

Table 1: Comparison of UKGs versus IMGs simulation experience. As well as asking about how simulation improved communication skills, responders were asked the impact simulation had in improving other core skills including teamwork, leadership, and managing stressful situations with both groups responding similarly.

| Category | UK trainees (n = 49) | International Trainees (n=27) |
|--|---|---|
| Job role | Trainee (82%) Non trainee (18%) | Trainee (22%) Non trainee (78%) |
| Level(s) at which underwent simulation | Undergraduate (96%) Postgraduate (98%) | Undergraduate (24%) Postgraduate (94%) |
| How many times have you done simulation? | 1 – 5 times 0% 5– 10 times 22% 10 – 15 times 33% >15 times 45% | 1 – 5 times 41% 5– 10 times 18% 10 – 15 times 18% >15 times 24% |
| Communication skills | Strongly agree 29% Agree 47% Neutral 16% Disagree 8% Strongly disagree 0% | Strongly agree 41% Agree 44% Neutral 11% Disagree 0% Strongly disagree 4% |
| Overall sim experience is: | Excellent (51%) Good (35%) Neutral (12%) Bad (2%) | Excellent (24%) Good (65%) Neutral (12%) Bad |

ENHANCED SIMULATION-BASED MASTERY LEARNING FOR THE ATTAINMENT OF PROCEDURAL SKILLS COMPETENCE FOR ACUTE COMMON CARE STEM (ACCS) TRAINEES

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Background: A new curriculum for Acute Common Care Stem (ACCS) trainees was introduced in 2021 and included a mandatory requirement to have specific practical assessments performed, known as Direct Observation of Procedural Skills (DOPS). These aimed to provide evidence of competence and enable progression through training. The curriculum change prompted the creation of a novel one-day skills-based course in order to ensure that all the ACCS trainees met the required level of competence. An enhanced simulation-based mastery learning method was used to ensure that trainees have the clinical knowledge to identify when future practical emergency skills are indicated and have the psychomotor skills necessary to perform these procedures safely and efficiently. This study was aimed at exploring the impact of a simulation-based mastery learning (SBML) [1] in a one-day procedural skills course.

Methods: New curriculum content was reviewed in order to establish the different practical skills required for the second year of ACCS training. Regional trainees were then sent an online survey to ask which specific procedures they would like included on a skills course. There were five procedures requested: chest drain insertion (Seldinger and open), aspiration of air, DC cardioversion, and external cardiac pacing. Meetings with the local training programme director and simulation lead assisted in the formation of the skills day. Faculty were formed by registrars and consultants in Emergency Medicine. Trainees aimed to reach a competence level that would mean they still need in hospital supervision for any future procedures. Eight ACCS trainees attended a one-day skills-based course in May 2022. The course was preceded by multiple online e-learning resources and videos. The SBML day consisted of a demonstration with deliberate practice followed by DOPS assessments using simulation and trainee-focused feedback. Anonymised pre- and post-course questionnaires were completed by all trainees containing questions surrounding their experience and confidence in performing these procedural skills.

Results: All trainees achieved the required level of competence needed at their stage in training. Each trainee stated that their confidence levels improved in performing all five procedures after attending the course (Figure 1).

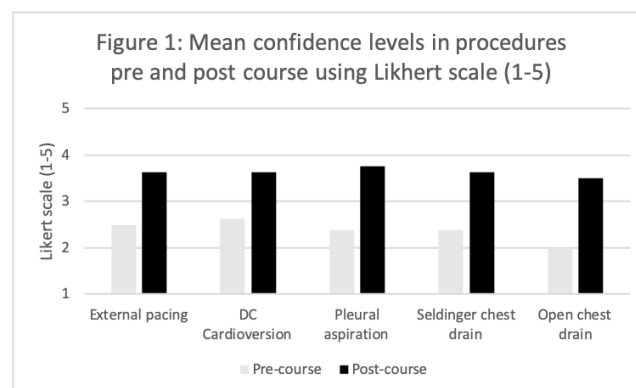


Figure 1: Mean confidence levels in procedures pre- and post-course using Likert scale (1–5)

Conclusion: An enhanced SBML method in a one-day course enabled efficient, standardised procedural skills practice and assessment for a group of ACCS trainees. Training, practice, and assessment in necessary curricular competences were achieved together while improving the level of confidence in trainees performing these procedures.

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LIVESTREAMED CROSS-INSTITUTIONAL HYBRID SIMULATIONS ON HEALTHCARE INEQUALITY: A TIME, COST AND ENVIRONMENTALLY FRIENDLY OPPORTUNITY FOR LARGE GROUP LEARNING?

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Background: Students intercalating in BSc Urgent and Emergency Care/BSc Critical Care degrees undertake placements in 32 NHS Trusts across the UK. A collaborative simulation day was planned between the University and a geographically distant hospital, aiming to explore bias within healthcare. Inequality has been examined through simulation previously and recommendations exist on maximising simulation effectiveness [1].

Activity: A hybrid simulation day took place with 11 students present 'in-situ' and 49 remote students across the UK joining a livestream. High-definition cameras provided multi-angle simulation views plus a patient monitor with separate audio from ceiling-mounted boundary microphones. A webcam and cardioid microphone captured the debriefing. The free programme OBS Studio controlled the livestream as a single 'virtual camera', with test results overlaid as appropriate. Scenarios involved an atypical myocardial infarction, sickle cell crisis, and female genital mutilation/trauma in pregnancy.

Findings: Feedback from learners (n=21) rated the content most useful for 'trauma in pregnancy' (2.95/5) and 'teamworking' (2.90/5), whilst 'networking with peers' was lowest rated (2.21/5). Scenarios were realistic (75%) and appropriate for training level (86%). However, the audio-visual system was rated adequate by only 57%. Comments described difficulty with simultaneous speech during the simulation. Satisfaction with reflective debriefing was 76%, however free-text comments revealed verbal feedback delivered to simulation teams by 'remote' peers was perceived more critically than feedback received from local faculty.

Conclusion: A novel technological setup with OBS Studio was used for a collaborative simulation event viewed across the UK. Scenarios were rated positively. There was difficulty discerning multiple audio streams during the simulation. We plan to provide team leaders with dedicated microphones for overall commentary. We recognised the lack of diversity in simulation manikins within the host hospital and, as recommended [1], are now arranging representative manikins that can be used routinely and not for stereotypical scenarios. Feedback from a remote group to a smaller 'in-situ' participant group can feel daunting and direct. This may reflect the challenging topics explored, but also difficulties recognising the nuances of nonverbal cues in a virtual space. As such, care must be taken with ground rules, and facilitating appropriate exploration of learning points. Although feedback has identified areas for improvement, hybrid simulation can deliver immersive experiences to geographically-dispersed learners which are time- and cost-effective, with reduced environmental impact from travel. Alongside allowing physical-distancing, it may support distance-learning and facilitate cross-institutional collaborations. We recommend exploring OBS Studio for livestreaming simulations [2].

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INNOVATION IN SIMULATION: REDUCING THE COST

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Background: Simulation equipment is often prohibitively expensive. More so for smaller remote settings and developing countries. Reducing costs is essential to increase widespread uptake of high-fidelity simulation tools.

Methods: We describe the evolution of a cooperative simulation model development team incorporating the local Emergency Medicine Department clinical staff and local Secondary school pupils. This was a symbiotic relationship that utilised the clinical expertise of the doctors while giving the students project management experience while using the significant resources of the schools for physical product development. Roughly 15,000 tracheostomies are performed each year in the UK. After looking further in depth at emergency tracheostomies,

we recognised a gap in this area of healthcare training [1]. Consequently, developing a surgical airway trainer was selected as the model to produce over the course of an academic year. The partnership project required infrequent visit from the clinical team to inform on clinical particulars and review model progression. Ultimately 2 models were selected from various prototypes to take to completion. These represented 3 core areas we wished to develop. The first model was a high-fidelity model completed using latest technology available in the school's workshops. The second was built with minimal technology and aimed to be reproducible following simple instructions with widely available materials and be completely biodegradable.

Results: This project resulted in successful development of two surgical airway models – both clinically and anatomically accurate, reusable, which deliver high quality simulation to a group of doctors and students at the local hospital. Both models are easily reproducible with minimal skills, but varied in both the detail and tools required to produce and degree of sustainability. Maximum cost of materials was £15.

Conclusion: Partnership with local schools gives hospitals access to resources not otherwise available that can lead to the development of innovative simulation models that can significantly reduce the cost of simulation. Both parties gain significantly from this partnership. Going forwards we aim to continue the partnership with aims to develop a central line training model over the next academic year.

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ADDRESSING THE ONGOING IMPACT OF THE COVID-19 PANDEMIC ON MULTIDISCIPLINARY FOUNDATION SIMULATION-BASED TRAINING

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Background: Simulation-based education has an established role in the training of healthcare professionals. Annually, a mandatory simulation course is run for foundation doctors at a London teaching hospital. Nurses and allied health professionals (AHPs) are also invited as 'staff that work together should train together' [1]. The COVID-19 pandemic resulted in fewer learning opportunities, and attendance from nurses and AHPs was subsequently reduced on the 2021–2022 programme. The aim was to bring attention to, create discussion, and offer solutions to address the ongoing barrier of the pandemic to effective interprofessional education (IPE).

Methods: Pre- and post-course questionnaire responses were collected via SurveyMonkey using the Human Factors Skills for Healthcare Instrument (HuFSHI) [2] and clinical-based questions. These were paired anonymously with mean improvements calculated for each. The post-course questionnaire contained free-text questions.

Results: 23 courses were scheduled but 7 were cancelled due to poor attendance. There was a lack of nurses and AHPs signing up (153 doctors, 22 nurses, and 8 AHPs). Overall, 100 learners attended, consisting of 91 doctors, 8 nurses, and 1