

and inter-professional training, and have funded the appointment of an ICU Simulation Fellow to continue to lead and enhance future *in situ* simulation teaching on the ICU.

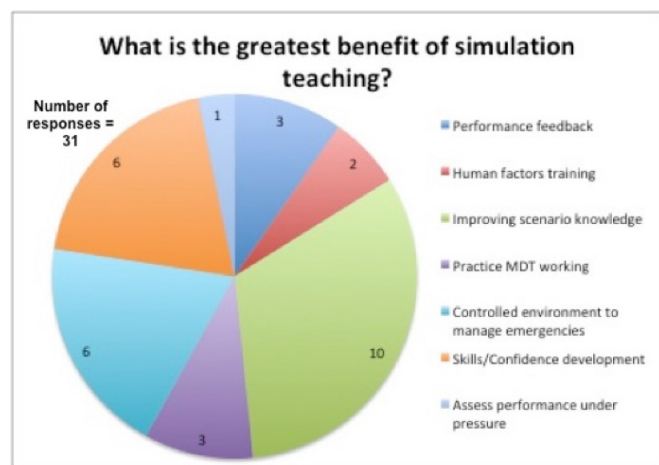


Figure 1:

## 20 SPECIAL DELIVERY: SKILLS@HOME

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**Background:** Due to the sudden shift in online learning at the start of the pandemic, an innovative idea was identified to encourage a student-centred approach for continuing the development of their essential skills whilst learning from home. Taking inspiration from other healthcare programmes, we developed, and risk assessed 'Skills@Home' packages to embed a mastery learning approach towards dexterous skills. These comprehensive packages included access to virtual resources and e-learning as well as practical and safety equipment. Implementation of these packages allowed students to maximize their exposure, experience and understanding of a range of skills that could be accessed at a time and pace to suit their needs. The pilot 'Skills@Home' package focussed upon the development of suturing, which is a traditional and essential midwifery skill.

**Aim:** A collaborative approach between the midwifery team and the clinical simulation and skills education team ensured a robust approach to the risk assessment, procurement and delivery of packages to students' home addresses. A prerequisite for receiving a pack was the completion and return of a detailed student agreement form which outlined safety considerations and their responsibilities. The package was piloted with a cohort of 29 third-year student midwives, as a priority group, to facilitate and increase confidence and application in the clinical area and to ensure enough opportunities for progression on the programme.

**Method/design:** Students completed an online evaluation form after receiving their packs, which showed overwhelming support for this approach. Students identified that having the opportunity to learn in this manner at home not only enhanced their confidence and skills technique but also helped them to relate theory to practice. Additionally, students identified that they would like to see the 'Skills@

Home' approach sustained and enhanced once on-campus learning has resumed.

**Implementation outline:** This has inspired the clinical simulation and skills education team to identify other Skills@Home packages that can be used within healthcare learning. Ensuring that thorough risk assessments are completed along with the packages being created and delivered to the students in the most cost-effective way. Following the pilot study, ethics approval is currently being sought to explore, using focus groups, the midwifery students' experiences and view of using the Skills@Home initiative.

29

## REDUCING RISK: SIMULATION-BASED CLINICAL SYSTEMS TESTING TO DETERMINE NEW HOSPITAL READINESS FOR ANAESTHESIA SERVICES

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**Background:** The newly built Women's Wellness and Research Center (WWRC) replaced the pre-existing Women's Hospital (WH) as the only provider of tertiary maternity care for the residents of Qatar. The pre-existing WH was smaller, with a 12-bay emergency department, 3 operating theatres, 12 delivery rooms and 220 beds, in shared rooms. The new WWRC facility is significantly bigger, with a 28-bay emergency department, 7 operating theatres over two floors, 26 delivery rooms and 240 private inpatient rooms catering for around 18,000 deliveries per year. New systems, designed over only a few months, would need to promote that same level of high-quality patient care but in a newer, larger and unfamiliar facility.

**Aim:** The aim of the study was to identify and mitigate clinical systems risks, relevant to anaesthesia services, by running *in situ* simulations.

**Method:** The 'WWRC Anesthesia Activation Team' was established to conduct *in situ* simulations, testing clinical systems. We hypothesized that, despite meticulous planning, numerous process gaps would be discovered, and that improvements derived from testing sessions would reduce risk<sup>[1]</sup>. Well-planned scripted 'everyday' scenarios were prepared. Relevant multi-disciplinary groups of participants were involved, and the scenarios were kept flexible. After the simulation, facilitated debriefing highlighted problem areas and suggested improvements.

**Implementation outline:** Approximately 110 hours of simulation were conducted in sites relevant to anaesthesia. Many of the participants had never experienced simulation before but nearly everybody complimented its usefulness and debriefing was unanimously constructive. Testing identified 143 discrete latent safety threats (LST) and were categorized under Facility, Workflow, Personnel, Process, Equipment and Technology (Table 1). Fifty-four LSTs were due to systems that were incomplete at the time of testing but would be completed by the time services commenced. The remaining 89 were significant LSTs which could have resulted in significant clinical incidents. After mitigation of LSTs, the areas were simulation tested again to confirm threat elimination. WWRC was opened only after all areas of concern were addressed. A year after moving, a review of all the changes recommended from the simulation-based systems testing was conducted. It showed that there were no anaesthesia-related clinical incidents in those areas.

Table 1:

Categories	Number of LST (89)	Examples
Facility	9	Theatre recovery was too congested to deal with any emergencies involving mother or baby – layout was changed, and equipment rearranged to create more space for essential staff and equipment
Workflow	11	Patient pathway, in and out of theatre was not compliant with infection control recommendations – pathway was changed, sterile and non-sterile areas were clearly marked to meet strict recommendations
Personnel	5	Number of anaesthetists on-call was insufficient to cover multiple sites within the hospital – the on-call anaesthetist numbers were increased and working pattern made more efficient
Processes	26	Blood bank was located far from theatres resulting in significant delays in procuring blood – blood processing and procurement process were modified to reduce delays
Equipment	34	Multiple items identified as either faulty/incompatible/missing were removed or replaced by new ones
Technology	4	Paging system was inefficient and emergency calls were missed –existing system scrapped, and new system installed to ensure reliable communication.

Our experience confirms that simulation can identify Latent Safety Threats (LST) prior to a major move to a new facility<sup>[2]</sup>; the team identified problems that had not been identified by existing committees. Scenario-based clinical systems testing allowed for pre-emptive process optimization and risk mitigation thereby improving patient safety, quality and staff preparedness.

## REFERENCES

- Geis GL, Pio B, Pendergrass TL, Moyer MR, Patterson MD. Simulation to assess the safety of new healthcare teams and new facilities. *Simul Healthc*. 2011;6(3):125–133.
- Colman N, Stone K, Arnold J, et al. Prevent safety threats in new construction through integration of simulation and FMEA. *Pediatr Qual Saf*. 2019;4(4):e189.

115

## ON-CALL BLEEP SIMULATION FOR FINAL-YEAR MEDICAL STUDENTS

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**Background:** A common concern amongst final-year medical students is the on-call shifts as a Foundation Year 1 (FY1) doctor. With a large focus on knowledge, clinical and communication skills, and practical procedures, there is little in the medical curriculum to cover the non-technical skills required whilst on-call such as prioritization. A novel teaching programme was devised to help develop students' confidence and preparedness for these shifts. This *in situ* simulation allowed the students to fully immerse into the role of an FY1 whilst experiencing the stressors of being on-call in a safe, risk-free environment.

**Aim:** The aim of this course was to prepare final-year medical students for their on-call duties as FY1 doctors. This includes developing confidence with the technical aspects of on-calls such as managing the acutely unwell patient, as well as the

non-technical skills expected from bleep-related tasks such as responding, prioritization and escalation.

**Method/design:** A total of five sessions were delivered from September to December 2020 for final-year medical students. Twelve simulated on-call 'activities' were designed mirroring real tasks commonly encountered as an FY1 on-call. These activities were spread across the hospital involving the medical wards as part of the *in situ* training. The training utilized bleeps, simulated patient notes, simulated handover, mannikins for part-task procedures and actors. The students were briefed on how to respond to bleeps and the expectations of the training. Debriefs were carried out following the training facilitating reflections and relevant teaching on the various encountered activities. Students who took part in the training completed a pre- and post- course survey with a Likert-scale questionnaire to evaluate their confidence in the skills required of being on-call.

**Implementation outline:** A total of 17 students completed the on-call bleep simulation. Only a third of the candidates had used a bleep prior to the session. Pre-course, 66.6% of candidates responded feeling not confident about being on-call as an FY1. Encouragingly, following the simulation, 100% felt more confident about being on-call. During the open feedback sessions, students valued the use of hospital wards, practicing procedures under time pressure, and performing handovers. This on-call bleep simulation was very well received and improved students' confidence and preparedness for being on-call as an FY1 from August 2021. Students commented on how invaluable this training was. This on-call bleep simulation will continue to be implemented as part of the final-year teaching provided at the trust.

25

## UNMUTING REGIONAL PAEDIATRIC SIMULATION TRAINING THROUGHOUT THE COVID-19 PANDEMIC

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**Background:** The National Health Service endured significant strains during the COVID-19 pandemic to the point where all face-to-face training had to be paused. Our team delivers simulation-based training face to face and offers support for those returning to work, stepping up to senior roles and addressing important aspects of general paediatric care such as acute mental health crises and end of life care.

**Aim:** The aim of the study was to deliver our courses virtually without compromising the quality of content.

**Method/design:** Initially, we reviewed all scenarios to appraise whether they could be delivered online. Scenarios that involved acute clinical decisions were recorded with the faculty acting as the candidates. This also allowed scripting to ensure that key discussion points could be raised within the debrief. Scenarios mainly involving communication skills with standardized patient role player were retained, and briefs were adapted so that the candidates were aware that the scenarios began when the actor appeared on screen.

**Implementation outline:** Participants were recruited using newsletters and subsequently directed to a website to collate email addresses where invites to the virtual meeting space and