis independently and allowed to fail, were less likely to generate similar harm during a subsequent simulated encounter and demonstrated better crisis management skills ¹. In our simulation training, ‘life savers’ from within or outside the scenario are usually used in order to reach our learning objectives ². Furthermore, in a slightly overly positive manipulation of the ‘I am OK, you are OK’ principle, faculty is often protecting trainees against the emotional impact of poor performance in front of their peers. Therefore, simulated major harm is rarely caused and death is almost never encountered.

Objectives

1. To evaluate whether anaesthesia trainees and Faculty would support the introduction of scenarios where major harm and/or death are the natural consequence of poor performance.

2. To evaluate the perceived positive and negative consequences of allowing a simulated scenario to run its course without interfering thus resulting in simulated patient harm and/or death if the correct management is no instituted.

Method: Two online 10-question surveys were sent out to 231 anaesthesia trainees and 96 Faculty, respectively. Four out of the 10 questions were common to both surveys, and were specifically designed to address the above objectives and reflect the diversity of opinion amongst the trainees in the ‘hot-seat’ and Faculty, if any.
Results: The response rate was 52% (120/231) and 44% (42/96), respectively. The data indicates that both trainees and Faculty support the introduction of major patient harm and/or death scenarios in the simulation curriculum. Without underestimating the significant emotional impact of such scenarios on trainees in the ‘hot-seat’, both groups strongly agree that simulated major harm and/or death may have benefits in terms of motivation for further learning (68% in both groups), and better performance on subsequent simulated exposure (68% and 65%, respectively). A significant percentage of the surveyed subjects also think that this may translate to dealing better with similar real life situations. Both groups think that the debrief after such scenarios is essential, and 80% of instructors think further training will be required in debriefing major harm and/or death scenarios.

Conclusion: Based on the results of these surveys, we hope to introduce simulated major patient harm and/or death scenarios in the existing simulation curriculum after further development and validation work has been carried out.

References


Lessons learnt from a multinational simulation faculty development workshop

Ratna Makker¹, Guillaume Alinier²,³, Ashwin Kalbag⁴, Devaraja Acharya¹, Sigismund Wilkey⁵, Khalid Abdulnoor Saifeldeen⁶, Denis Oriot⁷, Saravanan Rathinam¹, Ramawad Soobrah⁸, John Meyer², Krishna Ruparelia³, Anthony Herblan⁴.

1-West Hertfordshire Hospitals NHS Trust, Watford, UK.
2-Hamad Medical Corporation Ambulance Service, Doha, Qatar.
3-University of Hertfordshire, Hatfield, UK.
4-Charing Cross Hospital Imperial College Healthcare NHS Trust, London, UK.
5-East and North Hertfordshire Hospitals NHS Trust, Stevenage, UK.
6-Hamad International Training Centre, Doha, Qatar.
7-Poitier University Hospital, Poitier, France.
8-Victoria Hospital, Port Louis, Mauritius.

Introduction:

HMC is the prime healthcare provider in Qatar which is a fast growing country in the Middle East. HITC (An HMC training entity) aims to develop a striving pull of simulation champions across the organisation hence an interprofessional simulation faculty development workshop was organised in January 2015 with the support from a team of primarily visiting international simulation instructors.
Objectives:

The objective of this abstract is to bring up the learning points from the visiting faculty’s point of view, who were coming together from various institutions in the UK, France, and Mauritius, to deliver a 3-day long workshop in a Middle Eastern context.

Material (Patients/Methods):

The workshop programme was very comprehensive, highly rated by the participants, and helped them appreciate every aspect of scenario-based simulation training. To support the technical and educational aspects of the workshop a total of 14 people were involved in supporting the 23 participants from HMC. During the workshop the participants were split in 4 groups with allocated faculty acting as mentors. Although all workshop faculty had previously run scenario-based simulation sessions with the workshop director, they were invited at least a day ahead of the event to jointly go through the programme and promote parity of experience for the participants during the multiple group-based activities.

Results:

Learning outcomes of this workshop for the faculty can be categorised into the following two

a. Experienced faculty participation resulted in consolidation of the value of team briefing before and after the workshop each day. Learning of the faculty remained consistent with their previous experience. The value of focus groups, rapport building, good communication, briefing, and debriefing were reinforced.

b. Interaction with the participants brought out an unanticipated learning outcome during the process of scenario designing which was hugely influenced by the country and organisational culture, and participants’ subcultures. The impact of these differences was felt in a real and meaningful way during the scenario design and simulation phases. The faculty had to summon a measured response to empathise with the scenario and actors. The knowledge and learning outcomes remained mainstream but the role play used to arrive at these unfolded in an
interesting manner. It was challenging to debrief on the issues arising from the simulation due to the cultural context but could not be ignored due to uncertainty about their relevance to learning outcomes.

Conclusion:

For the multinational, experienced faculty it was an eye opener from a cultural perspective which was completely unanticipated and not addressed during the planning phase. We feel strongly that this is yet an unexplored interesting aspect of simulation training. Scenarios can act as powerful tools to promote learning and also lend a cultural flavour to the learning environment. A gap was identified between the faculty’s professional practice and the scenario design by the candidates. The collective experience of the faculty stood in good stead in dealing with the debriefing of the points that arose thereof. This served as an opportunity for faculty to prepare for scenarios deviant from the usual and also to approach the debriefing in an informed manner.
Applicability and value of OSCE Best Practice Guidelines for simulation

Michelle Kelly¹, Marion Mitchell², Carol Jeffrey³, Amanda Henderson⁴
University of Technology Sydney¹, Griffith University Brisbane²,³,⁴, Princess Alexandra Hospital, Brisbane²,³,⁴

Introduction: Objective Structured Clinical Examinations (OSCEs) have been used for many years within healthcare programs to determine students’ and clinicians’ clinical performance. Similarities exist between OSCEs and simulations. Simulations assist learning about the holism of practice, particularly the affective domain. Best practice guidelines in educational activities can provide structure for simulations that assure practice and assessment of holistic nursing care.

Objectives: To determine the applicability and value of seven OSCE BPGs to an existing simulation.

Material (Methods): A mixed methods approach was used. Ethics approval was granted for the research. The seven BPGs (Figure 1) were aligned and compared with all aspects of a simulation activity to determine efficacy and applicability. A convenience sample of first year nursing students from a large metropolitan university agreed to participate in the study following informed consent. Students’ opinions about the value of the refined simulation were collected via: a de-identified electronic post-simulation survey; and from four focus groups. Numerical survey data were analysed using descriptive statistics; focus group data and open-ended responses from the survey were analysed using an iterative approach (Creswell & Plano Clark, 2011).

Results: The majority of students were female (86.2%), recent school leavers or international students and aged between 17-50 years. A total of 367 surveys from 457 students yielded an 80% response rate. Forty seven students, of similar demographics, participated in the focus groups. As preparation for the simulation, students reported a preference for ‘using an integrated approach’ rather than focusing on ‘just getting the skills right’ which also provided more life-like and meaningful learning experiences. Rather than
a purely skills focus, the integrated approach enabled students to incorporate aspects of therapeutic communication, comfort and privacy thus individualizing patient care requirements. Other BPGs including: opportunities for ongoing practice, timely feedback and learning how to respond to situations which are likely to be commonly or significantly encountered in practice were acknowledged by students as having been clearly demonstrated within the simulation and debrief sessions. Rather than being judged by a holistic marking guide, the semi-structured debriefing provided a level of feedback on performance within this formative simulation.

Conclusion: Each of the 7 OSCE BPGs were applicable for the simulation in guiding students learning particularly in the affective domain and consequently their preparation for clinical practice to provide safe patient care.

References:
Crew resource management goals correlate to clinical performance in simulator-based teamwork training for medical students.

Cecilia Escher MD, Lisbet Meurling MD PhD, Johan Creutzfeldt MD PhD, Ann Kjellin MD PhD, Li Felländer-Tsai MD PhD
Center for Advanced Medical Simulation and Training (CAMST), Karolinska University hospital. Department of Clinical Science, Intervention and Technology (CLINTEC) Karolinska institutet. Stockholm, Sweden.

Introduction:
Crew resource management (CRM) is the theoretical foundation for a majority of simulator-based teamwork training (SBTT) courses. Though widely spread the concept is sometimes criticized for not being applicable to medicine. Finding correlations between clinical performance variables and non technical performance could justify training interventions and guide design of training.

Objectives:
To analyze if clinical outcome measured as time to key treatment correlates to teamwork measured as speaking out preliminary diagnosis and number of sum ups in SBTT for fourth year medical students.

Materials and methods:
The study was approved by the regional ethics committee (etikprövningsnämnden). 14 courses took place during the spring semester in 2014. 56 out of 64 fourth year medical students approved to participate in the study that took place at the Center for advanced medical simulation and training (CAMST) with the simulators SimMan 3G (Laerdal) and HPS (CAE). All students took part in a lecture on CRM principles in the beginning of the semester. The course day included an introduction with clarification of CRM based training goals and familiarization in the simulator suite. Vital signs assessment was demonstrated and each student performed A-E assessment on the simulator. The training itself included 4-5 video filmed emergency scenarios each followed by a video enhanced debriefing. An instructor from CAMST participated in each scenario to provide signs the simulator can not show also helping out with practical tasks.

One scenario each day was standardized. It was an anaphylaxis case scripted to ensure that information to participants and vital signs were the same for each course. Six key treatments for anaphylaxis were chosen in line
with guidelines: removal of allergen, intravenous fluids, Trendelenburg position, oxygen, epinephrine and call for help (Campbell, Li et al. 2014). After consent from all students 11 video films were saved for analysis. Number of sum ups were analyzed by two independent researchers. Time to key treatment was measured from the start of the scenario until the treatment was visibly started. All outcome measures were considered a team effort.

**Results:**

There was a significant positive correlation between time to outspoken preliminary diagnosis and 5 out of 6 key interventions. Call for help (p=0.0001), epinephrine (p<0.0001), i.v. fluids (p=0.0017), Trendelenburg (p=0.0016) and oxygen (p=0.002) (fig). Frequency of sum ups was significantly correlated to removal of allergen (p=0.0076) but showed a negative correlation to call for help and administration of epinephrine.

**Conclusion:**

Our study showed a positive correlation between clinical performance variables and non-technical performance in a simulator setting supporting the CRM goal communication/ speaking up the preliminary diagnosis.

Requirements and Challenges of Implementing Surgical Residents’ Simulator Training Program in the Finnish Hospital

Minna Silvennoinen
University of Jyväskylä, Agora Center

Introduction:
Surgical traditional master-apprentice learning is confronted with the need for radical changes. The residents’ learning opportunities at hospital are extremely workplace- and situation-dependent. Development of surgical computer-based simulators has been rapid during the recent decade, but simulators are not used in surgical training systematically. Facilitating the skills and knowledge development process during surgical residency is needed.

Objectives:
The purpose of this research was to gain a profound understanding of how to develop surgical resident’s laparoscopy training and practice methods at Finnish hospitals for these to respond better to today’s surgical laparoscopy skills demands. This study also contributes to the discussion and practices on developing and utilising simulation based workplace learning at hospital.

Material and methods:
The research gathered information on how laparoscopy operating skills learning and training occurs in operating theatre (OT) and what challenges are involved. The data consist of video recordings from OT and surgeons’ interviews. This study also untangled the factors which effect on surgical residents skills learning and training with simulators from video-observations, simulator logs, and questionnaires administered to the residents. To conclude, this study listed the requirements for implementing surgical laparoscopy operating skills education utilising simulation-based training. The data analysis was mixed and multi-method, combining both qualitative and quantitative approaches.

Results:
OT is not a proper place for training basic surgical skills, since the various challenges present may lead to failures during work. The requirements and
challenges of implementing surgical residents' simulator training program in the Finnish hospital relates to for example with time and resource allocation. Surgical residents' simulator training is affected by organizational, individual and social factors which enhance or restrain learning at hospital work and the hospital's support for workplace learning seems to have the greatest influence on the success of training. Practical requirements for implementing training program are committing both organization and workers to planning and implementation and providing them adequate resources. The success requires major changes to the surgical learning and training culture at hospitals, which highlights the meaning of education design.

Conclusion:
Laparoscopy training at hospital should be structured as a curriculum of utilising simulation based training. It should also not be separated from learning at work. At hospital the curriculum implementation should be guided by the aim for enhanced patient safety in OT by accelerating skills and expertise development of young surgeons.
High-fidelity and medium-fidelity simulation: impact on self-confidence to emergencies response

J Martins¹, R Baptista¹, V Coutinho¹, R Gonçalves¹, L Paiva¹, L Oliveira¹; A Mazzo²; I Mendes²
1 – Nursing School of Coimbra, Coimbra, Portugal
3 – Nursing School of Ribeirão Preto, São Paulo University, Brasil

Introduction: In an emergency situation, self-confidence of professional who is present at the time (in most cases, the nurse), influences the prompt and appropriate early intervention (Martins et al, 2014). At the Nursing School of Coimbra, the development of knowledge and skills in emergency nursing is a concern, and we use theoretical and simulation classes to achieve this goal, combining medium and high-fidelity simulation.

Objectives: to evaluate the impact of an education program with two types of simulation in the construction of self-confidence to respond to emergency situations.

Material (Patients/Methods): Experimental study. Students participated in a training program after randomization into two groups. With one of the groups we used scenarios with medium-fidelity simulation and with the other group, scenarios with high-fidelity simulation. Self-Confidence Scale vp as used (Martins et al, 2014) to evaluate the self-confidence. Formal and ethical principles are ensured. The students developed emergency scenarios (airway problems, respiratory difficulty, hypovolemic shock, precordial pain and severe hypoglycemia) followed by debriefing. External variables are controlled.

Results: Included in sample 85 nursing students (36 in the medium-fidelity group and 49 in the high-fidelity group), mostly women (92.9%) with a mean age of 21.89 years (SD = 2.81 years).

With the participation in the training program, the student’s self-confidence to intervene in emergency situations increased between 10-20% in various dimensions and global score of self-confidence. The differences in mean values are statistically highly significant (p < 0.001).
At the evaluation after, the group participated in high fidelity scenarios presented higher values of self-confidence, in all dimensions and overall than the group that participated in medium-fidelity scenarios. However, these differences were not statistically revealed significant (p> 0.05).

Conclusion: The student’s participation in the training program using simulation has a positive impact on the self-confidence to intervene in emergency situations.

The type of simulation used did not introduce significant differences in the development of student’s self-confidence.

No conflicts of interest to declare.
Impact of a short-course on the acquisition of core competencies in medicine of Angolan undergraduate students
Carla Sá-Couto1,2, Maria Amelia Ferreira1
1 Departamento de Educação e Simulação Médica, Faculdade de Medicina da Universidade do Porto
2 Center for Health Technology and Services Research (CINTESIS)

Introduction
The Faculty of Medicine of the University of Porto (FMUP) receives, on a regular basis, 6th year medical students of Portuguese-speaking African countries for clinical internships. In 2014, a short-term intensive course of core competencies in medicine was outlined and preceded the regular clinical internships. The course had 1-week duration with a total of 30 hours of contact and was constituted by two modules on: 1) human clinical anatomy (theoretical and prosecutions at the Anatomical Theatre), and 2) perinatal care (simulation based training).

Objectives
In this study, we evaluate the impact of this short course on students’ knowledge and the use of simulation as a knowledge transfer tool.

Material (Patients/Methods)
A convenience sample of thirty-nine students from University Lueji A’Nkonde, Malanje (Angola) constituted this study. All students were submitted to a pre-test evaluation of 60 multiple choice questions (40 questions on module 1 and 20 questions on module 2) immediately before the course and to a similar post-test evaluation immediately after the course. The total score of both tests and of each module were transformed in a percentile rank, using the maximum score of all tests as percentile 100, and the lowest as percentile 1. The statistical analysis included a pre-post test comparison of the percentile ranks and an analysis of differences between groups (modules) using Wilcoxon signed rank test (unilateral and bilateral, respectively). All statistics analyses were performed with the IBM SPSS Statistics v20.0.
Results

Table 1 presents student’s percentile ranks for the pre-test and post-test for the overall course and for each module, together with the inter-test and inter-group analysis.

Table 1. Students’ percentile ranks before (pre-test) and immediately after (post-test) attending the course (n=39).

<table>
<thead>
<tr>
<th>Percentile ranks (Median; [P25;P75])</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Pre-post test difference*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall course</td>
<td>37 [17;44]</td>
<td>73 [64;81]</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Anatomy module (theoretical)</td>
<td>36 [10;50]</td>
<td>36 [18;58]</td>
<td>p=0.160</td>
</tr>
<tr>
<td>Perinatal care module (simulation)</td>
<td>30 [23;57]</td>
<td>92 [87;95]</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Difference between groups**</td>
<td>p=0.427</td>
<td>p&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

*Wilcoxon signed rank test, 1-tailed
**Wilcoxon signed rank test, 2-tailed

Conclusion

Post-test percentiles was significantly increased (p<0.001) for the overall course and for the simulation based module. The theoretical module median percentile rank remained the same in the pre- and post-tests, with no significant differences. These results support the use of simulation as an effective tool for knowledge transfer.
**Introduction**: Worldwide there is a large increase in the application of ultrasound (US) in both medical research and diagnostics. The application and interpretation of ultrasound differs from the other imaging modalities (CT, MR), since ultrasound is a dynamic imaging modality; the user controls both the field of view and the settings of the view. This requires not only image interpretation skills, but also psychomotor skills which can be trained with simulation. At the Experimental Center for Technical Medicine in the Netherlands we designed a hands-on course during which simulator training and real scanning are combined.

**Objective**: The aim of this course is to enable all participants to independently perform a structured ultrasound examination on the human body by understanding and application of ultrasound principals, with specific simulation and real scanning training.

**Method**: Each course day has specific learning goals. During the first day theoretical background information in physics is combined with practicing the understanding of image composition and plane perception by a simulator (*Simbionix Ultrasound simulator (U/S Mentor™), Module Sonography Basic skills – Task 1, “Basic hand-eye coordination”). Each participant is given nine objects to visualize in the correct plane (three objects in three different views). After completion, feedback is given by a percentage of accuracy. After simulated training on plane perception, the participants will be trained ‘hands-on’, in couples on a real Ultrasound device (*Siemens- Acuson S1000*) to translate what has been learned on a simulator to clinical practice. The abdominal ultrasound examination is used to put the theory into practice.

The second day focusses on performing a structured exam, executed with real scanning. The simulated training is used to train the course participants on the use of knobs (‘knobology’) and their effect on image quality (*Simbionix Ultrasound simulator (U/S Mentor™), Module Sonography Basic skills – Task 3, “Knobology”). Participants are asked to obtain the best corresponding view to the given example, and obtain feedback afterwards. Group summaries of ‘wrongly not used’ and knobs that are ‘wrongly used too much’ were obtained after each training session to compare results.

**Results**: A trial version of the course has been executed. Oral feedback by the participants indicated an experienced improvement in plane perception. The knobology training on the simulator improved their skills to regain an optimal image quality on the real US-device. This skill was tested by course instructors changing the image settings and participants’ attempts to regain proper image quality, with good result. Both outcomes were determined via face-to-face meetings.

**Conclusion**: Initial results demonstrate that incorporating the ultrasound simulator into the hands-on course in ultrasound imaging for medical professionals is of added value. Further research and more sessions are needed to determine the effect of a combined simulator and hands-on real scanning course.
**Introduction:** During medical examination with Ultrasound, pre-settings are often used to improve time and scan efficiency. These pre-settings are based on a predetermined optimal setting of several knobs. In the Technical Medicine curriculum, we want to teach students the background and mechanism of these knobs, to enable students to select a proper setting of image parameters in their attempt to obtain optimal visualization. Since real medical images are rather hard to interpret, while the focus is solely on understanding knobology, not understanding the image itself, we used a simulator to determine the setting that students use too much or too less in their attempt to obtain the optimal image.

**Objective:** The specific goal of this practical work is to determine image optimization parameters which are used too much or too less by Technical Medicine master students. The final goal is to teach students to obtain the best possible images in clinical practice.

**Method:** We included 32 students, divided in 16 groups of 2 persons. Each group analyzed and optimized eight images, resulting in a total of 128 images. We used a Simbionix Ultrasound simulator (U/S Mentor™), Module Sonography Basic skills – Task 3, “Knobology”. The optimal image was determined as the most accurate image compared to the gold standard image (Figure), with as little as possible used image parameter changes. We registered the knobs that students used to determine too much or too little use. Parameters Gain and Time Gain Compensation (TGC; depth dependent gain) were analyzed separately, as possible exchangeable settings, since their effect is somewhat comparable.

**Results:** Table 1 shows the results of this study. The main knobs used too much are Contrast (45 out of 128 cases) and Gain (12 out of 128). Too little used knobs were Frequency (10 out of 128) and Focus (6 out of 128). Confusing of parameters Gain and TGC happened in 26 out of 128 cases.

**Conclusion:** Our study shows that more knobs are used too much compared to too little. Main parameter that is used too little is Frequency. Frequency is a more complex parameter compared to depth or gain and could therefore be avoided by students when they are not sure of its functionality. The strong over use of contrast could be due to an attempt to optimize the image by use of a more general parameter. Further research should focus on time needed to obtain the gold standard image, to determine quantitative learning curves.

**Table 1** Overview of incorrectly knobs used during the simulated training

<table>
<thead>
<tr>
<th>Knobs used too much</th>
<th>Knobs used too less</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast</td>
<td>Frequency</td>
</tr>
<tr>
<td>Gain</td>
<td>Focus</td>
</tr>
<tr>
<td>Frequency</td>
<td>TGC</td>
</tr>
<tr>
<td>Depth</td>
<td>Gain</td>
</tr>
<tr>
<td>TGC</td>
<td>Contrast</td>
</tr>
<tr>
<td>Zoom</td>
<td>Depth</td>
</tr>
<tr>
<td>Focus</td>
<td>Width</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast</td>
<td>45</td>
<td>Frequency</td>
</tr>
<tr>
<td>Gain</td>
<td>12</td>
<td>Focus</td>
</tr>
<tr>
<td>Frequency</td>
<td>8</td>
<td>TGC</td>
</tr>
<tr>
<td>Depth</td>
<td>4</td>
<td>Gain</td>
</tr>
<tr>
<td>TGC</td>
<td>3</td>
<td>Contrast</td>
</tr>
<tr>
<td>Zoom</td>
<td>3</td>
<td>Depth</td>
</tr>
<tr>
<td>Focus</td>
<td>1</td>
<td>Width</td>
</tr>
</tbody>
</table>
On-site in-situ simulation for operational and medical training of helicopter rescuers in Nepal

Monika Brodmann Maeder, Aristomenis Exadaktylos

Department of Emergency Medicine, Inselspital, University Hospital Bern, 3010 Bern / Switzerland.

Introduction: In 2010 a Swiss team of Air Zermatt started to train helicopter pilots and rescuers for sling- and longline-operations. The first years were dedicated to operational and technical trainings. In 2012 a medical training was added.

Objectives: The project to train Nepalese rescuers should enable them to competently carry out rescue missions in the Himalaya. The curriculum comprised not only technical and medical aspects but also aspects of teamwork and safety aspects.

Methods: Bearing in mind that the rescuers are medical laypersons, the medical training had to be very simple, practical and focused to the needs of the rescuers. Therefore we tried to collect as much information as possible about prior rescue missions (challenges, safety aspects, reasons for success or failure) and developed simulation scenarios covering these issues. Aspects of basics of traumatology (ABCDE or primary survey) and immobilization, high-altitude related health problems and accidental hypothermia and frostbite were the main content. By using what they have learnt the rescuers should be able to assess a patient and stabilize or even improve his medical situation until he is handed over to medical experts.

Results: In November 2012 and spring 2013 the first four rescuers attended the combined technical-medical courses in Zermatt and Lukla / Nepal. In December 2013 three of them finished their curriculum and acted as co-instructors for 11 new rescuers.

Conclusion: The overall goal of the initiative is the "reverse brain drain" from Switzerland to Nepal with the ultimate goal to improve the competency of the helicopter pilots and rescue specialists in order to develop an independent rescue system in Nepal. With simple simulation techniques in the field the rescuers receive training that should meet the needs for rescues in the Himalaya.
Pre Conference Workshop

Title: Concussion in Rugby – Recognition and Assessment

M Webb¹,², MJ Duffy³,⁴

1. Medical Director, Ulster Rugby, Belfast, UK
2. Sports Institute Northern Ireland, University of Ulster, Newtownabbey, UK
3. Mater Hospital, Belfast HSC Trust, Crumlin Road, Belfast, UK
4. Clinical Skills Education Centre, Queens University of Belfast, Lisburn Road, Belfast, UK

Introduction

Concussion is a traumatic brain injury. It can impact on health and may result in a permanent neurological injury. World rugby authorities are focused on improving the recognition of this injury to protect player welfare.

Objectives

A pre conference interactive workshop will provide an interactive learning experience to improve knowledge of concussion, its causes, recognition, assessment and management.

Material / Patients & Method

During the workshop attendees will have an interactive session hosted by Dr Michael Webb, an experienced rugby pitch side clinician. Candidates will discuss visible clues and potential signs and symptoms. On and near pitch assessments will be practiced to improve familiarity with timely and targeted neurocognitive assessments. Simulated cases will be discussed. Dr Webb will provide useful insights from his extensive experience with Ulster Rugby and international teams. He will also give helpful information on subsequent return
to play considerations. Delegates will also be given links to the IRBs online interactive learning module for doctors and healthcare professionals regarding concussion management.

Conclusion

An interactive workshop with an experienced senior sports doctor will create a dynamic and enjoyable learning experience. This is in keeping with the aspirations of SESAM and the safety ethos of this year’s conference.
Conference Workshop

Title: Focused Intensive Care Echocardiography

C Nutt¹, E Davis¹, R McKee², MJ Duffy³⁴

1. Antrim Area Hospital, Northern HSC Trust, Bush Road, Antrim, N. Ireland
2. Craigavon Area Hospital, Southern HSC Trust, Lurgan Road, Portadown, N. Ireland
3. Mater Hospital, Belfast HSC Trust, Crumlin Road, Belfast
4. Clinical Skills Education Centre, Queen’s University Belfast, Lisburn Road, Belfast, N.Ireland

Introduction

In critically ill patients, bedside echocardiography can provide useful and reliable information in a timely and non-invasive manner. Its use continues to increase in intensive care areas to facilitate and enhance haemodynamic monitoring.

Objectives

This conference interactive workshop will provide attendees with theoretical and practical skills in focused echocardiography in the critically care setting.

Material / Patients & Method

During the workshop attendees will have an interactive session hosted by experienced intensive care faculty. Attendees at the workshop will gain hands-on experience with simulators and gain valuable insight into the challenges and potential pitfalls of these techniques. Delegates will also be provided with information on how to progress their learning and advance
bedside practice.

Conclusion

An interactive workshop with an experienced intensivists and educators will create a dynamic and enjoyable learning experience. This is in keeping with the aspirations of SESAM and the safety ethos of this year’s conference.
CAP Timer©: Improving the fidelity of paediatric simulation

Samantha Lyons¹, William Marriage¹, David Grant¹, Deborah Marriage², Keith Draper³, Patricia Weir¹.

¹Bristol Medical Simulation Centre, Bristol Royal Hospital for Children, University Hospitals Bristol NHS Foundation Trust.
²Bristol Royal Hospital for Children, University Hospitals Bristol NHS Foundation Trust.
³KD Electronics, Trowbridge, Wiltshire.

Introduction: Capillary refill time (CRT) is defined as the time taken for colour to return to an external capillary bed after pressure is applied to cause blanching¹. It can be measured by pressing peripheral soft tissues or the sternum for 5 seconds until they turn white, and taking note of the time needed for the colour to return once pressure is released. Normal CRT is usually less than 2 seconds. A prolonged CRT may be a sign of shock and can also indicate dehydration and decreased peripheral perfusion. It is widely used as part of the rapid structured circulatory assessment of sick children and is incorporated into Advanced Paediatric Life Support guidelines.

High fidelity simulation manikins are designed to reproduce real patients. Despite sophisticated modeling, subtle clinical signs (e.g. CRT) that are routinely used in clinical practice struggle to be replicated. This invariably results in facilitator-candidate interaction. In the case of CRT, the facilitator often counts the number of seconds it would take for skin colour to return to normal. This consequently impacts on the realism and flow of the scenario.

We have developed the CAP Timer© which is a light-emitting device (LED) which can be used on medical simulators, that will allow facilitators to remotely demonstrate the CRT. The device is placed under the manikin's skin. Candidates are required to apply pressure to the device for 4.5 seconds before an LED comes on. The facilitator is able to vary the amount of time the LED is on full before it fades.
Objectives: To evaluate user-acceptance of the CAP Timer® for assessing CRT in paediatric simulation scenarios.

Method: The CAP Timer® was incorporated into 1 manikin on 4 consecutive meningococcal septicaemia simulation-training days. Following informed consent, candidates were re-familiarized with the device during pre-scenario orientation and encouraged to assess CRT as they would in clinical practice. At the end of the training day, candidates completed a short questionnaire on their previous simulation experience, their experience of the CAP Timer® on the course and how useful and realistic they found the device.

Results: 75 candidates completed the questionnaire; 45 (60%) were doctors, 30 (40%) were nurses. All candidates reported using CRT in their clinical practice. 51 (68%) of candidates participate in simulation training twice a year or more. 49 (65.3%) candidates had used CRT in simulation previously, all using the "counting method". All candidates witnessed the use of the device during the course, 40 (53.3%) personally activated the device. 72 (96%) stated the CAP Timer® added realism to the scenario. The device was reported as being "very" and "extremely" useful by 19 (25.3%) and 39 (52%) of candidates respectively. 71 (94.6%) candidates stated that the CAP Timer® made the simulation experience more realistic compared to manikins without the device. 73 (97.3%) candidates reported they would like to see the device used in simulators in the future.

Conclusion: In simulation we strive to make the appearance and behaviour of the simulator match reality as closely as possible. This encourages candidates to interact with the manikin and scenario as they would in clinical practice. The results of this survey firmly support the fact that the CAP Timer® is a useful tool that adds to the fidelity of simulation. The development of the CAP Timer® is yet another step towards bridging the gap between simulation and reality.

References
Simulation for Cardiac Surgeons: Complete Training Program in Minimally Invasive and Robotic-assisted Cardiac Surgery

Alexey Arkhipov, Tatyana Kuznetsova, Irina Boytsova, Vidadi Efendiev, Alexander Karaskov

Academician E.N.Meshalkin State Research Institute of Circulation Pathology, Novosibirsk, Russian Federation

Introduction: Simulation is widely used in the training programs for the surgeons of different specialties except the cardiac surgery due to some technical challenges. Over the past decade, an interest to minimally invasive cardiac surgery has been grown. This growth has been driven by a desire to translate many of the observed benefits of minimal access surgery, such as decreased pain and reduced surgical trauma, to the cardiac surgical field. Due to the high level of complexity, these cardiac surgical techniques are not widespread yet. To gain the initial skills and experience in minimally invasive cardiac surgery, a surgeon has to visit few different hospitals for the clinical observation and training, wasting a lot of valuable time.

Objectives: Our goal was to develop and evaluate a simulation based clinical skill training curriculum, including all existent minimally invasive techniques used in contemporary cardiac surgery.

Material & Methods: Academician E.N.Meshalkin Novosibirsk State Research Institute of Circulation Pathology provides more than 12 000 heart surgical procedures per year. In 2011 we started a minimally invasive surgical program. Today we are the only cardiac surgery center in Russia performing the whole spectrum of thoracoscopic, minimally invasive and robotic cardiac surgery. This status and the high volume of performed procedures encouraged us to create a simulation based clinical skill training curriculum for residents and experienced surgeons. Our intention was to provide a surgeon with a whole range of new skills in minimally invasive and robotic-assisted cardiac surgery for a short term. The curriculum consists of following stages: 1) Clinical lectures with live video broadcasting from the OR; 2) Dry lab with real minimally invasive and endoscopic instruments and different types of box
simulators; 3) Wet lab with different types of animal specimens (vessels, pig hearts, animal chests); 4) Robotic surgery course with virtual reality simulator and training instruments with the real system in the OR; 5) Live cases observation in the OR.

**Results:** For two years since the curriculum had been established, we carried out sixteen 108-hour simulation sessions for 42 cardiac surgery residents and eleven 72-hour sessions for 27 experienced cardiac surgeons from other hospitals. Moreover, there were eighteen 72-hour simulation sessions for staff cardiac surgeons of our hospital. For hospital staff surgeons robotic virtual simulator, endoscopic tower and box simulator are accessible 24/7. The leading surgeons had been recruited as the faculty and were responsible for developing and implementing a simulation program. Surveys of participants showed: 98% participants approved simulation based training, and would like to take more. 84% of faculties answered that participants’ personal clinical skill and teamwork ability significantly increased. All participants had passed the exams after completing the course. In twelve other hospitals the trained surgeons began to use new technologies in their clinical practice.

**Conclusion:** The simulation based clinical skill training curriculum is an effective method to improve knowledge and clinical performance ability in healthcare professionals. Concentrating of different surgical technologies for minimally invasive management of congenital, acquired, ischemic heart diseases and rhythm disturbances in one curriculum provides a resident or experienced surgeon with all necessary skills and knowledge for a short term, what has an evident economic effect.
To optimize prehospital CPR- performed by fire fighters.

Anna ABELSSON¹, Christer AXELSSON²

1. Department of Health Sciences, Karlstad University, Karlstad, Sweden
2. School of Health Sciences, University of Borås, Borås, Sweden

Introduction In Sweden, firefighters are dispatched on cardiac arrests when there are no ambulances available. The fire fighters are trained to provide immediate CPR and all fire trucks are equipped with defibrillators. Fire fighters encounter a variety of cardiac arrest scenarios, both on the scene of the accident but also in people’s homes. All these realities are incomparable to in- hospital emergency care. Some example are traumatic cardiorespiratory arrest, electrocutions, drowning, and hyperthermia.

The advanced level of CPR comprise good quality chest compressions containing adherence to rate, depth, full recoil and fraction. It also include ventilation of the patient using basic skills with pocket mask or bag mask. Resuscitation training is performed through simulation with manikins. CPR prompt together with feedback devices improve CPR skills acquisition. These devices are therefore preferred during CPR training for all healthcare professionals.

The objective with the study was to measure the level of knowledge development of low-dose, high-frequency CPR training with feedback on fire fighters.

Method Participants performed CPR for two minutes as a pre-test on a Laredal Resusci Anne QCPR. Two hours of theoretical education in anatomy and pathophysiology was completed. Participants practiced thereafter low-dose, high-frequency CPR for one month. The training consisted of two minutes training with feedback during every shift. The spring simulating the thoracic resistance were changed randomly without the participants’ knowledge. The springs alternating between, required 30kg, 45 kg or 60 kg chest compressions to achieve correct compressions. The month of training were ended with a 2 minute post-test. The data were analyzed with SPSS.

The participants answered a questionnaire immediately after the pre-test and again immediately after the post-test. The questionnaire incorporated history of prior CPR training and CPR experience. The participants’ self-assessed skills were answered through four multiple choice questions regarding compression rate, depth, recoil and ventilation volume.
Results The pre-test presents the participants initial CPR skills compared to their self-assessment. The result show detailed information regarding compression depth, rate, recoil and fraction. It also show volumes of ventilation. The post-test presents the participants enhanced results after one month low-dose, high-frequency training consisting of two minutes CPR training per shift. These results identify the skill enhancement amongst the participants. Self-assessed CPR skills are compared pre- and post-test to identified improvements of the participants’ sense of correct CPR performance.

Conclusion To practice CPR with low-dose, high-frequency training create a muscle memory amongst the participants. A sense of compression depth are adapted to the patient’s body (manikin) which vary from 35-60 kg. Educational interventions are through feedback able to be evaluated to ensure the CPR quality. Feedback enable the fire fighters to act correctly in actual cardiac arrests which will improve patient outcome.

The Institutional Review Board conducted an ethical assessment.

Competing interests The authors declare that they have no conflict of interests.
Simulating reality: preparing undergraduate nurses to administer medications in the real world.

Carolyn Hayes¹, Debra Jackson², John Daly¹, Patricia Davidson³, Tamara Power¹.

Institution 1, University of Technology Sydney, Institution 2, Oxford Brookes University Oxford, Institution 3, John Hopkins University Baltimore.

Introduction: It has been universally recognised that medication errors in the clinical environment most often occur as the result of interruptions during medication administration. The primary response has been to introduce strategies that aim to eliminate interruptions. However, some interruptions are unavoidable in the clinical environment. Students are currently taught to administer medications in a calm and sterile environment. However, in the clinical environment they find themselves faced with the reality of administering medications amidst multiple interruptions.

Objectives: To explore and understand the impact of simulated interruptions on undergraduate nursing students during medication administration.

Method: A simulation role-play experience was embedded within a second year nursing subject of a large Australian metropolitan university. Subsequent to this experience, qualitative data was collected in June and November 2013 from student guided written reflections (n=451) and academic email interviews (n=8).

Results: Thematic analysis of the data highlighted the importance of prioritisation, communication and teamwork; an awareness of the patient perspective; knowing what to expect in the clinical environment; increased self-efficacy; and, insights into the effects of interruptions on the medication administration process.

Conclusion: Ensuring safe administration of medications in the face of unavoidable interruptions necessitates the preparation of nurses who are adequately prepared to use critical thinking skills that result in sound clinical judgments. Providing students with the opportunity to practice and reflect on the skills required in a realistic and
safe setting is fundamental to achieving these outcomes. Carefully planned, innovative learning experiences encourage students to consolidate and integrate both new and prior knowledge and skills. Supporting undergraduate nurses to identify strategies to manage interruptions during medication administration confidently and safely, is essential to reduce the risk of error.
21st Annual Meeting of
THE SOCIETY IN EUROPE
FOR SIMULATION
APPLIED TO MEDICINE
THE WATERFRONT | BELFAST | NORTHERN IRELAND | 24–26 JUNE

WORKSHOP ABSTRACTS
21st Annual Meeting of THE SOCIETY IN EUROPE FOR SIMULATION APPLIED TO MEDICINE
THE WATERFRONT / BELFAST / NORTHERN IRELAND / 24TH–26TH JUNE / WWW.SESAMBELFAST2015.COM

PRE-CONFERENCE WORKSHOPS
ASPE – Pre-conference workshop

Title: Developing a Simulated/Standardized Patient Case: How to reach Authenticity?

Carine Layat Burn, HE-ARC University of Applied Sciences, Switzerland
Melih Elcin, Hacettepe University, Turkey
Karen Lewis, George Washington University, United States

Introduction
In the field of SP methodology, meaningful and specific structure for writing a simulated/standardized patient (SP) case is a prerequisite in creating a simulated clinical experience and necessary to efficiently training SPs to portray the case.

Writing an SP case is a collaborative process between health professionals, SP trainers and SPs. SP contribution in developing a case is highly productive for reaching authenticity of the SP history and represents a unique opportunity to integrate the patient’s perspective in developing communication skills and other facets of professionalism.

This workshop focuses on offering different key strategies for SP case development skills, whether you are inexperienced or experienced in SP methodology. During the workshop, you will use the Association of Standardized/Simulated Patient Educators (ASPE) template to create an SP case. As a part of this process, you will write an SP case and discuss the strategies used to make it real.

Objectives
At the end of the pre-conference workshop, attendees will be able to:
- Identify key elements and strategies for SP case development
- Create an SP case based on the ASPE template
- Identify benefits of different strategies for case development
- Identify challenges of different strategies for case development
- Apply key strategies for SP case development in your own context

Material/Methods
We will briefly cover underpinning educational principles related to SP case development applicable to the context of SP methodology and hybrid simulation. Based on a pre-existing template, participants will write a case in small groups. Discussion based activities will enable sharing of participants’ experiences and consideration of applications of SP case development in other settings. The workshop is strongly interactive, requiring participant direct involvement throughout.
Format: Large group discussion, small group activities.

Audience: novice to intermediate
Developing and delivering a regional simulation faculty development course (FDC)

Mr Mark Hellaby (1) (2) & Dr Doogie Whitcombe (2)

(1) North West Simulation Education Network, NHS Health Education North West
(2) Central Manchester University Hospitals NHS Foundation Trust

Learning Objectives

1) Recognise the need for simulation faculty development
2) Discuss the range of potential content for a faculty development course
3) To discuss an example of a regional multi-professional FDC facilitated in the NW of England
4) To examine the barriers, incentives and enablers when setting up a FDC
5) To share quantitative and qualitative data from the first 4 years of the course
6) To demonstrate how a FDC can be a foundation for the continued development of faculty

Expected audience

Organisations or individuals exploring or developing simulation faculty development programmes.
Individuals interested in quality assurance of simulation based learning events and continuous professional development of simulation faculty.

Abstract

It has been recognised that simulation faculty development is often overlooked (Anderson, 2012; Bentley & Seaback, 2011; Nehring et al., 2013) and when it is provided there is no clear consensus on content and learning outcomes (Jeffries, 2008). This session explores the need for formal simulation faculty development to increase confidence and competence in delivery thus assisting in quality assurance of simulation based learning events.

In 2010 a simulation strategy, for the North West of England, was written following a request from the National Health Service (NHS) strategic health authority. This document highlighted the need to develop a regional faculty development program to ensure high quality simulation education sessions across the North West. (NHS NW, 2010). This led to the development of a regional
simulation faculty development course by the North West Simulation Education Network (NWSEN). The course comprised of two independent face to face days, one focusing on technical aspects of simulation and the second on the educational aspects. These days were supported with on-line pre-learning modules and post course mentoring to form a blended learning event. The course was funded regionally and delivered free for candidates working in the NHS or higher educational institutions in the NW. The course has evolved over the past four years and reasons behind these changes will be explored. Analysis of feedback from the first four years of delivery will be shared along with learning outcomes for each element. We will conclude the session with out 10 top tips for setting up your own regional FDC.

References


NHS NW. (2010). Supporting Simulation Education within the NHS in the North West. NHS North West. Manchester; UK
Pre Conference Workshop

Multi-professional team training at the operating theatre: New low cost simulation concepts.

Anna Sofie Mundt, Anne-Mette Helsoe, Giuseppina Kunstek and Marlene Mohr

Danish Institute for Medical Simulation

Objectives:

Training situations that involves the whole team still pose logistical and technical challenges despite the impressive work that Roger Kneebone and his team has done and despite that a solution is thought for for decades, dating back to the early days of surgical team simulation in Basel, Switzerland in the 1990. We made some progress in this regard with promising low cost ideas that are easy to implement. We would like to present those solutions and make them available for try outs.

* To inspire simulation educators to create simulation environments that engage the multi-professional team with low cost surgical solutions.

* To allow the trial of technical solutions to create engaging tasks for surgical team members.

* To discuss conceptual ideas for creating relevant surgical team training sessions that address the interplay of technical and non-technical skills

Expected audience:

Scrub nurses, surgeons, anaesthesiologists, nurse anaesthetists, and educators and all interested in operating theatre simulation. Maximum 24 participants

For the rotation, we will form three groups, of up to 8 people. They take the roles of surgeon, scrub nurse, anaesthesiologist and anaesthesia nurse, floor nurse and observers. Participants will role play a full operating theatre team during the scenarios at the stations. These groups rotate between different stations with a different simulator at
each station. The stations comprise an orthopaedic, a laparoscopic and an open abdominal surgery simulator. At each station the scenario will take about 20 min followed by 20 min debriefing. During the workshop there will be time to discuss the scenarios and to try the simulators.
Integrating Simulations into OSCE Stations for Performance-based Assessment Objective

Objectives: At the conclusion of the session, participants will be able to:
1) Describe the rationale, advantages, and disadvantages of using OSCEs in general, and simulation-based stations in particular, for clinical assessment
2) Discuss and implement the practical steps required to set up and run OSCEs, with particular attention to stations employing simulations for clinical skills testing
3) Develop scoring instruments that may be used with simulations in an OSCE setting

Coordinator: Ross J. Scalese, M.D., FACP

1Gordon Center for Research in Medical Education, University of Miami Miller School of Medicine, Miami, Florida, United States

Structured Clinical Examinations (OSCEs) are currently used worldwide for performance-based assessments at all learner levels. Simulations have been used with increasing frequency in OSCE examining stations because they offer advantages of programmability, representation of pathologic findings that standardized patients cannot mimic, and ability to test invasive procedural skills without risk of harm to real patients. In addition, the reproducibility of testing scenarios using simulations is important when high-stakes decisions hinge on these assessments.

This workshop will actively engage participants in detailed discussion of the steps required to design and execute OSCE stations that employ simulations (including mannequins and task trainers). Considerations will include development of scoring instruments (checklists and rating scales) for use in these assessments. Participants will plan and actually run a small-scale mock OSCE, giving them practical, hands-on experience with these testing methods, which they can then use to implement simulation-based OSCE stations at their home institutions.
Prehospital Q CPR Choreography

Zeynep Sofuoglu 1, Turhan Sofuoglu 1, Melih Elcin 2, Ismail Umit Bal 1, Emine Vatansever 3, Ahmet Ozcevikel 3, Gokhan Akbulut 4  
Emergency Ambulance Physicians Association (AAHD) 1, Hacettepe University Department of Medical Education 2, Izmir Ambulance Services 3, 4 Tepecik Research and Training Hospital  

Objectives:

1. Defining possible interruption situations for prehospital CPR.  
2. Practicing Q CPR with real time monitoring device. 
3. Performing Q CPR. 
4. Applying mechanical CPR device. 
5. Achieving team work and assessment. 
6. Team debriefing 

Expected Audience; Prehospital health providers, paramedics, EMTs and medical students. (maximum 24 participants)
Prehospital simulation differs from others
Anna ABELSSON¹
1. Department of Health Sciences, Karlstad University, Karlstad, Sweden

Objectives: The unique characteristics of prehospital simulation
Simulation in pre-hospital emergency care has a variety of special characteristics which must be considered. It can be used for mass casualty incidents as well as for the treatment of one single patient. Simulation can be used to train medical or non-medical issues like the treatment of an acute myocardial infarction or the strategic approach to a crime scene. The places where pre-hospital simulation are conducted are endless in number because emergencies happen everywhere. To gain the highest impact on learning it’s essential to be aware of all those special characteristics

08:30 Gathering at the registration area on the 24th Juni.
Public transport to local Northern Ireland Ambulance Station.
We are guided around Belfast ambulance station. Presentation of the national ambulance service: The Northern Ireland Ambulance Service (NIAS).

Prehospital training center. Presentation of an example of a collaboration between the ambulance organization and the University. Anders Sterner and Lars Lundberg

Expert panel discussion. How do we preform prehospital simulation in our countries?
Panel including:
The South East Coast Ambulance service UK, Simulation lead, Lee Busher
Collage of Paramedics Sweden, Anders Sterner
The Swedish Armed forces, Lars Lundberg
PH-SIG, Chair of the board, Kai Kranz
SESAM Spanish Society- SESSEP, Vice-President, Esther Leon

Bringing all together. Discussion about the future. PH-SIG, Chair of the board, Kai Kranz

Expected audience: Educators and prehospital staff, directors, researchers and others with a prehospital special interest.

Requirements/Special needs: Non. The prehospital preconference course is taking place at the local ambulance station in Belfast hosted by The Northern Ireland Ambulance Service.
WORKSHOPS 1
Telemedicine; a new but useful multi-tool in simulation

Kjetil Torgeirsen, Dag Erik Lutnes, Lena Heimvik, Helge Lorentzen, Arne M.C. Evensen
SAFER (Stavanger Acute medicine Foundation for Education and Research), Statoil ASA

Objectives:

The workshop participants will be able to attend a scenario where they can experience being debriefed from a remote location.

After this workshop, the participants should know:

1. What opportunities and challenges this technology represents in technical and educational aspects for the involved users/organizations.
2. The principles of how to use simulation as a tool in the implementing of telemedicine equipment for clinical use.
3. The principles of how to integrate the remote facilitator and the equipment in the curriculum design and in the running of the simulation

Expected Audience:

All levels of experience in simulation from novice to expert, with experience in or curiosity for telemedicine and the use of this technology in simulation.
ASPE 90-min Workshop

Title

The Pursuit of Fidelity – Intensifying Realism in Hybrid Simulations (with special emphases on SPs and IPE)

Lorraine Lyman, Eastern Virginia Medical School, USA
Kathryn A. Schaivone, University of Maryland School of Nursing, USA
Melih Elcin, Hacettepe University Faculty of Medicine, Turkey

Introduction

One of the major goals in simulation is to achieve the level of realism to allow the learner to carry out the required tasks, perform to their highest ability and to be fully engaged. In designing a hybrid experience the addition of trained confederates, simulated patients, family members, team members (or any simulated role) may be needed to meet the educational objectives.

Interprofessional education is the proposition that when students learn together, they recognize the value of collaborative practice and its contribution to better patient care. Interprofessional learning through simulation provides encounters that are contextual, experiential, reflective and active without harm to actual patients, in a safe and controlled environment.

The quality of the role portrayal has immediate and specific impact on the fidelity of the simulation and the outcomes of the experience particularly for the interprofessional learners. All participants in the simulation must be properly prepared or trained. There is an established methodology for training standardized/simulated patients (SPs) that has proven to produce very realistic and standardized portrayals. Some hybrid simulation roles do not require intensive in-depth training, but realism and reproducibility is still an important feature to maintain the integrity of the total simulation.

Core techniques from the well-established SP methodology are presented for preparing hybrid simulations and situations that require realistic portrayals especially in IPE.
Objectives
The goal of the workshop is to provide participants an opportunity to:

- review and define hybrid simulation scenarios with simulated roles
- discuss how to develop and implement hybrid simulations in IPE
- identify core SP training techniques required to train realistic portrayals for roles used in healthcare simulations.

Material/Methods
We will present hybrid simulation, interprofessional education and standardized patient methodology. The participants will share their experiences and/or expectations. The workshop will continue with small group activities on developing hybrid simulation cases for IPE and creating simulated roles.

Format: Combined short didactics and small group activities.

Audience
Novice to intermediate.
Bringing Non-Technical Skills Alive with the Reconstruction of Historical Exhibitions

Peter Dieckmann 1, Patrik Nyström 2, Helge Lorentzen 3, Pina Kunstek 1, Doris Østergaard 1

1 Danish Institute for Medical Simulation (DIMS), Denmark, 2 ARCADA Simulation Centre, Finland, 3 SAFER Simulation Centre, Norway

Objectives:
Developing a sound understanding of how non-technical skills are related to effective and safe healthcare is a difficult challenge for simulation educators. Such a deep understanding is needed for scenario design and debriefing. The idea of this workshop is to take the medical expertise of the participants out of the way and to investigate non-technical skills in the context of historical exhibitions – an “off-the context” setting for participants at SESAM. The workshop is part of a successful series and was tried before with a group of human-factors specialists.

The aim of the workshop is to allow for an experience episode in the context of the role-played reconstruction of challenging situations that can serve as the trigger for deep reflections about the impact of non-technical skills on technical performance.

The exhibition situations are chosen for several reasons: They crystallize the impact of the emotional parts of human beings on their actions and they provide for engaging narratives.

Plan for the conduct
15 min introduction to the workshop and the faculty
10 min narrative setting the scene of the exhibition (the 1996 Mount Everest Exhibition Desaster). Many people tried to reach the summit under difficult conditions and needed to make decisions of life and death.
25 min role play re-enactment of the scene
30 min debriefing with the focus on how emotions impact actions
10 min open discussion

Expected Audience
Educators Working in Healthcare who are interested in improving their understanding of non-technical skills
Human Factors in Trauma Team- Does it matter?

Dr Salanke, Dr Yeo, Mr Gupta, Dr Boland, Mr Monga, Dr Chavan, Dr Majeed, Sis Brown, Sis Galea

Department of Emergency Medicine, New Queen Elizabeth Hospital, Birmingham, UK

Abstract

Objective: To determine if medium fidelity simulation based trauma team training can improve multidisciplinary clinical team performance in poly trauma management.

Setting: Level 1 Tertiary trauma centre.

Participants: Medical and Nursing Trauma team members.

Design: This is a novel medium fidelity simulation training course designed to simulate the first 30 minutes of management of a polytrauma patient in the Emergency Department. The management is real time thus allowing development of team leadership, interpersonal dynamics, time management and generic skills required in the initial management of a polytrauma patient.

Participants are divided into teams of 4 doctors and 3 nurses with a designated Trauma Team Leader (TTL) and Lead nurse. The teams are taken through four different clinical scenarios of graduated difficulty in real time. Procedures including basic airway adjuncts to difficult airway management, intercostal chest drain insertion, pelvic binder application, limb splints, difficult vascular assess and plaster of Paris (POP) may be required in the management of each case. Nursing roles include scribing, drug/blood administration and assistance with procedures. Each scenario takes approximately 30-40 minutes to complete, emulating normal practice in the ED.

The following workshops were undertaken: Intercostal chest drain insertion, Advanced Airway Management, POP/Intraosseous needle application and Pelvic/ Limb splints.

Clinical and non-clinical performance was feed back after each clinical scenario with the trauma team leader (TTL) given additional feedback based on the Flowerdrew model. Feedback forms evaluating the understanding and confidence of trauma management pre and post course was collected.

Results: 12 courses have been successfully conducted.

179 participants were questioned about administration and programme evaluation on a 5 point Likert scale (1- Strongly Disagree to 5- Strongly Agree) – Mean (with 95%CI)

- The course was relevant to my clinical practice 4.85 (4.80-4.91)
- The clinical topics was presented clearly 4.72 (4.64-4.80)
- The presentation was well organised 4.72 (4.64-4.80)
- Facilities and equipment provided 4.79 (4.73-4.86)
- The presenter showed a good understanding of the topic 4.89 (4.85-4.94)
- Time management 4.52 (4.42-4.62)
- Was feedback relevant and appropriate 4.70 (4.62-4.77)
- Will this change/improve your clinical practice 4.70 (4.63-4.79)
- Would you recommend to do it regularly for update 4.67 (4.58-4.76)
- Overall scoring of course 4.80 (4.73-4.86)
79 participants (46 Doctors and 33 nurses) were questioned in last four courses (46 Doctors and 33 nurses) about the evaluating the understanding and confidence of trauma management. A pre and post course evaluation on a 6 point Likert scale (1- Strongly Disagree to 6- Strongly Agree) - Mean change in score from pre to post with 95% CI

- Lead a multi-disciplinary team +1.45 (1.16-1.75)
- Manage major trauma +1.52 (1.29-1.75)
- Understand individual roles in the trauma team +1.54 (1.26-1.83)
- Take a proactive role when some else is leading the team +1.39 (1.06-1.73)
- Anticipate and plan ahead in a trauma +1.50 (1.16-1.84)
- Prioritise my work depending on clinical needs +1.23 (0.99-1.57)
- Communicate effectively with colleagues +1.35 (1.06-1.64)
- Ability to debrief successfully team +1.22 (0.95-1.49)

Conclusion:
The simulation course appears to be a promising method for enhancing didactic teamwork training in managing polytrauma. This approach, using simulation, is more representative of normal environment and is therefore the preferred model in which to perform teamwork training and advanced trauma management. This may be of increasing importance as the model of polytrauma management shifts to larger Level 1 Trauma centers, resulting in decreased exposure and training opportunities for small trauma units. Other further advantage of this course is that it allows for differences in the regional / national management of trauma patients to be incorporated into the training programme easily. The human factors/non technical skills training appear useful in the team dynamics and performance, but further research is needed.

References
1. Flower drew model

2. NHS national factors concordat
Organisation of Workshop
Title- Human Factors in Trauma Team- Does it matter?
Expected Audience- Medical staff, Nursing staff, paramedics and Medical students
Requirements/specific needs: Table/trolley, ALS manikin, airway and chest drain kit, Thomas splint,
Feedback to Trauma team leader and Team based on Flower Drew Model.
The workshop will initially start with brief demo of management of polytrauma by faculty. Volunteers from the audiences will be encouraged to role play the trauma team. Teaching and discussions about the role of clinical and non clinical skills during the workshop. The emphasis will be mainly on the human factors in trauma team and patient care
Organisation of Workshop
Title: Human Factors in Trauma Team - Does it matter?
Expected Audience: Medical staff, Nursing staff, paramedics and Medical students
Requirements/specific needs: Table/trolley, ALS manikin, airway and chest drain kit, Thomas splint,
Feedback to Trauma team leader and Team based on Flower Drew Model.
The workshop will initially start with brief demo of management of polytrauma by faculty.
Volunteers from the audiences will be encouraged to role play the trauma team. Teaching and
discussions about the role of clinical and non clinical skills during the workshop. The emphasis will be
mainly on the human factors in trauma team and patient care
Title: From idea to scenario in 1 hour (Workshop)

Coordinator 1: Marlene Mohr, MD, Coordinator 2: Anne-Mette Helsø

Institution: Danish Institute for Medical Simulation

Presenting author: Marlene Mohr, MD

Abstract:

Very often we get excited by a critical episode we have experienced and we really want to share this with our students. We try to extract learning from our own experience into the course. But reconstructing the past doesn’t necessarily create learning in the future.

A well designed scenario is recognized by being loyal to the learning objectives defined in the curriculum. The reconstructed context is easily recognized by the participants as the context the competences are to be transferred to. The scenario represents a situation, in which it is easy for the participants to do, what we want them to train. A well designed scenario gives the instructor the possibility to change the level of complexity during the scenario, so the participants are neither bored or overloaded.

Objectives:

In this workshop we start by defining learning objectives with respect to the curriculum. The participants will stepwise build a scenario together and test the scenario in only one hour.

The shown method is directly applicable when simulation courses are part of a curriculum.

Expected Audience:

Anyone who want to know more about, how to write a scenario. The participants will be active during the whole workshop and no specific skills or experience is needed to attend this workshop.

We recommend a maximum of 25 participant, but if more people shows up we will engage them in the process too.
WORKSHOPS 2
Title: Skillful communication is more than a series of good communication skills: Training the SP in Learner – Centered feedback.

Authors: Gayle Gliva-McConvey, Jan-Joost Rethans, Carine Layat

Overview

Standardized/Simulated Patients (SPs) are individuals who are trained to portray a patient with a specific condition in a realistic, standardized and repeatable way (where portrayal/presentation varies based only on learner performance). SPs also provide feedback from the patient perspective and as the “consumer” of the learner’s interpersonal and communication style.

Specificity in both patient portrayals and feedback provided by the SP is an important feature to maintain the integrity of learning. When done in the right way and with the right intentions, feedback is the avenue to performance and behavioral changes and ultimately confidence. Learners need to have specific suggestions on demonstrated behaviors to improve, however, that feedback has to be delivered carefully and frequently while creating a safe environment.

Giving feedback effectively is a skill. And like all skills, it takes practice to build confidence and improve. Training SPs in giving feedback must be methodical and based in a well-defined process. It can’t be completely objective because things will be missed, it can’t be completely subjective – the learner may not know what is important and unable generalize skills outside the individual SP interaction.

The approach to training SPs in feedback requires some core techniques and methods but may range in facilitation, format and the instrument/tool that is used. This workshop provides a range of methods that are in place at several institutions which challenges the audience to think about how to customize SP feedback in their own institutions.

Learning Objectives: By the end of the session, participants will be able to:

- Identify and explain the core techniques of SP Feedback
- Summarize and differentiate several methods to train SPs in feedback
- Determine the value in training SPs and make the link from subjective emotional reactions to objective tools
- Construct SP feedback method to be used at their own institution

Intended Audience: Any

Session Format: Didactic presentations, small group activities and observing audiovisual performances.
Modern safety theories and simulation – Beyond the Swiss cheese

Nyström Patrik 1, Dieckmann Peter 2
Arcada 1, DIMS 2

Objectives: The objective of this workshop is to address the many questions that rise from the ideas of Safety II in regard to simulation-based education. By highlighting different views on safety we achieve a broader understanding of the complex system we function in. This helps us understand the human performance we try to teach/enhance in the simulators.

Expected audience: All simulation enthusiasts that are interested in patient safety are welcomed to this session.

Introduction: During the last decade more questions were about the foundation of safety within philosophy. The understanding of what safety is and how it might be explained and studied have taken new directions. The latest addition to this debate, amongst many others, is provided by Hollnagel Erik in the book Safety I and II. In this workshop we address the question of what these new ways of looking at safety imply for simulation practice.

Safety II conceptualizes safety as the maximum number of events going “right” (instead of as few things as possible going “wrong” in safety I). Safety II explains events with the variability of everyday work, needed to adjust to the complex work systems as well as with “resonance” phenomena, where different parts of the system get into a common “swing” (instead of looking for root causes and moderating factors in safety I).

Traditionally we see things in Safety I as: People follow the procedures. “Work as done” is or should be very close to “work as imagined”. In Safety II we should see: People successfully adjust their actions in work as done to make sure the best possible outcome is produced even under the varying and challenging conditions of real care. The task of risk analysis is to find out, what adjustments were made and what we can learn from those adjustments. This not only for the extreme situations,
but especially also for everyday situations. The regular practice becomes the foreground in this approach.

What could safety II mean for the simulation community?
For the design of scenarios and the conduct of debriefings safety II has the implication of a) selecting such more “mundane” situations and b) analyzing them not so much in the logic of finding errors, but from the logic of understanding the variability of work, adaptations to the context and how both impacted safety. In concrete terms it is a question of where scenarios and debriefings should focus.
Debriefing in safety I would mean to identify a problem (maybe also a good solution) and follow the path of analysis until likely cause(s) are identified (depth before breadth). This has the danger of fixating, stopping early, as “sufficient” explanations are found. Debriefing in Safety II: would consider the overview of the situation first, what parts were relevant in what way and how they impacted on the actions of those involved. Once this overview is provided, the analysis can go deeper investigating how the different elements happening in the scenario influenced each other (breadth before depth).

Description of the session:
This workshop will present a mix of interactive methods to stimulate discussions of safety theories.
Scoping practice and developing quality indicators for healthcare simulation: progress to date and next steps in the UK

Bryn Baxendale¹, Andy Anderson² & Helen Higham³
¹ Immediate Past President, ² Chief Executive Officer, ³ President

Association for Simulated Practice in Healthcare (ASPiH)

Objectives

1. To present a summary of survey data describing the current uses of simulation in healthcare gathered from the national scoping project undertaken in the UK under the auspices of the Association of Simulated Practice in Healthcare (ASPiH), Health Education England (HEE), and the Higher Education Academy (HEA).

2. To highlight the common issues identified in undergraduate and postgraduate educational contexts that influence effective design and delivery of simulation based training and to propose potential solutions for discussion.

3. To illustrate and summarise the lessons learnt when facing the constraints and complexity of gathering comprehensive data on a local and national scale involving many different stakeholders organisations and networks.

4. To explore future work streams that will promote a cohesive and collaborative approach to the development of relevant standards and indicators for commissioning and evaluating high quality practice in healthcare simulation.

5. To discuss the potential value of such a project as part of the purpose of a national simulation society and provide guidance to other national associations if considering or currently undertaking similar work.

Expected audience

This session will be of interest to colleagues involved in promoting or commissioning high quality simulation-based activity at a local, national or organisational level, and also to Directors and Business Managers of established or new simulation centres / programmes with an interest in quality assurance, standards, and financial as well as educational governance of simulation-based practice.
How to implement regular team self-debriefing across clinical environments?

Dr Cristina Diaz-Navarro¹, Dr Andrew Hadfield², Dr Katja Empson¹, Dr Melissa Rossiter¹, Dr Stuart Gill³.

¹ Cardiff and Vale University Health Board, ² Betsi Cadwaladr University Health Board, ³ Hywel Dda University Health Board.

Objectives:

We have developed TALK© a widely applicable framework for structured team self-debriefing to be used after unplanned learning events in clinical environments. The aim of this tool is promote reflection within clinical teams, to empower individuals to initiate learning dialogues and to identify and reinforce positive behaviours and strategies in order to advance a supportive culture of collaborative learning.

We would like to use this tool to contextualize a discussion on:

- How best to achieve meaningful peer debriefing in clinical workplaces which might take place in the absence of expert facilitators whilst preserving psychological safety and an emphasis on positivity.

- How to bridge the gap between simulation based and clinical based learning.

We are also presenting “Learning to TALK©”, a training package designed to train and empower staff in the use of the TALK© framework. It draws on environment specific guided reflection exercises with an emphasis on identification of latent errors, recognition of successful clinical strategies and behaviours and multi-professional communication.

This project has been developed by anaesthetists, emergency physicians, clinical psychologists, senior nurses and quality improvement experts. It has undergone initial peer review by undergraduate and postgraduate medical educationalists. We would expect this workshop to contribute further to the peer review process.

Expected Audience:

Any simulation faculty with an interest in debriefing in clinical environments.
WORKSHOPS 3
Scenario Development for Interprofessional Education using Standardized Patients and Manikin Simulations

Monika Brodmann Maeder, MD, MME; Uwe Meyer, RN; Thomas Sauter, MD

Department of Emergency Medicine, Inselspital, University Hospital Bern / Switzerland

Objectives:
The workshop should

- Deepen the knowledge of interprofessional education IPE and collaborative practice CP
- Sensitize participants to the challenge of team trainings as a form of IPE
- Work as forum for discussions about team composition during development and implementation of simulation scenarios with focus on IPE
- Enable participants to develop simulation scenarios using SPs and / or manikins with the goal to improve collaborative practice

Expected Audience: Representatives of all professional groups involved in interprofessional or team simulations. Max 15 participants
ASPE short workshop: 45 mins

Title
Role Players in Pre-Hospital Simulation: Are They Simulated/Standardized Patients?

Authors
Karen Lewis, George Washington University SMHS, United States
Tonya Thompson, Arkansas Children's Hospital, University of Arkansas for Medical Sciences, United States
Grace Gephardt, Arkansas Children’s Hospital, United States

Introduction
Traditionally, well-trained Standardized/Simulated Patients (SPs) have proven to be an effective simulation modality for addressing a variety of healthcare professionals’ learning needs, especially in the areas of communication, professionalism, and patient safety. Incorporating task trainers, moulage, and other props has extended SP practice into procedural, operative, mass casualty, and first responder arenas.

Many times, simulation training sessions for first responders involve the use of volunteer participants as patients. While using volunteers in this manner can be helpful, it is sometimes more effective to hire and train SPs for some simulation training sessions. Using SPs can provide a more robust, effective training and support the educational objectives of the training more comprehensively. SPs also have the added value of being able to provide feedback from the patient perspective and consistency in high-stakes exams.

Objectives
At the end of this workshop, participants will be able to
- Define the terms Standardized and Simulated Patient and distinguish them from the term role players
- Apply criteria to determine when SPs would be the best choice for meeting curriculum objectives
- Devise SP training materials for a pre-hospital simulation training session that incorporates an SP

Methods
- Introduction and needs assessment of participants
- Group discussion of the terminology
- Leader presentation of criteria for determining whether to place SPs in the scenario followed by participant practice with several training/exam session descriptions
- Leader presentation of SP training material template
- Group selection of pre-hospital simulation training session that incorporates an SP
- Group creation of SP training materials for session
- Closing remarks and evaluation

Conclusion
The widening scope of SP practice suggests that pre-hospital educators consider thoughtful responses to curricular needs. Appropriately incorporating SPs into training sessions may be a creative and more effective way to meet curricular objectives.

Audience: novice to intermediate
Workshop for SESAM 2015

A Rough Guide to Simulation Fellowships

Dr Andrew McKechnie¹, Mr Wayne Mcgeary²

Kings College Hospital London¹, Royal Surrey County Hospital ²

The key objective is to gain an understanding of simulation fellowships and how to make them a success.

The concept of fellowships in simulation is becoming increasingly common in the UK but less so in Europe. A fellow can fulfil a number of roles within a simulation department but truly getting the most benefit for the fellow and the faculty is difficult and requires a great deal of organisation, teamwork and appropriate funding.

I will discuss how I approached my year as a simulation fellow at RSCH and how I managed to achieve a number of personal goals including 4 national and international poster presentations and a post graduate certificate in medical education. I will outline how I was supported into gaining experience in all aspects of simulation (curriculum design, delivery, debrief, faculty development and management) and how this has led to an ongoing commitment to the speciality.

Wayne will discuss the aspects of having a fellow from the point of view of a simulation manager. He will outline the many organisational and issues as well as the possible benefits to a simulation department.

We will proceed to have an interactive exercise with the group to determine the ways in which a fellowship programme can be successfully integrated into a simulation centre for the benefits of both the department and the fellow.

We will also suggest a number of possible developments such as SESAM recognised fellowships or programmes and discuss as a group how these may be best implemented and achieved.

Expected Audience:

Current or prospective fellows, clinical simulation leads, simulation managers and anyone with an interest in faculty development or trainee education.
Improving students skills in patient education through simulation

Anna Holmström, RN, MCSc, lecturer, Pernilla Stenbäck, RN, MCSc, Degree Programme Director, and Patrik Nyström, RN, MSc, Degree Programme Director

Arcada- University of applied sciences
Helsinki, Finland

INTRODUCTION
Patient education is an essential part of appropriate patient care and nurses have a professional responsibility to give adequate education. Patient education is considered to be a basic competence skill in nursing and good patient education is also of economic significance (Kääriäinen, 2008, Kääriäinen & Kyngäs 2010) The continuity of care and guidance of patients can be improved by enhancing patient education (Lipponen et al, 2013). Studies reveal health personnel to consider their knowledge and skills to be largely inadequate (Kääriäinen & Kyngäs, 2010), this shows the importance to put more focus on this topic when educating students.

For students to be able to give and rehearse patient education they need sufficient competence in medicine, pharmacology, caring science and clinical skills as have the ability to combine these and theories in nursing pedagogy with different patient education methods. The student also should be able to take in consideration the patients physical, psychological and social factors when educating. This is demanding for students at any level and by simulating different scenarios the students can improve their skills in patient education. At Arcada, UAS, Helsinki, we have been simulating in patient education as a part of the nursing pedagogy course for the last two years. Even though the students have had the competence skills needed and simulation has been beneficial, they seem to have difficulties choosing patient education method in simulation. By giving students instructions in simulations to for example use the 5As model (assess, advise, agree, assist, arrange) they have the ability to the manage situation better. The 5A model is good base but needs modification to be suitable in different scenarios. Questions that have surfaced: Could students use a modified model in patient education that would increase the learning outcome? What patient education method/model is most suitable for students to use and could support them in different scenario-based simulations?

OBJECTIVE
The aim and objectives for the workshop is to gain knowledge on how to enhance patient education through the use of simulation. Participants in the workshop discuss and evaluate different patient education models suitability for students. The workshop will take 60 minutes (able to change according to timeframe). The workshop will start with introduction to the theme. Participants will be dived in small groups and given questions to work with and develop ideas on what kind of scenarios and methods could help educators teach patient education in simulation.

EXPECTED AUDIENCE
Expected audience is educators that use simulation in their teaching. Facilitators and educators that are interested in patient education and how to enhance this through simulation
REQUIREMENTS/SPECIFIC NEEDS
Computer with video projector, whiteboard or flip chart with pens is needed. Preferably small round tables for group discussions instead of chairs in a row.

References:
How do the barriers to medical and healthcare simulation change as a programme/centre matures?

Coordinators: Paul O’Connor¹, Dara Byrne¹, Crina Burlacu², Byrn Baxendale³, Demian Szyld⁴

¹NUI Galway, Ireland, ²College of Anaesthetists of Ireland, ³Trent Simulation & Clinical Skills Centre, ⁴New York University

Objectives: The objectives of this workshop are to discuss:

1. how barriers to simulation-based education change as a simulation-based education programme/centre matures. To illustrate, starting a new programme/centre may have barriers around the purchase of equipment and finding suitable staff. However, a more mature programme may have difficulties around faculty development, continued staffing, or equipment maintenance;

2. how these changing barriers can be addressed as a simulation-based education programme matures; and

3. whether the barriers that occur later in maturation of a programme could be anticipated earlier in the developmental process so that they are more easily addressed.

Expected audience: The expected audience are multi-professional simulation centre directors, programme directors and educators. It is expected that educators that are involved in less well-established simulation based education programmes might find the workshop particularly useful.
WORKSHOPS 4
Workshop at SESAM 2015

The Non-Technical Skills of the perfect crew member in the Emergency Medical Service

Thomas Lynge Andersen, Paramedic\textsuperscript{1}, Pina Kunstek, RN\textsuperscript{1}

\textsuperscript{1} Danish Institute for Medical Simulation

Objective:

Participants will after the workshop have gained knowledge of the concepts and terms of the Non-Technical Skills and be familiar with the concepts that characterize the perfect crew member at the Emergency Medical Service as well as preferred teaching methods for this.

Expected Audience: 20
Blind debriefing

Coordinator Name: Peter Bennik, Marco Kuiters, Ron Brendel, Michiel Rooijens

Institution: METS Center, Bilthoven, Netherlands

Objectives:

In this workshop participants are challenged to learn to ask questions, to listen in an active way during the debriefing of a scenario. At the same time, participants learn how to enhance the facilitator role versus the instructor role. This can be achieved via the blind debriefing.

Expected Audience:

Facilitators/debriefers, both experienced and not-experienced, teachers, simulation enthusiasts and instructors.
Ei access: 4AKM3CXT5  Abstract #: 83

Lorraine Lyman, Amelia Wallace, Alba Woolard, Gayle Gliva-McConvey, Temple West. Sentara Center for Simulation and Immersive Learning, Eastern Virginia Medical School, Norfolk, Virginia, United States, 23501.

Title: Transitioning to Transitions: Training SPs to Portray Physicians for Hand-off of Care Scenarios

Background: Transitioning patient care from one physician to another is a necessity. Accurate and pertinent information is needed to ensure patient safety. The skills sets required are complex. Practice can be useful to learn these skills.

This session will introduce training strategies to enable Simulated/Standardized Patients (SPs) to portray Simulated/Standardized Residents (SRs). Training SPs as SRs is beneficial due to their extensive experience in observing and documenting behaviors and performance. This forum allows for realistic, repeatable, standardized and controllable practice and assessment of handoff skills.

The advantages to utilizing these methods can result in quality educational experiences for our learners, less demand on faculty time and flexibility with various formats and learner levels.

Learning Objectives: By applying principles based on the methodology used in SP training and providing additional training materials and appropriate training time; SPs can be taught to realistically portray clinicians and deliver quality debriefing to learners.

Participants will be introduced to strategies that incorporate methods making it highly adaptable to most programs.

Expected Audience: Simulation Center Administrators, SP Educators, Medical Educators

Requirements/Specific Needs: Projector and speakers for video review

Description of the Session: Participants will be introduced to various handoff scenarios, faculty objectives, formats, and SP training tools.

Participants will engage in an interactive discussion on the techniques used during this process. Participants will watch a group training and handoff scenario with debriefing and discuss observations. The presenters will familiarize the participants with the techniques, supply written training materials and handoff templates for discussion, and provide opportunities to discuss methods to create a similar model to be used at varying institutions.
SESAM workshop title:

Does Video Feedback Improve CPR Performance in Medical Students?

Coordinator names:
Andrew Spence, Sonya Derbyshire, Ian Walsh, James Murray

Authors presenting workshop (from coordinators):
Andrew Spence, Ian Walsh

Institution:
All authors – Clinical Skills Education Centre, Medical Biology Centre, Lisburn Road, Belfast

Expected Audience:
Doctors
Nurses
Allied health professionals
Medical students

Abstract:

Introduction:
Mastering CPR requires repetitive practice in a safe learning environment. Improving patient outcomes is a key goal in this process and as such medical students need to have the knowledge and skills to deal with life-threatening cardio-respiratory collapse (as outlined in Tomorrow’s Doctors). As part of the undergraduate curriculum medical students at The Queen’s University of Belfast (QUB) are taught Advanced Life Support Cardiopulmonary Resuscitation (ALS-CPR).

Objectives:
This study aimed to evaluate the effectiveness of video compared to verbal feedback in assessment of student ALS-CPR performance. Interobserver variability between a consultant and junior doctor was assessed.

Material (Patients/Methods):
Two hundred and seventy-three final year students participated in this study, using a high-fidelity manikin, in the Clinical Skills Centre (QUB). Students either received verbal feedback on their performance or video feedback. Video analysis using ‘StudioCode’ software was distributed to students via the QUB Dropbox account. Each group returned for a second scenario and evaluation four weeks later. A checklist assessment tool was created for objective performance assessment.

Results:
Students having video feedback had significantly greater improvement in scores compared to those receiving verbal feedback \( p = 0.006 \). Individual skills, including ventilation quality and global score were significantly better with video feedback \( p = 0.002 \) and \( p < 0.001 \), respectively.

Student feedback on the video system was positive, with requests for increased use of video in feedback for practical procedures, for example CPR and lumbar puncture. There was moderate correlation between the consultant and junior doctor for assessment of compression depth and ventilation quality (Kappa 0.477 and 0.417, respectively). Other variables showed a strong correlation (Kappa > 0.9), due to the objectivity of the ALS algorithm.

Conclusion:
Despite increased use of simulation in medicine there is a paucity of published data comparing feedback methods in CPR training. This is one of the first studies to demonstrate the benefit of video feedback in CPR teaching. These results suggest:

1. Use of video feedback when teaching CPR is more effective than verbal feedback and enhances skill retention.
2. This method of teaching may be useful in the acquisition of other skills with the benefit of a permanent record of the competency skill level achieved – a student/doctor skills passport.
3. This may be a useful technique in the assessment of students/doctors in difficulty, allowing documentation of progress and recording acquisition of
competences in craft specialties such as surgery, gynaecology and interventional radiology.
Synergistic Integration of Educational Models to Optimize Curriculum Development

Kevin Roy¹, Danny Castro¹, Jenna Miller², David Turner³, Satid Thammasitboon¹

¹ Texas Children’s Hospital, Houston TX, ² Children’s Mercy Hospital, Kansas City MO, ³ Duke Children’s Hospital and Health Center

Objectives:

Participants will describe learning principles based on contemporary educational neuroscience

Participants will identify implicit learning models within simulation sessions

Participants will compare and contrast how various conceptual models and learning principles can be used to achieve educational objectives.

Participants will discuss the benefits and barriers of incorporating these models using a simulation-based “Boot Camp” as an example.

Expected Audience:

Simulation educators and those interested in curriculum or faculty development
WORKSHOPS 5
Telemedicine and CRM/human factor challenges

Kjetil Torgeirsen, Dag Erik Lutnes, Lena Heimvik, Helge Lorentzen, Arne M.C. Evensen

SAFER (Stavanger Acute Medicine Foundation for Education and Research), Statoil ASA

Objectives:
The workshop participants will have the opportunity to experience remote debriefing of a real time scenario transmitted from a Statoil operated oil platform in the North Sea. The scenario participants: an offshore medic, his/her first responder team and a doctor consulting live via telemedicine from Bergen Norway.

After this workshop, the participants should be able to:
1. Identify CRM challenges, experienced live or seen in a remote scenario
2. Discuss tools to handle these challenges by a remote facilitator.
3. Special considerations when designing scenarios for remote simulation.

Expected audience:
All levels of expertise in simulation from novices to experts with an interest in telemedicine technology wishing to attend an interactive workshop where they can experience new possibilities for simulation.
Stimulated Recall: Using Recordings for Remediation of Learners and/or Simulated Patients (SPs)

Alba Woolard¹, Amelia Wallace¹, Lorraine Lyman¹, Temple West¹, Gayle Gliva-McConvey¹

Eastern Virginia Medical School

Overview: Often, in debriefing and remediation, we rely solely on memory to discuss events that occurred during the simulation. A challenge with this is that observed behaviors can sometimes be clouded by the participants’ subjective impressions and individual recall. This can be particularly prevalent in situations where emotions are heightened, such as a high stakes assessment. Additionally, because memory deteriorates with the passage of time, the discussion can be clouded when extra time has passed between the simulation and the remediation. This can result in time spent deciding what actually occurred rather than focusing on what to change.

By using recordings of the simulation, the participants’ memories can be stimulated by the audio and visual cues afforded by the recording. This method was used by Howard Barrows regarding clinical reasoning and has been adapted to be used with students and SPs alike in a communication context.

Learning Objectives:

By the end of the session, participants will be able to:

Identify contexts in which stimulated recall can be useful

Utilize the steps to administer stimulated recall as remediation

Determine facilitative techniques to enhance participant learning

Intended Audience: Novice

Session Format:
Introductions and session overview

Discussion of stimulated recall and its uses

Example of stimulated recall with video

Practice: interactive video sessions

Reflections

References:


Simulation in Healthcare, 1, 23 -25.

Fanning RM, Gaba DM. 2007. The role of debriefing in simulation-based learning. Simulation in

Healthcare, 2(2), 1-11.


Affiliations:

1- Eastern Virginia Medical School
The SaIL Debrief Grid, a methodology to understand and improve your debriefing and learning outcomes

Peter Jaye¹, Demian Szyld², Liesbeth Beeckman¹, Gabriel Reedy¹

¹ Simulation and Interactive Learning (SaIL) centres, Guy’s and St Thomas’ NHS Foundation Trust – a King’s Health Partners simulation centre, London, United Kingdom; ² NYU School of Medicine and New York Simulation Center for the Health Sciences, New York, USA

Objectives:

- Examine and evaluate one’s own debriefing practice and consider its impact on learners
- Consider various debriefing modalities and assess affordances and drawbacks for the learning episode
- Consider the SaIL Debrief Grid as a new methodology for analysing debriefing modalities
- Be able to apply the SaIL Debrief Grid in practice, to evaluate one’s own debriefings or in a faculty development context

Expected audience:

- Simulation faculty with some experience of debriefing, up to and including expert debriefers
- Those interested in or responsible for faculty development
Visualising actions during scenario-based mental simulation - a new approach

Hamad Medical Corporation Ambulance Service, Doha, Qatar

Guillaume Alinier, John Meyer, Craig Campbell, Vernon Naidoo, Fedrick Vincent

Objectives:
This workshop will expose participants to a low cost and highly engaging simulation activity that can be facilitated with minimal equipment and nearly anywhere. Following participation in this workshop, participants will be able to describe the facilitation approach used in visually enhanced mental modeling and distinguish it from a traditional case study review.

Expected audience:
Educators, Technicians, Simulation specialists

Introduction:
It is important to remember that simulation covers a very wide spectrum and that what often matters most is the facilitation process rather than the technology. Following an orientation period to Visually Enhanced Mental Modelling Simulation (VEMS), volunteer participants will be invited to engage in a scenario where they will have to clinically manage a patient verbally and in real-time. After the scenario, a debriefing can take place to help learners review and reflect on their performance.

Material (Patients/Methods):
This workshop will be interactive but also include an initial phase slightly more didactic to set definitions. Although mental modeling is not a new educational
approach the enhancements we have brought to the process and our facilitative approach brings it closer to a more traditional scenario-based simulation session. Once the concepts of visually enhanced mental modeling have been clarified, participants will be given the opportunity to either observe or actually take part in a scenario facilitated in this innovative way using a white board and some flipcharts with markers, and some tape. To maintain engagement of all participants, opportunities will be provided for questions and for our experience of facilitating such type of simulation activity to be shared.

Results:
During our scenarios learners are required to verbalize their thoughts and actions as they respond to the case. Instead of a “physical” patient they see a poster representing the patient with any important cue that correspond to the start of the scenario. A facilitator records important aspects of the discussion and provides information about the condition of the patient as the case progresses and according to the assessment verbalised by the learners. Equipment labels are attached to the poster by the facilitator and physiological parameters written on the white board as procedures are performed in a verbal manner. This approach engages learners to think on their feet and can be run with multiprofessional teams. This process and its benefits and limitations will be discussed with the workshops participants. We will share our experience of using this and the feedback gathered from our staff who have experienced this form of simulation.

Conclusion:
Simple solutions are sometimes the most effective and innovative ones. VEMS has proven a powerful learning tool with our clinical workforce to assess decision making, familiarity with clinical practice guidelines, as well as communication. It is a very valuable step to complement practical skills training, especially prior to full-scale scenario-based simulation training.
Designing effective simulation scenarios

Michelle Kelly¹, Sissel Eikeland Husebø ²

University of Technology Sydney¹, University of Stavanger Norway²

Objectives: to guide and support participants through the processes of developing a simulation scenario appropriate for their own context. Using an established template and incorporating the experiences of workshop participants, facilitators will guide groups through the steps to create simulation scenarios. A specific focus will be on evaluating scenario effectiveness from the perspective of participants' own workplace or educational context.

Expected audience: This workshop is designed for novice to expert users of simulation.
WORKSHOPS 6
Workshop

Title: Safety lessons from Formula 1

M Gallagher¹, MJ Duffy²,³

1. Status Grand Prix, Silverstone, Northants, UK
2. Mater Hospital, Belfast HSC Trust, Crumlin Road, Belfast
3. Clinical Skills Education Centre, Queens University of Belfast, Belfast, UK

Introduction
Formula 1 represents the pinnacle of motorsport. Due to significant improvements in safety there has not been a fatality during a Grand Prix for over a decade.

Objectives
A highly interactive workshop hosted by an experienced Formula 1 executive. Mark Gallagher is an established motivational speaker who can marry his insights with safety and quality improvement in healthcare. Attendees will gain knowledge in improving performance within teams aiming to enhance safety and quality.

Material / Patients & Method
An interactive workshop hosted by Mark Gallagher will allow delegates to gain insight into how driver safety was prioritized by the FIA. The contribution of human factors in making these life saving changes and knowledge of the interdisciplinary team working in a high pressure environment will give parallels for health care providers. An interactive workshop will allow open discussion into critical communication and change strategy. Mark will also marry his business success with the financial considerations of health care colleagues.
Conclusion

An interactive workshop with an established improvement professional would create a dynamic and enjoyable learning experience. This is in keeping with the aspirations of SESAM and the safety ethos of this year’s conference.
Prehospital Crisis Resource Management Background

Zeynep Sofuoglu 1, Turhan Sofuoglu 1, Melih Elcin 2, Ismail Umit Bal 1, Ahmet Ozcevikel 3, Emine Vatansever 3, Gokhan Akbulut 4

Emergency Ambulance Physicians Association (AAHD) 1, Hacettepe University Department of Medical Education 2, Izmir Ambulance Services 3, 4 Tepecik Research and Training Hospital

Objectives:

1. Becoming familiar with CRM key points for prehospital emergency medical services providers.
2. Applying CRM key points to the responding phase of a call.
3. Applying CRM key points to the treatment in an unknown setting.
4. Applying CRM key points to the treatment in an ambulance cabin.

Expected Audience: Prehospital healthcare providers, paramedics, EMTs and medical students. (maximum 24 participants)
CRM-Bingo reloaded - using a real-time interactive audience response system

Benedikt Sandmeyer¹, Peter Dieckmann²
1) Institut für Notfallmedizin und Medizinmanagement (INM), Klinikum der Universität München
2) Danish Institute for Medical Simulation (DIMS), Center for Human Resources, Capital Region of Denmark

Recognizing behavior showing good or bad Crisis Resource Management (CRM) is one of the key challenges for simulation instructors.

CRM-Bingo is an exercise introduced by Dieckmann et al at a previous SESAM Meeting. It activates participants to observe videos and identify special CRM elements, marking them on Bingo Cards. After completing their “Bingo” attendees have to explain and establish their choice.

We will put this CRM-exercise on the next level using a real-time interactive Audience Response System (ARS) which uses the principle of “bring your own device” (BYOD).

In this interactive workshop participants will have the possibility to experience the advantages of such systems and “sharpen their CRM-eye”. We can show the scenes that one participant marked while observing the video and compare this with the others. The discussions will be performed in small groups.

We will also explore and discuss the general usage of real-time Audience Response Systems in simulation and training sessions with you and other workshop participants, reflecting on your experiences and the needs in your own training settings.

Though using just one system in this workshop we will also present other available systems we know.

Bring your own smartphone or tablet, and participate!
Objectives:

- “sharpen the CRM-eye” of the participants by using the CRM-Bingo exercise to improve the conceptual understanding of CRM terms by the participants
- demonstrating and experience the opportunities of modern Audience Response Systems for live voting and feedback

Expected Audience:
People interested in recognizing and discussing CRM scenes and / or in using technical devices to engage the activity of observing participants.
This workshop is developed not only for beginners, we hope to give even simulation instructors with some experience some new ideas.
Regular workshop

Multi-professional team training at the operating theatre: An interactive try-out of new low cost simulation concepts.

Coordinators:

Anna Sofie Mundt, Anne-Mette Helsoe, Giuseppina Kunstek and Marlene Mohr

Training situations that involves the whole team still pose logistical and technical challenges despite the impressive work that Roger Kneebone and his team has done and despite that a solution is thought for for decades, dating back to the early days of surgical team simulation in Basel, Switzerland in the 1990. We made some progress in this regard with promising low cost ideas that are easy to implement. We would like to present those solutions and make them available for try outs.

Objectives:

* To inspire simulation educators to create simulation environments that engage the multi-professional team with low cost surgical solutions.

* To allow the trial of technical solutions to create engaging tasks for surgical team members.

* To discuss conceptual ideas for creating relevant surgical team training sessions that address the interplay of technical and non-technical skills

Expected audience:

Scrub nurses, surgeons, anaesthesiologists, nurse anaesthetists, and educators and all interested in operating theatre simulation. Maximum 24 participants

For the rotation, we will form three groups, of up to 8 people. They take the roles of surgeon, scrub nurse, anaesthesiologist and anaesthesia nurse, floor nurse and observers. Participants will role play a full operating theatre team during the scenarios at the stations. These groups rotate between different stations with a different simulator at
each station. The stations comprise an orthopaedic, a laparoscopic and an open abdominal surgery simulator. At each station the scenario will take about 20 min. The remaining time is used to discuss the scenario and to try the simulator.
Title: Hit me baby one more time! The power of repetition!

Sigrun Anna Qvindesland, Ragna Marie B Aase, Stian Bergby, Synnøve Folkvord, Jørgen Linde, Anlaug Vatne

Institution: Stavanger University Hospital: SAFER, OB/GYN, Neonatal ICU, Emergency Department

Background: Several units at our hospital have been using simulation for inter-professional education days in center and in situ. Expectations ran high for this one day when many themes were packed in. We wanted to give the participants a chance to apply their lessons learned from the debrief. This called for a new course design to bring the learning experience to a new level: repetition of the scenarios. Our planning, logistics, evaluation methods and debriefing techniques were put to a test. Repetitions gave the participants a chance to simulate and improve or reinforce behavior they addressed in the application phase of the debrief. The driving force behind this technique was to provide participants with a chance to apply new learning. We provided them with an immediate possibility to improve their performance, and hopefully influenced their clinical practice and outcomes.

Objectives: Workshop attendees will experience a repetition of scenario and consequent debriefs. A faculty-led group discussion about this method will follow. Attendees and faculty will discuss learning theories, evaluation and debrief techniques that support repetition of scenarios and debrief. The three units (ED, Neonatal ICU, OB/GYN) will shortly present their experiences with this method.

Expected Audience: All simulation enthusiasts interested in learning about effects of simulation: Novices to Experts. Faculty have simulation and clinical experience and welcome all colleagues to contribute to discussions about medical education, debrief techniques, evaluation, clinical impact etc.
WORKSHOPS 7
Debriefing as Formative Assessment

Demian Szyld, MD, EdM*, Jose Maria Maestre, MD, PhD+, Ignacio Del Moral, MD, PhD+, Michaela Kolbe^, Roxanne Gardner, MD, MPH, PhD#, Robert Simon, EdD#, Jenny Rudolph, PhD#

*NYU School of Medicine, +Hospital Virtual Valdecilla, ^ETH Zürich/Swiss Federal Institute of Technology Zurich, #Center for Medical Simulation

Objectives:
1. Analyze the role of formative assessment in healthcare education, comparing it with summative assessment.
2. Apply the steps of formative assessment to debriefing and bedside teaching in clinical environments.
3. Summarize approaches for integrating formative assessment into scenario design and subsequent debriefing.

Session Description:

Educators seek efficient strategies to help residents and medical students address and even master the complex clinical, social, and logistical challenges of practicing medicine in busy clinical environments. Formative assessment, the process of providing individually tailored doses of feedback to students on their performance is a concrete, effective way to provide this help. In simulation-based education, post-scenario debriefing is an ideal forum for formative assessment. Sometimes known as assessment for learning, formative assessment is often contrasted to summative assessment, which is often characterized as assessment of learning. Summative assessment is relatively infrequent usually involves grades or formal ratings occurs at the end of a training period and is associated with high-stakes such as advancing or not advancing to the next stage of training, being certified or not certified. Formative assessment, in contrast, is ideally conducted separate from grades or formal ratings, occurs throughout the training period, is relatively frequent, involves lower stakes such as immediate improvement on sub-tasks of a profession or skill set, and is
tailored to the individual learner. Formative assessment can be "convergent," testing if a specific objective is known, or "divergent," exploring what is known. A key feature of formative assessment in both classroom and experiential contexts is that it provides feedback to the student with the goal of improving current performance.

This workshop presents a four-step model of debriefing as formative assessment that blends evidence and theory from education research, the social and cognitive sciences, as well as experience drawn from conducting over 3000 debriefings and teaching debriefing to approximately thousands of clinicians world-wide. The steps are: 1) Note salient performance gaps related to predetermined objectives 2) Provide feedback describing the gap 3) Investigate the basis for the gap by exploring the frames and emotions contributing to the current performance level and 4) Help close the performance gap through discussion or targeted instruction about principles and skills relevant to performance. We propose that the model, designed for post-simulation debriefings, can also be applied to bedside teaching in nearly all clinical settings.

This workshop will be structured to introduce, demonstrate and provide participants an opportunity to learn the steps of formative assessment and immediately apply them during simulated debriefings. The workshop will provide participants a chance to learn and practice the steps of formative assessment. First, a brief introduction will provide a rationale for formative assessment and a practical roadmap to applying the steps of formative assessment during debriefings. Next, participants will engage in an active learning cycle in which they will observe a video clip, practice a simulated debriefing using the steps of formative assessment, and then discuss the process with faculty facilitators. This practice cycle (observation - debriefing - discussion) will be repeated three times to allow participants to engage in deliberate practice.

Expected Audience

This is a workshop designed for both beginning and advanced debriefers. We can accommodate up to 35 participants.
TeamSTEPPS as a course curriculum for developing simulation-based training of interprofessional teams

Randi Ballangrud\textsuperscript{1}, Sissel Eikeland Husebø\textsuperscript{2}

\textsuperscript{1}Gjøvik University College, Gjøvik, Norway

\textsuperscript{2}Department of Health Studies, University of Stavanger, Department of Surgery, Stavanger University Hospital, Norway

**Title:** TeamSTEPPS as a course curriculum for developing simulation-based training of interprofessional teams

**Objectives:**

- Acquire knowledge and skills in the TeamSTEPPS framework
- Design an interprofessional simulation-based team training scenario based on TeamSTEPPS
- Critically discuss issues relating to the TeamSTEPPS curriculum in training teams

**Expected Audience:** Healthcare providers that are novice to expert users of simulation.
Patient representation in healthcare education: using patient narratives about avoidable harm and candour to enhance simulation-based patient safety education.

Nick Woodier 1, Bryn Baxendale 1.

1 Trent Simulation and Clinical Skills Centre, Nottingham.

Objectives:
By the end of the workshop, participants will be able to:

- Describe the role of patient narratives in enhancing patient safety education
- Apply patient perceptions to interprofessional teamwork and communication skills training using simulation based modalities
- Describe how patient stories can improve healthcare team development and performance
- Design simulation interventions that incorporate the patient’s perspective

Expected audience:
This workshop is ideal for those involved with design and delivery of any kind of patient based (manikin or human) simulation. It will be appropriate for participants interested in patient-centred education, development of non-technical skills and broader patient safety behaviours in an interprofessional setting, and the use of patient narratives in patient safety education at undergraduate or postgraduate levels.
This is my Workshop Title for SESAM 2015

Debriefing for Resilience; small changes to help develop stronger doctors.

Coordinators
Kay Buchan, Psychotherapist, researcher funded by the Medical Education and Research Trust, Whipps Cross, Barts Health NHS Trust

Caroline Pelletier, lead researcher funded by the Medical Education and Research Trust, Whipps Cross, Barts Health NHS Trust and Institute of Education.

Megan Hall-Jackson, Simulation and Essential Clinical Skills Specialist Lead, Barts Health NHS Trust.

Objectives:
We wish to produce an interactive workshop where we work through some of the findings in our on-going research on building resilience through simulation.

The workshop builds on one that was delivered with very good evaluations at the International Meeting on Simulation in Healthcare (IMSH) conference in New Orleans 10-14 Jan 2015.

We plan to address the issues of resilience using a sapling metaphor and based on this understanding propose some potential interventions in running and debriefing simulated scenario. Using a video of a scenario we will run roleplayed debriefs with the candidates in order to try the interventions. We will then re-group in order to have a group discussion about the success or failures of these changes and the future of interventions in simulation education aimed at building a more resilient work force.

Expected Audience:
The workshop will be aimed at experienced simulation faculty used to debriefing and those who have considered how we can build a more resilient workforce to improve emotional well-being in staff and improve safety. We would hope this session appeals to people who want to consider ways of developing their skills and exploring new potential within this pedagogy.
Reliability, validity and authenticity of a competence based assessment in a simulated setting

Chiel van Galen, Martijn Forrer, Ron Brendel.

Objectives: Demonstrate that a reliable, valid and authentic assessment can be carried out within a competence based, simulated setting.

Expected Audience: 50
## ENTRY FORM

### Summary for SESAM Convention Belfast 2015

**Concerns**
0 Presentation/workshop

**Title (15 words max.)**
"Reliability, validity and authenticity of a competence based assessment in a simulated setting"

**Short summary of the content (50 words max.)**
The presentation provides insight in competence based assessments within a simulated setting as carried out at the Academy for Ambulance care. Focus lies on reliability, validity and authenticity of the competence based assessment. The level of patient safety determines the result.

**Authors**
Chiel van Galen - Martijn Forrer - Ron Brendel

**E-mail**
c.vangalen@academievoorambulancezorg.nl
m.forrer@academievoorambulancezorg.nl

**Background information (100 words max.)**
Within the assessment not only technical skills are being assessed. The level of success is partly based on CanMeds roles in which competencies such as communication and collaboration are being assessed. The assessment is carried out by a team and measures patient safety in four individual clinical cases.

**Research question (100 words max.)**
not applicable

**Method (100 words max.)**

**Presentation:**
- introducing ourselves
- the way of assuring reliability and validity
- the manner of developing clinical cases based on validity
- how to determine the result

**Workshop:**
Based on a short (3-4 minutes) filmed scenario. In the film both technical as well as non-technical skills are being highlighted. This has been done to put across the essence of competence based assessments. After viewing the attendees discuss the case.

**Results (100 words max.)**
Demonstrate that a reliable, valid and authentic assessment can be carried out within a competence based, simulated setting.

**Points of discussion (100 words max.)**
How to determine scoring criteria?
How to train assessors?
How to determine the pass/ fail standard?
Points of discussion that result from the observed scenario.

**Conflicts of interest (100 words max.)**
| I hereby declare that SESAM may publish this summary according to its own will | O yes |
| I hereby declare that all information contained in this summary is correct. | O yes |

**Mail this form prior to 15th of February 2015 to info@academievoorambulancezorg.nl**
WEDNESDAY POSTERS
The iTRUST debriefing model
Andrew McIndoe, David Grant
Bristol Medical Simulation Centre, UK

Introduction: Simulation course faculty find the task of structuring and debriefing scenarios difficult and challenging. We have observed that this can lead to debriefers making subjective judgmental statements about behaviour or simply avoiding discussion of observed problems for fear of provoking conflict.

Objective: We wished to devise a visual mnemonic prompt to underpin and to give clear structure to the essential elements of the mentoring and debriefing process, helping to facilitate double-loop rather than single-loop learning.

Materials:

Figure 1: Bristol iTRUST Debriefing card (double-sided laminated A5 size)
The iTRUST model is built upon the basic underlying assumption that all participants are attempting to act in the patient’s best interests. It breaks up the teaching process
into six key elements that guide the debriefer and learners through the important phases of **description of the events**, **analysis of reasoning**, and finally, **application of group lessons learned**:

**Implementation** of the scenario: using one of three models:
- ‘pause & perfect’: when the facilitator intervenes periodically to correct management
- ‘confederate’: where steering interventions are made by an implanted faculty actor
- ‘run-through’: when the scenario is allowed to develop a natural course.

**Transition**: covering closure of the scenario and orientation of the group to the debrief, including a description of the debriefing process and ground rules for discussion of scenario events.

**Reactions**: a phase of the debrief set aside to release emotions, reveal fixations, and to elucidate what candidates felt was occurring during the simulation scenario.

**Understanding**: exploration of any mismatches or variations from ideal management.

**Solutions**: by facilitated discussion the group evolves generic solutions to identified and accepted knowledge and behavioural deficits.

**Take home message**: the mentor summarizes key learning points.

**Results and Conclusions**: The iTRUST model promotes active listening. Members of faculty are empowered to discuss aberrant events by encouraging learners to connect observed actions with results and then to examine their own rationale for performing those actions. Solutions to the observed problems are evolved by generalization through group discussion and encouragement of others to contribute their own experiences of working to solve similar problems.
FunSim International Faculty Development: Outcomes in Japan

Benjamin W Berg (1), Gen Ouchi (1,2), Yoko Akamine (1), Mariko Nowicki(1)

(1) SimTiki Simulation Center, John A Burns School of Medicine University of Hawaii, USA
(2) University of the Ryukyus School of Medicine, Okinawa, Japan

Introduction: Fundamental Simulation Instructional Methods (FunSim) is an international simulation faculty development (FD) course developed at SimTiki and adapted for Japanese healthcare educators. There are English (FunSim-E) and Japanese (FunSim-J) language versions. The impact of FD for simulation based healthcare education (SBHE) on faculty educational practices or outcomes is unclear. FD outcomes studies may support improvement in instructional design and content for FD programs.

Objectives:
1. Describe demographics of Japanese healthcare educators enrolled in FunSim-J
2. Survey Japanese healthcare educator pre and post- FunSim educational practice outcomes.
3. Identify barriers to implementation of SBHE methods for Japanese educators.

Methods: A 73 item web-based questionnaire was distributed in 2014 to Japanese participants who completed FunSim-J between 2011 and 2013. FunSim course outcomes were assessed at Kirkpatrick model levels one (Reaction); two (Learning); and three (Behavior). A Likert-type rating scale (1-7) was used for the course evaluation (level one), and for confidence and competency (level two); four different types of Yes-No questions were used for level three outcomes. Barriers to implementation of SBHE were rated from 1 (low barrier) to 5 (high barrier) for twelve pre-defined potential barriers.

Results: 178 (63%) of 283 Japanese participants responded; 45.6% physicians and 35.7% nurses. FunSim language was 47.8% English (E) and 57.3% Japanese (J), with no differences between (E) and (J) “language barrier” responses. 88% of responses were >4 (1-strongly unhelpful / 7-strongly helpful) on 7 rated course evaluation items. Confidence and competency scores were lower “at the time of survey” compared to “at the end of the course” (P< 0.05). Pre/Post-course participants who were active simulation faculty increased from 68 to 112 (P< 0.001) (see table). Equipment and space factors were relatively unimportant compared to human factors such as “Simulation specialist availability”, “Time for teaching”, “Faculty development”, and “Faculty Skill” were predominant barriers compared to other issues (See table).

Conclusion: FunSim participants reported positive course feedback and no critical language barriers. Following FunSim there was an increase in participant active SBE. Barriers to implementation of SBE are primarily human-factors. Protected time, hiring simulation specialists, and faculty development must be addressed to establish effective SBHE systems.

<table>
<thead>
<tr>
<th>Educational Practices</th>
<th>Pre course (n)</th>
<th>Post course (n)</th>
<th>Top Barriers to SBHE (P&lt;.001)</th>
<th>Rating scale mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taught with SBHE</td>
<td>68*</td>
<td>112*</td>
<td># of trained simulation faculty</td>
<td>4.16(1.14)</td>
</tr>
<tr>
<td>Created Scenarios</td>
<td>88</td>
<td>83</td>
<td>Time for Faculty development</td>
<td>4.08(1.21)</td>
</tr>
<tr>
<td>Created SBHE</td>
<td>45</td>
<td>50</td>
<td>Time for teaching</td>
<td>4.03(1.29)</td>
</tr>
<tr>
<td>Integrated SBHE</td>
<td>67</td>
<td>73</td>
<td>FD Availability</td>
<td>3.95(1.24)</td>
</tr>
</tbody>
</table>
Clinical skills of the undergraduate students in the field of obstetrical emergencies. Should we change the approach?
Cardaniuc Corina 1, Gramma Rodica 1, Chesov Ion 1, Romancenco Andrei 1, Ababii Ion 1
1 University Centre of Simulation in Medical Training, “Nicolae Testemitanu” State University of Medicine and Pharmacy

Introduction:
Obstetric emergencies represent critical situations, with dramatic consequences for both mothers and neonates. One of factors that negatively influence the maternal mortality, in the Republic of Moldova, is delay of lifesaving interventions. This fact imposes the need to optimize the functioning of the health care system and strengthening medical staff training in management of obstetrical emergencies.

With the development of science and technology, medical education must be reoriented to provide students with knowledge, skills and attitudes they need to deliver safe and qualitative medical care. Implementation of modern education technologies can improve medical training. The success of implementation process needs curriculum development and precise algorithms for teaching of complex clinical skills.

Objectives:
Understand the need of modernisations of university curricula based on assessment of knowledge and technical skills level, in 6th year students, in the field of emergencies in obstetrics.

Material (Patients/Methods):
A non-experimental descriptive, selective study, performed in April-September 2013. The study included 218 participants (6th year students) that answered a specifically designed questionnaire. Enrolment in the study was voluntary.

Results:
About one third of subjects (29.82%) had certain experience in health care (working as nurses). Only 18 (8.26%) participants were exposed to high-level risk obstetric cases during undergraduate training. Only eight (3.67%) subjects were involved in clinical decision making in obstetrical cases. About 43 students (19.72%) stated that they actively participated in various obstetrical clinical scenarios. Majority of students did not consider them able to assess and manage signs and symptoms of obstetric. Thus, 71.1% of participants were not confident that they are able to recognize and correctly assess signs of eclampsia, 81.19% - uteroplacental apoplexy, 72.48% - postpartum haemorrhage, foetal retardation or an ectopic pregnancy. We mention the fact that
100% of responders did not consider themselves able to recognize and assess amniotic fluid embolism, uterine inversion or uterine rupture (Table 1). Literally speaking, students are unprepared; do not trust their own abilities to assist a delivery and can hurt the patient. To avoid such cases medical schools should use simulation-based training. Available evidence supports the value of simulation as a learning technique. To be effective, it must be integrated into the curriculum in a way that promotes the translation of theoretical knowledge into skills, competences. Thus emerges the necessity to improve the quality of undergraduate training, to increase the access to training courses the field of obstetrical emergencies. The results show a strong need for an alternative form of learning practical skills that can be offered through simulation-based training, which will improve medical training and compliance with international educational standards and on long-term will improve the quality and safety of health care system.

Conclusion:
Data from the survey reflects need for improvement of medical training and integration of new methods of training in obstetric emergencies in the academic curriculum of the Medical University "Nicolae Testemitanu". In order improve medical education, it is necessary to create simulation-based courses and scenarios and to included them in undergraduate curricula. The implementation simulation training will allow increasing the quality practical skills, with positive repercussions on the quality of maternal healthcare provided in Moldova.

<table>
<thead>
<tr>
<th>Table 1 Subjects opinions about their own ability to recognize and evaluate the signs and symptoms of obstetrical emergencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th year students (Nr 218)</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Eclampsia</td>
</tr>
<tr>
<td>Uteroplacental apoplexy</td>
</tr>
<tr>
<td>Uterine rupture</td>
</tr>
<tr>
<td>Post-partum hemorrhage</td>
</tr>
<tr>
<td>Hypovolemic shock</td>
</tr>
<tr>
<td>Amniotic fluid embolism</td>
</tr>
<tr>
<td>Uterine inversion</td>
</tr>
</tbody>
</table>
Using High Fidelity In-Situ Simulation to Investigate Latent Errors in the Operating Theatre

1Dr Emma Welfare, 2Dr Carmen Lacasia-Purroy, 2Dr Peter Groom, 2Dr Tanja Beament, 1Dr Louise Schofield, 1,2Dr Simon Mercer
1Centre for Simulation and Patient Safety, Merseyside, 2University Hospital Aintree, Merseyside

Introduction: In-situ simulation based training in health care facilitates the opportunity to identify latent errors within the system, environment and team. This is of particular use in high risk and infrequent situations and allows improvement in patient safety and also team knowledge and confidence [1].

Objectives: To improve patient safety by identifying latent errors, highlighting the importance of non-technical skills in clinical practice and providing the team with the opportunity to improve knowledge of local systems and standard operating procedures.

Material (Patients/Methods): A regular program of in-situ simulation at Aintree University Hospital NHS Foundation Trust has been organised to incorporate anaesthetic, surgical and critical care directorates as well as the transfusion laboratory. Using high fidelity mannequins the following scenarios have been undertaken: malignant hyperpyrexia, unexpected major haemorrhage, unanticipated difficult airway. Participants receive a briefing prior to the scenario on the learning objectives and scenarios to be undertaken. A video assisted debrief immediately after the scenario is used which focuses on human factors and identifying latent errors that can be rectified.

Results: The following key latent errors have been identified.

<table>
<thead>
<tr>
<th>Latent error</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay in obtaining malignant hyperpyrexia trolley</td>
<td>• Logistics of having one trolley&lt;br&gt;• Trolley locked with difficulty locating keys.</td>
</tr>
<tr>
<td>Delay in receiving packed red cells.</td>
<td>• Communication with laboratory</td>
</tr>
</tbody>
</table>
compromised as phones outside of theatre.

Some drugs not immediately available. • Not routinely stocked

Rapid Infuser not immediately available • Few available, lack of training for safe use.

Ultrasound machine not available to insert lines. • Few working machines.

Difficulty in performing emergency surgical cricothyroidotomy. • Appropriate forceps not available on difficult airway trolley

**Discussion:** A regular programme of in-situ simulation in the operating theatre with the multi-disciplinary team has provided educational opportunities and allowed the identification of key latent errors which have now been addressed. The programme has been well received and is being expanded to include additional clinical areas.

**References**

Using ‘In Situ Simulation’ to Identify Latent Errors in General Practice: A Pilot Study

1Dr Emma Welfare, 2Dr Simon Mercer
1Clinical fellow, Centre for Simulation and Patient Safety, Merseyside, 2Clinical director, Centre for Simulation and Patient Safety

Introduction: General practice is under pressure as a front line service and is expected to deal with a wide range of cases. It is inevitable that medical emergencies will occur, although less frequently than in hospital [1]. High risk, low frequency emergencies may lead to difficulty in maintaining expertise and local policies and systems remain untested. In situ simulation is well placed to identify latent errors in order to improve patient safety, team knowledge and confidence [2].

Objectives: Improving patient safety was the key objective. This was achieved by identifying latent errors, reinforcing human factors within practice and enhancing team knowledge and confidence.

Material (Patients/Methods): Using a wireless medium fidelity adult mannequin (HAL® S3201, Gaumard, Florida, US) the following scenarios were undertaken: Anaphylaxis, acute exacerbation of asthma and acute coronary syndrome. Participants including doctors, nurses, health care assistants and receptionists were informed of the learning objectives and scenarios to be undertaken. A video assisted human factors focused debrief occurred immediately after each scenario. A pre and post course questionnaire regarding confidence was completed by participants.

Results: Individual confidence in dealing with emergencies was seen to increase most (average 2.52/5.0 to 4.24/5.0 on the Likert scale [3]). The ability of the practice to effectively deal with emergencies was initially rated as moderate on average (3.53/5.0). This improved to very effective (average 4.80/5.0).

<table>
<thead>
<tr>
<th>Latent errors</th>
<th>Impact</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sphygmomanometer used</td>
<td>Difficult to use in emergency</td>
<td>Automated monitoring.</td>
</tr>
<tr>
<td>Emergency drugs box</td>
<td>Difficulty locating specific</td>
<td>New style of storage. Checklist</td>
</tr>
<tr>
<td>Poorly organised.</td>
<td>Drugs.</td>
<td>And routine stock levels to be checked.</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Hydrocortisone not stocked.</td>
<td>Delayed administration.</td>
<td>To be routinely stocked.</td>
</tr>
<tr>
<td>Standard operating procedures (SOP) unavailable</td>
<td>Very knowledgeable staff.</td>
<td>Compilation of local SOP especially useful for new staff/ visitors.</td>
</tr>
<tr>
<td>Limited intravenous (IV) access equipment</td>
<td>Delay in gaining IV access</td>
<td>Purchasing further supplies.</td>
</tr>
</tbody>
</table>

**Conclusion:** This pilot study identified key latent errors, which could negatively impact on patient care in the case of an emergency. Participants found the experience educational, with improvements in confidence and knowledge seen. There is a plan to commission this project for further practices within the Merseyside area as part of an ongoing educational programme.

**References**
Introduction

The Royal College of Anaesthetists 4th National Audit Project (NAP4) examining difficult airway management, demonstrated that almost half of adverse airway incidents occur in areas outside of the operating theatre, the most common being in critical care. In our critical care department the role of airway assistant is undertaken by critical care trained nurses.

Objectives

We assessed the amount of training and experience our nursing staff had in performing the airway assistant’s role and their level of confidence with it. We then performed a simulation intervention and re-measured their confidence. Follow up was conducted to establish if any change in confidence was sustained.

Methods

We questioned nurses on years of critical care experience, formal airway training, number of intubations in preceding twelve months and confidence in undertaking the airway assistant role (16cm Visual Analogue Scale (VAS) 0% = no confidence, 100% = extremely confident). We then undertook an in-situ simulation exercise; an inter-professional scenario (2 members of junior medical staff and 4 nurses) with a level 2 patient requiring emergency intubation. Staff were required to use unit sourced equipment and drugs, if needed, in real time. Following the scenario, debriefing was performed to consolidate any learning, focussing around non-technical areas including team working and communication and the use of our unit specific emergency intubation checklist. Nurses completing the training answered a follow up question on their confidence using the same VAS. A subgroup of nurses then completed the same question at 1 and 2 months.

Results

Twenty-four nurses completed the initial intervention. Fourteen nurses completed the follow up questions. The median number of years of critical care experience was 3 (IQR 0.45 - 10.25). Six (25%) had undergone previous formal airway training. A median of 2 (IQR 0 - 4) intubations had been assisted with over the previous year. Confidence ratings are recorded in Table 1. The 2-month follow up group had a mean pre-intervention VAS rating of 7.67 (55%), with a mean post intervention rating of 10.45 (65%) (Change + 2.78 (17%)). One month follow up gave a mean VAS rating of 10.25 (64%)) with two months at 10.54 (66%).

Discussion

We have demonstrated that the level of experience amongst critical care nurses in emergency airway assistance within our unit is very variable. Factors such as previous training and experience have a large effect on nurse confidence. By using in-situ simulation training we were able to improve the confidence of nurses in assisting with emergency airway management. This improvement was greatest in the least experienced nurses. Follow up demonstrates that this improved confidence is sustained for at least two months. Further research is needed to establish how long such a training intervention is effective for. Airway assistant training for critical care nurses, using in-situ simulation, would appear to be most effective when targeted towards new or inexperienced staff; although even experienced staff showed improved confidence after such an intervention.

Table 1. Nursing confidence with emergency intubation assistance

<table>
<thead>
<tr>
<th></th>
<th>n =</th>
<th>Pre-Intervention VAS (%)</th>
<th>Post Intervention VAS (%)</th>
<th>Change in VAS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Staff</td>
<td>24</td>
<td>6.07 (38)</td>
<td>9.61 (60)</td>
<td>+ 3.54 (22)</td>
</tr>
<tr>
<td>5+ years experience</td>
<td>8</td>
<td>12.48 (78)</td>
<td>13.3 (83)</td>
<td>+0.81 (5)</td>
</tr>
<tr>
<td>&lt;5 years experience</td>
<td>14</td>
<td>2.53 (16)</td>
<td>8.87 (55)</td>
<td>+6.34 (40)</td>
</tr>
<tr>
<td>Previous Formal Training</td>
<td>6</td>
<td>10.6 (66)</td>
<td>11.8 (74)</td>
<td>+1.2 (7.5)</td>
</tr>
<tr>
<td>No Previous Formal Training</td>
<td>18</td>
<td>4.18 (26)</td>
<td>8.88 (56)</td>
<td>+4.7 (29)</td>
</tr>
<tr>
<td>&gt;2 Intubations</td>
<td>10</td>
<td>10.11 (63)</td>
<td>10.98 (69)</td>
<td>+0.87 (5)</td>
</tr>
<tr>
<td>2 or fewer Intubations</td>
<td>14</td>
<td>3.19 (20)</td>
<td>7.69 (48)</td>
<td>+4.5 (28)</td>
</tr>
</tbody>
</table>
Reference

1. T. Cook, N. Woodall and C. Frerk 4th National Audit Project of the Royal College of Anaesthetists: Major complications of airway management in the UK. 2011 Royal College of Anaesthetists
Using Simulation to assist in preparing acute services for the potential presentation of Ebola Virus Disease.


Guy’s & St Thomas’ NHS Foundation Trust (GSTFT)

Introduction:
The outbreak of Ebola virus disease (EVD) in West Africa in 2014 led to concerns about the potential for travellers presenting with fulminant EVD to acute trusts within the NHS. As the crisis progressed and the UK provided support on the ground in the affected areas, particularly Sierra Leone, the concern was increasingly of returning healthcare workers causing onwards transmission within the UK. As a major acute trust in South London, situated within the largest British community of people born in Sierra Leone, it was perceived that we were at high risk for a potential presentation of EVD. A series of in-situ simulations were developed and run, utilising actors as well as manikins, presenting both to Accident and Emergency (A+E) but also to other walk-in areas. These were run with minimal staff pre-warning, so that all departments and systems could be triggered and tested for level and quality of preparation and service or staffing gaps.

Objectives:
To utilise our simulation expertise, our skills in video analysis and in-situ debriefing to test systems, skill acquisition and institutional preparedness for a specific infectious threat, in this case EVD.

Material (Patients/Method):
We have delivered six simulated scenarios, five simulations of presentations to A+E, two with an adult actor, two using a manikin and one using a child actor with accompanying parent. We have also utilised an actress to simulate a presentation to the walk-in ante-natal clinic. We explored different challenges, from the logistics of activating a trust protocol for EVD management to the decision-making processes required in a critically unwell...
patient with suspected EVD. Our simulations involved staff from a variety of departments across a range of disciplines and were a major factor in the development process undertaken to rigorously prepare our trust for a potential EVD presentation.

Results:
The simulations have not only rigorously tested our ability to deal with EVD within this trust, they have been instrumental in the development and improvement of those abilities. Specific changes have been made following these exercises, such as fitting communication devices into isolation areas, changing rules about door-opening procedures, alterations to checklists and clarifications of management protocols. Prior to presenting this poster at conference I will be conducting a survey and interviews of participants in these simulations in order to explore the learning benefits experienced by those involved and by the systems within which they function.

Conclusion:
The simulations have provided both technical and non-technical insights into the difficulties of managing these cases and have given staff an invaluable chance to experience these challenges and to provide solutions. The simulations have been central to the development of our trust approach to EVD.
Title: What do we know about realistic simulation in healthcare? A survey in the academic community of a developing country

Institution: Facisb

Authors: (Presenting Author first): Dr. Walker Felix, Ana Paula Biondi, Hudson Taveira, Céline Pinheiro, Ricardo da Costa

Category (see guidelines): Faculty development/Curriculum development

Presentation Type (see guidelines): Poster
Introduction:
The implementation of realistic simulation centers in developing countries may present some challenges, as a result of the lack of knowledge shown by the academic community. Objectives: The concept of medical simulation in healthcare is widely known and applied in developed countries. However, this novel technique and methodology is not well known among medical students and faculty in developing countries. As a result, students and faculty face many challenges when it comes to understanding and implementing this medical educational tool into the medical curriculum.

Material (Patients/Methods):
Forty-nine students (from the first to the fourth year of medical school) and twenty teachers (from basic and clinical specialties) answered a brief questionnaire (10 questions) about realistic simulation.

Results:
Overall, both students and teachers showed an important degree of doubt regarding basic aspects of realistic simulation. Importantly, the majority of the participants (around 90% in both groups) think that realistic simulation in healthcare will not increase the risk for the patient. When comparing both groups, a significantly higher percentage of students (around 60%) do not know a realistic simulation center, as compared to around 20% of teachers. Also, the majority of students (around 55%) consider realistic simulation a technology while the majority of teachers (around 65%) see realistic simulation as a technique.

Conclusion:
The academic community investigated in the present study shows a lack of knowledge about realistic simulation in healthcare.
Prehospital Q CPR Exercise

Introduction
Continuous and uninterrupted cardiac compression is vital for cardiac arrest patients. The quality of CPR (Q CPR) provided has impacts significantly on the likelihood of achieving return of spontaneous circulation (ROSC). Studies have shown that training with real-time feedback devices improve the quality of CPR. The most effective training is simple, realistic, scenario driven, and completely hands on. Quality CPR metrics are minimizing interruptions in chest compressions, providing compressions of adequate rate and depth, avoiding leaning on the chest between compressions, and avoiding excessive ventilation.

Learning Objectives
1. Defining possible interruption situations for prehospital CPR.
2. Practicing Q CPR with real time monitoring device.
3. Performing Q CPR.
4. Applying mechanical CPR device.
5. Achieving team work.

Expected Audience
Prehospital health providers, paramedics, EMTs and medical students. (maximum 24 participants)

Requirements/Specific Needs
Resusci Anne Advanced SkillTrainer with SimPad
Mechanical CPR Device
Real time monitoring device
Projector, projection screen, HGMI/VGA cable.
Enough space for 2 stations

Description of the Session
Presentation
Practicing
Performing
Feedbacks

Conflicts of interest: NO
Developing a Prehospital Pediatric Emergencies Management Training Program

Introduction

Emine Vatansever 1, Zeynep Sofuoglu 2, Turhan Sofuoglu 2
Izmir Ambulance Services 1, Emergency Ambulance Physicians Association (AAHD) 2

Introduction: Theoretical and practicing part of Pediatric Advanced Life Support Course (CILYAD) has been standardized, and the same curriculum is used both hospital and prehospital emergency health providers in Turkey. Although current CILYAD curriculum covers all technical skills for pediatric emergencies but scenarios improving holistic approach and nontechnical skills including teamwork were neglecting.

Objectives: Developing a “prehospital pediatric emergencies management training programme” (PPEM) that includes team approach to pediatric trauma and cardiac arrest by using the pediatric emergency cases mostly encountered in the field by paramedics.

Material (Patients/Method): 2 Years statistics of prehospital pediatric cases were analyzed in order to build PPEM course content. The requirements for the curriculum were identified in perceived, recommended and comparative manners.

Results: The student-centered instructional design model; ADDIE (Analysis, design, development, implementation, evaluation) was selected. This model is generally used in simulation training. Case studies, simulations, group discussions in "ADDIE" model in PPEM training conducted with real like scenarios and problems commonly faced on the scene. The development of non-technical skills in addition to technical skills provided. Participants structuralized their knowledge and peer sharing enabled.

Conclusion: ADDIE model was found beneficial for developing “prehospital pediatric emergencies management training programme”.

This is my Abstract Title for SESAM Belfast 2015:

Student perceptions of the transferability of inter-professional simulation into clinical practice.

Guy Collins, Stephanie Gillam, Caroline Cocking, Lou Sherratt
University of Derby College of Health and Social Care & Derby Teaching Hospitals
NHS Foundation Trust

Introduction:

Across undergraduate healthcare programmes students often have generally limited opportunities for simulated practice alongside students from other disciplines (Alinier et al 2008). Integrating simulation and inter-professional education can provide benefits to individual learners (Watters 2015). Inter-professional learning through simulation potentially prepares future healthcare professionals for the collaborative models of healthcare delivery being developed internationally (Baker et al 2008).

Engaging with students as partners in learning and teaching leads to evidence benefits (Healey et al 2014). Student involvement in inter-professional simulation should extend beyond participation in activity guided by others.

The Royal Derby Hospital’s Resuscitation & Clinical Skills Department routinely runs “Critically Ill Patient” simulation days for final year medical and nursing students. The day is structured to give participants opportunities for inter-professional learning and to examine both technical and non-technical skills.

Objectives:

• To examine the student perceptions on the transferability of the inter-professional learning experience.
• To enable partnership between academics, clinicians, and students in shaping inter-professional learning.

Material (Patients/Methods):

This study will facilitate the student engagement as partners in inter-professional simulation evaluation. Exploring the student perceived impact of inter-professional simulation upon their clinical practice as future healthcare professionals.

A series of focus groups will be conducted consisting of final year medical and nursing students. Key themes will be identified detailing the individual, professional group and collective perceived transferable knowledge and skills from this inter-professional simulation into clinical practice.

Ethical approval will be applied for this study.

Results:

Data collection methods will be detailed within the poster. Delegates will be encouraged to share their insights and expertise to help inform this study as part of the poster presentation.

Conclusion:

Outcomes from this poster presentation will help further inform the research development together with other research in the field of students as partners in the development, delivery, and evaluation of inter-professional simulation.
**In Situ based training of non-technical skills and team performance in the operating theatre, - how do we test and assess?**

Karsten Friis 1, Susanne Skovsø Petersen 2  
Dept. of Development & Quality, Copenhagen University Hospital Hvidovre

Introduction: Human factors and non-technical skills in the operating theatre are important for performance, outcome and patient safety. Non-technical skills are related to behaviour, attitudes and cognitive skills and are connected to team related factors in a cross-disciplinary perspective. 

Assessing and measuring outcome is an ongoing challenge for training in health care. Several studies indicate significant increase in team performance after team training and debriefing. Most of the studies has moderate to high risk of bias, and further studies of high quality and refinement of methods are needed.

Method: We designed a study for assessing and measuring training in the operation theatre based on video recording. The training were followed by a debriefing session, using highlights from the video recording, use of the Revised NOTECHS scale, Crisis Resource Management elements and finally use of Kirkpatrick’s four level scale to measure improvement in performance.

The setup has the ambition to combine assessing both individual and team performance connected to daily clinical practice. It should give an answer to the impact of training and debriefing as developed over time.

The video recording were analysed by facilitator and highlights according to team performance and individual NOTECHS score were given for each team member. The outpointed video sequences were presented as topic for the debriefing session with reference to Team elements, furthermore the individual NOTECHS score were presented for the team members.

Focus for the debriefing session was to combine individual and the team performance. Finally the team discuss and scored their outcome from the training programme into
Kirkpatrick’s level concerning skills and attitudes and level concerning team performance and team communication.

Results: Our premature results point out that the setup is meaningful for the trainees and they express impact for individual learning and for team performance.

Conclusion: Our work is still in progress.
Title:

Bridging the “Hospital to Home” Gap Through Inter-professional Simulation

Institution:
Simulation and Interactive Learning Centre, St. Thomas’s Hospital, London, Guy’s and St. Thomas’s NHS Foundation Trust

Authors:

Category:
Interprofessional / Team Education

Presentation Type:
Poster

Introduction:

- Interprofessional education is increasingly prevalent in simulation, without a clear evidence base for its effectiveness in improving patient safety.
- Simulation tends to focus on medical, nursing and midwifery education.
- Following a pilot of a course for ambulance auxiliary staff, a course was designed combining simulation and workshops to consider non-technical skills in assessment, care-planning, and handovers between primary (i.e. ambulance, paramedic and community) and secondary (i.e. hospital) healthcare professionals.
Objectives:

- Within a safe learning environment, to recognise factors affecting communication between and within different healthcare professions within the community and in hospital.
- To increase awareness amongst delegates of the non-technical skills underlying these processes.
- To improve confidence in intra- and inter-professional communication, e.g. handover and escalation, by employing enhanced non-technical skills in the workplace.

Material:

- One-day course at SaIL centre.
- Delegates from local NHS ambulance services, community nursing teams, and hospital emergency departments.
- Interactive pre-course reading for delegates concerning crew resource management in aviation and human factors in healthcare.
- Pre-course questionnaire exploring current confidence.
- 4 high-fidelity simulation scenarios in fully-immersive environments, each followed by a structured debrief.
- Actors used in all 4 scenarios.
- Human patient simulators (HAL manikin) used in 2 scenarios.
- Innovative use of props including printed room dividers (Kwickscreen) and soundscapes to create fully-immersive community and hospital environments.
- 1 communication workshop exploring team-work and leadership.
- Post-course questionnaire.
- Faculty debrief.
Results:
Initial results show improved confidence in communication and handover on post-course feedback forms, with specific non-technical skills to use in practice identified by delegates. Further results are at the time of writing being collected and collated.

Conclusion:
More evidence and research is needed to show that inter-professional simulation training improves patient safety outcomes. Early results from this course suggest delegates have improved confidence in communication skills and it is hoped this will contribute to improved patient safety. Additionally, the use of detailed props and scenery, rehearsed camera positioning, and soundscapes can enhance fidelity by creating fully immersive simulation environments.
Poster Presentation

Title

A good simulated death – development of a pilot multi-professional care of the dying simulation based course

Authors

1 Mark Hellaby, Anita Roberts, Rita Doyle, Maureen Gambles, Alison Germain,
2 Richard Latten, Stephen Mason, Graham Whyte, John Ellershaw

Organisations

1 Health Education North West
2 Marie Curie Palliative Care Institute - Liverpool
3 Royal Liverpool and Broadgreen NHS Trust
4 Marie Curie Cancer Care

Introduction

There is a lack of training in end of life care (DH, 2008; Neuberger, 2013). Therefore, there is a recognised need for staff involved in the last days or hours of a patient’s life to improve their skills and competence and enable them to care these patients appropriately, communicate effectively with them and their relatives and treat them with dignity and respect (Francis, 2013; Neuberger, 2013)

Objectives

The aim was to develop, pilot and evaluate a simulation based course to enable hospital workers to effectively and appropriately support patients, and their relatives, during the patients last hours or days of life.

Methods
Ethical permission was granted by the University of Liverpool and site specific approval from the pilot site hospital. The session was designed for general hospital staff that may be involved with caring for a patient who was dying.

The session was developed as a blended learning activity with online pre-learning and a subsequent face to face session. Four separate, peer reviewed, scenarios where developed that followed the patients journey to death, involved the patients family and incorporated communication and symptom management elements. In the first two scenarios a faculty actor undertook the role of the patient supported by actors playing the role of the patient’s daughter and brother. The last two scenarios involved the patient dying and death and the faculty actor was substituted by a human patient simulator.

The session was introduced, ground rules established to establish a safe learning environment. Debriefing of the learning event was facilitated by the multi professional faculty using a reflective cycle.

**Evaluation**

Data was collected pre and post training and two months following. Two validated tools, the Self-Efficacy in Palliative Care (SEPC) questionnaire and the Thanatophobia Scale (Mason and Ellershaw, 2004) where used and additionally a 12 point knowledge questionnaire was also developed. A focus group was also facilitated following the session.

**Results**

A total of 13 participants were involved in the sessions - 2 Doctors, 6 Nurses and 5 Healthcare assistants. It was recognised that the number of participants was small and no inferential statistical analysis was attempted.

The focus group was overwhelmingly positive about the event. The SEPC mean score demonstrated an increase in all three domains (communication, patient management, multidisciplinary team working). The thanatophobia questionnaire demonstrated a positive shift in attitude in several questions. The knowledge
questionnaire failed to identify any significant change pre and post event - this was felt to be due to the difficulty of designing generic multi professional questions.

Conclusions

The course was well received and participants were overwhelmingly positive. It is proposed to repeat the course with a larger number of participants in different organisations (both hospital and hospice settings) to allow statistical analysis to be performed.

References


Title: Introduction to Clinical Anesthesiology Course – 5 years in review

Institution: School oh Health Sciences – University of Minho

Authors: Sara Hora Gomes, Rui Guimarães, Tiago Folhadela, Sara Arantes, Vitor Oliveira, José Miguel Pêgo

Category: Curriculum Development

Presentation Type: Oral presentation
Introduction: Novice Anesthesiology Residents need to quickly grasp cognitive and technical skills for which previous training opportunities are traditionally scarce. In order to ameliorate the stressful transition from undergraduate medical school to residency, we designed an introductory course.

Objectives: Retrospective study was developed to analyse the 5 years evolution and experience and to evaluate the efficacy of the course in self-perceived level of confidence of novice trainees to initiate anesthesiology clinical practice.

Material (Patients/Methods): Since 2011 we organize the one week course. The course takes place on the first week of the official anesthesiology residency program. The course includes lectures, anesthesia technical skills (simulators) and non-technical skills sessions (40 hours total). Using a locally designed survey we ask residents to evaluate the course concerning organization (5 points likert scale), quality of lessons (4 points likert scale). We also ask residents about their opinion in expending this model of the course to other anesthesia educational centres (10 points likert scale).

Results: Since 2011 the course increased in number of participants as well as number of anesthesia departments involved. Nowadays the course has a national impact with the intervention from 84% of anesthesia departments from hospitals with recognized competency in training anesthesia residents. Until present 136 residents were involved. The course was globally evaluated as excellent (mode 5), the quality of lessons was very good (mode 4) and residents rated very high their self-perceived level of confidence to begin the anesthesia training (median 7.6). All residents agree in expanding this model of course to other anesthesia educational centres (median 10).

Conclusion: We believe this course has a large impact on residents experience and perceived confidence.
Poster at SESAM 2015

**Assessment used as a tool to increase motivation for learning**

Thomas Lynge Andersen, Paramedic

1 Danish Institute for Medical Simulation

**Introduction**

In the years 2011-2014 The Danish Institute for Medical Simulation conducted a two-day annual continuous competence training for around 180 Emergency Medical Technicians (EMTs) per year employed by a private company in the Capital Region. The company has a contract for ambulance services in almost all Danish regions and has for many years been part of the pre-hospital sector in Denmark.

It was always a requirement by the company, that participants were tested post course and should pass the assessment, to maintain their level of competence. This annual assessment has been the yearly nightmare for many EMT's and several have stopped due to this stress factor.

The subjects for the course – and thus the assessment were chosen on the basis of demands from the regional Emergency Medical Service, from the company and needs expressed by the participants. The curriculum was available prior to the courses for the participants.

12-13 courses were planned each year and each course had up to 16 participants.

**Objectives**

The Danish Institute for Medical Simulation was determined to reduce this stress factor in creating a safe learning environment and motivate participants to learn and understand rather than to memorize.

**Method**

By introducing a pre-test at the beginning of the two-day course, participants were aware of the issues that were their weaknesses. This awareness should motivate participants to be receptive to learning.

The pre-test consisted of 20 MCQs that had 5 topics, which all were followed by teaching either in plenum, as cases, skill-training or simulations. Simulations were followed by debriefings with good judgment.

Both the pre- and post-test were conducted using an Audience Response System that recorded the participant’s responses in real time.

At the end of the second day a post-test was completed, which was equal to the pre-test.

**Results**
If the pre-test would have been used as the final assessment, 26 out of 49 teams (53%) had an average value below the threshold required to pass (75% correct).

Measured by a total of 715 pre- and post-tests, the participants increased the proportion of correct answers by 16% from 75% to 91%.

Conclusion

A significant increase in number of correct answers was recorded, overall and each year separately.

By lowering the focus on final assessment and instead clarifying the participants “weaknesses” by using pre-test and further increase the safe learning environment by using simulation and good judgment debriefings, the use of assessment is now a common and accepted part of the annual continuous competence training.
Title:
Student's choice - the preferred way of educational activity during the medical curriculum in a Swedish university

Author:
Dr. med Ulf Martin Schilling
Head of the clinical education and simulation center Clinicum East Sweden
University consultant in clinical simulation and implementation
Consultant in emergency medicine and internal medicine
Institute for Medicine and Healthcare
University of Linköping
Sweden

Background:
At the medical university of Linköping, problem based learning PBL can be found to be the leading element of undergraduate medical education. In PBL, a group of students is exposed to a case or scenario dealing with a defined problem which shall be worked on, exposing a multitude of different nuances, underlying questions, and specific knowledge. In the process the students are supported by a teacher who should interfere the least possible to facilitate the student’s learning. The PBL-approach is following the concept of the oval, essentially following the 7 consecutive steps as described by Woods [1] with a slight adaptation into 9 formulated steps by including the scenario as first step and adding the use of the acquired knowledge as step 9.

With increasing numbers of medical students taught at Linköping’s university, clinical practice places are getting more limited and in a near future medical students will be forced to conduct their clinical practical education in remote hospitals or to work in pairs during clinical practice. Scenariobased medical simulation has been shown to offer an interesting complement to clinical practice, and might be an alternative teaching modality.

Objective:
To determine medical undergraduate students’ preference of different teaching modalities during the medical curriculum and their attitude towards pairwise clinical teaching, we conducted this study.

**Material and Methods:**
To find out the medical students’ preference of teaching modalities during the curriculum, a questionnaire was distributed by direct approach to medical undergraduate students on clinical practice at the emergency department of Linköping’s university hospital. The items asked for were a) year of studies; b) preferred modality of teaching as by lecture, seminar, problem-based-learning group, scenario-based simulation, and clinical practice; and c) if they were positive or negative towards clinical teaching in pairs. The students were asked to mark the preferred teaching-modality, and multiple answers were accepted.

**Results:**
A total of 38 questionnaires were recollected. 13 freshmen (1st year medical students), 10 students on intermediate level (4th year), and 15 students on prefinal level (5.5 years) answered. Medical students of all levels marked clinical practice as the preferred modality of teaching. Freshmen preferred problem-based learning as second-in line, followed by lectures and seminarium, whilst more experienced students accepted scenario-based simulations as second modality of choice, and the acceptance of simulation increased with rising level of experience (table 1). Problem based learning, the method of choice by Linköping medical university, was ranked inferior to other modalities by more experienced students. Simultaneously, clinical teaching in pairs was ranked high among freshmen (11/13), low among midgraduate students (3/11) but high again among prefinal students (13/13; table 2).

**Conclusion:** Medical students prefer clinical teaching during the undergraduate curriculum. Interestingly, during the student’s progress from freshmen to final graduation, scenario-based and simulation teaching ranks higher as the curriculum progresses, and is ranked similar to clinical practice during the final year of studies. With the current knowledge about student’s learning in simulation in relation to clinical practice and these findings regarding student’s attitude towards simulation as a form of teaching, the curriculum at Linköping medical university might require
revision and refocusing towards medical simulation. Training in pairs seems to be acceptable to both inexperienced and experienced students, which might be helpful in situations of limited clinical teaching resources. However, due to the limited number of students involved in this study, larger studies should be conducted addressing these preliminary findings before substantial changes in the curriculum should be considered.

**Table 1.** Preferred form of teaching during the progress of students in medical school, and respective potential levels of theoretical content, practical content and student-teacher interaction. (PBL-problem based learning)

<table>
<thead>
<tr>
<th>Level of studies</th>
<th>Preferred form of teaching</th>
<th>N</th>
<th>Level of theoretical content</th>
<th>Level of practical content</th>
<th>Level of interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>1) Clinical practice</td>
<td>8/13</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>2) PBL-group</td>
<td>7/13</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>3) Lecture</td>
<td>3/13</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>4) Seminarium</td>
<td>2/13</td>
<td>High</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>5) Scenario</td>
<td>1/13</td>
<td>Moderate</td>
<td>High</td>
<td>Very high</td>
</tr>
<tr>
<td>Intermediate</td>
<td>1) Clinical practice</td>
<td>8/10</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>2) Scenario</td>
<td>4/10</td>
<td>Moderate</td>
<td>High</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>3) Lecture</td>
<td>1/10</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>3) PBL</td>
<td>1/10</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>5) Seminarium</td>
<td>0/10</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Prefinal</td>
<td>1) Clinical practice</td>
<td>10/15</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>1) Scenario</td>
<td>10/15</td>
<td>Moderate</td>
<td>High</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td>3) Lecture</td>
<td>8/15</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>4) PBL</td>
<td>2/15</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>5) Seminarium</td>
<td>0/15</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
Table 2. Attitude of medical students towards clinical teaching in pairs instead of individual teaching.

<table>
<thead>
<tr>
<th></th>
<th>Freshmen</th>
<th></th>
<th>Mid-grade</th>
<th></th>
<th>Pre-graduation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards clinical teaching in pairs</td>
<td>positive</td>
<td>negative</td>
<td>positive</td>
<td>negative</td>
<td>positive</td>
<td>negative</td>
</tr>
<tr>
<td>N%</td>
<td>11/13</td>
<td>1/13</td>
<td>3/11</td>
<td>8/11</td>
<td>13/13</td>
<td>0/13</td>
</tr>
<tr>
<td>%</td>
<td>85%</td>
<td>8%</td>
<td>27%</td>
<td>73%</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Reference:
Training the multi-professional team in the operating theatre in non-technical skills.

Anna Sofie Mundt, Lene Spanager, Randi Beier-Holgersen, Anne-Mette Helsoe, Doris Oestergaard

Danish Institute for Medical Simulation

Introduction: The operating theatre is a complex domain where different professions must collaborate to get the patient safely and efficiently through surgery. This requires communication, teamwork, situation awareness and task management amongst team members. The social and cognitive skills, named non-technical skills (NTS), complement technical skills and are essential to provide safe and efficient patient care. Training the multi-professional teams’ non-technical skills enhances patient safety. Until now, it has been a challenge to set up courses training the multi-professional team in the operating theatre as simulators for anaesthesia and simulators for surgery are difficult to integrate in simulation scenarios. This makes it difficult for the team members to fully interact in the scenarios with less benefit of the course to follow.

Objectives: The aim of this project was to develop a two days course for the multi-professional team, training non-technical skills through team exercises, lectures and simulation scenarios. The idea was to create scenarios that reflected everyday situations in the operating theatre. The goal was to fully engage all team members in habitual, meaningful, technical tasks which would make it easier to challenge and train their nontechnical performance when adding more or less unexpected events.

Material (Patients/Methods): Trainee surgeons, scrub practitioners, circulating staff experienced in orthopaedic and general surgery and nurse anaesthetists from the Capital Region of Denmark. The surgeons’ tasks were interventions in a box placed on the torso of the model, covered up like a real patient undergoing surgery. The operation could be a laparoscopic gall bladder removal, where the real technical task would be to desiccate one balloon off another balloon filled with gel and pearls, eluding gall sludge. The balloons were attached to a latex liver with connected bleeding tubes and gall tubes. A facilitator would during the surgery open the “blood vessels” and make the patient bleed.
Results: A total of 24 trainee surgeons and 43 scrub practitioners have completed the course. Another 16 trainee surgeons and 24 scrub practitioners has completed day one. Twenty nurse anaesthetists have participated on the course. Participants were deeply engaged in the simulation and found that the scenarios reflected common everyday situations. The effect and sound of the real bleeding triggered many tasks on the floor and created vivid reactions in the entire team. They found it easy to reflect on NTS in the debriefings afterwards. Overall participants rated the course as very valuable.

Conclusion: It is possible to create simulation scenarios that catches the multi-professional team and reflects real and complex situations in operating theatres. These simulations stimulated important discussions on NTS performance in the debriefings afterwards, which is a first step towards enhancing patient safety in operating theatre.
Title: Using Blooms taxonomy of learning to make tracheostomy care safer; Applying the framework to the design of a simulation and interactive learning course.

Institution(s): Simulation & Interactive learning Centre Guys & St. Thomas’ NHS Foundation Trust (GSTFT)

Authors:
Colette Laws-Chapman, Ms Katie Page Ms Sarah Kielty

Category: Interprofessional / Team Education

Presentation Type: Oral presentation/Poster

Introduction: The 2014 National Confidential Enquiry in Patient Outcomes and Death (NCPOD) report ‘On the Right Trach’ stated that all UK Trusts should have a protocol and mandatory training for tracheostomy care: this is to include all bedside staff ‘recognizing and managing common airway complications including tube obstruction or displacements and as described by the National Tracheostomy Safety Project algorithms’ (NCPOD 2014). Innovation funding was received to design a simulation and interactive learning tracheostomy course to support bedside training. The learning needs analysis identified the programme needed to be able to scaffold learning to cope with a range of delegates from novice to competent in some aspects of care but not all. The content lesson plan was designed to provide a hierarchy of knowledge acquisition to allow candidates to understand the background and rationale for fundamental tracheostomy care as well as the application of these behaviours and more advanced skills when working in a team to deal with a tracheostomy emergency.

Objectives: The course aims included a) enhance patient safety by upskilling teams to be aware of best practice in core tracheostomy care skills & the tracheostomy bundle, b) raise awareness of protocols and Apps for ease of reference in emergency situations, c) expose
them to common tracheostomy emergencies in a safe environment, d) develop knowledge and behavioural skills acquisition in non-technical skills.

**Methods:** A one day evidence based mixed modality tracheostomy simulation course utilising the Sail debrief diamond mode of debriefing was devised (Jaye et al 2015). The course was constructed against the six levels of Blooms Taxonomy (Quinn & Hughes 2007) see table 1, to include a didactic session with case based discussion, skills stations for routine care and design and pilot of three common clinical relevant tracheostomy situations-desaturation during routine care, tube obstruction and accidental decannulation. All scenarios were designed to demonstrate core application of technical skills to safely and correctly manage the clinical situation to allow application and synthesis to take place in the debriefs.

Each course was peer debriefed by the faculty members delivering the course that day and minor changes made to skills stations timings or sessions if deemed to be of significance. Debriefs were reviewed for psychological safety and adherence to the Diamond model to deconstruct and identify behaviours for application into future practice (Jaye et al 2015).

**Results:** The evaluation results show an increase in skills and knowledge confidence overall. Non-technical skills commonly identified in the debriefs included sharing the mental model, situational awareness, calling for help early, team leadership and team followership and decision making. Faculty reported significant change in variance in delegate knowledge and skill base, resulting in overruns in skills stations.

**Conclusion:** Teaching staff core clinical skills when from an interprofessional background with variance in baseline knowledge and skills is both of benefit and a challenge to simulation and interactive learning modalities: time management being a significant difficulty. Core learning objectives an activities need to be mapped out and trainers skilled to deliver training and draw novice and advances practitioners together in simulation based training. Blooms taxonomy can guide faculty to ensure they address all levels and explore application to behaviours in practice.

Measuring behavioural impact and bedside quality improvement data should be used to inform the content of further simulation based tracheostomy courses. The course board recommend the development of e-learning related modules to reduce the face to face time spent on didactic sharing of information.

**References**

NCPOD (2014) On the right Trach A review of the care received by patients who underwent a tracheostomy www.ncepod.org.uk


**Table 1:**
Designing future multi-professional simulation learning environments

Authors

Doctoral Student, MNSc, RN, Eveliina Kivinen
Master’s degree student, Simulation instructor, RN, Jukka Karjalainen

Lahti University of Applied Science, Faculty of Social and Health Care, Hoitajankatu 3, 15850 Lahti, Finland

Introduction

Elderly persons constitute a growing proportion of people who receive social and healthcare services in Europe. Regardless of the age and functional capacity, elderly should have the chance to live at home. The higher education institutions (HEI) are challenged to provide clinical experiences to prepare the graduating students. Simulation has gained wide acceptance in education (Cant & Cooper 2010, Yuan 2012), however its use in elderly care is not been utilized enough. Simulation offers possibilities preparing students to safely meet the needs of an aging population (Johnson et al. 2012). This poster presents project carried out in 2014-2015 collaboration with educators, students, representatives of working life and elderly developing geriatric home learning environment.

Objectives

The aim of project was to plan authentic geriatric home environment that replicates everyday challenges and enhances the learning of multi-professional students and social and healthcare workers. The main goal was to develop a concrete plan identifying different purposes, functions and the main features of the future learning environment and to plan activities to encourage learning and social interaction between students, educators, working life representatives and entrepreneurs and elderly people.

Methods

Multi-professional team (physiotherapy, nursing and social services) of educators and students facilitated workshops for the home care workers and elderly to collect views, opinions and experiences about the challenges they face in elderly home environments.
Results
A concrete plan for future oriented teaching and learning environment was created. Results will work as a guideline when creating new simulation facilities for Lahti UAS. Main results of the project will be presented in SESAM 2015 meeting.

Conclusions
HEIs are challenged to design flexible multifunctional learning environments supporting teaching and learning processes and pedagogical approaches. Future geriatric home learning environment is seen as a platform or living-lab environment that will promote user-driven methods, tools, solutions and innovations for improving the development of products and services for accessible, safe and independent housing for the elderly.

References
COMPARING PARAMEDIC STUDENTS’ APPROACH TO ADULT AND PEDIATRIC DROWNING BY USING HIGH FIDELITY SIMULATORS

Feray Guven¹, Dilek Kitapcioglu¹, M.Emin Aksoy¹, Oya Sagir¹, A. Tansu Say², İbrahim Ayvaz²

1. CASE (Center of Advanced Simulation and Education), Acıbadem University, Istanbul-Turkey
2. Kocaeli University Faculty of Economics and Administrative Sciences, Kocaeli-Turkey

BACKGROUND AND OBJECTIVES

Objective of this study is comparing paramedic students’ competencies in pediatric versus adult drowning scenarios within a simulated pre hospital environment by using Objective Structured Clinical Examination as an assessment tool.

MATERIAL AND METHOD

15 second year paramedic students were included in this study and the participants were allocated into five groups. Each group consisted of three students. An expert panel consisting of two physicians developed two drowning scenarios. Each group has attended at both pediatric and adult simulation scenarios. Assessment based on two main components: Essential actions checklist including 18 items and resuscitation checklist including 43 items. Checklists were prepared for the pediatric and adults scenarios. The checklist for resuscitation was prepared depending on pediatric and adult 2010 European Resuscitation Council guidelines.

Each item was structured as three-level weighted score (completed well, completed poorly or not completed). The performances were recorded from a fixed camera angle which allowed simultaneous visualization of the exam, the mannequin and the cardiac monitor.

RESULTS

ANOVA test has been performed in order to assess the relation between the groups’ performances for the pediatric scenario. As the sigma value has been calculated as 0.217, no meaningful difference has been detected at 0.05 importance level. The reliability value of the test has been calculated as 0.674.

ANOVA test has also been performed to compare the trainees’ adult scenario performances. As the sigma value has been calculated as 0.007, a meaningful difference has been detected at 0.01 importance level. The reliability value of the test has been calculated as 0.832. The difference in the performances may originate from the fact, that some of the participants taking part in this study are also working actively as emergency medical technicians in the ambulance services.

When the dependent t-test was performed between participants’ performances in the adult and pediatric scenarios, the sigma value was calculated as 0.009 showing that there is a meaningful difference between the both groups’ performances in the adult and pediatric scenarios at 0.01 importance level.

CONCLUSION

Depending on the results of this study the difference in the participants’ performances in the adult and pediatric scenarios may be originating from the fact that there is less content for pediatric cases compared
the adult cases in the undergraduate curriculum of paramedics school. It may be advised, that the existing curriculum has to be adapted to fulfill these needs.
Full-scale simulation as driver of cultural and organisational change in a Danish labour ward, Copenhagen University Hospital Hvidovre

Henriette Hintz, Christina Rørbye, Kristina Petersen, Pia Keinicke Fabricius

Copenhagen University Hospital Hvidovre, Denmark

Introduction: High quality in patient safety and treatment are high priority for all Danish hospitals and all employees must adapt to meet high standards in care. The clinical setting for this intervention is the labour ward at University Hospital Hvidovre, which is the largest labour ward in Denmark with about 7,000 births per year. Acute crisis regarding labouring women and neonates involves doctors, midwives and nurse assistants and requires a high level of communication and multi-professional teamwork. Simulation training presents a rich opportunity to focus on and train the multi-professional team in order to explore new and safe ways of working. The employees are the main resource in transferring new ideas and organisational improvements from the simulation setting to the daily practice.

Objectives: 1) The overall objective is to improve patient safety by providing high quality in treatment. Knowing that good team performance is essential for patient safety we expect that improved communication and teamwork skills will have a positive effect on patient treatment. Our criterion for success is that more than 95% of the employees should attend the training. 2) The secondary objective is establishment and implementation of improved ways of working. Our criterion for success is to transfer learned skills to the labour ward; both as improved team performance and as improved changes in the workflows.

Material (Patients/Method): A multi-professional simulation project group was set up with assistance from the Development and Quality Unit at the hospital. The group received full financial support from the labour ward management. All employees, in total 200, were scheduled to one full day of simulation training at Learning Lab, Hvidovre Hospital. Based on a task-analysis the project group designed a tailor-made programme specifically for the labour ward. 8 training days with 26 participants per training were scheduled. On the training day we formed 4 teams with midwives, doctors and nurse assistants who trained together the whole day. All teams trained in two different simulation settings. All simulations finished with a debriefing session with focus on transferring the learnings to
the labour ward. In the written evaluation done by all participants after the training we specifically asked for input and proposals for how to use the learned skills in the daily work.

Results: At this point we have completed 6 simulation training sessions. 154 employees have attended the simulation trainings. With only two more trainings ahead we will most likely meet our criterion for success, which is 95 % participation. Regarding the other criterion for success we have successfully implemented the following: Focus on the team leader role in the acute crisis situation, adaptations of medicine boxes, new checklists and the implementation of a daily debriefing/reflective practice named “The 5 minutes”. On a general level the employees wish to bring learnings and feedback into the daily practice. Evaluations done two months after the training show that the participants to a high or very high degree (79, 5 %) use the tools gained regarding communication and teamwork in their daily practice.

Conclusion: Our work is still in progress, but what we have experienced so far is that simulation training is a valuable tool in discovering barriers in the daily practice and can be used constructively in improving performance, team work, communication and new workflows.
Non-invasive ventilation: Providing safe and informed care. Simulation based learning for registered nurses working in MAU

Presenting Author Sarah Sibley, Lead Nurse Educator, Bristol Medical Simulation Center, UK

Introduction: Nurses working on the medical assessment unit are required to demonstrate advanced skills, knowledge and understanding to enable the safe and informed delivery of care for those patients receiving non-invasive ventilation (NIV). Bristol Medical Simulation Center were asked to develop a series of simulations for a NIV training day which would allow the nurses to demonstrate competence in assessing and managing patients receiving NIV in the acute clinical setting.

Objectives: To develop and deliver simulation based learning for registered nurses to enable them to provide safe and informed care in the form of non-invasive ventilation to adult patients. All registered nurses attending the NIV training day will be able to;

1. Demonstrate a clear understanding of the knowledge and skills essential to the care of a patient receiving NIV in the clinical setting
2. Demonstrate knowledge to enable the safe delivery of NIV in the clinical setting
3. Recognise the limitations and associated risks of NIV in the clinical setting whilst demonstrating awareness as to suitable action to take when/if these are detected

Method: A one day NIV training course was designed and piloted for 14 registered nurses who work in the acute care setting. A mixture of tutorials, workshops and simulation based training.

Nurses attending the course completed a post course evaluation which measured participant’s reaction and learning; how they felt about the training program, measure of learning acquired, skills improved, self-perceived confidence and attitudes changed due to training.

Results:
The majority of the participants strongly agreed that the content of the tutorials was at the appropriate level. Most of the participants found the simulations to be realistic. The nurses reported they all felt comfortable talking about issues in the debrief, which allowed important topics to be addressed. Confidence significantly increased post training. Comments from the participants were equally positive;

“Found it a really good way to learn.”

“Talking everything out and discussing different ideas and opinions. Very good course.”

“Getting hands on.”

Participants felt the session could be improved with smaller groups to allow more one to one and hands on practice of setting up NIV.

**Conclusion:** The pilot of the NIV training day demonstrated that participants enjoyed the sessions and found it an effective way to learn. Further evaluation to measure the extent to which participants change their on-the-job behaviour as a result of the training is needed.
Increasing readiness for crisis situations - Intensive health care training

Svatava Kalna, Veronika Svobodova
International Clinical Research Center, Saint Anne’s University Hospital in Brno, Brno, the Czech Republic

Introduction:
A continual need for extending knowledge and skills in health care is generally acknowledged. However, there is not enough space for specialized topics in curricula of nursing schools. Moreover, experts from practice rarely have an opportunity to transfer their experience to students. With this in mind we have developed in cooperation with medical experts, firefighters, police, and army a training program for nursing school students aiming at a rehearsal of reactions in life threatening situations. Such situations are increasingly common and the society is not prepared to cope with these threats. The program consisted of theoretical lectures, practical training, and exercises with bodies of the Integrated Rescue System (IRS) of the Czech Republic. Simulations have been used as a means to attain high fidelity of situations.

Objectives:
The primary objective of the training has been a rehearsal of effective cooperation between students, minimization of casualties and injuries in crisis situations, and maximization of readiness. We have focused on enhancing knowledge obtained in classes and transferring information about important topics which cannot be dealt with in regular curriculum. Emphasis has been put on acquiring practical skills with the help of simulated situations.

Method:
The project required a suitable location with a sufficient number of rooms for theoretical lectures, appropriate outdoor space and swimming pool. A training program has been divided into five days. Both lectures and practical exercises took from 60 to 90 minutes per group and topic. There were four hours dedicated to rehearsal with IRS. An analysis of simulated situations followed immediately. We have prepared simulated scenarios in
cooperation with professionals and experts on simulation training. Thanks to immediate feedback from medical rescue professional students could gain a realistic insight into their ability to cope effectively with crisis situations.

Results:
The target group consisted of higher grade students from 8 nursing schools. In total four one-week trainings took place during the years 2012 – 2014, with attendance of 335 students. Theoretical and practical teaching has been provided by 128 experts, and 85 volunteers acted in simulated situations. In the frame of the program we have spent 266 hours of theoretical teaching and 284 hours of practical training. There were four competitions and two exercises with the IRS. As a feedback from participants indicates, we have succeeded with the help of simulation teaching to increase students' readiness to deal with crisis situations, improve their communication skills, and enhance their level of first aid procedures.

Conclusion:
Our training program indeed reflects the current needs. Life threatening attacks of individuals or organized groups take place with increasing rate and the society is not adequately prepared for such situations. The main benefit for the attendees is the acquisition of knowledge and skills in topics which are not commonly taught in classes. The participation of experts from different fields of emergency care was extremely important for students as well as using simulation teaching and immediate feedback from professionals. As the current security situation demands increased readiness of individuals to cope with life threatening situations we are preparing other projects focused on these topics.
Feedback vs Structured Debriefing: Student Assessment

VCoutinho1, J Martins 2, M Pereira 3
Escola Superior de Enfermagem de Coimbra 1; Escola Superior de Enfermagem de Coimbra 2; Faculdade Psicologia e Ciências de Educação-Porto 3

Introduction: Feedback is the information provided to students about their learning and performance to date, according to the academic goals.1 The debriefing is a structured way of guiding the students in considering the action, offering a reality through the eyes of the instructor and their peers.2 Follows the simulation and is an intentional and vital process designed to create synergies, strengthen and transfer learning from one experiential learning exercise.

Objective: Analyze the impact of feedback vs structured debriefing, combined with simulated practice in evaluating the student does.

Material (Patients/Method): Conducted an experimental study with 85 nursing students in December 2014. Students were randomly assigned into two groups, a control that had feedback after the main scenario, and an experimental group had a structured debriefing after the completion of the scenario. Debriefing applied to the assessment scale associated with Simulation (EaDAS)1. Applied nonparametric tests and performed statistical analysis using SPSS 22. Formal and ethical aspects have been met.

Results: The sample consisted of 85 nursing students, 92.9% women and 7.1% men, with an average age of 21.89 years and standard deviation 2.81. The experimental group has average upper and middle positions in all dimensions, and the overall debriefing station has an average was 50.43; the psychosocial dimension 49.51; the cognitive dimension 50.95 and the affective dimension of 48.89 midpoint respectively. The experimental group shows statistically significant differences from the control group.

Conclusion: The evaluation of the students after the application of structured debriefing, compared with the feedback has a positive impact on simulation.
learning with regard to the promotion of confidence; facilitate understanding; knowledge transfer; safe intervention and promotion of quality and the promotion of lifelong learning.

The authors have no conflicts of interest to declare.

Referências:


A simple model for skills training in the management of postpartum hemorrhage

E. Kolesnikova ¹, A. Makhmutkhodzhaev¹, E. Ripp², D. Chervinsky², A. Tsverova²

¹Department of Obstetrics and Gynecology, Siberian State Medical University, Tomsk, Russia
²Medical Simulation Center, Siberian State Medical University, Tomsk, Russia

Introduction:
Postpartum hemorrhage (PPH) is a common and potentially life-threatening obstetric emergency. It is one of the top three causes of maternal mortality. Uterine balloon tamponade (UBT) and compression sutures are effective treatments for PPH. To prevent maternal deaths training these skills is needed.

Objectives:
Objective is to design the low-cost realistic postpartum uterus model for training insertion of intrauterine device (IUD), UBT and compression sutures skills.

Material and methods:
The offered postpartum uterine model is made of textile and synthetic insulating material. Model represents postpartum uterine after both regular delivery and caesarean. One of the model’s walls has a slot to simulate caesarean cut. The model is attached inside a birthing simulator with the elastics that imitate the uterine ligaments. It has lifelike size, shape and gives realistic tactile sensation during palpation.

Results:
The model can be used inside a simple birthing simulator and as a task trainer. It allows practicing the any technique for correct placement of IUD, including UBT, all kind of uterine compression sutures, bimanual compression skills, vaginal inspection and removal of placental parts.

Conclusion:
This model has realistic representation of anatomy and physiology of postpartum uterus. It is durable, low-cost, and easy to use. Moreover it needs no maintenance over the model’s lifetime. Preparation for training is quick and simple.
Retrospective comparison of performance of the residents of general surgery and gynecology & obstetrics during laparoscopic surgery simulation training

Beril Güven 1,2, Sezen Avtan 1, Fatih Karaaslan 1, Levent Avtan 3

Istanbul Health Directorate-Medical Simulation Center (Simmerk) 1, Bahçeşehir University-Biomedical Engineering Department 2, Istanbul University-Istanbul Medical Faculty 3

Introduction

Laparoscopy is a preferred surgical method in general surgery and gynecology & obstetrics. Surgical skill of any surgeon has crucial role to get successful result in laparoscopic surgery. Due to this reason, several educational approaches are used in order to train the residents of surgery. Using the laparoscopic simulator is one of the these ways.

Objective

This research's aim was to compare the results of the performance of the residents of general surgery and gynecology & obstetrics retrospectively in laparoscopic simulation training.

Material (Method)

Simulator (LapSim) used in our simulation center has different modules but Camera Navigation and Suturing are emphasized ones. Camera Navigation is an orientation to simulator and hand movements. It has 2 different difficulty levels. Suturing is the last module but it has the closest visualization to reality and it contains 4 difficulty levels. This research was performed retrospectively. The number of the residents of general surgery group was 36 and gynecology & obstetrics group was 31. Therefore, all data was collected from past simulation training periods. Then, mean values and standard deviations were calculated for each group. Eventually, student-t test was applied to determine whether there was a statistically meaningful difference between two groups' performances.

Results

Average scores of Camera Navigation level 1 and level 2, Suturing level 1, level 2, level 3, level 4 and tissue damages of the general surgery resident group respectively were 63,2±17,9; 65,9±19,7; 17,8±15,1; 35,2±19,7; 37±19,7; 31,4±30,3; 41,8±22,1. Correspondingly, average scores and tissue damages of these tasks for gynecology & obstetrics residents were 61,5±15,6; 60,6±14,9; 15,1±17,7; 38,4±28,2; 25,5±21,2; 21,8±16,4; 44,9±17,3. All results are shown in Figure. A statistically significant difference was not observed between each group's success by using student-t test. However, by using the same test, a weak evidence (0,05<P<0,1) was determined.
that performance of the general surgery residents during suturing level 3 was bigger than the other group’s one.

Conclusion

Laparoscopic surgery simulation training was performed by residents of general surgery and gynecology & obstetrics in our simulation center. The outcomes indicate that there is no statistically important difference between two groups’ performances for Camera Navigation and Suturing skills. However, because of the small sizes of the both groups, it can be concluded that these groups cannot represent universal one.
Figure. Mean values of the each level of the related tasks for general surgery residents and gynecology & obstetrics residents.

Acknowledgement

We thank to Arzu Müsellim for preparing the data to become capable for examination.

Disclosures

No conflicts of interest, financial or otherwise, are declared by the authors.
Integrated simulation trainings in a new 5-year Bachelor of Nursing programme in general health care

WONG Suet Lai

Division of Nursing & Health Studies, The Open University of Hong Kong

Introduction: Professional nursing programmes aim to prepare pre-licensed student nurses with strong clinical skills to effectively and safely care for patients. Simulation has been shown to be one of valuable teaching-learning strategies to achieve the aim, therefore; integrated simulation training in a new 5-year Bachelor of Nursing Programme in general health care has been implementing since 2013.

Objectives: The purpose of the paper is to illustrate the process of the integration of simulation trainings in the curriculum of a Bachelor of Nursing programme.

Material (Methods): The simulation training workgroup at the Open University of Hong Kong starts the integration based on the steps of nursing process with 5 phases: (1) the assessment phase allows the academic staff to identify learning needs among the current curriculum yearly. (2) The diagnosis phase concludes keys of clinical variation that occur currently. (3) The planning phase allows the course coordinators to design different instructional strategies used to facilitate learning in accordance with the intended outcomes and to train instructors who are able to provide effective feedback followed by the debriefing. (4) In the implementation phase, the instructional purpose and logistics of simulation activities are relayed to the participants by the course coordinators, and the responsibilities of the three parties (students, instructors, and the course coordinator) are explained. (5) The evaluation phase will assess the core competence of nursing areas among graduates.

Results: The simulation training workgroup prepares an operational guideline for simulation activities as a longitudinal teaching and learning experience beginning with an in-service workshop annually. It both can facilitate academic staff adopt simulation as the learning strategies and provide continually coaching.

Conclusion: In 2018, the workgroup will evaluate the first batch of graduates’ performance eventfully.
Title:
A patient journey through delirium and diagnosis of dementia: Making the case for a single cased-based training to enhance psychological safety and interprofessional training

Institution(s): Simulation & Interactive learning Centre Guys & St. Thomas' NHS Foundation Trust (GSTFT)

Authors:
Colette Laws-Chapman, Ms Bridget Fordham, Dr Mark Kinirons, Ms Katie Simpson

Category: Interprofessional / Team Education

Presentation Type: Oral presentation/Poster
Introduction:
Incidences of delirium are rising, occurring in 30% of emergency medical admissions, 50% of post operative emergency surgical cases and 70% of all critical care cases (source GSTFT 2013). It has particular predilection for conditions that are increasingly common - alcohol dependence and crucially those with known dementia. As dementia increases in prevalence in south London, delirium as an emergency presentation or complication of hospital admission is highly likely to increase. Good debriefing is known to enhance psychological safety (Rall et al 2000), but also preparing the candidates for scenarios is equally as important.

Objectives:
To enhance interprofessional education and relationships across home and hospital services through simulation based training. The design must be: a) relevant for community based General Practice doctors, nurses and therapists and acute hospital based medical, allied health and nursing staff to all actively participate in the course, b) flexible to adapt to the different professional roles whom may attend on any given day, c) designed to allow identification of the importance of, and impact on aspects of clinical care, treatment options and non-technical skills management to enhance patient safety and experience.

Methods
Using a centre-based model with simulation interventions we used focus groups to scope the typical patient journey. A hypothetical character, Bob Greycoat and his wife Mareaid was created for a suite of scenarios across acute hospital admission through to discharge home and follow up. Mini didactic sessions were prepared to build into the descriptive phase of the debriefs, to technically highlight assessment and management of delirium and dementia. Room and character props assisted with immersion including designing a homely front room environment, creating a busy ward environment with audio distractions, multiple patients and staffing issues and recreating a staff case meeting with the wife using cue cards and handover sheets.

Results:
A single case-based course has been implemented with 120 candidates from a range of professional groups and organisations. Overall delegates report a shift in confidence immediately after the course in relation to managing delirium and dementia patient’s situations and also a greater awareness and understanding of roles and non-technical skills that can affect team performance and patient safety. Free text comments positively report the course is effective in its current format to enhance their knowledge acquisition through simulation. Additional comments indicate that the single patient journey covered throughout the day was conducive to candidates feeling more normal in their simulation roles as the GP or community nurse would know the patient or have access to records about him. This helped them to settle into the simulations more readily than in previous courses.

Conclusion:
The single patient journey was designed to allow for flexibility in scenarios when different professional skill mixes were candidates on the course. An unexpected but welcome outcome was that the ‘team’ were able to feel more psychologically safe and prepared for their scenarios as they became familiar with the history, treatment, and communication needs across stages in the journey in advance of their own simulation scenario.

THURSDAY POSTERS
Development and Preliminary Evaluation of a Virtual Reality Simulator for Microsurgical Suturing

Brian W. Smith, PhD, MBA, Joseph Sassani, MD
Simulation Systems, Inc., Hershey, Pennsylvania, USA

Introduction: Suturing is fundamental to most microsurgical procedures. It is a “freehand” technique, where the outcome relates strongly to the manual dexterity of the surgeon. As with any fine motor task, frequent repetition is critical to the acquisition and retention of microsurgical suturing skill. Human and animal cadaver tissue or live anesthetized animals are commonly used for microsurgical practice. However, this approach is limited by high cost, low throughput, poor reproducibility, the absence of objective performance feedback, and ethical/regulatory considerations. A fully-virtual, high fidelity microsurgical simulation system would address these limitations. With the emergence of new computing technology, this is now feasible.

Objectives: We are developing a prototype virtual reality (VR) system to simulate microsurgical suturing. The goal of this study is to determine the validity of this system in the context of tying a microsurgical knot.

Material: Our prototype simulator comprises proprietary hardware and software. It utilizes specialized input devices that incorporate electromagnetic tracking and look, feel, and respond like actual microsurgical forceps. These are used to manipulate virtual forceps in a rendered, three-dimensional environment. Software was created in Unity, a robust game development platform with a wide range of assets for modeling complex physics interactions.

This study will utilize two cohorts of subjects, one comprising novice microsurgical trainees and the other comprising experienced microsurgeons. Each subject will be tasked with using the simulator to tie a standard 3-1-1 surgeon’s knot. Several performance measures will be recorded, including the time to complete the knot, the
number of re-grasps, and the adequacy of closure in approximating each loop. Following completion of the suturing task, each subject will complete a short inventory evaluating the extent to which the simulated task resembles an actual knot-tying experience.

**Results:** Preliminary data support that our input devices provide adequate spatial and angular resolution to enable the simulation and analysis of microsurgical suturing technique. Challenges with modeling the physics of suture manipulation with forceps have inhibited the collection of usability and validity data as planned. Therefore, this poster will present work-in-progress towards overcoming these challenges and the eventual completion of these studies.

**Conclusion:** Our VR-based microsurgery simulator will ultimately enable novice surgeons to practice microsurgical knot-tying in a high throughput, high fidelity, low cost manner without requiring the use of laboratory animals or other biologic tissues. Data to be collected will establish if the simulator has adequate face validity to support its use as a training tool and if the simulated tasks allow for discrimination between novice and experienced microsurgeons.
Are conflicts a fatality? Implementation of a workshop about conflict management for residents in General Practice

Chloé DELACOUR, Mathieu Lorenzo, Catherine Jung, Victor Gasia, Thierry Pottecher

Department of General Practice, Faculty of Medicine, Strasbourg, France
Simulation Unit, Faculty of Medicine, Strasbourg, France

Introduction: in France, residents in General Practice (GP) are trained mostly in hospitals, inside pluri professional teams. They are therefore at risk to be confronted to conflicts with co-workers. The results of a preliminary study showed that residents are interested in a formation about conflict management.

Objectives: implement a workshop using simulation for GP residents to introduce notions of conflict management and explore the emotional impact of the tools used during the session

Material (Patients/Methods):
Our workshop was designed to last half a day. It was divided in two parts: in the first one we used videos presenting scenes of conflicts played by comedians. The group was invited to debrief the scenes focusing on verbal and non-verbal communication. During the second part, role-plays with comedians were organized to explore and experiment communication in conflictual situation. Participants were invited to play the role of the resident. The role-play was debriefed with the group.

The scenarii have been written from real experiences previously reported by students. They present situations involving different types of professionals (nurses, doctors) and different hierarchical relations (residents, seniors)
At the end of the session, a focus group was hold to discuss the experience of the participants.

Before each part of the workshop and after the role-play, participants were asked to fill in the State-Trait Anxiety Inventory.

All the participants were invited for an individual interview 2 to 3 months after the session to discuss the workshop’s impact in the medium term.

The verbatim of both focus groups and interviews were analysed according to the grounded theory.

Results:
18 residents volunteered to participate. The thematic analyse of the focus group show a real interest for the subject of the formation, and for the tools used during the
workshop, particularly for the role-plays. Students express their capacity of projection and identification to the characters, abilities necessary for re-contextualisation. The interaction with comedians is appreciated. Fear of judgement is still very preeminent. It is on the other hand really difficult for the students to talk about feelings. The results of the STAI are difficult to interpret because of the small size of the sample. The mean score of anxiety is low for both group, and we see a non-significant diminution of “state” score during the session. The preliminary analyse of the second interviews gives us information about how to improve our workshop, for example offering more role-plays in order to give the opportunity to everyone to play.

Conclusion: the first step of the implementation of our workshop is a success. Participants helped us to identify the points to improve. Our fear that role-plays may not be appreciated has been refuted. We are planning to develop this workshop on a whole day, and to use the model for a session about conflicts between doctors and patients.
Inter-professional simulation training in diabetes & endocrinology: A Pilot programme – Learning from adverse incidents

Christine HM Leong¹; Anne McKenzie²; Georgia Noble-Bell³; Omar G Mustafa⁴

¹Specialist Registrar in Diabetes & Endocrinology/Medical Education Fellow; Postgraduate Medical & Dental Education, King’s College Hospital, Denmark Hill, London, United Kingdom
²Simulation technician, King’s College Hospital
³Diabetes Specialist Nurse and Practice Development Nurse, Department of Diabetes, King’s College Hospital
⁴Consultant in Diabetes; Chair, King’s Insulin Safety Group, Department of Diabetes, King’s College Hospital

Introduction:
Inter-professional education is promoted by the GMC and the collaborative approach is viewed essential in patient care.¹ Simulation based training enables acquisition of knowledge, skills and attitudes in a safe environment without compromising patient safety.² Inter-professional simulation training showed increased positive effects on self-efficacy for nurses and doctors.³

With the increased prevalence of diabetes, all doctors, regardless of specialty, will need to manage diabetic patients. A national survey showed a lack of confidence in their management.⁴

There are currently no diabetes and endocrine emergencies simulation training programmes, let alone in a multi-professional setting.

Reporting adverse incidents is encouraged to improve learning from errors, which often involve human factors. Simulation training can be used as a tool to learn from these incidents that lead to patient harm and instil change in practice.

Objectives: To improve recognition and management of diabetes and endocrine emergencies and to develop inter-professionalism, team-work, leadership and communication skills.

Method: A pilot full-day multi-professional high-fidelity simulation session was conducted in the simulation centre at a university teaching hospital. Scripts, derived from real adverse incidents, for seven emergent scenarios were based on previous adverse incidents: severe hypoglycaemia (SH), diabetic ketoacidosis (DKA), hyperosmolar hyperglycaemic state (HHS), pituitary apoplexy (PA), hyperthyroid crisis (HC), hypoadrenal crisis (AC) and diabetes insipidus (DI). Training was offered to nurses and doctors of all grades. A trained ‘nurse plant’ was utilised to guide development of the clinical scenario. Remaining candidates observed the simulation in another area via live video streaming. The manikin’s vital signs were remotely controlled and changed depending on interventions performed. Debriefing⁵ occurred after each scenario. Evaluations were completed before and after the course.
Results: Participants included three nurses and seven doctors (30% nurses). On the Likert scale (1 to 6), there was increased confidence in managing SH (average pre-course 4 vs post-course 5.3); HHS (3 vs 4.5); PA (2.3 vs 4); HC (2.3 vs 3); AC (2.2 vs 4.2); and DI (3.3 vs 4.8); p<0.005. All provided positive feedback regarding multi-professional training, teamwork (5.8), improved knowledge (5.8), raising concerns in an unfamiliar group (3.1 vs 4.1), taking the lead in an emergency (3.8 vs 5), expressing my opinions if disagreed with others (3.4 vs 5.1), valuable training tool (5.8) and overall enjoyment (5.8). In most cases, p<0.05

Conclusions: Inter-professional simulation sessions benefit patients, nurses and doctors and more are required. Encompassing adverse incidents in simulation training is a pro-active approach to learning from errors and improving patient safety. With no other centres offering this diabetes and endocrinology simulation training, this is certainly a novel training programme.

References
Investing wisely in our resources to improve patient safety: Simulation-based training for Healthcare Assistants

Christine HM Leong¹; Letitia Agbegah²; Ann Rush²; Yvonne Fraser²

¹Postgraduate Dental & Medical Education department, King’s College Hospital
²Department of Nursing, King’s College Hospital, Denmark Hill, London SE5 9RS, United Kingdom

Introduction

Healthcare assistants (HCAs) account for one-third of the nation’s healthcare workforce and they support registered nurses in their duties.

With the financial constraints of the National Health Service (NHS), nursing roles are stretched and non-registered HCAs have become the main bedside caregivers¹ and forefront of patient care². Improving patient care is a key priority³ and the Francis report⁴ highlights the need to train HCAs to ensure patient safety. It is imperative that we recognise HCAs as strategic resources within the NHS and invest in their training and development as valued members of our team.

Simulation is a useful educational tool for addressing non-technical skills and communication within a multidisciplinary team⁵.

Objectives

To increase confidence and recognising and assessing potentially acute ill patients.
To develop crisis-resource-management (CRM) skills.
To develop teamwork and communication skills within a multidisciplinary setting.

Method

The pilot HCA simulation training was conducted as a full-day session in the simulation centre of a university teaching hospital. Scripts for five emergent scenarios were developed for each session: delirium, hypoglycaemia, shock (hypovolaemia), dealing with an angry relative and cardiac arrest. Training was offered to any healthcare professional working within the trust.

A high-fidelity manikin was used and a trained ‘nurse plant’ within the scenario was utilised to aid with its development and only provided investigation results upon specific request. The remaining candidates observed the simulation in another area via live video streaming. The monitoring was remotely controlled and changed depending on interventions performed. Debriefing occurred following each scenario.⁶ Evaluations were completed before and after the sessions.
Results

A total of 7 HCAs participated in the pilot programme which was facilitated by a matron, two specialist nurses and a medical education fellow. On a Likert scale (1 to 10; 1= very poor and 10 = excellent), there was an increased understanding of CRM (mean 8.7), greater confidence in managing emergencies (7.4) and they felt the course was very relevant to their clinical practice (9.8). Non-technical skills learnt (9.1) included escalation and calling for help early, leadership, effective communication and learning how to remain in control during difficult situations. Participants provided positive feedback and overall enjoyed the course (9.7).

Conclusion

Training HCAs can help increase their confidence in caring for patients with patient safety being the key aspect. Trust boards must empower Directors of Nursing to take responsibility for the recruitment, training and management of HCAs and ensure they are treated as a strategic resource in health and social care and invest in their development.7

References

A Strategic Integration Of Educational Theories In The Design Of A Boot Camp Program For Rapid Acquisition Of Clinical Skills

Danny Castro DO, M. Hossein Tcharmtchi MD, Satid Thammasitboon MD MHPE
Baylor College of Medicine, Texas Children’s Hospital

INTRODUCTION:
 Pediatric critical care (PCC) fellows are expected to perform in a high-pressure, high-risk environment right after residency, where restrictive duty hours are believed to limit clinical/procedural exposure. Simulation-based training (SBT) affords educators in this field the opportunity to train and assess the learners’ critical knowledge and skills without risking patient safety. The integration of SBT into a well-designed curriculum will likely optimize learning and expedite progression towards competence.

Therefore, the purpose of this program was to provide first year PCC fellows a safe learning environment to apply the knowledge, skills and attitudes (KSA) required to perform in a high stakes patient care environment.

OBJECTIVES:
1. Describe an educational program used to accelerate learning and acquisition of clinical skills
2. Demonstrate how to integrate educational theories to create a conceptual framework for curriculum design
3. Describe a systematic program evaluation and its results

MATERIAL (PATIENTS/METHODS):
The curriculum was developed in a methodical manner. Educational theories were integrated in order to enhance learning and to optimize the achievement of objectives. Several educational theories (SEE FIGURE) were strategically integrated to guide the curriculum design of the three general topics (airway management, vascular access and communication).
Kirkpatrick's hierarchy was used as the evaluation framework. An evaluation of the curriculum was conducted for 3 successive years. Evaluative methods included questionnaires, which addressed explicit and implicit learning objectives, and direct observation with itemized checklists. A pre-experimental, single group, pretest-posttest design was used for the assessment of skill acquisition.

RESULTS:

Over the 3-year period, 16 PCC fellows completed a course evaluation and both pre- and post-test assessments. Participants rated, on a 5-point Likert scale, a median (IQR) score of 5 (5,5) for the overall value of the program and 5 (5,5) for the extent that this learning experience had improved or will improve their clinical KSA. Participants also reported a significantly higher comfort level in the three general topics after the program. Skill assessments revealed significant improvement in median (IQR) group scores for ultrasound-guided central venous catheterization [37% (35,52) vs. 85% (78,90), p<0.01] and for arterial catheterization [59% (43,67) vs. 82% (74,87), p <0.01]. Additionally, the median (IQR) increase in individual scores on the post-test assessments was 48% (32, 51) and 27% (19, 34), respectively.

CONCLUSIONS:

Implicit and explicit curricular objectives were achieved. This in situ simulation-based orientation program was perceived to be of value and improved/will improve participants’ clinical education. Participants reported an increased comfort level in the three general topics and significantly improved their itemized checklist scores from baseline after participating in the curriculum.

Participants in our curriculum demonstrated, as a group and individually, significant skill acquisition in vascular access procedures, as shown by their increased itemized checklist scores from baseline. Thus, we believe that a curriculum that integrates educational theories could expedite clinical/procedural competency or, at the very least, shorten one’s learning curve.
Respiratory Team Bootcamp - Addressing Gaps in Acute Respiratory Care Using Teambased Training

Scott, A., Curran, C., Byrne, D.

National University of Ireland, Galway
Galway University Hospitals, Galway, Ireland
Saolta University Health Care Group, Ireland

Introduction: Delivering safe and effective care to unwell patients is dependent on a team’s ability to work effectively together using a combination of technical and nontechnical skills. Identifying gaps in these skills is the first step in creating teambased training.

Objectives: To design, deliver and evaluate an interprofessional team based training programme to improve respiratory acute care.

Material (Patients/Methods): A questionnaire asking respiratory registrars (n=25) and respiratory allied health professionals (AHPs) (n = 5) to rank their comfort levels in the management of respiratory emergencies was used to develop the learning objectives for the training programme. A 2-day bootcamp was designed that combined task training and hi fidelity manikin based simulation, for 6 respiratory registrars and 5 respiratory AHPs. Participants completed a post course questionnaire at 11 weeks.

Results: All participants reposted a positive effect of the training on their reaction, learning and behaviours in both the technical and non-technical skill domains.

Conclusion: The identification of a team’s learning needs and the evaluation of a programme are important steps in the design of a teambased programme.
Development of a simulation-based education curriculum for medical care specialists working in wartime conditions at the East Ukraine

Volodymyr Artyomenko, MD, PhD, Mykhailo Kashtalyan, MD, PhD, Vasyly Lefterov, PsyD, Dmytro Novikov, MD, Victoria Osintseva, MD, Liudmyla Berlinska, MD, Olha Yehorenko, MD, Dmytro Karakonstantyn, MD, Serhii Semchenko, MD.

Department of Simulation Medicine, Odessa National Medical University; Educational-innovative centre for the physician practical training, Odessa National Medical University.

Introduction: Recently, there has been a lack of specific practical and theoretical programs linked with education of medical care specialists for military needs in Ukraine. Previous experience of physicians’ military education in High Medical Schools of Ukraine included both specific military curriculum and basic medical knowledge had shown quite a deficient level of training, especially in advanced medical care. Last years the use of a simulation-based medical education (SBME) has increased in all fields of healthcare worldwide. Thus, considering this experience and new political conditions in Ukraine there was a decision to develop a new education curriculum using simulation-based technologies for medical care specialists working in wartime conditions.

Objectives: To develop a training program showing how to provide medical care specialists with required skills during a limited time-lapse.

Material (Patients/Methods): To develop a simulation-based curriculum to a new institution requires a multi-level approach regarding institutional design, faculty development and simulation-based educational curriculum. In 2014, Educational-innovative centre in partnership with the Military Medical Clinical Center of South Region, Ukraine was developed a 10-day training curriculum for military doctors. This new program contains both non-technical and technical skills acquisition through simulation-based scenario provided in extreme conditions. Among them are combat surgical trauma, traumatic (circulatory) shock, massive bleeding and burn disease. Every scenario started with previewed briefing video. After that, groups moved to simulation room and managed a simulated patient (high-fidelity manikin). Then, all their
actions were discussed during a post-simulation debriefing using videotaped scenario. Trainers experienced in work during wartime period evaluated trainees final results as quite positive and marked them as potentially ready for work as military doctors. All trainees considered the training as important for refreshing of theoretical knowledge and their implementation in practice in extreme conditions and limited time-lapse.

Results:

Conclusion: This simulation-based education curriculum will result in improved quality of training for military doctors in Ukraine. Results will be used to elaborate and implement such trainings at the nationwide level.
Development of a simulation-based training for the general practitioners as a high-standard educational method

Viktoriia Osintseva, MD, Volodymyr Artyomenko, MD, PhD, Liudmyla Berlinska, MD, Mykhailo Shandra, MD, Dmytro Novikov, MD, Olha Yehorenko, MD, Dmytro Karakonstantyn, MD, Serhii Semchenko, MD.

Department of Simulation Medicine, Odessa National Medical University; Educational-innovative centre for the physician practical training, Odessa National Medical University.

Introduction: In Odessa National Medical University was established the first and single center for simulation in healthcare among the high medical schools in Ukraine - Educational-innovation centre for physician practical training. Medical care specialists from different areas, including general practitioners, continue their postgraduate education in this training center.

Objectives: To improve knowledge and practical skills of postgraduate healthcare specialists.

Material (Patients/Methods): The center staff developed a pilot course "Pulmonology" for physicians` specialty "Family medicine and general practice" which consists of 32 academic hours. This course includes clinical cases in the following pathologies: pulmonary edema on the background of high blood pressure, angioedema and severe exacerbation of asthma, anaphylactic shock mixed version (asphyxial and hemodynamic), constrictive laryngotracheitis with bronchial obstruction. These scenarios were carried out on high-fidelity mannequins: adult and pediatric. These mannequins were placed in special ward-like rooms, equipped with modern medical furniture. In accordance with trainees` actions instructor corrected condition of mannequins. In addition, all actions of students were recorded using video and audio recording devices, followed by analysis of errors, actions, ethical and deontological principles and teamwork during those or other manipulations with the help of different debriefing methods.
Results:

Conclusion: At the end of course all the trainees noted the high efficiency of this teaching method, in special post-training questionnaires. Also there were a large number of requests on the implementation of this sector in the structure of healthcare in pre- and postgraduate education.
Challenge Calculation in Nursing school: A very serious game that can save lives.
Dr Dominique TRUCHOT-CARDOT, MD, Professor HES (1),
Rémi Arnould, Nurse, Professor HES (1).
Institution (1): HEDS-La Source, Lausanne, Switzerland

Introduction
Medication errors are killing patients and simulation in continuing education training (too focused and too few participants) or use of « business software » doesn’t change much. Despite rigorous training, we felt that our students were not optimally prepared to face the professional calculations in school and after.

Our pilot experiment
We have therefore revised longitudinally our program and centre our teachings on basic math calculation, reading data, team performance audit methodology. But, that's not all...
The most important point of this transformation was the gamification of our courses and contextualization of professional risks, from the first preparatory year to the entire Bachelor nursing education curriculum (more than 700 students).
Our first pilot experiment was conducted this year in the preparatory year, combining questionnaire preparation on line, interactive plenary and team play with a wonderful prize at the end for the best team.

Feedback
180 students participated in this experience and new approach. Their involvement on line approached 90%, although it was not mandatory. Their feedback was very positive: they especially enjoyed the fun and challenging side but also the values of mutual assistance and professional responsibilities. We were also able to highlight their most common faults, such as misreading of the instructions. Which we are going to introduce immediately in the Bachelor program.

Conclusion
This first experiment was very successful largely because our students are born players. So we will continue enriching with the serious game Admed (virtual pharmacy) and other gamifying approaches while assessing the impact of our approach on medication errors, since that is the purpose.
A COMPARISON OF THREE AIRWAY DEVICES USED BY PREHOSPITAL HEALTHCARE PROVIDERS DURING SIMULATED DIFFICULT AIRWAY SCENARIOS

G. Ulufer Sivrikaya, Sibel Kizilkar, Unal Hulur, Ahu Sezgin, Emre Sukayar, M. Fatih Gulsen
Antalya Health Directorate, Region Training Research and Simulation Center, Antalya-TURKEY

Background: Endotracheal intubation (ETI) is considered the gold standard for protecting the airway. Several studies reported that ETI requires considerable skill and experience and if performed incorrectly, may result in serious adverse events. Alternative devices for airway protection have been developed that can be used by personnel, by those with less experience, and for when ETI is not possible. Some supraglottic airway devices (SGDs) can also serve as a means for tracheal intubation after successful ventilation.

Objectives: The aim of this study was to determine the best airway device among the two newer SGD:s: the I-gel and the proseal LMA, and combitube used by prehospital team members in simulated difficult airway management scenarios.

Material and Methods: Paramedics and Emergency Medical Technicians working as a crew member of Antalya 112 Ambulance Service were involved this study. Participants provided with brief supervised training in using the three devices. Afterwards the participants were asked to place the airway device under simulated difficult airway in SimMan (Laerdal). For every participant, number of attempts for successful positioning of each device, the success rate (successful positioning at the first attempt) and timing of insertion were recorded.

Results: Thirty eight Paramedics and Emergency Medical Technicians took part in the study. Participants reported a mean of 30,4 months of service. All airway devices could be inserted without problems. The median number of attempts were 1 (range 1-3), 1 (ranged 1-3) and 2 (ranged 1-3) for I-Gel, Proseal LMA and Combitube respectively. The median time of insertion of both Proseal LMA (29,1 seconds) and Combitube (37,1 seconds) was longer than I-Gel (27,9 seconds). The success rate with I-gel (53,6%) was significantly higher than with Combitube (44,7%) and higher than Proseal LMA (44,7%).
**Conclusions:** In terms of both the time required for successful placement and the rate of successful placement, the I-Gel seems better than Proseal LMA and Combitube in simulated difficult airway. Within the limitations of a manikin-study, this study suggests the I-Gel for prehospital healthcare personnel may offer advantages in difficult airway situations.
Using SP Methodology for Immersive Simulation in Communication and Cultural Competence: A Program for Rapid Acclimatization of Visiting Physician Scholars

Valerie Fulmer, John Mahoney, Maureen Passamore, Lisa Barsom, Brian Greene, Hollis Day

University of Pittsburgh School of Medicine

Introduction:
A challenge in medical collaborations across international and cultural boundaries is assuring effective communication. A new medical school has opened at Nazarbayev University (NU) (Kazakhstan), in partnership with the University of Pittsburgh School of Medicine (USA) using a graduate-entry model and US-style curriculum to be taught in English. Certain NU core teaching faculty from were selected for extended in-depth training in Pittsburgh, under the Bolashak Scholar Program for international education. The Pittsburgh training includes intensive English classes in the university’s conventional program.

Objectives:
Bolashak faculty scholars needed to extend their communication skills in biomedical English, including their understanding of US-style patient-doctor communications. Pittsburgh medical educators needed greater insights about the differences in the ways that Kazakh physicians and patients typically communicate, to inform curriculum development for the new school. This 2-week intensive program in Medical English aimed to fulfill both objectives.

Method:
During two separate courses, 11 Kazakh scholars with a variety of backgrounds and initial skill in English were immersed in daily 4-hour standardized patient SP conversation sessions. A scaffold approach to the construction of the activity design was used. Case conversations grew in complexity each day progressing from brief scripted interviews and basic data gathering to more complex requirements such as empathy and dealing with patient emotion, breaking bad news and ethical
considerations in patient care. Sessions were more intensively paced than typical language classes; they were a facsimile of how physicians spend a day with patients. Conversation sessions focused on vocabulary, fluency, and practical “high frequency” topics. Daily debriefing focused on learner curiosity, self-identified needs and cultural differences in dealing with patient issues. SP cases were comparable to those used in typical medical school courses, tailored to this specialized program. SPs assisted in facilitation, portrayed the patient cases and provided feedback and debriefing.

Results:
Post-course, learners rated the course highly (4.6-5.0 out of 5) across all areas: increase in skills in applied vocabulary; increased confidence in asking and answering questions, giving instructions, and taking a patient history; and preparation for dealing with patient emotions, discussing bad news, and addressing ethical questions. The course was particularly effective in teaching medical communication skills in English and in preparing them in areas that required culturally-sensitive handling. In turn, these learners were valuable key informants about how US cases and content would need to be modified to be culturally correct for use in Kazakh medical education.

Conclusion:
The immersive conversational environment was well-received and highly effective at accelerating learning and confidence in communication skills. Simulation of medical encounters through immersive conversation with SPs is an efficient and effective method for teaching patient-doctor communication in a foreign language and culture, and for generally accelerating acclimatization. Through debriefing, these learners served as key informants about the important differences in how physicians and patients interact in the US and Kazakhstan.
Simulation for Senior Anaesthetic Trainees

J Holland¹, Lori Lindsay², Barry McConville¹

¹Royal Victoria Hospital, ²Belfast City Hospital

Introduction

Whilst simulation has a widely accepted role in medical training many of the senior anaesthetic trainees have had to seek experience elsewhere. This is due to limited access to simulation centres and courses within Northern Ireland. In recent years a number of new simulation centres have been created in the province, which holds the potential to improve the technical and anaesthetic non-technical skills (ANTS) of the consultants of tomorrow. After a discussion amongst several of the senior anaesthetic colleagues and their consultant bodies, a decision was made by a small group with an interest in simulation, to investigate this potential.

Objectives

The course aimed to provide senior trainees, within the Belfast Trust, experience of simulated emergency scenarios allowing them to practice core skills and to review and improve their non-technical skills. It also provided a platform for feedback on previous simulation experiences, the perceived usefulness of simulation experience at a more senior level, and whether further simulation, conducted on a more regular basis, would benefit our trainees. This was to be measured via anonymised pre and post course questionnaires.

Methods

Within the Belfast Trust, an optional half-day simulation course was offered to all anaesthetic trainees, with preference given to senior trainees. A pre course questionnaire was provided to those wishing to participate. Four scenarios were simulated throughout the afternoon with each trainee taking part in two and observing and giving feedback on two further scenarios. All scenarios were based in a theatre atmosphere that was appropriately reflected in the set up of the simulation suite. As part of the introduction to the course, all trainees explored the functions of the simulator and familiarised themselves with the environment. Scenario topics included common anaesthetic emergencies aimed at an experience level appropriate
to the senior trainee. A team of 2 trainees, one leading and one supporting, were involved in each scenario. Following this consultant led constructive feedback on management and non-technical skills was provided.

In order to maximise trainee exposure to simulation, teaching sessions were conducted alongside the simulation. These involved the anaesthetic emergencies covered during the half-day course and were staggered so as to not precede the corresponding simulation scenario. The aim of this was to consolidate knowledge of common anaesthetic emergencies and explore follow up, post stabilisation, as the senior trainee or consultant. A post course questionnaire was provided before the close of day.

Results

In total, 10 trainees volunteered to attend, consisting of 7 specialist trainees year 3 or above and 3 Year 1 core trainees. All trainees completed anonymised pre and post course questionnaires, which were compared after close of the day.

With regards to team working and situational awareness, 7/10 trainees remained confident in these domains pre and post simulation, 2/10 felt more confident and 1/10 felt that they could further improve. When questioned on task management, 3/10 felt more confident, 1/10 felt further improvement could be made and 6/10 maintained confidence throughout. 8/10 trainees remained confident in their decision making with 1/10 gaining confidence and 1/10 feeling further experience was required.

Further results are displayed below in Graph 1
Conclusion

All senior trainees who participated in this half-day course felt that regular simulation would be useful for further development of their technical and non-technical skills. In the near future we aim to run this half-day session on a biannual basis and to extend the course to a full day session within the Belfast Trust. Pending further feedback and interest it is our aim to make this course available to all provincial anaesthetic trainees.
Simulated ward based training to improve patient safety: An appraisal of the first three years.

MJ Devine\(^1\), S Derbyshire\(^2\), J Doran\(^2\), JM Murray\(^2\), MJ Duffy\(^2\)
1. Mater Infirmorum Hospital, Belfast, 2. CSEC, Queens University Belfast

Introduction: Patient safety remains the primary objective in the Health Service. Simulated ward exercises have been utilised by the University to give students an opportunity to apply skills and receive feedback.

Method: In the simulated ward, groups of 6 final year students take the role of foundation doctors and deal with acute medical cases. Students provide feedback in the form of free prose on completion of this session. A retrospective analysis of this feedback collected from 2012 to 2014 was conducted in this audit. The frequency of emergent themes was recorded and compared using non-parametric analyses.

Results: In 2012 7.7% of comments described an excellent experience, in 2013 this was 9.9% rising to 25.8% in 2014 (p<0.05). The number of students referring to the exercise as at least good increased from 54% to 91% by 2014 (p<0.01). The exercise was found as realistic in 71% of respondents in 2012 rising to 87% in 2014 (p<0.05). There were requests for similar exercises in training, 33% in 2012 increasing to 83% by 2014. The role of feedback was acknowledged in 11% of the feedback in 2012 and by 2014 this had risen to 83% (p<0.01).

Conclusion: The feedback shows a positive contribution. The sequential improvement over the three years is reassuring regarding experience and realism with the acknowledgement to timely performance feedback. The number of requests for further exposure to similar scenarios is encouraging and should inform future plans. The simulated ward provides a rich and dynamic learning environment. The impact on patient safety is currently being encountered with students having now embarked on their clinical careers.
Using *in situ* interdisciplinary simulation training to detect errors in perioperative blood transfusion administration: an exploratory study.

**Authors:** Poost-Foroosh L1, Contreras M2, Grandy J3, Pavenski K4,5, Davis-Read Y4, Alam F2, Houston P2, Campbell DM11,6
Allan Waters Family Simulation Centre, St. Michael’s Hospital1, Dept of Anesthesia, University of Toronto2, Perioperative Services, St. Michael’s Hospital3, Depts of Medicine and Laboratory Medicine, St. Michael’s Hospital4, Dept of Laboratory Medicine and Pathobiology, University of Toronto5, Dept of Pediatrics, University of Toronto6

**Introduction:** Errors in administration of blood transfusion continue to occur in hospitals despite policies and procedures designed to protect patients. Blood transfusion errors often relate to inadequate interdisciplinary clinical team performance in a time-limited and stressful environment. In situ simulation has been used previously to detect latent hazards in healthcare systems by re-creating the actual environment in which these teams perform.

**Objectives:** We used in situ simulated operating room scenarios to identify errors that occur during blood transfusion and to identify teamwork principles known to be key factors in a crisis situation. We also assessed the impact of simulation training on participants.

**Method:** A prospective convenience sample of 10 simulated intra-operative hemorrhage scenarios were used with the participation of the actual perioperative service teams at St. Michael’s Hospital, Toronto. This pilot study was a collaborative project including the Allan Waters Family Simulation Centre, Perioperative, and Transfusion Medicine Services. Research ethics board approval was obtained. Scenario design was standardized and offered as an educational opportunity for all perioperative staff. The scenarios were run for 20 minutes or until simulated blood transfusion was started. Simulations were video-recorded and participants received debriefing immediately following the scenario. Participants subsequently completed the Changes in Inter-professional Attitude Questionnaire (CIAQ) and a modified version of the
Assessment of Team Inter-professional Collaboration (ATSC) scale. The questionnaires were completed again at 3 months post-simulation. Videos were reviewed and evaluated by 2 independent raters using Anesthesiologist Nontechnical Skills (ANTS) and Clinical Teamwork Scale (CTS).

**Results:** 43 health care professionals participated in the simulations including operating room nurses (n=17), anesthesia fellows (n=9), perioperative support assistants/porters (n=9), confederate surgeons (n=2), surgical assists (n=4), and respiratory therapists (n=2). Participants had considerable work experience in this institution (median: 11 years, range 1-44). The average time to obtain blood products from the blood bank was 8.4 ± 1.2 minutes. 20 steps were identified by local experts as required for adherence to policy in the administration of blood products. The median score for correctly following up the steps for each group was 10 [IQR 8, 13]. The largest number of errors occurred during handover of blood products to the OR team and during administration of blood products. Verbal communication, clarity on role assignments and checking the patient’s armband prior to administration of blood products were consistent problem areas identified. There was a strong impression that this type of immersive learning immediately increased participants’ ability to perform in a team (90%) and improve clinical care for their patients (88%).

**Conclusion:** In situ simulation is extremely valuable in decoding latent hazards for infrequent but high-risk procedures in a complex health care environment. Specific steps were repeatedly missed across teams which could lead to adverse events. Our findings will inform transfusion policies and procedures.
Can high fidelity simulation improve thoracic anaesthesia training?

M Bossy
Royal Surrey County Hospital, Guildford, UK

Introduction:
The Royal College of Anaesthetists (RCOA) 2010 curriculum encompasses essential skills and knowledge expected of all consultant anaesthetists.1 Thoracic anaesthesia is an ‘essential unit’ in both intermediate and higher curriculums. The curriculum describes specific skills that the trainee must demonstrate safely in order to complete training. This includes use of specific airway equipment, management of one-lung anaesthesia (OLV) and thoracic trauma, and troubleshooting during anaesthesia for bronchoscopy and thoracotomy for lung resection.
There is currently a national shortage of thoracic anaesthesia training.2 This is due to centralisation of services, increasing trainee numbers and EWTD restrictions. Our trainees report less than 10 thoracic logbook cases on average and feel unconfident despite being signed off in these areas. Kent Surrey & Sussex (KSS) trainees in particular are disadvantaged by lack of thoracic surgery within the region; training elsewhere is necessary in order to fully meet the RCOA curriculum competencies.

Objectives:
We aimed to assess whether the delivery of high fidelity thoracic training within KSS would help address current skill gaps and lack of confidence as identified by a survey of current trainees.

Methods:
An introductory seminar was followed by a series of workshops, allowing trainees supervised time to refine skills with specialised equipment and simulators. Subsequently, all candidates experienced sessions in the high fidelity simulation suite. The multi-disciplinary scenarios encompassed varied
aspects of perioperative management, with emphasis on non-technical skills and with specialist faculty leading the group debrief. Faculty consisted of senior consultants experienced in both thoracic anaesthesia and simulation-based-training.

Results:
Candidates rated their pre and post-course confidence at independently performing skills or troubleshooting problems on a 10-point Likert scale (0 = not at all confident, 10 = entirely confident). Feedback revealed a mean 4.3 point increase in confidence in specific pre-defined skills. Candidates felt the training was relevant and appropriately targeted. They particularly valued the chance to practice in an unpressurized environment with specialist equipment and the simulation-based sessions.

Conclusion:
This practical simulation-based course is highly beneficial for improving thoracic anaesthesia training where currently some gaps exist. KSS now plan to implement this successful course annually for all senior trainees.

References:

A novel interprofessional Cardiology Simulation Training day for nurses and doctors

Muhammad Sohaib Nazir, Huon Snelgrove
St George’s Hospital

Introduction:
Our Cardiology Ward is a dynamic, fast paced centre as the regional heart attack centre and delivers specialist services. A high standard of multidisciplinary team working is required for effective care. Contemporary and up to date knowledge and skills of assessment and management of cardiac conditions is required in a rapidly evolving field. The British Cardiovascular Society advocates simulation based training to enhance learning¹

Objectives:
To enhance knowledge and skills of assessment and management of common cardiac problems
To promote interprofessional team working between nurses and doctors

Material (Patients/Methods):
A multidisciplinary cardiology pilot simulation training day was designed to enhance cardiology care. 5 nurses and 5 doctors performed 5 pre designed simulated scenarios that included common acute cardiac conditions including STEMI, VT, Complete Heart Block, AF and Pulmonary Oedema and cardiac tamponade. Each scenario had one allocated doctor and one nurse, with the option for calling for another learner if required. Each scenario commenced with debrief and opportunity for learners to express own learning objectives. Simulated manikins, electronic patient records and electronic imaging were used to stimulate high fidelity. Each scenario was observed by the faculty, followed by facilitated of constructive feedback by senior registrars and head nurses using different feedback models²,³. Scenarios concluded with focus on key learning points and review of guidance from European Cardiology Guidelines⁴ and ALS⁵
Results:
There was excellent feedback with 90% of the learners rating the day as ‘excellent’ and 10% as ‘very good’. All the learners advocated recommending the course to a colleague and preferred interprofessional learning.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has this course met the learning objectives?</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Would you recommend this course to your colleagues?</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Will this course improve your team working skills</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Was it helpful to have doctors and nurses on same course?</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Would you prefer a separate course for doctors and nurses?</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

Conclusion:
This is the first interprofessional Cardiology simulation day for nurses and doctors for acute cardiology. Feedback demonstrated excellent ratings and learning objectives were met. This novel course explored learner’s own needs with feedback focussed on learner driven objectives. Key knowledge and skills were consolidated through review of clinical knowledge and stronger team working relationships were fostered, intended to be translated into the clinical environment. Positive feedback has led to an impetus to run further simulation training days, extended to professionals involved in cardiac care including A&E and Medicine with the hope of a regional and national training course.

References
Team Practice in Simulated Emergency Resternotomy Post Cardiac Surgery

Cecilia Korb\textsuperscript{1}, Orsolya Friedrich\textsuperscript{1}, Helen MacGloin\textsuperscript{1}, Mary Lane\textsuperscript{1}, Ajay Desai\textsuperscript{1}, Olivier Ghez\textsuperscript{1}, Lydia Lofton\textsuperscript{1}, Nirmala Chakkalakal\textsuperscript{1}, Margarita Burmester\textsuperscript{1}

\textsuperscript{1}Royal Brompton Hospital

Introduction: Emergency resternotomy (ERS) is a low-frequency, high-risk event involving interprofessional teams working together in stressful circumstances, and it is essential that the team is well rehearsed (1). At Royal Brompton Hospital, the Simulated interPRofessional Resuscitation Team Training (SPRinT) Programme runs regular 2 hourly in-situ simulation courses in clinical areas with all equipment and staff usually required in emergencies. Scenarios including catastrophic haemorrhage and cardiac tamponade post cardiac surgery that may require ERS and internal cardiac massage are performed with the use of high fidelity prototype paediatric and teenage open-chest models (2). Scenarios are derived from real events and are filmed for video-assisted debriefing.

Objectives: The aim of this study is to audit team practice in simulated ERS in paediatric patients post cardiac surgery.

Material (Patients/Methods): Films of simulated ERS post cardiac surgery scenarios from October 2011-January 2015 were retrospectively reviewed and cross checked. Team practice was measured by recording: time from cardiac arrest (CA) to ERS request; time from CA to surgical incision; time from ERS request to surgical incision; sterile practice; surgical technique; procedure-related interruption of chest compressions. All participants consented to take part.

Results: 6 simulations involved 68 participants (median 11/course; range 10-13) including 6 cardiothoracic surgeons, 14 intensivists, 31 nurses, 6 anaesthetists, 3 cardiologists, 8 allied health professionals. Scenarios were 5 cardiac tamponade and 1 catastrophic haemorrhage due to surgical bleeding, all had CA. A team leader was easily identifiable in all simulations. ERS was requested pre CA in 3 sessions (6secs; 54secs; 69secs) and post in 3 sessions (5 secs; 12secs; 191secs). ERS request to surgical incision time was median 7mins 27secs (range 4mins 58secs-8mins 20secs) in 5 sessions where the surgeon was immediately available, and 12mins 31secs in
the session where the surgeon was not. CA to surgical incision time was median 7 min 59 sec (3 min 49 sec – 12 min 43 sec). No staff gowned and gloved when CA occurred; 1-2 surgical staff did this as soon as ERS was requested in all simulations. Multi-piece sterile drapes were used in all 6 simulations; skin preparation was applied in 3. Changeover time from non-sterile to sterile external cardiac massage could be assessed in 2 cases (26 secs; 2 min 40 secs). In the rest of the simulations full sterility was not achieved. ERS was performed from top to bottom of the sternal wound in 3 simulations; at the bottom in 3 simulations in order to relieve tamponade (2 of these had return of spontaneous circulation and the surgeon subsequently continued the resternotomy bottom to top). Procedure-related interruption of chest compressions occurred in all simulations median 2 times (range 1-6) with median duration 16 secs (range 3 secs to 2 mins 40 secs), the most common being due to surgical dressing removal and surgical incision.

Conclusion: Team practice in simulated paediatric ERS post cardiac surgery for cardiac tamponade and catastrophic haemorrhage varies in terms of timing of ERS request (before or after CA), time from ERS request to chest opening, sterile procedure and surgical technique. Sterile paediatric and neonatal sized all-in-one thoracic drapes should be resourced. Development of a specific paediatric ERS post cardiac surgery guideline is required to unify practice.

Reference:
TEACHING PHYSICIANS AND PARAMEDICS TO WORK TOGETHER TO INTERPRET AN EFFECTIVE HISTORY IN A MULTICULTURAL STATE

Dr Patrick Davern FRACGP, Dr Nabeel Tayara MD MRCGP, Dr Mazen Zahr BSc, MBChB, MRCGP
MOBILE DOCTOR SERVICE AMBULANCE DEPARTMENT QATAR

INTRODUCTION
The novel, multi-disciplinary Mobile Doctor Service was introduced in Qatar in 2014 in conjunction with the Ambulance service. The model is a Family Physician (FP) and Ambulance Paramedic (AP) doing home visits to a multicultural patient population. The population of Qatar comprises over 120 nationalities, the predominant language groups from Arabic countries, South Central Asia and South East Asia. English the language of business is spoken by a small percentage of the population. The clinical history is an essential component of how FPs reach their diagnoses. Misinterpretation is a risk to patient welfare, and language differences are a barrier to accessing effective care. Most FPs are not used to communicating via interpreters; APs are not trained as medical interpreters nor have they worked with FPs.

OBJECTIVES
To develop a short course on medical interpretation whereby APs and FPs are trained together to conduct effective history taking through interpretation as a team, increase competency in interpretation, medical history taking, and develop cultural awareness.

PATIENTS AND METHODS
A review of the literature was carried to ascertain exiting standards for Interpreters and a specific medical model of interpretation. Role plays were developed and piloted and modified by the two Arabic speaking FP’s.
1-A Pre-course booklet and questionnaire are given to the candidates a week prior to the course. To establish and document a baseline level of language proficiency amongst the APs and to stimulate thought about the material.
2-A one day workshop was presented using a mixture of lectures and simulated interactions with patients. The role play activities engaged the FP’s and the AP’s in a scenario with an Arabic speaking simulated patient.
3- Evaluation of the candidates was conducted by the three course facilitators, two bilingual in Arabic and English. Candidates are assessed on their technique, accuracy (including non- bias), and language proficiency.
4-Facilitator and Peer debriefing was conducted after each role play with the candidate by the participants in the role play, the other course participants, facilitated by one of the course facilitators.
5- Course feedback by the candidates to the facilitators was collected at the end of the course for improvement purposes.

RESULTS
We have trained 11 AP’s and 10 FP’s to date. All candidates to date have passed their assessment. Feedback from participants indicated they valued the skills acquired through the various didactic and experimental learning approaches used. Future actions include a patient and staff questionnaire, after a clinical practice implementation interval.

CONCLUSION
The principles, standards, modes, and technique of interpretation could be successfully thought using this method. By teaching both the FPs and APs in the same course it helped both to understand the role of the other, to team build, and to develop a level of cultural awareness.
Improving the Induction of Newly Qualified Doctors

Rebecca Preedy¹, Rachel Gill¹, Megan Hall-Jackson¹, Helen Mills¹, Rachel Crisp¹

Barts Health NHS Trust¹

Introduction: The transition from medical student to doctor is recognised to be a difficult and stressful period. Work-shadowing placements have helped to resolve some of these issues but recommendations have been made for even more experiential learning to be offered.¹²³ Lumley⁴ described an innovative experiential learning experience for final year medical students, which through the use of simulation, introduces them to challenges faced with being ‘on-call.’

Objectives: To improve the induction process for all newly qualified doctors joining Barts Health by allowing them to participate in a simulated on call hour in the hospital where they will be based.

Material (Patients/Methods): This was an action research project. Methods included questionnaire survey and focus groups aimed at eliciting what junior doctors and 5th year medical students perceived as the main difficulties in transition from medical student to doctor. The themes not perceived by the medical students but by the junior doctors as problems were used to develop the learning objects of the simulated on call hour. Through the debriefing of the on call hour, trainees were exposed to concepts of patient safety, trust policies and complaints as well as encouraging reflection of their methods of organisation, prioritisation and clinical decision making. More practical aspects, such as how to use a pager and logistics of the hospital, were also deliberated. As part of the appraisal to this initiative we asked the trainees to complete an evaluation form after the simulation and one month after starting work as a doctor.

Results: Seventy-one trainees completed the initial evaluation, 64% rated the educational value of the simulation (on a scale of 1 to 6 with 6 being maximal education value) a 6 and the rest either a 4 or 5. All felt that the exercise helped to orientate them to their workplace, understand their job, responsibilities and performance, as well as knowledge of trust policies. Thirty-one trainees completed the follow-up survey one month later; the average rating (using the same scale) was still 5 for the educational value of the simulation having now completed an actual on
call. They also rated the exercise as an average of 5 on its usefulness, again with a scale from 1 to 6 with 6 being the most useful.

Conclusion: This induction process allowed insight into the difficulties experienced by junior doctors in their transition to doctor not perceived by undergraduate medical students. Through simulation training and debriefing of these issues, such as prioritizing, handover, time management, as well as technical and logistical aspects of patient care, these issues could be experienced before being exposed to within the workplace. By opening the eyes of trainees to such issues it is hoped that they are better prepared for their new level of responsibility.

References

Title: In-situ simulated operating theatre fire for emergency checklist validation and safety threat identification

Institution: Northampton General Hospital, Northampton, UK

Authors: (Presenting Author first): Hillier SD, Kumaran S, Garrod V

Category (see guidelines): Patient Safety/ Quality Improvement

Presentation Type (see guidelines): Poster

Introduction:
Fire in a theatre complex is a rare event, which presents real challenges in terms of decision-making and logistics to ensure patient safety. It is essential that each theatre complex have a robust plan in place for this serious event. The response to a fire requires an understanding of the extent of the fire, the needs of the patients currently in the theatre complex, and an understanding of available evacuation routes. A plan that has not been tested has the potential for blind spots. We developed an in situ simulation to validate a novel decision making tool for fire in a theatre complex, followed by a team debrief and multidisciplinary discussion in the systems testing process.

Objectives:
Validation of emergency decision-making tool, identification of safety threats, inter-professional education and discussion of fire procedures and preparedness.

Material (Patients/Methods):
We designed a new decision-making tool and checklist to aid the response to a fire in the theatre complex. The tool grades the fire based on proximity and time available for evacuation, and provides sequential instruction of equipment required and steps to follow in evacuating the anaesthetized patient. Two scenarios were conducted in situ within an operating theatre, one unaided, and one with the aid of the decision-making tool and equipment checklist for evacuation. The scenario was videoed and played via live feed to an adjacent operating theatre to over 30 theatre staff consisting of nurses, anaesthetists and surgeons. The team then reviewed the video and engaged in discussion of the difficulties presented by the evacuation.

Results:
The use of the decision-making aid shortened time to decision to evacuate and to evacuation. The simulation and discussion identified a number of safety threats and improvements to be implemented to increase efficiency and safety in a fire evacuation. These included ability to isolate gas supplies to theatres, clearing emergency routes, resources required for evacuation, organizing delivery of oxygen cylinders to each theatre, and the availability of syringe pumps for iv anaesthesia. The decision making tool also allowed a graded response based on the location and proximity of the fire.

Conclusion:
We have found in situ simulation a valuable tool in testing our emergency procedures in the event of a theatre complex fire necessitating evacuation. We were able to generate valuable whole department discussions about the processes for evacuation, and identify key safety threats that we were able to address. It has also proved a useful tool for evaluating there effectiveness of a novel decision making tool to grade responded to fire according to proximity and location of the fire. Introduction of the decision-making tool and checklist reduced time to decision to evacuate and time to completed evacuation.
Improving understanding, recognition & management of Sepsis in ward-based staff through a mixed-modality training programme

Dr Thomas Simpson & Mrs Colette Laws-Chapman
Simulation and Interactive Learning Centre, Guy’s and St Thomas’ NHS Foundation Trust, London, UK

Introduction:
Sepsis is a major cause of morbidity and mortality. International campaigns and publications have raised the profile of sepsis and led to an evidenced-based series of interventions which demonstrably reduce mortality. This is known as the sepsis bundle and following further research, it has been honed to 6 simple interventions to be completed within 1 hour of diagnosis, known as the Sepsis 6. Despite these high-profile advances in the understanding and treatment of sepsis, difficulties remain in bringing these advances to the frontline of patient care. An audit of sepsis in our trust identified that more than two-thirds of septic patients were presenting from non-acute environments within the hospital. Only 39% of patients received the complete Sepsis 6 bundle within 1 hour whilst in the remaining cases, elements were either delayed or omitted completely. This compares with national data showing that only 14% of patients are appropriately receiving the Sepsis 6 bundle, an intervention which has been demonstrated to reduce mortality from 44.1% to 20%.

Objectives:
In recognition of these challenges, and in response to both the National Patient Safety Alert regarding sepsis management and the imminent arrival of CQUIN goals for sepsis management, a multi-modality course focused on the understanding of sepsis and the Sepsis 6 was developed. A mix of didactic lectures, interactive workshops and hi-fidelity simulation was utilised to explore both technical and non-technical issues around the management of sepsis.

Material (Patients/Method):
Our course is a full-day multi-professional course, aimed at ward-based staff throughout the trust. We achieve a mix of disciplines with a maximum of 12 delegates per iteration. Didactic lectures, workshops and case-based discussions form the first half of the day in order to explain sepsis, explore the elements of the Sepsis 6 and to begin to discuss non-technical challenges to sepsis management. Following this we use 4 hi-fidelity scenarios to simulate particular challenges in managing sepsis, to reinforce the learning from the first half of the day whilst also exploring participants non-technical skills. We utilise a Description, Analysis, Application (DAA) structure using the Diamond debrief model to ensure that both technical and non-technical questions and discussions are learner-led.

Results:
Current feedback shows statistically significant improvements in a seven-point Likert-scale (0 = totally disagree; 7 = totally agree) based on responses to the following questions: ‘I understand how to recognise a septic patient’ (p=0.0005); ‘I am confident in managing a septic patient’ (p=0.0001) and ‘I know the components of the Sepsis 6 and their importance’ (p=0.0001)

Conclusion:
We have noted a self-rated improvement in both technical and non-technical skills acquisition. We are now exploring level 2 Kirkpatrick evidence of effect and are hoping to find future evidence of level 3 and 4 effects.
Mobile obstetric simulation: testing the system

Zain Malik 1, Maria Chereshneva 1, Yasser Butt 1, Vaughan Holm 1, Gita Menon 1

Croydon University Hospital 1

Introduction:

Mobile high fidelity simulation has given rise to the concept of testing emergency responses within the hospital. Systems’ testing has been long established in other industries and is now finding its place in healthcare. Obstetric emergencies are often highly stressful events, requiring a co-ordinated response from the multi-disciplinary team. Non-technical and environmental factors can have a strong impact on the effectiveness of the team’s ability to manage these emergencies. These emergency situations can often progress to serious morbidity and mortality as highlighted by the recent ‘Saving Lives, Improving Mothers’ Care’ report.

We decided to develop a mobile simulation to test the emergency response on a busy district general hospital labour ward.

Method:

Following review of local serious untoward incidents and input from the obstetric and anaesthetic teams, a mobile simulation was developed. To test the system we simulated a maternal collapse secondary to post-partum haemorrhage in the labour ward corridor. The participants in the scenario were the on call maternity team and midwives on labour ward. The scenario was run in real time. We evaluated non-technical and environmental factors in the emergency response.

Results:

This scenario presented a multi-faceted problem to the participants. They demonstrated effective communication, leadership and teamwork in the scenario. However, a number of environmental problems were identified. These included location of resuscitation equipment, availability of protocols, locating staff, and escalating for senior support. Feedback from the participants was collected at debrief and using a structured questionnaire. They all felt there were areas of the response that required improvement.
Conclusion:

By testing the system in real time we were able to ascertain improvements required in the response to obstetric emergencies. These were mainly environmental factors that can pose serious hurdles in the effective management of obstetric emergencies. By addressing these issues we aim to prevent these problems from recurring. After implementation of changes a similar scenario will be run to retest the system. The overall aim is to improve the safety of mothers on the labour ward and if this model is successful, it can be similarly used in the maternity units of other hospitals.
Analysis of the effectiveness of the alternative learning technique in the laparoscopic skills training

E. Kolesnikova¹, A. Makhmutkhodzhaev¹, E. Ripp², A. Tsverova²
1 Department of Obstetrics and Gynecology, Siberian State Medical University, Tomsk, Russia
2 Medical Simulation Center, Siberian State Medical University, Tomsk, Russia

Introduction:
Simulation for the development and refinement of surgical skills has come to the forefront in recent years. Before the virtual surgeries trainees should learn basic skills on the virtual simulator. [1,2] Alternative educational technique is training basic skills before any virtual operation.

Objectives:
Objective is to compare effectiveness of alternative and classical learning techniques.

Material and methods:
14 obstetricians were randomized into 2 groups of 7 trainees. Each trainee has been learning the laparoscopic technique on the simulator «Lap Mentor» (Simbionix, USA). 90 minutes during 10 days.
First group has been learning basic skills during 3 days, and then has been training the virtual surgeries during 7 days. Second group has been training basic skills 40 min, then 50 min the virtual surgeries during whole research time. For analyzing each trainee did the salpingectomy as a treatment for ectopic pregnancy in first and last day of the training. Differences between groups is considered as statistically significant with p<0,05.

Results:
In carrying out the control surgeries trainees of both groups showed comparable results. Duration of surgery in the 2nd and 1st groups is 1122,86±411,03 sec and 1088,71±354,85 respectively (p=0,87), duration of unsafe electrocautery is 6,67±4,16 and 5,25±1,7 (p=0,56), cases of hemorrhage are 14±3,81 and 15±2,9 (p=0,57). Thus the final evaluation has revealed no statistically significant differences in the quality of acquired skills, depending on the method of teaching.
Conclusion:
Training basic skills before every virtual operation doesn't influence significantly on training effectiveness. The offered alternative technique has no significant advantages over the classical learning technique.

References:
Title: Induction’ or ‘acclimatisation’: need for a comprehensive approach to new international staff arriving in NHS hospitals

Institution: St George’s Healthcare NHS Trust

Authors: Angel Achurra; Chido Muchaneta. Jessica Styles; Despoina Liotri; Christopher Broom; Clare Ivermee; Huon Snelgrove.

Category Faculty Development; Patient Safety/Quality Improvement/Interprofessional/Team Development

Presentation Type: Poster
Introduction

European health systems depend increasingly on the services of health professionals who obtained their primary qualification from other countries. As a result, the NHS (UK) has had to learn to deal with both expatriation and repatriation of EU doctors as a constant dynamic characteristic of its own ability to deliver services. Among the ramifications of this has been a need to cope constantly with ‘induction’ to work of new staff, but also exposure to a rich diversity of employees who are often highly knowledgeable and experienced in their understandings of different health systems. However, short hospital induction programmes, one-size fits all, elude the wider question of acclimatisation which is how to support large numbers of non locally trained staff arriving in the system more effectively. In the face of high turn over of international staff and poor retention the education and development department in our hospital is revisiting current support programmes and proposing the use of simulation-based training to enhance acclimatisation to the new system and to integrate flexibly with other support initiatives.

Objectives:

- To understand the needs of internationally trained nursing staff taking up employment in a large London teaching hospital
- To develop a model of simulation-based learning to meet the needs of new nursing staff in a more flexible way compared to standard induction programmes

Material (Patients/Methods):

One 90-minute Focus group meeting with Nurse Practice Educators and preceptors for new staff

Two 60-minute Focus group meeting with newly arrived internationally recruited nurses

Results:

Practice educators produced a strategy document with the hospital HR department to develop an acclimatization programme incorporating simulation-based learning. This included a Simulation Train-the Trainer programme for Practice Educators to deliver priority ward-based mobile simulations in response to the density of new international staff in specific clinical areas at any one time, and the local challenges they faced.

Conclusion:

Nurses arriving from abroad expect adequate organisational orientation and support over time to acclimatise and integrate into the new system to deliver quality care. To harness this experience and support new staff requires a more cohesive institutional approach and simulation-based learning interventions can provide leverage to target specific acclimatisation issues on the shop floor.
Simulation training for shoulder dystocia

Miñano Masip, J.1; Ferrero Martínez, S.1; Parra Hernández, J.A.1; Almeida Toledano, L.1; Cardona, C.1; Gomez-Roig, M.D.1.

1 BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine
Hospital Sant Joan de Déu and Hospital Clínic, University of Barcelona
Darwin Simulation Center

Introduction:
Shoulder dystocia (SD) is an obstetric emergency in which one of the fetal shoulders becomes impacted against the pelvic bones, thus requiring additional maneuvers to achieve delivery. It requires immediate recognition and a well-coordinated response. This response must include effective application of the maneuvers proven to relieve the impaction of the fetal shoulder.

Objectives:
To provide multidisciplinary training in shoulder dystocia to different health groups (residents [R], midwives [M] and consultants [C]) and compare the perceptions of the training.

Material/Methods:
Training was undertaken in Darwin Simulation Center in Barcelona. Midwives (n=40), residents (n=20) and junior and senior obstetricians (n=40) from BCNatal Center participated in the training program. The main goal of the training was to improve the management of the SD. For the training it was used a simple childbirth model pelvis. Outcome measures were responses to the evaluation test for the participants. The evaluation criteria were answered with a numerical scale from 1 to 5. Five items were evaluated: Achievement of the objectives, duration of the workshop, methodology applied, utility of the training and overall assessment of the activity.
Results
Sixty-one participants completed the post training evaluation test. The results are shown in the table.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Participants</th>
<th>Answers received</th>
<th>Achievement of objectives</th>
<th>Workshop duration</th>
<th>Methodology applied</th>
<th>Training utility</th>
<th>Overall assessment of the activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwives</td>
<td>40</td>
<td>23</td>
<td>4.47</td>
<td>3.65</td>
<td>4.65</td>
<td>4.95</td>
<td>4.61</td>
</tr>
<tr>
<td>Residents</td>
<td>20</td>
<td>20</td>
<td>4.80</td>
<td>3.80</td>
<td>4.80</td>
<td>4.40</td>
<td>4.60</td>
</tr>
<tr>
<td>Senior /Junior Obstetricians</td>
<td>40</td>
<td>18</td>
<td>4.66</td>
<td>4</td>
<td>4.55</td>
<td>4.44</td>
<td>4.61</td>
</tr>
</tbody>
</table>

Conclusion
The participants to the simulation training in SD consider this activity very useful for their daily practice. All healthcare providers (M, R and C) consider the simulation a good methodology to practice de SD maneuvers.
New perspectives on simulation through the use of eye tracking and first-person perspective video recordings.

Nyström Patrik 1, Dieckmann Peter 2, Lorentzen Helge 3, Paakkonen Heikki 1
Arcada 1, DIMS 2, SAFER 3

BACKGROUND: Often studies are made under the topics of Human Factors and Patient Safety in the simulator with different approaches and methods, such as questionnaires and video analysis. During debriefings discussions of what participants should have been monitoring or why they did not monitor are often present. What we as facilitators and the participants lack is knowledge of what they actually did monitor visually. The hypothesis is that we by the use of the eye tracker and first-person-video perspective could achieve new insights and even some quantitative data that otherwise would not be possible. This data would help us to better understand what participants really are looking for/at in a simulator. Especially when such tapes are used in “replay interviews” they offer unique insights into the cognitive processes that participants were involved in. Such data could help facilitators to better enhance patient safety behaviors.

OBJECTIVE: The goal is to identify what we might achieve by the use of eye tracking and first-person-video perspective in the simulation setting for training or research. At least three different approaches are possible:

1) Study simulation as a tool of enhancing learning (study learning)
2) Study performance and cognition in the simulator (how and what we do)
3) Study the manikin and environment in the simulator (how we react to the simulator setting)

METHODS: Different approaches, advantages and possible disadvantages of the use of eye tracking and first-person-video perspective in the simulator setting are discussed.

RESULTS: Ideas of how to use the eye-tracking and first-person-video perspective as a tool for enhancing learning, changing/studying behavior and the simulator setting.
Quality of Care at the End of Life: Improving Healthcare Providers' Skills with Simulation-Based Training

Galit Grabler¹, Mayer Brezis², Rina Yahalom³, Henia Perry-Mezare³, Meir Frankel³, Amitai Ziv¹

MSR, the Israel Center for Medical Simulation¹, Hadassah Hebrew University Medical Center², Clalit Health Services ³

Introduction:
The quality of care at the end of life (EOL) sets a unique challenge for healthcare providers. While patients tend to receive care that extends their lives but also their suffering- it seems that there is a need for a shift in attitudes of healthcare providers and patients to discuss and respect care preferences at EOL. Coping with uncertainty requires capacity for paradoxical thinking and for bioethical discourse.

Objectives:
Institutions need to develop preparedness to EOL with palliative care, appropriate resources and executive policy. In order to do so, simulation-based training was designed to improve the healthcare providers' professional and communication skills.

Method:
Simulation-based training can be a powerful training method for healthcare professionals. Based on the literature on EOL communication skills, a one day simulation-based training workshop was developed at MSR, the Israel Center for Medical Simulation by key personnel from Hadassah Medical Center, Clalit Health Services, Assaf HaRofe medical Center and MSR. The workshop enabled participants to train and practice common situations related to EOL patients. Development of the workshop included writing scenarios for the simulations based on real cases; preparing "standardized patients" (SPs) to play their role as patients, family members or colleagues; and training instructors to facilitate a video-based debrief of the simulations. Six different scenarios were selected to simulate common events around EOL at the hospitals: Finding out the patients' preferences regarding EOL care, dealing
with the request to do "all you can", dealing with conflicts in interactions with the patient's family members and providing explanations to family members about insertion of feeding tubes for patients with dementia. A preliminary questionnaire was delivered to participants in order to assess their knowledge and perceptions regarding EOL issues. After the workshop participants filled-in questionnaires to assess their satisfaction from the workshop and the potential for change following the workshop.

Results:

According to feedback from the questionnaires (N=230) 93.62% noted that the simulation contributed to their learning process and acquisition of skills dealing with EOL. Moreover, 93.72% of the participants found the video-based debrief to be helpful relevant to the issues they face regarding EOL. In addition, 90.92% of the participants reported that following the workshop they will change the way they manage EOL cases and that it motivated them to be pro-active in initiating talks with patients and family members about EOL issues and possibilities.

Conclusions:

In conclusion, specific simulation-based training on EOL discussions appears to trigger a shift in perceptions, while providing tools to cope with various situations. In addition, the simulative experience encouraged participants to pro-actively engage in interactions with patients and family members regarding EOL.

The workshop began with training of internal medicine teams and due to the need expressed in the field, has since expanded to ICU, Dialysis and to healthcare professionals from senior assisted living homes.
Title: Experience of Human Patient Simulation as a teaching method in mental health nursing.

Kari Kirkbakk-Fjær¹, RNT, MCC, Øyfrid Larsen Moen¹, RNT, PhD, Birgitta Hedelin¹, RNT, Professor
¹Gjøvik University College, Norway

Introduction: Nursing students must be prepared to provide nursing care regardless of the patient’s illness. This requires nursing education to strengthen knowledge and skills in mental health nursing. Studies show positive experiences using different kinds of simulation methods like video, film and role-play in the psychiatric nursing discipline. However, less is known about human patient simulation (HPS) and debriefing as an educational method in this field.

Objectives: The aim of this study was to describe nursing students’ experiences through the debriefing phase after HPS in mental health nursing and to investigate if group size influences their experience.

Method: The study had a quantitative design. Nursing students (n= 105) in the second year of their bachelor program participated in debriefing groups of different sizes. Focus for the simulation exercise was communication and interaction with a patient with severe depression by using a Human Patient Simulator. Data was collected with the «Debriefing Experience Scale», which consists of four subscales with 20 items rated from 1 (= strongly disagree with the statement) to 5 (= strongly agree with the statement). The data was analysed with descriptive and comparative statistical tests.

Results: Results show that the total scale level of the students’ score was m=4.22 (SD=0.42). Group size had statistical significant impact on how students evaluated the experience of the debriefing phase. There were statistical significant differences between groups with less than seventeen participants and groups with more than twenty participants in three items; the debriefing environment was physically
comfortable; debriefing was helpful in processing the simulation experience; and questions from the simulation were answered by debriefing. Conclusion: This study provides new insight into human patient simulation as a useful teaching method in mental health nursing for undergraduate nursing students. The students appreciate the experience of the debriefing phase, although groups with more than twenty participants can restrict factors for learning outcomes.
Title: Developing a Pedagogical Model for Continuing Education in Primary Healthcare

Institution: Lapland University of Applied Sciences, University of Lapland

Authors: (Presenting Author first): Paula Poikela, Tuulikki Keskitalo

Category (see guidelines): others

Presentation Type (see guidelines): Poster
Introduction: Simulations are widely-used in nursing education; however, they should also become a part of everyday life in primary healthcare to assist healthcare practitioners in maintaining their skills and knowledge. Simulations have become one of the learning models used in special hospitals, but in primary healthcare, simulations are still very rare and focus primarily on resuscitation training.

Objectives: The aim of the Nursing Simulations Alive (HoiSim) project is to produce and test a simulation training model that can be used in primary care practices according to healthcare professionals’ needs. The aim of this study is to establish a theoretically and empirically justified pedagogical model that assists facilitators with planning, implementing, and evaluating their teaching while enhancing students’ meaningful learning.

Material (Patients/Methods): First, the simulation facilitators’ will learn how the model can be used in education. Thereafter, the model will be evaluated and redesigned based on the study’s results. The data will be collected from facilitators and healthcare professionals using quantitative and qualitative methods. Data collection and analysis will be conducted in 2015–2016.

Results: The study’s results will be used to produce a guidebook that explains how to use the model in practice. This handbook is part of the education model.

Conclusion: The study will result in a pedagogical model suitable for simulation-based continuing education in primary healthcare. It will assist facilitators with planning, implementing, and evaluating their simulation-based teaching while learners’ will benefit from more meaningful learning.
The first Serious Game in French preparing trainee nurses for clinical evaluation.

Muriel HARDUIN, Nurse, Professor HES (1)
Bernard ZULAUF, Nurse, Professor HES (1)
Dr Dominique TRUCHOT-CARDOT, MD, Professor HES (1)
Institution (1): HEDS-La Source, Lausanne, Switzerland

Introduction
The serious game’s goal is to maximize the learning process in cardiac clinical evaluation using a workshop. This technique enables students to easily mobilise central concepts thanks to their integration into a concrete situation.

Background: Increase in number of students with an evolving learning profile.

Objectives
1. Adapt clinical evaluation techniques to the different clinical situations and contexts suggested and argue the practical choices mobilizing theoretical data.
2. Develop a personal assessment methodology of the situations through clinical approach.
3. Exercise the transmission of facts between learners to teachers referring to selected and analyzed data.
4. Coordinate individual thoughts within a group of trainees and give an integrate summary and/or feedback to the teacher via the platform.
5. Develop interactive emulation within the group using a critical and syntetical overview of acquired apprenticeships.
6. Encourage students learnings in an autonomous way and make them “have fun” in a pedagogical way.

Methods and Results

Means: Collaboration between an engineering and nursing school to mutualise our skills.

A pilot study comparing results of the pilot group with a control group.

Half a class of 180 students benefited from the game in addition to documents. Following the workshop, a questionnaire built on cardiac situation, is given to the two groups of students (group concerned by the game and the other group as a control reference).

A second document evaluating the game is submitted to the students involved in the pilot study and teachers animating the exercise.

Satisfaction and structured clinical reasoning
The collected results show a shared satisfaction with this innovative approach. Questioning “what to do” while responding to a realistic situation allows them to easily identify essential data. Students also note the need to be guided in their reasoning process and strengthen their confidence in their skills. The results of the first questionnaire shows a better structure and an increase on precise professional vocabulary for students who received the serious games. The appropriation of a clinical approach to a patient with chest pain, is transferable to other situation and brings a clear benefit.

Conclusion
This new pedagogical tool motivates us to rethink the teaching tools and role while interacting with students. The prospects are to enlarge the game with new situations concerning different pathologies.
FRIDAY POSTERS
Saving Lives Through Skype: Remote Debriefing— a new paradigm for low resource hospitals in the Developing World?

Anne Meaklim, Alistair Hellewell
Royal Devon and Exeter Hospital

Introduction:

In Kenyan rural hospitals, junior doctors often face medical emergencies alone; scenarios that are typically complex and chaotic to manage prove even more daunting with an absence of senior support and feedback on their performance. Proficiency in accurately assessing one’s own performance and learning to reflect on tasks performed are important skills in improving clinical practice and identifying system constraints(1). But how can these doctors be provided with feedback on performance when they are so far from senior guidance?

With assistance of the charity MEAK (Medical and Educational Aid to Kenya) I established a novel approach of review of a simulation in Nanyuki Hospital, Kenya to provide feedback and guided reflection from senior clinicians (trained in giving feedback) in the UK using Skype. We have experienced a culture change in favour of reflective feedback and feel that remote debriefing of simulations will progress these doctors’ skills in managing complex situations.

Objectives:

I wanted to provide the skills to improve self-assessment to the unsupervised Emergency department (ED) junior doctors in a rural Kenyan hospital and also provide a way of arranging formative feedback and assisted reflection when MEAK were no longer working within the hospital.

Material (Patients/Methods):

I used WhatsApp to communicate with the Kenyan doctors, in order to organise a low-fidelity acute asthma simulation which was filmed in Nanyuki Emergency Department using their hospital’s laptop webcam. The internet availability in Kenya is
unexpectedly good, even in rural areas (2). Using the file hosting service Dropbox, the video was uploaded in the manager’s office using a high-speed internet connection and was freely retrieved moments later on the other side of the world. The use of freemium voice-over IP service Skype made expert advice from the UK available. In the Northern Hemisphere, a consultant anaesthetist specialising in medical education, a senior pharmacist and myself watched the videos, with the Kenyan doctors in the Southern hemisphere also scrutinising their performance on their laptop, and the debrief began. Formative feedback was used, focussing on encouraging reflection of human factors and discussing system restraints encountered.

Results:

The Kenyan junior doctors, Drs Abdi and Nassar, found self-review using video feedback to be motivating, worthwhile and not intimidating, particularly when partnered with benchmarking from consultant-experts proficient in giving formative feedback.

They appreciated positive comments on their quick diagnosis and management of the asthma patient. Both doctors acknowledged that in future they would delegate tasks and communicate their mental model with the team.

The most positive outcome occurred when they speculated on whether they ought to debrief their own teams after any particularly challenging incidents, in order to motivate each other and build tight teams with the nurses.

Word has spread to the next junior doctors due to start in Nanyuki and they are eager to do another simulation with feedback from the doctors in the UK. The experience was also well received by the UK members of the team, who are also keen to repeat the process.

Conclusion:

Formative assessment using video review of clinical performance with appropriate expert feedback and benchmarking, can be a useful tool to allow doctors to critically
and accurately assess their skills, identify areas for improvement and cultivate proficiency in self-assessment (3). The feedback suggests that although it is difficult to remedy that Nanyuki is resource poor, building on team-working and system factors may be a free way of improving patient care within the hospital. With these simulations and Skype sessions continuing independently between our hospitals, I believe that in rural hospitals with limited resources in Developing countries, simulation with remote feedback is a feasible approach to improve human factors and motivate junior doctors to strive to improve their skills, by learning from their clinical practice. I am looking to expand this further by facilitating Skype sessions between Nanyuki and senior clinicians in The Aga Khan University Hospital, Nairobi.

References:


Development of simulation based training course to enhance adherence of junior staff to structural approach for management of respiratory crises.

Ion Chesov 1, Holger Maurer 2, Andrei Romancenco 1, Ion Ababii 1
1 University Centre of Simulation in Medical Training, “Nicolae Testemitanu” State University of Medicine and Pharmacy
2 Universitätsklinikum Schleswig-Holstein, Campus Lübeck

Introduction:
Major respiratory emergencies are relatively common in large university hospitals, there are many in training individuals (medical students, junior residents) with limited experienced in dealing with respiratory crises. Unexpected events lead to errors and often chaos, hence leaving the patient to suffer. These events are often difficult to manage even for the most seasoned healthcare professional.

It is not surprising that the use structural approach (like ABC), by entire team will be beneficial in crises, as opposed to reliance solely on personal skills and recall. There is need, to provide for medical students and junior residents training in use of structural approach for assessment and treatment of patients with respiratory emergencies, in order to prevent complications and improve patient safety.

Objectives:
To improve individual and team performance in management of respiratory crises, by adherence to a structural approach, through a comprehensive simulation based training involving high fidelity human simulator.

Material (Patients/Methods):
A multidisciplinary team planned this course, tailored for the needs of junior staff (medical students, first year residents). To achieve best teaching outcome and high adherence of trainees to structural approach courses was composed of theoretical lectures and simulation sessions.

Overall 24 medical students (5th and 6th year) and medical residents (Anaesthesia and ICU, Pneumology) were involved. During simulation session, we divided trainees in mixed (students + residents) groups of 4 persons.

A specific questionnaire was complete before and at the end of course in order to quantify efficacy and effectiveness of the courses in implementing the structural approach to management of respiratory crises. Participation in survey was voluntary, anonymous and confidential. Personal data was not collect and informed consent was obtain from every participant.

Results:
According to survey results 62.6% of trainees had a prior dedicated training for respiratory emergency, 70.08% had a prior training regarding any structural approach in emergency cases. Still, 80.08% stated that they need training in respiratory emergency, and 75.0% stated that they need training regarding structural approach in emergencies. Prior experience with simulation-based training was confirmed only by 58.3% of participants. However, the majority of responders considered simulation-based training as an appropriate tool for skills acquisition for the management of respiratory emergencies (95.8% before, 100% after). Moreover, 95.6% of participants considered that course was useful for skills and competence improvement in respiratory crises through adherence to structural approach.

Conclusion:
Simulation-based training is a flexible teaching tool that can be easily adjusted to design various courses, tailored to specific professional, educational needs of the participants. In our case, we used it to improve junior staff understanding and adherence to structural approach for management of patients with respiratory crises.
Training the multi-professional team: the role of simulation-based learning in Neurology

Christine HM Leong¹; Susanne Watkins²; Cathy Ellis²

¹Medical education fellow; Postgraduate Medical & Dental Education, Weston Education Centre, King’s College Hospital, Denmark Hill, London, United Kingdom
²Consultant Neurologist, Department of Neurology, King’s College Hospital, Denmark Hill, London, United Kingdom

Introduction

Simulation based learning has become one of the central pieces in medical education.¹ It has dominated disciplines such as emergency medicine and is beginning to find a niche in Neurology. Current Neurology simulation programs tend to usually focus on management of acute strokes. In Tomorrow’s Doctors, it highlights the need for learning and working effectively in a multi-professional team.² Simulation-based training, with a focus on human factors, can offer an important route to safer care for patients.³

Objectives

To develop inter-professional, leadership and team-working skills and recognise the impact of human factors on clinical performance.
To improve recognition and management of Neurological emergencies

Methods

The pilot multi-professional Neurology simulation training was conducted as two half-day sessions in the simulation centre of a university teaching hospital. Intended learning outcomes for the simulation experience included communication skills, situational awareness, management of acute neurological conditions. Scripts for three emergent scenarios were developed for each session: acute meningo-encephalitis with rapid deterioration, myasthenic crisis and status epilepticus. Training was offered to healthcare professionals working on Neurology inpatient wards. A high-fidelity manikin was used and candidates included specialist nurses (NSN), core medical trainees (CMT) and specialist registrars (SpR) in Neurology. A trained ‘nurse plant’ within the scenario was utilised to aid with its development and only provided investigation results upon specific request. The remaining candidates observed the simulation in another area via live video streaming. The monitoring was remotely controlled and changed depending on interventions performed. Debriefing occurred following each scenario using the SaIL Debrief Diamond model.⁴ Evaluations were completed before and after the sessions.
Results
A total of 13 candidates (5 SpRs, 3CMTs, 4 NSNs) participated. On the Likert scale (1 to 5), there was increased confidence in managing neurological emergencies (average 2.8 vs 4.2); teamwork (4.7); communication skills (4.7); valuable learning tool (4.8) and all provided positive feedback regarding the multi-professional approach to training and overall enjoyment (4.8).

Conclusions
Simulation based training can be a valuable tool in Neurology training and helps increase confidence of both nurses and trainees in dealing with emergencies. It can be an asset in fostering inter-professional relationships and enhance the quality of patient safety and care. Additional studies are required to assess long-term retention of newly acquired skills and its effect on clinical outcomes on the wards if carried out on a larger scale.

References
2. General Medical Council (GMC). Tomorrow’s Doctors. 2009
   www.gmc-uk.org/Tomorrow_s_Doctors_0414.pdf_48905759.pdf
Medical errors reduction in emergency states management through the simulation-based education improvement for healthcare professionals.

Volodymyr Artyomenko, MD, PhD, Volodymyr Nosenko, PhD, Vladlena Dubinina, MD, PhD, Dmytro Novikov, MD, Victoria Osintseva, MD, Liudmyla Berlinska, MD, Olha Yehorenko, MD, Dmytro Karakonstantyn, MD, Serhii Semchenko, MD.

Introduction: Results of recent review about postgraduate education system in Ukraine shows that some steps had to be done in order to improve Ukraine’s healthcare quality well. Recently opened Educational-innovative centre for the physician practical training, Odessa has a great challenge to implement simulation-based education into postgraduate educational system.

Objectives: To minimize medical error rate during emergency care using simulation-based methods.

Material (Patients/Methods): In 2014-2015, 192 healthcare specialists from different fields were trained at the Educational-Innovative Centre for the Physician Practical Training, National Medical University Odessa in the 2-4 days curriculum. Studied medical care specialists improved their technical skills in Cardiopulmonary resuscitation, emergency state management, and central venous catheter applying as well as non-technical skills such as decision making, teamwork, communication skills. An objective pre-course assessment of trainee’s theoretical and practical skills in emergency state management as well as quantitative and qualitative marks of his teamwork was developed through non-standard clinical case modeling. In addition, trainee’s stress markers were evaluated in dynamics.

Results: In according to pre-course and final assessment marks we’ve determined reliable stress markers and medical errors reduction. Also a significant improvement of teamwork quality and decision making was marked.

Conclusion: An improvement of simulation-based methods promotes a medical errors reduction and enhances work quality of healthcare professionals in emergency state management.
Simulation-based trainings for rescuers and soldiers for improving the first medical care in the military conflict conditions

Volodymyr Artyomenko, MD, PhD, Vasyly Lefterov, PsyD, Mykhailo Kashtalyan, MD, PhD, Dmytro Novikov, MD, Victoria Osintseva, MD, Liudmyla Berlinska, MD, Olha Yehorenko, MD, Dmytro Karakonstantyn, MD, Serhii Semchenko, MD.

Introduction: By the October, 2014, during realization of anti-terrorist operation in Donetsk and Luhansk regions, Ukraine died 967 Ukrainian soldiers and volunteers. In most cases death is caused by untimely provided medical care during the first hours after injury. In such conditions the question of adequate professional psychological education of specialists, which activities are concerned with the necessity of providing the primary medical care becomes extremely relevant.

Objectives: To develop a curriculum in order enhance the quality of provided primary medical care to all the victims of military conflict.

Material (Patients/Methods): In our work the theoretical summarizing was carried out and there was offered new approach of medical simulation-based methods using for the professional psychological education for non-medical specialists, especially for rescuers and soldiers. A new program for simulation training for rescue service specialists and military formations, which perform duty missions at the military conflict zone, was based on a fixed level of specialists’ psychological education. According to an offered approach, there were grounded methodological and practical principles as well as the advantages of simulation training curriculum implementation into the rescuers and soldiers’ educational system for the actions in emergency and war conditions.

Results: After the participation in simulation trainings, people from experimental group were characterized with a higher level of steadiness, motivation, determination and activeness, emotional self-control, low level of stress perceptibility, personal and reactive anxiety during the actions in threatening conditions.

Conclusion: The effectiveness of medical simulation-based methods use in according to the components of rescuers and soldiers educational system for the primary medical care providing was proved in this developed curriculum.
New simulation-based program for the medical students’ skills improving before the graduation.

Liudmyla Berlinska, MD, Volodymyr Artyomenko, MD, PhD, Vasily Lefterov, PsyD, Dmytro Novikov, MD, Mykhailo Shandra, MD, Victoria Osintseva, MD, Olha Yehorenko, MD, Dmytro Karakonstantyn, MD, Serhii Semchenko, MD.

Department of Simulation Medicine, Odessa National Medical University; Educational-innovative centre for the physician practical training, Odessa National Medical University.

Introduction: In 2014, at the National Medical University Odessa was opened the Educational-Innovative Centre for the Physician Practical Training, first medical simulation centre in Ukraine. This training center provides last semester medical students and healthcare professionals with the newest teaching methods, which allow refreshing of already existed and acquiring of a new practical and non-practical skills and knowledge through innovative educational methods.

Objectives: To improve knowledge and practical skills of last semester medical students.

Material (Patients/Methods): One group of 60 medical students of the last semester was chosen for a pilot educational curriculum “Intensive care in obstetrics and gynecology” which consists of 80 academic hours, in order to evaluate the effectiveness of innovative educational methods. Control group consisted of 119 last semester medical students, who studied in traditional curriculum.

This pilot educational curriculum consists of continuous stages:
1. Pre-course assessment with multi-choice questionnaires;
2. Providing of psychological training for team-building and leading person determination;
3. Medical students participated in intensive care clinical scenario using simulation-based technologies:
   3.1. Clinical cases were not discussed on previous stages;
   3.2. Intensive care ward is equipped with medical devices, instruments, medications in according to Ministry of Healthcare of Ukraine guidelines;
3.3. All activities were produced on a multifunctional manikin simulator of High-fidelity level NOELLE 57x.100;
3.4. All clinical scenarios were videotaped.
4. Post-simulation debriefing was conducted with detailed analysis of each clinical scenario and medical care assessment in according to the Ministry of Healthcare of Ukraine guidelines.
5. Providing of a post-simulation psychological training in order to assess non-technical skills, communication and leadership.
6. Post-course assessment with multi-choice questionnaires

Results: Results of pre- and post-course assessments showed that the level of practical and non-practical skills is much higher at those students, who were trained within the framework of innovative simulation-based curriculum. Medical students were trained in traditional curriculum had relatively low level of practical skills.

Conclusion: New simulation-based curriculum allows medical students to acquire and improve their knowledge, develop intensive care delivery with no risk to a patient and in short time frame.
Simulated Advanced Trauma Training for the Anaesthetist

Dr Emma Welfare, Dr Simon Mercer

Clinical Fellow, Centre for Simulation and Patient Safety, Merseyside, Clinical Director, Centre for Simulation and Patient Safety, Merseyside.

Introduction: Major trauma care within the United Kingdom has undergone substantial organisational change. The role of an effective, efficient trauma team is now essential to improve outcomes for the patient [1]. Anaesthetic trainees must master specific technical and non-technical skills to perform successfully within the trauma team yet training within such a time critical, challenging environment has understandable difficulties.

Objectives: We designed a two day high fidelity trauma simulation course to support the acquisition of key concepts and competencies around the management of major trauma. These include human factors, leadership and management of the polytrauma patient as outlined in the Royal College of Anaesthetists Advanced Level Training Trauma and Stabilisation Module [2].

Material (Patients/Methods): We recreated a trauma bay in our simulation suite and used the medium fidelity mannequins (HAL®3201 Gaumard, Miami, USA and SimMan 3G Laerdal, Orpington, UK). Scenarios were designed to allow candidates to practice the role of the trauma team leader, trauma anaesthetist and primary survey doctor. A video assisted debrief focusing on human factors and the technical aspects of trauma team management followed each scenario. Workshops on near point testing (RoTEM®), human factors in trauma, trauma airway, how to be a team leader, pre-hospital care and damage control resuscitation supplemented the scenarios. A pre and post-course questionnaire evaluated candidate’s confidence in trauma team leadership, management of trauma patients and interpretation of near patient testing results.

Results:
Results are outlined for the 23 candidates who have undertaken the course.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre</th>
<th>Post</th>
<th>Variance</th>
<th>%</th>
</tr>
</thead>
</table>

...
<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence of as Trauma Team Leader</td>
<td>2.87</td>
<td>4.15</td>
<td>1.28</td>
</tr>
<tr>
<td>Confidence with near point testing</td>
<td>2.77</td>
<td>4.14</td>
<td>1.36</td>
</tr>
<tr>
<td>(RoTEM®)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence with management of a</td>
<td>3.37</td>
<td>4.22</td>
<td>0.85</td>
</tr>
<tr>
<td>massive haemorrhage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of North West Guidelines for</td>
<td>(12/23)</td>
<td>(23/23)</td>
<td></td>
</tr>
<tr>
<td>Conducting a Major Haemorrhage</td>
<td>52.17%</td>
<td>100.00%</td>
<td></td>
</tr>
<tr>
<td>Specific RoTEM® Traces Identified Correctly</td>
<td>52.17%</td>
<td>67.39%</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion:**  Provision of this course to support attainment of such skills and progression through the advanced module in trauma offered by the Royal College of Anaesthetists in a non-threatening, educational environment was deemed valuable by candidates. Improvement was demonstrated in confidence and skills, in leadership and trauma management and interpretation of near point testing for most coagulation deficiencies.

**References**
Is European Trauma Course interesting for Polish doctors?

G. Cebula, K. Chmura, S. Osadnik, A. Grodecka, M. Rubinkiewicz, M. Nowakowski, A. Trzos, J. Andres

Department of anaesthesiology and intensive care medicine Jagiellonian University Faculty of Medicine

Department of medical education Jagiellonian University Faculty of Medicine

Department of disaster medicine Jagiellonian University Faculty of Medicine

Introduction

European Trauma Course (ETC) is devoted to the issues of providing care to patients with multiple injuries in an Emergency Room setting by a trauma team. Emphasis is mainly put on learning how to lead a team in a crisis situation (when the patient is in a life-threatening condition) and on how to work as part of a trauma team. The courses have been held in Europe since 2006 and in Poland since 2009.

Objectives

The aim of this study is to determine how the quality of European Trauma Course is rated by its participants. Feedback was intended to inspect both positive aspects of the course as well as those which are in need of improvement.

Material

Questionnaires were used to investigate how the European Trauma Course was perceived by its participants. 78 questionnaires were distributed following ETC courses held in Poland between the years 2010-2014. The respondents evaluated each of the workshops and lectures as well as other aspects of the course individually on a rating scale (4 = excellent, 3= good, 2 = average and 1= poor). Comments could also be added.

Results

The workshops and lectures were very highly rated by respondents and gathered multiple positive reviews. The transparent and graphic form in which the exercises were carried out suited the participants. The ample scenarios, which made acquiring both practical and theoretical knowledge effortless, were well appreciated. Out of the
two days the first one gathered higher scores. One huge advantage of the workshops was the possibility to practice medical procedures on adequately prepared and selected equipment. The workshops taking place on the second day were rated somewhat lower. The negative comments were concerned mostly with the amount of time devoted to the exercises; according to the respondents it was not sufficient to satisfactorily practice each station. The scenarios were also rated as being too few and not including the most important aspects of each workshop. The average ratings for each workshop are presented in table 1.

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Average rating (pts)</th>
<th>Day of workshops</th>
<th>Average rating (pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway</td>
<td>3,71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoracic Trauma</td>
<td>3,91</td>
<td>Day 1</td>
<td>3,83</td>
</tr>
<tr>
<td>Shock</td>
<td>3,86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Trauma</td>
<td>3,86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdo Trauma</td>
<td>3,90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinal Trauma</td>
<td>3,81</td>
<td>Day 2</td>
<td>3,77</td>
</tr>
<tr>
<td>Extremity Trauma</td>
<td>3,62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paediatric Trauma</td>
<td>3,68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ETC lectures were very well received by participants; the average rating was 3,81 points. According to respondents, the lectures’ most important drawback was that they were not conducted in Polish.

The trainees also found the course too expensive. Many respondents were not satisfied by the electronic version of materials received before the course. An analysis was performed to assess whether these two factors could have influenced the ratings of both lectures and workshops. However, results showed the differences in ratings to be very slight and therefore as not substantially influencing the ratings of each ETC segment.
Conclusion

European Trauma Course, employing experienced instructors and using simulated scenarios sets very high standards for team based learning, crisis resource management courses. Extremely high ratings of the course and a great deal of positive comments are also great evidence that course is well designed and meets the expectations of target population. Negative comments that appeared may influence its further development in Poland.
Introduction:
1194 hospital fires were reported to the UK Department of Health in the year 2011-12. Whilst fires in operating theatres are rare, the problems of evacuating an anaesthetised intra-operative patient from danger, whilst ensuring staff safety, are numerous.

Objectives:
Using in-situ simulation, we sought to test multiple theatre team responses to a fire alarm requiring evacuation.

Methods:
After a scheduled fire training session examining the current theatre evacuation plan, we divided staff into nine theatre teams. Using a variety of simulation manikins to represent anaesthetised, intubated patients undergoing theatre appropriate surgery, we sought to evacuate six operating theatres within the "hot" fire zone. A further three teams were placed in adjacent fire zones and asked to act as they would in a real fire. A facilitator observed in each theatre.
A fire alarm was activated and timings taken at various points of the evacuation with observations around equipment use and destination chosen. Following the exercise debriefing occurred within each theatre team with the facilitators then feeding back lessons learnt to a whole group session.

Results:
The mean timings for safe theatre evacuation were as follows: Confirmation of fire (identification of appropriate fire information panel) - 102 seconds, Decision to evacuate - 40 seconds, Declared ready to leave - 110 seconds, Commenced evacuation - 40 seconds, Safe area accessed - 160 seconds. This gave a total mean time to reach safety after the alarm was raised of 7 minutes 32 seconds (452 seconds).
Observations on the conduct of the evacuation and equipment use, demonstrated that 6 (100%) evacuated “patients” with appropriate sedation (intermittent bolus or infusion), 6 (100%) used an ambu-bag for ventilation, 2 (33%) “patients” received muscle relaxation and 1 (17%) team did not take any monitoring for the transfer. Eventual muster locations were: 2 teams to critical care units, 1 team to the emergency department, 2 teams to the car park and 1 team waited outside theatre reception for further instructions.

Group feedback highlighted a number of issues including: Lack of overall coordination and poor communication between theatres, confusion around fire zone designations at fire repeater panels, lack of knowledge over location of fire repeater panel for one adjacent area, uncertainty over evacuation routes and muster points, what to do if patient could not be moved (e.g. on cardiac bypass), what to do with open wounds and sourcing appropriate transfer equipment.

Conclusions:
Our department’s existing fire evacuation plan stopped at the point of fire evacuation. No mention was given to the management of an anaesthetised patient, except that “a senior decision maker” would decide on appropriate action. Using simulation, we identified that our theatres had no consistent well-rehearsed plan for use during what is very likely to be a time of high stress for any theatre team.
As a result of this activity we have designed new in theatre evacuation plans that are theatre specific and displayed prominently. They outline designated primary and secondary muster points; these are critical care areas chosen for ready availability of appropriate drugs and oxygen.
We have assigned designated area fire co-ordinators (senior sister on each shift in each area) to improve inter-theatre communication and we have included a brief checklist to improve safe patient evacuation (Fig. 1).
It is our intention to test to this plan during our next theatre fire training session in the hope that we will have made a real improvement to patient and staff safety.

Figure 1. Operating Theatre Fire evacuation Plan
Introduction:
Ebola is a viral haemorrhagic fever (VHF) readily transmitted by contact with body fluids, the reported case fatality rate is between 25% and 50%. The recent outbreak in West Africa and the deployment of British military personnel, some of whom work in our institution, led us to believe that there was a real possibility of a VHF infected patient self presenting to our emergency department (ED).

Objectives:
Using actors as patients, we sought to test our existing plans for dealing with a potentially infected patient and to identify latent safety errors.

Methods:
We developed a scenario to test the response of the ED and the infectious diseases (ID) ward to a possible VHF case. An actor self presented to the ED. They gave a history of possible VHF exposure, during a recent trip to West Africa. They were briefed to report symptoms of VHF such as diarrhoea and pyrexia. ED staff members were informed of the nature and purpose of the simulation, they were asked to behave as normal, using equipment from the ED and the current trust VHF management protocol. Porters, pathology and ID ward staff were similarly instructed. A simulated cannulation arm was used to assess the process of obtaining and handling contaminated blood samples. Participants were dusted with ultra-violet disclosing powder (Glitterbug® Brevis, Utah, USA) prior to doffing of personal protective equipment (PPE) and examined after to see if residual traces remained, indicating potential infective contamination. All scenarios were video recorded for reference and to aid in the debriefing.

We ran 3 simulations over an 8-week period (Oct and Nov 2014), each using information gained to inform the trust working party on VHF and to update the current VHF management protocol.

Results:
Due to clinical demands the first simulation had to be curtailed and was limited to a practice of donning and doffing of PPE, patient intra-hospital transfer and admission logistics to the ID ward. The second and third scenarios took the patient from the reception desk in ED, through the dedicated ED decontamination room (DR) and on to the ward including communication with ID medical staff and labs.

A number of latent safety errors were identified during each scenario, with protocol amendments as a result, these included:
Simulation 1: Initial donning and doffing haphazard with uncertainty over which PPE to use. Member of staff noted to have UV tracer next to nose when goggles used. “Airlock” in identified ID ward side room too small for PPE doffing with a distant shower.
Simulation 2: Patient asked to wait outside in ambulance bay for 15 minutes whilst PPE donned in DR. Confusion over PPE procedures. No phone in DR with repeated door opening required. Shortage of staff to act as runners. Uncertainty over instructions for handling of contaminated waste.
Simulation 3: Patient initially not identified and sent to sit in main waiting area. Poor instructions to patient allowed movement around DR, leading to contamination of equipment. DR adjacent to helipad corridor with disruption when helicopter landing. Lab specimens in double box but instructions for use in inner box, therefore outer box discarded/contaminated before use.

Conclusions:
Using in-situ simulation we sought to examine and strengthen our emergency planning for dealing with VHF. We identified a number of latent safety errors with each running of the scenario and we feel that we made a significant contribution to improving staff and patient safety in the event of a real VHF patient attendance. Whilst some issues may have been highlighted by simple “walk-around” and tabletop exercises; we feel that using simulation enabled a greater appreciation of the risks and provided the impetus for a more focussed and rapid trust response.
Quality Assuring Simulation-based Training in the South London Simulation Network (SLSN): A Peer Review Process

Dr J M Roycroft¹, C Laws-Chapman¹, Dr R Kainth¹ and Dr G Reedy¹

¹Simulation and Interactive Learning (SaIL) Centre, King’s Healthcare Partners, London, United Kingdom

Introduction: Over the past ten years, simulation has become embedded in both undergraduate and postgraduate healthcare curriculums. Within both hospital and university-based centres in South London, the utilisation of simulation and interactive learning has become an established modality for interprofessional healthcare education. Members of the SLSN have recognised that the development of simulation-based training is diverse and variable across the network. With the burden of patient safety and training falling upon the simulation community, there is a need to ensure simulation centres are delivering consistently high quality training. Quality assurance (QA) mechanisms must be robustly implemented and permeate the entire spectrum of simulation-based education. Peer observation is suggested to enhance practice by engaging peers in reflective, analytical and constructive discussion (¹) and has been used in a variety of settings in healthcare to provide feedback to individuals or groups (²-⁴). To enable bringing together aspects of quality in design, delivery and cost effectiveness a simple QA tool and framework has been devised.

Objectives: To design and implement a quality assurance tool and framework within the SLSN in order to compare: a) operational and governance functions, b) design and delivery of courses against standards defined as best practice and c) exchange good practice, ideas and processes.

Methods: A literature search was undertaken to explore what the simulation community believe is quality in simulation-based training and identify any existing quality assurance mechanisms. Themes and standards collated from this search were threaded together and used to guide the design of a peer review tool and QA framework. A focus group was used for consensus validation of the tool which was
then piloted. Peer reviewers from the network were invited to be involved in the process and quality assure individual courses via a peer review visit.

Results: There is a paucity of formal frameworks of quality assurance in simulation medical education literature. However there is a body of literature which outlines the concept of “quality”. Our QA tool has now been used by a selection of peer reviewers across a variety of South London centres. It has been used to quality assure a large range of courses, varying in size, topic content and target population within the network. We have now completed phase one of the SLSN QA process and are entering phase two which will involve integrating our learning and the tool into broader course delivery. This will be in collaboration with, and for, different centres. We will establish formal course review boards for on-going educational governance. In addition to the tool becoming electronic, we are exploring an on-line guide to utilising the tool and establishing webinars to help develop peer reviewer’s expertise. We have been able to identify some of the challenges of tool design and peer assessment plus the significant manpower and resources involved in quality assuring a large network.

Conclusion: We have used the principle of peer observation as the central component of our QA process. The tool is designed to be simple and effective, easily usable by centres to quickly identify course standards for course design and to quality assure their own courses and improve course delivery.

References:

Use of inter-professional simulation to improve multidisciplinary management of acute paediatric retrievals at a district general hospital.

Maria Chereshneva, Zain Malik, Vaughan Holm, Edward Holloway, Vanessa Cowie, Gita Menon

*Croydon University Hospital, Clinical Skills & Simulation Centre, London

Introduction

Croydon University Hospital has the highest paediatric retrieval rate in the South West London. The patients at Croydon are not only the highest in number, they are often sicker than the average paediatric retrieval. There have been a number of critical incidents involving paediatric retrievals and there was a need to develop multidisciplinary team (MDT) training to improve management of these patients.

Objectives

To develop a simulation based course in conjunction with the South Thames Retrieval Service (STRS) to improve patient safety and care.

To develop an inter-professional simulation course to improve skills and teamwork for all the staff involved in paediatric care at Croydon University Hospital.

To break down barriers between specialities caring for sick children and forge long-term collaborations.

To address the learning needs of different professionals during the simulation including nursing staff, anaesthetists, paediatricians and theatre staff.

Methods

The paediatric retrieval simulation course was developed with STRS which is instrumental if the course was going to be authentic and highlight the problems faced by sick children at Croydon University Hospital.

Pre-course questionnaire was developed to assess confidence, understanding and attitude to collaboration among participants of different specialities. Information was
also collected on what participant’s views were on multi-professional learning and also individual understanding of their roles.

After the course a post course questionnaire was administered to collect data to see if there has been a change in attitudes after the course. Three months later the participants were sent another questionnaire to see how their clinical practice has developed after the course.

Results

The feedback showed that the objectives of participants from different backgrounds were met.

The participants thought that the course had created a realistic environment and encouraged inter-professional learning and understanding. Participants revealed that they now better understood the role of other professionals and have learned from different disciplines. They actively welcomed the opportunity to learn in the multi-disciplinary environment, just like real life.

Subsequently staff reported that the course had a positive impact on their retrievals experience.

Conclusion

This course was important to develop in our organisation due to the high number of paediatric retrievals each year. The course facilitated in improving and maintaining the skills needed for safe paediatric retrieval from district general hospital to a tertiary centre. It bridged the gap in care of sick children between hospitals. Simulation proved instrumental in creating and nurturing multidisciplinary teams within the organisation and improved team morale, which in turn enhanced paediatric patient care and safety.
The Use of Deliberate Practice and Simulation to Train Interns in Prescribing Blood Products

Authors: Paul O’Connor¹, Kenneth Joyce¹, Dara Byrne¹, Sinead Lydon², Michael Kerin¹

¹National University of Ireland, Galway; ²Trinity College, Dublin

Introduction: There is a need for initiatives to better prepare recently graduated medical students for clinical practice as junior doctors. Current evidence suggests that the use of medical simulation in combination with deliberate practice constitutes best practice in training clinical skills.

Objectives: To evaluate the efficacy of a simulation and deliberate practice-based haemovigilance training programme delivered to newly graduate medical students.

Material (Patients/Methods): The requesting of blood products by a group of 27 “trained” interns was prospectively compared to that of a group of 30 “untrained” interns throughout the first thirteen weeks of internship at an Irish teaching hospital.

Results: It was found that the training intervention reduced the risk of a rejected sample by 65% as compared to interns who did not receive the training. Moreover, the trained interns performed at a level similar to that of much more experienced doctors. The untrained interns required over two months of clinical experience to reach an error rate that was not significantly different from that of the trained interns.

Conclusion: These findings indicate that skills acquired through deliberate practice generalized to the clinical setting and led to a significant reduction in blood product prescribing errors.
Title
Low cost and creative approach for realistic simulation: Photographs as the simulated props

Introduction
Highly realistic scenarios are crucial for conducting simulation-based training. There are commercial props and materials for creation of the “real conditions”, but not applicable for all simulation scenarios. In our experiences, sometimes it’s hard and complicated or time consuming to “make up” the simulator, such as the surgery process.

Objectives
In order to preserve the realism that related to the scenario, we tried to use the high resolution photographs rather than complicated moulage or make-up.

Materials and Methods
We use a standardized and structured form (instructor manual) to edit scenarios. During each edition, the scenario editor was requested to complete the full description of how to emerge the realism. If the editor had the insolvable problem affecting the realism, the brainstorming round-table discussion was conducted to generate a variety of possible solutions. The surgical conditions and wound were in the majority of difficulties. Furthermore some surgical conditions were thought to be impossible to be simulated.

We tried to create the complicated “realism” by high resolution pictures to replace of using commercial combined self-made props. At first, the pictures were photographed in the operation room as the similar clinical conditions, such as surgical conditions during each stage of liver transplantation (Table 1). The pictures were then amended by computer software to ensure the contents were in their actual proportion, color and luster. Then the pictures were printed in high resolution by high-grade thick paper rather than cardboard in order to be curved around the limb or abdomen. Before starting the scenarios (or different frame of scenario), the edges of pictures were pasted by sellotape or Tegaderm in corresponding areas.

A written course feedback survey organized by questionnaires was administered after the trainees or examinees had participated in the curriculum or examination. They were asked to assess on a five-point Likert scale ranging from excellent to poor. The questionnaires of the course feedback related to the photograph method: the realism of the scenarios, the quality of the print photos, realism of the photos, approval or agreement of the photograph method. In addition, free text comments were solicited. The facilitators, raters, instructors were also asked to complete the course feedback.

Results
Questionnaires were obtained from 60 participants and 21 faculty. There were no exclusions
of the questionnaires and results. Overall evaluation was extremely positive. There were no
ratings of fair or poor by any participants. The survey data were as follows: scenario realism 4.75;
print photo quality, 4.68; photo realism, 4.85; agreement, 4.65.

**Conclusion**

Realism is fundamental for simulation. Creativity is an essential tool for increasing realism
by using available resources. The high resolution pictures were used and the realism was not
decreased. In the cases of complicated structure or difficult production, we advocate the
substitution of high resolution photographs for creation of surgical field and wound.

Table: The photograph method was used in the following scenarios

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Scenario</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCI Training Curriculum</td>
<td>Liver transplantation</td>
<td>Sequential pictures according to the stages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laparotomy, Resection of liver, Anhepatic phase,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revascularization, Neohepatic phase.</td>
</tr>
<tr>
<td>Anesthesiologist SBT</td>
<td>Inadvertent intrathecal injection of epidural catheter</td>
<td>The prosthetic components were cemented into place in Left TKA surgery</td>
</tr>
<tr>
<td>ACRM</td>
<td>Cardiovascular collapse during debridement</td>
<td>Necrotizing fasciitis of right leg</td>
</tr>
<tr>
<td>Resuscitation</td>
<td>Septic shock</td>
<td>Right diabetic foot gangrene wound</td>
</tr>
</tbody>
</table>

TCI: Target controlled infusion; SBT: Simulation-based testing; TKA: Total knee arthroplasty; ACRM: Anesthesia
Crisis Resources Management
This is my Abstract Title for SESAM Belfast 2015

**QUB Smart Scope**

SJ Conway, JM Doran, S Derbyshire and J Murray

Queens University Belfast, Clinical Skills Education Centre, Medical Education Building, 97 Lisburn Road Belfast BT9 7BL Northern Ireland.

Introduction:

The Objectively Structured Clinical Examination (OSCE) is routinely used in high-stakes medical exams to assess competence and performance in clinical skills. The OSCE stations therefore have to be reliable and valid \(^1\). Validity increases with the critical human interaction gained from standardised patients. However they lack essential pathology, resulting in a non-alignment of symptoms with diagnostic signs. This is particularly evident if the OSCE seeks to assess diagnosis of pathological auscultation findings.

Simulation, either low fidelity, such as CD-ROM or high fidelity such as Harvey \(^2\), can provide the diagnostic signs from auscultation with appropriate examination technique. These have their own drawbacks; loss of the human interaction decreasing the validity, mechanical interference with the sound quality of the diagnostic sign and these high fidelity simulators are very expensive.

Objectives:

Develop a service device which allows greater validity and reliability in OSCE examinations.

Material (Patients/Method):

The prototype to the ‘QUB Smart Scope’ concept developed from the utilisation of faulty simulation stethoscopes \(^3\) (Figure 1). The ‘QUB Smart Scope’ contained a typical (although larger) stethoscope chest piece (Figure 2) that was produced
using computer aided design. The chest piece contains two compartments. A mini speaker was fitted into one of the compartments (Figure 3) and was connected to an iPod shuffle placed in the second compartment (Figure 4). A library of cardiovascular and respiratory auscultation sound files were pre-loaded onto the iPod, which are relayed through the speaker and then are audible in the ear pieces of the stethoscope.

The ‘QUB Smart Scope’ (Figure 5) was built in-house and was first piloted along with its prototype in a Final MB OSCE station, where the student had to diagnosis and manage a standardised patient with an acute exacerbation of asthma.

Examiners assessing at this station completed a short questionnaire specific to the instruments.

The questionnaires used a likert scale for the first 5 questions and a yes/no response to the final question.

The 14 examiners evaluating both the ‘QUB Smart Scope’ and prototype completed a total of 27 questionnaires.

Results:

The results from the Likert scale question responses are displayed for the ‘QUB Smart Scope’ (Figure 6) and Prototype stethoscope (Figure 7) below. Of those examining 92.85% and 92.31% would use the ‘QUB Smart Scope’ and the prototype simulation stethoscope respectively as an educational tool.

Conclusion:

The ‘QUB Smart Scope’ is a novel device that simulates pathological cardio-respiratory auscultation findings. This instrument, when combined with a standardised patient, allows for hybrid simulation in the OSCE setting adding realism, reliability and validity to the assessment.
References

1. Morris MC, Gallagher TK, Ridgway PF. Tools used to assess medical students competence in procedural skills at the end of a primary medical degree: a systematic review. *Medical Education Online*. 2012;17:10.3402/meo.v17i0.18398. doi:10.3402/meo.v17i0.18398.
Conduction of an in situ simulation exercise: identification and management of a patient suspected of Ebola in the Adult Emergencies of an University Hospital

Dr S. Péan 1, Dr B. Mazet 2, S. Delescluse 2, Pr E. Pichard 3, Pr J-R Zahar 4, Dr L. de Gentile 5, S. Verborg 1, P. Després1, Pr J-C Granry 6, Dr M-C Moll1
1 Risks Coordination, 2 Department adults emergencies 3 Infectious and tropical diseases department, 4 UPLIN (hygiene operational team), 5 Travel medicine unit, 6 Simulation Center. University Hospital.

Introduction: Since March 2014, several countries of western Africa have known an unprecedented epidemic of viral hemorrhagic fever linked to Ebola virus. The University Hospital has implemented an identification and management device for suspicious or possible patients of Ebola.

Objectives: In order to train and verify the adequacy of the procedures with the reality of the organization, as well as to answer the ARS (Agence Regionale de Santé - Regional Health Agency) request, an exercise (target of this poster) was realized on 25/11/2014 in the Adults Emergencies of the Hospital.

Material and Method: The in situ simulation method (in real conditions), unimplemented until this day in the Hospital, was chosen. This exercise was organized by the risk management department in connection with the Head office, the department of adults emergencies and the simulation platform of the Hospital. Diverse experts of the Hospital were also mobilized (hygienist, infectious disease specialist, parasitologist and director of the simulation platform). The main stages were: writing and checking the credibility of the scenario, pre-briefing the supervision department, sharing informations with the ARS, briefing the standardized patients, installing experts and trainers and, checking the progress of the exercise. Right after that, a debriefing gathered all the care stakeholders, the experts and the department supervisions (16 people). During this exercise, an actor, with his real identity, played the role of a feverish patient, coming back from Guinea-Conakry on 12/11/14 and appearing spontaneously with a friend at the adults Emergencies.
Results: At the end of his identification, isolation and interrogation, the patient was classified as “excluded case”. During the debriefing, immediate reactions were collected and the situation was analyzed. Strengths and weaknesses were highlighted at technical, organizational and behavioural level. This exercise was reported back to the Ebola steering committee of the Hospital on 02/12/2014. Medical head of department and head nurses, of the other emergencies department, and the emergency medical service (SAMU) were also invited for an experience feedback. After discussion, the organization has been adapted accordingly and the care procedure has been modified.

Conclusion: The conduction of this exercise was very instructive and reminded us the importance to train regularly. It highlighted the advantages, the inconveniences and the difficulties of the in situ simulation method. Although the healthcare professionals have to stay aware in our country, the emergency is to control the current epidemic in Africa.
Cultural Changes on Portuguese Physicians with Simulation Training

Tânia Ralha, Mafalda Martins, Magda Bento, Inês Mesquita, Teresa Lugarinho, Francisco Matos

Coimbra Hospital and Universitary Centre, Coimbra Biomedical Simulation Centre

Introduction: Medical professionals and educators recognize that simulation based medical education can contribute considerably to improving medical care by boosting clinical performance and enhancing patient safety\(^1\). It is paramount to ensure that each patient receives optimal treatment in a safe, effective, and timely manner. It is surprising that medical simulation is not routinely integrated into the training curricula of all health-care professionals.

Objectives: The goals of this study are to assess the value that Portuguese physicians give to simulation based medical education and to determine how a simulation training experience can change this approach.

Material (Patients/Method): For this prospective study, it has been developed a high-fidelity simulation training with two critical care scenarios. All participants provided their professional history and completed a survey prior to and after finishing the course. The value given to simulation as a teaching tool was assessed using a 5 points Likert scale rating (1 = in total disagreement, 5 = in total agreement) on 5 dimensions: dimension 1 - non-technical skills are determinant in critical situations; dimension 2 - team training with simulation should be part of Anesthesia residency curriculum; dimension 3 - team training with simulation should be part of Anesthesia attendants re-certification program; dimension 4 - team training with simulation improves clinical daily practice; dimension 5 - team training with simulation may have an impact on patients outcome. To determine pre-post course changes the Fisher's exact test was performed (p value < 0.05 was considered significant using SPSS® 20.0).

Results: 159 physicians underwent the training. All participants agreed totally, before and after the course, on dimensions 1, 2 and 3. On dimension 4, 34% agreed totally before the course and 79% after the course (p< 0.0001). On
dimension 5, 30% agreed totally before the course and 59% after the course (p< 0.0001).

Conclusion: Portuguese physicians give a major relevance to simulation based medical training. Simulation impact on clinical practice assessment may be improved after training. This study underlines the need and acceptance of simulation training curriculum integration in order to improve medical skills and patient safety.

Death in the Simulator: The Experience of Undergraduate Medical and Nursing Professionals- A Work in Progress

C. E. Glen, M. J. Moneypenny
Scottish Centre for Simulation and Clinical Human Factors, Forth Valley Royal Hospital, Stirling Road, Larbert.

Introduction:
Death in real life and in simulation is a highly emotional experience. This work in progress aims to address some of the concerns raised by educators around the subject of simulated patient death (Bruppacher, Chen, & Lachapelle, 2011; Corvetto & Taekman, 2013; Rogers, de Rooy, & Bowe, 2011). As an educator we have a responsibility to prepare undergraduates to deal with the job they are training for both in knowledge, practical skills and emotional intelligence. By avoid simulated patient death are we doing then a disservice or protecting them from psychological distress? (Corvetto & Taekman, 2013)

Objectives:
The study aims to assess the impact of a simulated patient death on undergraduate medical and nursing students.

Material (Patients/Methods):
The one-day Forth Valley Undergraduate course participants are, 3rd-5th year medical students, and 4th year nursing students. A scenario was developed where; unknown to the participants, the patient would die regardless of their actions. The scenario was run as the 3rd (out of 6) scenarios.

After the scenario, before the debrief, the participants were informed that this patient’s death was inevitable. After the debrief they were asked to fill in an anonymous questionnaire regarding the scenario.

This scenario will be run for an additional 5 sessions in order to gather additional data. For the first 3 sessions we will use questionnaires to gain feedback from the students. For last 3 sessions we will ask the participants about their emotions and learning in a focus group. This information will give us quantitative data and qualitative data. The qualitative data will be analysed by the author using grounded theory.
Results:
Responses gathered so far show that students experienced a range of emotions from sadness, to relief, to distress. However all participants stated that they learnt from the scenario and that this would not put them off future simulations.

Conclusion:
Current findings from this study suggest that, although being an intensely emotional experience, medical and nursing undergraduates value the exposure to simulated death. This should inform undergraduate simulation programmes elsewhere.

References:


Title:

Study Protocol and preliminary results of an Evaluation study of Simulation-Based Training in the NHS South London simulation Network: what are the theories of practice and methods of evaluation?

Institution(s):

St George’s Healthcare NHS Trust
University College London, Institute of Education
King’s College London School of Medical Education

Authors:

Huon Snelgrove; Mark Newman; Caroline Pelletier; Gabriel Reedy

Category: Administration and Programme Evaluation

Presentation Type: Oral presentation/Poster
Introduction:

The UK Medical Research Council (MRC) guidance of ‘Developing and Evaluating Complex Interventions’ (2008) acknowledges the need to evaluate the role of theory in programme evaluation and to understand how outcomes are envisaged and shaped. (Craig et al., 2008).

Simulation advocates claim a wide-range of benefits for their educational interventions (e.g. behavioural changes, improved teamwork, more compassionate care; communication skills, safety etc) yet the quality of evidence to support its effectiveness is still patchy and generalization across the simulation community are difficult because of programme diversity.

A limitation of programme evaluations is that single intervention evaluation approaches and descriptions of outcomes may not reveal collective patterns which give a broader picture of impacts. Evaluation scientists point to a need to confederate programme evaluations using ‘theories of change’ as the unit of analysis (Pawson 2013, p.19) rather than single interventions.

Objectives:

Using a critical realist model to evaluate a selection of simulation interventions in London, we aim to address the following questions:

1. What theories of change are embedded in different simulation–based interventions in London?
2. What do policy makers and practitioners levels think simulation training achieves, why and how?
3. What data do they collect to evaluate simulation training and why?
4. How are the theories of change in use substantiated by data (collected above); and by relevant research literature?

Material (Patients/Methods):

A multi-method approach using document analysis, interviews focus groups and literature synthesis, divided into 4 phases

Phase 1: Historical document analysis to identify programme theories (policy documentation from National Health Service Commissioners and bidding documentation) and outcome data collection methods.
Phase 2: Focus groups with simulation community leaders across a variety of healthcare contexts using qualitative evaluation tools (e.g. concept mapping)
Phase 3: Critical synthesis and review of programme theories from the literature and in use

Results:

One result of this approach is that more evidence from historical documentation, implementation findings, subgroup findings, participant interpretations, and contextual comparisons are used. From this data reusable conceptual platforms can be developed to distinguish different classes of interventions and common component theories.

Conclusion:

Because linear cause and effect explanations in education evaluation are very difficult, our goal is to construct evaluation evidence on clinical simulation via a theoretical model drawing on critical realist evaluation approaches.
Authenticating the simulation environment with the use of audio:

Technical Operations

Author: Michael McCrossan
NHS Lanarkshire

Introduction: The use of Simulation helps build a safer healthcare environment. L Donaldson (2009), but how can we make it more realistic? In a clinical environment you are exposed to environmental noise, such as patient and staff noise.

High fidelity simulation, although being a great aid for teaching, is lacking in a few areas, with noise being one of these oversights. To enable full immersion, the set up would need to replicate the real world in order to make it harder to distinguish between simulation and real life. D A Gaba (2004).

Objectives: To replicate a ward environment utilising recorded audio from that area, this can then be played back at a level not disruptive to the candidate but will immerse them in the simulated area.

Provide an auditory realism to simulation, enhancing candidate’s experience.

Equipment required: Initially audio recording equipment is required to gain the highest quality sound replication.

Sound sources are also needed I.e beds being moved, telephone calls, and ‘Staff/Patient’ noise (this can be replicated with general talking/shouting/conversations)

Method: To capture the audio the use of recording equipment is required. This is to ensure that the captured sounds are of a high quality; this maintains integrity and reflects upon the clinical environment.

Once a series of sounds have been recorded the files can be layered and mixed together to produce a single audio file. This then ensures equal and level playback whilst reducing the file size for ease of transfer.

Once an audio file has been produced it should be
transferred to an audio device (e.g. laptop/phone/tablet), and this device is then connected to a system able to play audio into the desired ‘clinical’ area.

Conclusion: To date, there is a test audio file that has been compiled using the method described. It has been tested on SMOTS, and the sounds produced are of a comfortable level that is not distracting, but will immerse the candidate in the room. As it is a work in progress, some recommendations have been made, for example adding ‘staff chat’ at a low level to add a wider dynamic. Moving forward, once a defined acute ward sound has been finalised, there will be a trial with and without, on various simulation sessions. Feedback will then be sought from candidates and faculty; this will assess whether the sounds appropriately match an acute area, or whether it ultimately proves a distraction.

Results: These will be shared at the conference by showing video and playing the audio to convey the effect this will have on simulation.

References


Gains perceived with nursing simulation program: experimental study

Baptista, Rui Carlos 1; Martins, José Carlos 2; Pereira, Maria Fátima 3

Professor Adjunto na Unidade Científico-Pedagógica de Enfermagem Médico-Cirúrgica da Escola Superior de Enfermagem de Coimbra 1, Professor Coordenador na Unidade Científico-Pedagógica de Enfermagem Médico-Cirúrgica da ESENFC 2, Professora Auxiliar na Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto 3

Introduction: Simulation is an important teaching/learning strategy in nursing education, with clear outcomes for learners. With the resolution of complete and complex scenarios in a simulation environment, students consolidate their knowledge and develop skills of critical judgment and decision making, as well as the necessary technical, relational and ethical skills.

Objectives: Assess the impact of a training program with two different types of simulation in the gains perceived by nursing students.

Material/ Patients & Method: Experimental study, developed with nursing students at the 4th year of the Nursing Graduation Course. They participated in a training program after randomized into two groups (one with medium-fidelity simulation scenarios and the other with high-fidelity simulation scenarios). Applied the “Gains Perceived with High-fidelity Simulation Scale” (GPHSS)(1).

Ethical issues were guaranteed.

Results: Sample with 85 students, mainly women (92.9%) with a mean age 21.89 years (SD = 2.81 years). Students who participated in high-fidelity scenarios have higher scores of perceived gains in all dimensions and the global scale than students who participated on medium-fidelity scenarios. The differences were statistically significant in the recognition/decision dimension (U Mann-Whitney= 626.0; Wilcoxon= 1292.0, p = 0.022)

Conclusion: For nursing students the gains perceived with medium and high-fidelity simulation scenarios are high, however the high-fidelity simulation allows students to identify risk situations and intervene in emergency.

(1) Baptista, Rui; Martins, José; Pereira, Maria; Mazzo, Alessandra – The gains perceived by nursing students with high-fidelity simulation: scale validation. 20th Anniversary SESAM Meeting. Poznan (junho, 2014).
Satisfaction with nursing simulation program: experimental study

Baptista, Rui Carlos 1; Martins, José Carlos 2; Pereira, Maria Fátima 3

Professor Adjunto na Unidade Científico-Pedagógica de Enfermagem Médico-Cirúrgica da Escola Superior de Enfermagem de Coimbra 1, Professor Coordenador na Unidade Científico-Pedagógica de Enfermagem Médico-Cirúrgica da ESENFC 2, Professora Auxiliar na Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto 3

Introduction: Students’ satisfaction is an important result in nursing faculty and it is associated with greater involvement and motivation of students in the learning/teaching process.

Various authors have analyzed the students’ satisfaction with the simulation practice but the results of the satisfaction scores obtained, in the different groups of students who used different simulators, did not all converge (1).

Objectives: Assess the impact of a training program with two different types of simulation in the satisfaction perceived by nursing students.

Material (Patients/Method): Experimental study, developed with nursing students at the 4th year of the Nursing Graduation Course. They participated in a training program after randomized into two groups (one with medium-fidelity simulation scenarios and the other with high-fidelity simulation scenarios).

Applied the “Satisfaction with Clinical Experience Simulation Scale” (SCESS) (1).

Ethical issues were guaranteed.

Results: Sample with 85 students, mainly women (92.9%) with a mean age 21.89 years (SD = 2.81 years). Students with high-fidelity scenarios have higher satisfaction scores than students with medium-fidelity scenarios and the differences were statistically significant in the realism dimension (U Mann-Whitney = 324.5; Wilcoxon = 990.5, p <0.001).

Conclusion: The satisfaction levels are high on medium and high-fidelity scenarios; however, only the realism associated with high-fidelity simulation is statistically significant.

**Introduction**: Ultrasound as a medical imaging tool is becoming increasingly popular. One of the major difficulties for the unexperienced sonographers during their training is the understanding of plane perception during scanning. As an experimental simulation center with a strong relation to medical imaging, we want to improve this learning process in our students.

**Objective**: Increase ultrasound image plane perception by structured simulated training.

**Method**: We included 28 students; each student analyzed nine images, resulting in a total of 252 images. We used a Simbionix Ultrasound simulator (U/S Mentor\textsuperscript{TM}), Module Sonography Basic skills – Task 1, “Basic hand-eye coordination”. This simulator uses a 3D Mannequin in which a 3D volume object is virtually placed. Students are asked to align the probe in such a manner that the object is visualized according to the predefined plane (green line Figure). The nine images were categorized as three objects, with three cross sections per object. We determined the obtained total score, total time needed to obtain the proper cross sections of all nine objects, time needed per step and the number of hints used. Mean differences in time needed to obtain the correct view between the first, second and third attempt were analysed using paired sample T-testing.

**Results**: All participants obtained 9 images, with an average score of 65.5\% (SD 8.3), the total time needed was 389 seconds (SD 155sec) and time per step on average was 43 sec (SD 17sec). The number of hints used varied highly (0-22 hints), with a median of 3. The second part of the analysis (Table 1) showed that obtaining the second and third object direction had significantly reduced times per step (respectively \( p=0.01 \) and \( p=0.005 \)).

**Conclusion**: Our study shows that obtaining the first cross-section, doing the main plane perception analysis, takes most time. Additional research is required to determine the total effect as well as to study the translation of plane perception in a simulator to real medical image scanning.

| Table 1 Average time needed to obtain the first, second or third cross section per object |
|-----------------------------------------------|--------|--------|
| All first cross-sections of an object         | 79,7   | 82,3   |
| All second cross-sections of an object        | 38,5   | 34,6   |
| All third cross-sections of an object         | 36,1   | 36,6   |
I don’t want to grow old - Old age simulation in Nursing Education

Hanne Selberg, Marie-Louise Sharp-Johansen, Lotte Evron

Metropolitan University College, Department of Nursing, Copenhagen, Denmark

Introduction:

A previous project experimenting with simulation based education showed enhanced understanding of the patients’ perspective by involving students in patient-acting. The performance brought on what we termed `bodily-kinesthetic learning´. By acting as the patient in simulation activities, attention was brought to the student’s own body and resulted in a sensatory expression and tacit knowledge was expressed and reinforced through acting. Engaging in bodily learning activities also contributed to enhanced theory-practice integration.

Objectives:

The current study sought to explore the possibility of enhancing the students’ knowledge of aging processes and to explore the nature of learning that occurred when the students attended a simulation based workshop wearing an old age simulation suit.

Material(Patients/Method):

Five workshops, each with 2 hour’s duration, were conducted with participation of 60 students in total. The structure of the workshops consisted of an initial briefing, scenario performance, debriefing and final evaluation. The students were given the possibility to engage in everyday life activities of elderly persons such as eating, reading, climbing stairs, getting in and out of bed and getting dressed while wearing The Aged Simulation Set. The simulation set intends to enable students to experience the inconveniences felt by elderly persons due to musculoskeletal, visual and auditory changes.

Taking turns in acting respectively as a patient and as a nurse, the students engaged in three interactive scenarios wearing goggles to simulate poor vision, ear defenders to cause hearing loss, knee, elbow and finger restrictors to simulate joint stiffness, arm and
leg weights to experience simulated loss of muscle and a back protector that forces them to adopt a bent position.

Scratch notes from the structured debriefing were transcribed into brief reports followed by an inductive content analysis. After the simulation session students were asked to write positive thoughts and improvement suggestions on note cards and anonymously put them into a basket before they left the room. We grouped their input into themes that provided us with ideas for improvement.

**Results:**

The main themes that derived from the analysis were:

- Concerns of growing old
- Bodily experiences of movement reduction
- Bodily experiences of reduction in the different senses
- Simulation as an eye-opener to new understandings of old age
- Cognitive and bodily experiences of the importance that the nurse has time for /is patient with the elderly
- Bodily-kinesthetic learning

The main themes that derived from the note card evaluation included: learning experiences, call for old age simulation being mandatory to all students, more time and more tasks. A consequence of the evaluation is that the simulation session now has been extended to include more tasks. The study is an ongoing process and the formative evaluation design enables us to make continuous adjustments.

**Conclusion:**

Our results indicate that old age simulation enhanced learning as a result of combined physical and cognitive activities receiving information from all the senses and emotional involvement. The study suggests that it is both important and necessary to investigate how bodily activity in simulation can enhance learning.
I don´t want to grow old - Old age simulation in Nursing Education

Introduction

A previous project experimenting with simulation based education showed enhanced understanding of the patients’ perspective by involving students in patient-acting. The performance brought on what we termed ‘bodily-kinesthetic learning’. By acting as the patient in simulation activities, attention was brought to the student’s own body and resulted in a sensory expression and tacit knowledge was expressed and reinforced through acting. Engaging in bodily learning activities also contributed to enhanced theory-practice integration.

Objectives

The current study sought to explore the possibility of enhancing the students’ knowledge of aging processes and to explore the nature of learning that occurred when the students attended a simulation based workshop wearing an old age simulation suit.

Method

Five workshops, each with 2 hour’s duration, were conducted with participation of 60 students in total. The structure of the workshops consisted of an initial briefing, scenario performance, debriefing and final evaluation. The students were given the possibility to engage in everyday life activities of elderly persons such as eating, reading, climbing stairs, getting in and out of bed and getting dressed while wearing The Aged Simulation Set. The simulation set intends to enable students to experience the inconveniences felt by elderly persons due to musculoskeletal, visual and auditory changes.

Taking turns in acting respectively as a patient and as a nurse, the students engaged in three interactive scenarios wearing goggles to simulate poor vision, ear defenders to cause hearing loss, knee, elbow and finger restrictors to simulate joint stiffness, arm and leg weights to experience simulated loss of muscle and a back protector that forces them to adopt a bent position.

Scratch notes from the structured debriefing were transcribed into brief reports followed by an inductive content analysis. After the simulation session students were asked to write positive thoughts and improvement suggestions on note cards and anonymously put them into a basket before they left the room. We grouped their input into themes that provided us with ideas for improvement.

Results

The main themes that derived from the analysis were:

- Concerns of growing old
- Bodily experiences of movement reduction
- Bodily experiences of reduction in the different senses
- Simulation as an eye-opener to new understandings of old age
The power of networking: Establishment of a National Simulation Network in Denmark

Hanne Selberg, Dorte Truelsen Gram

Metropolitan University College, Department of Nursing, Copenhagen, University College Lillebælt, Odense, Denmark

Introduction:

With inspiration from the medical field, have skill labs in the Danish Nursing education within the past decade changed into modernized simulation facilities and currently simulation-based education features strongly within the Nursing Curriculum. The national curriculum recommends simulation as a method, but simulation enthusiasts at each Nursing School have been extremely challenged in the concrete implementation process and we identified a need for a national network.

Supported by Laerdal Medical in Denmark we initiated the establishment of a nationwide simulation network for lecturers involved in simulation-based education at Nursing Schools throughout Denmark, with the first network conference being held in 2012.

Since the first conference, there have been invited three representatives from each of the 24 Danish Nursing Schools, including the schools in the Faroe Islands and Greenland, to participate in the annual network conferences arranged by a coordinator group representing each region in Denmark.

Objectives:

The overall aim of the network is knowledge sharing and receiving new inspiration for prospective developments in simulation-based education. Sharing the same drive and ambition for developing simulation-based education with peers in a network has created great opportunities in personal, institutional and inter-institutional levels.

Material:
The four annual conferences that have been conducted so far have provided various elements such as Keynote speakers, both domestic and international, have been invited to present specific projects or approaches to simulation; amongst others Pamela Jeffries has presented her framework for simulation in Nursing Education. Interactive workshops and roundtable discussion have been a part of the conferences as well as poster presentations.

Each conference plan is based on broad themes such as scenario development, simulation in Mental Health, the role of the facilitator and Network projects. The coordinator group arranges the network conferences in collaboration with Laerdal DK and various Nursing Schools take turns in hosting the conference.

Results:

• Shared and expanded knowledge of simulation based education
• Inspiration and ideas for further development of both individual and inter institutional projects
• Connections and referrals
• Promotion of Nursing Schools and possibility of raising own profile
• Increased confidence by regular networking
• A digital platform for discussions, document sharing and referrals to members of the network
• Clarification with respect to cooperation with our clinical partners
• The network has inspired the Social & Health Care Education in Denmark to establish a similar network.

Conclusion:

The establishment of a national simulation network in Nursing Education has resulted in mutual inspiration to development of simulation-based education and can potentially
improve the quality of the Nursing Education. Our future ambition is to conduct national research projects to ensure further improvement.
Interprofessional Full-scale Simulations for Learning Teamwork and Skills for Mastering Obstetric Emergencies

Pernilla Stenbäck ¹, Marja Kaijomaa ², Juha-Pekka Laakso ¹, Heikki Paakkonen ¹
Arcada Patient Safety Learning Center (APSLC), Arcada University of Applied Sciences, Helsinki, Finland ¹, Helsinki University Central Hospital (HUCH), department of obstetrics and gynaecology, Helsinki, Finland ²

Introduction:
Obstetric emergencies occur unexpectedly and some of them are rare. Thus, a good experience is difficult to achieve at work. A competent and professional team with good non-technical skills is critical to ensure patient safety. The action in emergencies should be clearly instructed and well organized. This emphasizes the importance of good quality learning. Full-scale simulations have turned out to be a safe and effective method of learning non-technical skills and skills needed in the mastery of medical emergencies.(1,2) Full-scale simulations had not been previously applied as a method of learning in the HUCH’ s specialty of obstetrics.

Objectives:
Our objective was the implementation of simulation training as a new method of inter-professional (3) emergency situation learning. The main goal was the improvement of non-technical skills with special reference to communication and prioritizing.

Material/Patients and Methods:
To pilot the feasibility of the method two simulation sessions were arranged in APSLC with 24 participants representing midwives and physicians of HUCH’s speciality of obstetrics. Based on the findings of the pilot an anesthesiologist (ane) was invited to the planning of forthcoming scenarios, and these simulations was carried out in-situ at the women’s hospital of HUCH. The participants (N=103) were residents in obstetrics (obst) and gynaecology (gyn,) and anesthesiology (ane) (n1=28), specialists in obst and gyn, and ane (n2=26), and midwives working in delivery room (n3=49). The participants were allocated to eight inter-professional teams. Each team was involved in three simulation-scenarios either as an actor or an active follower taking part in the debriefing discussions. The simulation scenarios were: shoulder dystocia (pilot), con-
vulsive eclampsia patient, post partum haemorrhage, a pregnant trauma patient, and resuscitation of a pregnant woman. The cases were selected bearing in mind the needs and expectations of the participants. A torso (pilot), a computer-controlled mannequin and a standardised patient were utilised. The principles of ANTS (Anaesthetists’ Non-Technical skills) (4) were applied. After the in-situ simulations the learners completed a facilitator created descriptive post-simulation survey focusing on the learning experiences of the participants.

Results:
The inter-professional approach was perceived as having provided new viewpoints to clinical work and learning. Participants experienced that their non-technical skills were enhanced. Recent anecdotal reports from the clinical work have messaged remarkable improvement of the team performances in obstetric emergency situations. The training of both less and more often encountered emergencies turned out to be important. Simulations, as a method of learning, were found to be beneficial and suitable for the needs of inter-professional teams. The participant’s feedback was similar as 98 % felt that they have learned issues with clinical relevance to their daily work, and 84, 3 % considered that they will change their action in clinical work based on their learning experiences. Furthermore, the simulations revealed a need to clarify the prevailing instructions.

Conclusion:
We conclude that the training had effectiveness. The participants felt that training must be continued with the same methods. To enable this HUCH has trained simulation instructors representing different groups of professionals of obstetrics, and teams of simulation instruction have been created. The future aim is to organize simulation training in obstetric emergencies on a regular basis for the personnel of the clinic of obstetrics.

Clinical implications:
Based on the findings of this learning process some of the hospital’s instructions concerning obstetric emergencies have been updated, and equipment in the delivery rooms has been reorganized.
References:


Simulation education of non-medical healthcare professionals – Effective patient education
Jitka Blazkova, Svatava Kalna, Veronika Svobodova
International Clinical Research Center, Saint Anne’s University Hospital in Brno, Brno, the Czech Republic

Introduction:
Communication of healthcare professionals with patients and their families is becoming the forefront of interest to many health organizations. Inappropriate communication is considered an important problem of the Czech healthcare system. Communication is a crucial aspect of the provided care as the effective communication contributes to the development of positive relationships. A new project aiming at the area of communication of healthcare professionals with patients and their relatives, with an emphasis on effective patient education, has been started at St. Anne’s University Hospital in Brno, which has provided required experts, facilities and equipment. The form and content of the education program is unique and otherwise unavailable in the Czech Republic.

Objectives:
The objective of the project has been acquainting healthcare professionals with the principles of simulation education. A set of simulated situations allowed participants of the course to experience the education of patients and their relatives based on the specific patients’ requirements. This approach makes it possible for the care providers to choose an appropriate communication strategy and thus avoid less than adequate reactions.

Method:
The course has been intended for nurses selected by management of hospitals cooperating in the project. It consisted of theoretical and practical parts. The program started with a definition of the scope of theoretical lectures and blocks of simulation training. The full program has been prepared by expert from healthcare practice and
psychologists. The theoretical part included such topics as insulin application, patient education for home healthcare, preventing patient falls, dietary changes after diagnosis and so on. Two hours were dedicated to each topic. The lectures were provided by experts from our hospital. Following the lectures the course continued with practical blocks of simulation training. Each block included four hours of training. The whole program has been evaluated using questionnaire surveys.

Results:
The course was intended for 30 nurses of five healthcare providing organizations of the South Moravian region. At the beginning of the course we have carried out a survey as to assess the knowledge of participants in the area of simulation education as well as the content of the course. We have also been interested in motivation of participants to attend simulation training. The next evaluation has been carried out in the middle of the training, which allowed us to modify the program. At the end of the course we have performed a final evaluation. The feedback from the participants provided valuable information for necessary modifications of the course. The program is thus ready for accreditation and further use.

Conclusion:
Education is an important means in providing an adequate care to patients. Effective communication is an integral part of education. From June 2014 to May 2015 a complex methodology of the course was created and tested, including supporting materials such as education sheets and instructional videos. The materials are available not only to the participants of the course but also to other interested parties. An unquestionable benefit of the program for the healthcare sector is the extension of education possibilities for health workforce and thus improving their competitiveness in the labor market.
No catheter, No Catheter Associated Urine Tract Infection (CAUTI). An inter-professional simulation course to reduce avoidable harm in patients with catheters.

Marie McDonnell, C Laws-Chapman, Dr Adrian Hopper and Ms Gill Downing.
Simulation and Interactive Learning (SaIL) Centre, King's Healthcare Partners, London, United Kingdom

Introduction: CAUTI’s are the leading healthcare associated infection and have a devastating impact on patients from prolonged hospital admission, contributions to delirium and falls and in the most severe cases, death (HINSL, No Catheter No CAUTI, 2015). The Health Innovation Network, South London (HINSL) and GSTFT’ have formed to reduce these catheter associated infections and to improve patient safety and quality of care for this patient group. This multi faceted prevention programme focuses on four areas of targeted improvement encapsulated in a catheter care bundle (HINSL, No Catheter No CAUTI, 2015)
1. Avoiding unnecessary placement of catheters
2. Prompt removal
3. Rapid review of CAUTI’s for learning and improvement
4. Quality improvement in the management of catheters outside of the home (introduction of the SL catheter passport)

A novel inter-professional simulation course was proposed to support these areas of improvement, incorporating technical management of catheters aligned with the catheter care bundle, and non technical skills to empower healthcare professionals to challenge and question catheter management, enabling them to become strong advocates of catheter related patient safety. It was felt that bringing community and hospital healthcare workers to explore the challenges of catheter management together, the course would also help bridge the perceived communication gap across services about the catheter patient bundle pathway.
**Objectives:** To design a half day course providing an overview of the technical and non-technical skills involved in the catheter care bundle for both hospital and community healthcare workers.

The course objectives for candidates are: to describe the core elements of the catheter care bundle; identify two non technical skills that can enhance inter-professional working & patient safety and encounter shared learning experiences with colleagues from community and hospital services whom you normally only communicate by fax of phone.

**Methods:** Using focus group techniques with specialist staff from community and hospital based settings the course objectives and content was devised. Three scenarios were developed and piloted. 8 half day courses have run with healthcare workers from the community and hospital nursing assistants & qualified nurses, pay band 2-7, physiotherapists and doctors up to registrar level.

**Results:** Due to the existence of technical-skills based courses and mixed experience of candidates it was felt the content could focus on the care bundles and management principles with signposting to relevant training, protocols and policy. This allowed time to focus on case based scenarios to allow an inter-professional approach to catheter management to be explored by candidates rather than re-teach catheterisation techniques. This allowed the course to then become a half day, an additional request to be more cost effective with a total of 8 delegates attending per session and two session running per day. The overwhelming response from evaluation data showed that delegates gained positive benefits from attending the courses with an increased confidence in management of catheters around the 4 areas of the catheter bundle and 1-2 non technical skills learnt.

The most common free text response in terms of what delegates learned from attending the course were a) confidence in asking for help when needed b) the importance of catheter passports c)questioning the need for catheters-feeling empowered to challenge

It has been commissioned again and proposal for all Foundation year doctors and newly qualified nursing staff plus all nursing assistants in both hospital and community to attend this course.
**Conclusion:** This course to date has successfully allowed delegates the opportunity to apply the passport and care bundle through relevant home or hospital scenarios. In addition safety aspects have been identified through debriefing inter professionally around non technical skills.

Development of an interprofessional module on team working in simulation in undergraduate health education

P. Picchiottino, K. Blondon, P. Mèche, E. van Gessel

University of applied sciences Geneva; Hospital Cantonal University of Geneva; University of applied sciences Geneva, Medical Faculty of Geneva

Introduction:
Taking place as a joint venture between the Medical Faculty (MF) of University Geneva and the Allied Healthcare School (AHC, University of applied sciences: Midwife-Nurse-Nutritionist-Xray Technician-Physiotherapy), an new interprofessional module was added to the 2 pre-existing ones, to focus on team-working issues and acquisition of basic competences in the domain. We report on the construction of the module and its preliminary evaluation by students and tutors.

Objectives
The development of 3 consecutive modules in undergraduate education has been taking place since 2012, spanning the 3 bachelor years of AHC School and the 6 years of bachelor/master studies at the MF. The main objectives of the first 2 modules are to present the healthcare system and roles and responsibilities of healthcare practitioners, and to introduce students to interprofessional communication and help them develop an interprofessional community project. This present module introduces all students to the different dimensions of team-working through simulated situations. The six different simulations run in parallel in groups of 5 to 8 students. Over 3.5 days, included 270 students of all professions in their last year. The themes were: COPD, palliative care, anaphylactic shock, gestational diabetes, addiction and pain management, error disclosure.

Material and method:
The 6 situations were chosen according to a previous study by Junod et al entitled “Needs assessment for training in Interprofessional competences in primary care: a Delphi study”. All simulated scenarios used either standardized patients or high-tech mannequins, and allowed students to practice several competences related to team working. These competences were based on the five essential elements of the TeamSteps® framework: team structure, communication, leadership, situation monitoring and mutual support. Sections of the scenario were performed iteratively with variations to allow all students to participate. At the end of the 3.5 days, all 42 groups received a questionnaire by email that was developed on EvaSys®.

Results:
The questionnaire was answered by 90 participants (33%), with high overall satisfaction. The top three team working objectives achieved were: “assigning roles and responsibilities for each team member” (83.7%); “using tools such as SBAR/SCAR to establish efficient communication between team members” (82.4%); and finally “being able to assert oneself and being heard” (81.5%). When asked about the potential for these simulations to prepare students for professional life, 75.8% of participants answered that they were ready to use the competences acquired. Finally 83.7% of students thought that having tutors of different professional backgrounds helped them highlight elements of interprofessional behavior. Tutor feed-back was also received.

Conclusions:
Implementation of the new undergraduate interprofessionnel education module with high-fidelity simulation for all allied health students and volunteer medical students was highly successful, both for students and faculty. Training sessions and interprofessional tutorship also provided new opportunities for collaboration at the postgraduate level. Interprofessional education will become part of the core training for medical students in the near future.