

Background: In November 2020, the first COVID-19 vaccine for the UK had been approved. We were subsequently tasked with the rapid development of vaccination clinics. Two COVID-19 vaccination clinics in suitable spaces within the University Hospitals Bristol and Weston NHS Ft were planned, across two different hospital sites (25 miles apart), to be operational within 7 days. Changes to both pharmaceutical and national guidelines were altering by the hour.

Aims: The key driver for this fast-paced change was to ensure vaccines were delivered as soon as available to Bristol-based health and social care staff.

Methods: A process map outlining the vaccination journey established in the local public vaccination site was the starting point to understand how to efficiently, effectively and safely deliver vaccines. Hospital sites for both clinics were identified, and work began immediately to vacate those rooms and establish both the infrastructure and personnel to run the large-scale clinics. Simulation Lead Educator involvement during the first days of planning was essential and at each stage of the process mapping. Simulation Round 1:

- full-scale simulated vaccine clinic in the newly designed rooms on one site
- standardized patients (actors) briefed as receiving the simulated vaccine
- key staff in roles – administrators, pharmacy, vaccinators
- debrief focussed on latent threats, agreeing immediate changes to be tested in the next round
- patient experience feedback from the standardized patients

Simulation round 2:

- immediate re-run of the simulated clinic
- solutions identified in Round 1 were applied and tested
- rapid improvements to the process mapping, ergonomics, clarity of roles and timings for clinic appointments were able to be made

Simulation round 3:

- Round 3 took place on the second site a few days later
- lessons learnt from the first two stages being shared and translated within the new site
- essential safety and efficiency issues were explored and lessons learnt applied to the clinic

Results: The three rounds of simulation systems testing identified a number of latent threats and process mapping alterations which were implemented immediately, with solutions being tested on the spot. The vaccination clinics opened, administering over 500 vaccines per day across a 4-month period. The team involved continued to adapt processes and environment to suit the constantly changing guidelines and ensure safe practice.

Implications for practice: Simulation is an adaptive and responsive tool in systems testing, process mapping and implementing solutions within a high-pressured and time-restricted environment.

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EVEN BETTER THAN THE REAL THING? COMPARING IN-PERSON AND ONLINE DELIVERY OF SIMULATION-BASED TRAINING FOR EARLY-STAGE PSYCHIATRIC DOCTORS

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Background: COVID-19 required many simulation faculties to provide online alternatives to in-person training. Over this period, our organization pivoted fully to online delivery of mental health simulation-based education (SBE), defined as delivery entirely via a videoconferencing platform to participants remote from one another and the simulation team. SBE can help early-stage psychiatric doctors to bridge educational and clinical practice by providing exposure to a variety of presentations and a safe space to hone communication and de-escalation techniques while encouraging reflective practice [1,2]. There is, however, limited research comparing the efficacy of in-person and online mental health SBE.

Aim: We assessed for any significant differences across several course evaluation measures in a comparison between groups attending in-person and online versions of a simulation course for early-stage psychiatric doctors.

Method: An existing full-day course was adapted for online delivery over a half-day period. It focuses on developing confidence and skills in psychiatric history-taking, mental state examination, risk assessment and formulation, meeting the relevant learning outcomes set by the Royal College of Psychiatrists. It encourages participants to explore consultation dynamics with a key emphasis on communication and human factors skills. Participants for in-person (n = 228) and online deliveries (n = 90) comprised of early-stage psychiatric doctors (core psychiatric trainee, or GP trainee level) based in mental health trusts in South London. Pre- and post-course quantitative data (assessing learners' confidence, situational awareness, and course satisfaction) using the Human Factors Skills for Healthcare Instrument (HuFSHI) and Course-specific Questions (CSQ) measures were collected and compared across the two delivery formats, that is, in-person and online. Data previously collected from participants attending in-person deliveries were used in the comparison.

Results: Paired-samples t-tests were conducted to determine whether there were any changes in HuFSHI and CSQ scores pre- and post-course. Results indicated that there were significant improvements in HuFSHI scores as well as CSQ scores for both digital delivery and in-person delivery. Large and very large effect sizes were also observed for HuFSHI and CSQ scores, respectively, in both delivery formats. Our data suggest that participants benefited more from in-person delivery across CSQ measures and from digital delivery across HuFSHI measures.

Implications for practice: Our understanding of the educational differences between in-person and online mental health SBE is at an early stage. Our data suggest that online mental health SBE potentially represents an effective alternative to in-person delivery. Further research is required to better understand these differences.

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USING SIMULATION TO IDENTIFY SYSTEM ISSUES IN THE EMERGENCY DEPARTMENT

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Background: *In situ* simulation (ISS) has previously been shown to be an effective tool for identifying system issues in healthcare ^[1]. Since the commencement of weekly inter-professional ISS in the Emergency Department (ED) at Mid-Yorkshire NHS Trust in October 2020, we have run 50 ISS sessions involving 225 participants and identified several system issues. These have subsequently been addressed through debriefing, feeding learning points back to the wider department and working with the management team to resolve practical issues.

Aim: The aim of the present study was to describe how ISS has been used to identify and address system issues in an ED setting.

Method: Each week a simulated case is selected to address specific clinical presentations and to bring out a range of clinical and non-clinical learning points. The scenarios are run in the ED using a low-fidelity mannequin and a monitor 'app'. The scenario is run in real time, participants are required to locate and identify real kit; medications are required to be collected and additional help/senior advice is to be sought in the way that the participants would do in normal practice. After each scenario, there is a debrief, facilitated by the ISS team, in which the participants discuss and identify learning points as well as errors and systemic issues drawing both on the scenario and wider clinical experience. These points are collated and written up in the 'MYSIM' (an infographic sharing learning points) and distributed through a range of channels to all ED staff. Where practical solutions are required, the team feeds these back to the relevant senior nursing staff or management team to address these issues.

Results: Table 1 demonstrates the system issues that we have identified and addressed so far through ISS.

Table 1: System issues identified and addressed so far through ISS

Theme	Issue	Solution
Medication	Idaricizumab unavailable in ED	Pharmacy restocked ED
Equipment	Lack of infusion pumps	ED pumps electronically tagged and returned to department
Environment	Lack of familiarity with Resus	Simulation familiarizes with environment and participants encouraged to take time to familiarize with the environment following the session
Culture	Reluctance to push the emergency buzzer	Encouraged in debriefing over several sessions' behaviour change noted in subsequent sessions

Implications for practice: By running ISS, we have identified and addressed a number of system issues, which, through shared learning, has seen changes within the ED and ISS continues to be a valuable tool for improving patient safety.

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USING VIDEO TELECONFERENCING FOR AN EFFECTIVE REMOTE SIMULATION COURSE IN TRANSFER MEDICINE

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Background: Critically ill patients require transfer within and between hospitals – a necessity amplified by ITU capacity pressures during the COVID-19 pandemic. This rising demand highlighted the need for dedicated transfer teams. Alongside establishing and expanding a cross-sector transfer team, we necessarily needed to meet growing training requirements. Transfer medicine is a core competency for intensivists, anaesthetists, ITU nurses and pre-hospital staff, with simulation recommended in the respective curricula. However, COVID-related restrictions alongside demands on staff's time, limited opportunities for face-to-face training. We overcame these challenges by developing an online simulation-based course. Teleconferencing has previously been received favourably and rated highly for educational benefit ^[1]. Our innovative programme uses e-learning and interactive video teleconferencing to combine the requirements of distanced learning with the benefits of simulation.

Aim: The aim of the study was to test the efficacy of and response to remote simulation-based training in transfer medicine.

Method: Before attending the online simulation, multi-disciplinary participants completed 3 hours of interactive e-learning hosted online via the platform Rise. This incorporated case-based discussions, practical assignments and filmed presentations. Simulation utilized Zoom teleconferencing to immerse participants in clinical transfers. We used high-fidelity, pre-recorded scenarios made with a mannequin simulator and high-definition video. The participants observed the simulated transfer of critically ill patients (Figure 1). Scenarios paused at set intervals facilitating debriefing utilizing electronic whiteboards and interactional tools available in Zoom to elicit learning. The course was delivered twice. Each cohort completed a pre- and post-course test to assess learning of the intended learning objectives.



Figure 1: Example screenshot of online simulated scenario with participants observing

Results: A total of 21 multi-disciplinary participants completed training: 43% doctors and 57% nurses. 100% of respondents (18) rated the course 5/5 on the Likert scale when asked 'how much did you enjoy the course' and 100% would recommend the course to colleagues. All rated the course extremely relevant to their practice. Average assessment