

## LATENT ENVIRONMENTAL ERRORS REVEALED: USING *IN SITU* SIMULATION TO CHECK THE SAFETY OF RETURNING THEATRES TO OPERATING AFTER BEING REPURPOSED AS A VENTILATOR INPATIENT UNIT

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**Background:** During the second wave of the coronavirus pandemic, Day Surgery had been stopped for 6 months at Aintree University Hospital to respond to an influx of COVID patients. Day Surgery theatre staff had been redeployed to other areas of the hospital, including A&E and Intensive Care. The Day Surgery recovery had been repurposed as a ventilator inpatient unit for coronavirus patients. We felt that this potentially jeopardized the confidence and competence of returning elective care staff. We hypothesized that the theatres themselves had become unsafe to accept patients for elective procedures having been used for a different purpose for such a long time. We used *in situ* simulation to re-skill the staff and test the safety of the clinical area <sup>[1]</sup>.

**Aim:** We aimed to improve the confidence and capability of theatre staff returning to work in elective theatres and to perform a systems test of the Day Surgery Unit to identify and rectify any latent errors.

**Methods:** The refresher day was split into morning and afternoon sessions. The morning session comprised of two simulation sessions: cardiac arrest in recovery and a difficult airway in theatre. The afternoon comprised of sessions focussing on five anaesthetic emergencies: malignant hyperthermia, local anaesthetic toxicity, massive haemorrhage, anaphylaxis and sepsis. These sessions included locating and studying standard operating procedure (SOP) folders and locating vital equipment in the treatment of these emergencies. Participants then evaluated their confidence in managing emergencies before and after the refresher day using pre- and post-questionnaires. We also encouraged participants to raise concerns and make suggestions in a free-text section.

**Results:** Forty participants took part in the refresher day. Pre- and post-questionnaires indicated that participants had much-improved confidence in dealing with anaesthetic emergencies post-session. We identified several latent errors within the unit including missing and out-of-date SOP folders, missing anaphylaxis bag, no fibrescope available for the difficult airway, no key available for the malignant hyperthermia cupboard and a poorly stocked and unsealed difficult airway trolley.

**Implication for practice:** The results show that participants felt more confident to restart work in the Day Surgery Unit, hopefully improving their performance in critical incidents. By running *in situ* emergency simulations, we identified several latent errors in the elective care centre which allowed us to rectify these in preparation for its re-opening, improving the safety of our unit. Participants expressed a desire to engage in more simulation sessions. Latent environmental errors revealed: using *in situ* simulation to check the safety of returning theatres to operating after being repurposed as a ventilator inpatient unit.

### REFERENCE

1. Goldshtein D, Krensky C, Doshi S, et al. In situ simulation and its effects on patient outcomes: a systematic review. *BMJ Simul Technol Enhanc Learn*. 2020;6:3-9.

**Aim:** The aim of the study was to establish a regular programme of inter-professional ISS delivered by a dedicated team in the emergency department (ED).

**Method:** An ED simulation team was created, including consultants, a senior registrar and two newly appointed simulation junior clinical fellows. Sessions run monthly in both EDs in the trust, taking place in the 'green' resus area, in the morning when clinical demand is usually lowest. Participants include doctors and nursing staff of all grades, with cross-speciality involvement. Increasing participation required was influenced by senior management and clinical staff agreeing this was a necessary and valuable tool. Faculty include the ED simulation team and a simulation technician. Scenarios are developed by the team with specific intended learning outcomes, e.g. ALS in COVID-19, assessment of the acutely unwell pregnant patient. Intended learning outcomes are influenced by new guidelines, specific emergency cases or skills and suggestions by staff. The patient has been trialled as an actor and/or SimMan3G, depending on the scenario. Clinical equipment is mostly donated and expired. A structured debrief is led by a senior simulation team member. Key learning from each session is summarized in a 'Sim News' poster which is tweeted, disseminated via email to all staff and published on the departmental 'EMBEDs' website. Participants fill in an anonymous feedback form online and receive a certificate of participation.

**Results:** Fifty-nine participants from December 2020 to April 2021 gave feedback (see Table 1). Comments included '...helped me learn my anaphylaxis protocol', 'Teamwork and communication are vital'.

**Implications for practice:** The *in situ* programme has successfully educated staff; led to changes in guidelines published on 'EMBEDs'; and identified and corrected problems relating to the clinical environment. Staff have found it an enjoyable and valuable experience. The next steps are to increase the frequency of sessions, expand faculty to include a paid senior staff member and include further clinical teams such as blood bank, trauma team and other specialities.

**Table 1:** Feedback form results

This simulation session...	Average score (10 - strongly agree, 1 - strongly disagree)
...improved my clinical knowledge	9.63
...made me more familiar with my working environment	9.58
...taught me about current guidelines	9.68
...helped me improve my team working	9.84
...helped me improve my leadership skills	9.21
...helped me improve my communication skills	9.53
I enjoyed this simulation session	9.74
I would feel more confident managing a similar situation in the future	9.58
Simulation is a valuable tool in my training	9.74

### REFERENCE

1. Goldshtein D, Krensky C, Doshi S, Perelman V. In situ simulation and its effects on patient outcomes: a systematic review. *BMJ Simul Technol Enhanc Learn*. 2020;6:3-9. Available from: <https://stel.bmj.com/content/6/1/3> (accessed 16 June 2021).