**Implications for practice:** This course demonstrates that simulation can be delivered safely throughout a pandemic while maintaining education value. Participants continued to find simulation useful; the use of PPE did not affect debriefing and learning processes. Changes did arise as a result of the changes: increased workload on staff (multiple sessions), timing issues, repetition in scenarios delivered and ward pressures on participants. Moving forwards, some adaptations such as the use of PPE will remain, but the course will return to a full day. To further evaluate the impact of the changes made. We are currently obtaining feedback from faculty.

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## 39 USING SIMULATION TO IMPROVE SURGICAL DEPARTMENTAL INDUCTION FOR JUNIOR DOCTORS


Rona Keay[1], Alexander Walker[2]; *[1]Scottish Centre for Simulation and Clinical Human Factors, NHS Forth Valley, UK[2]Department of General Surgery, NHS Forth Valley, UK*


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**Background:** Departmental induction is essential for trainee well-being and patient safety, particularly for doctors in the early stages of their careers. Studies have shown that junior doctors often feel underprepared and without sufficient knowledge for safe and efficient practice in surgical rotations [1]. Simulation has been suggested as a tool to improve preparedness. Simulation training in acute surgical presentations, surgical ward rounds, for theatre teams and for practical surgical skills is well established. However, much of junior doctors' work involves assessing patients who have deteriorated following admission [2], including post-operatively. There is little in the literature exploring the use of simulation in preparing junior doctors to manage ward-based surgical emergencies.

**Aim:** This pilot project aimed to create an immersive simulation-based course for junior doctors, focussing on the technical and non-technical skills required to deal with common post-operative and post-procedural emergencies, to improve the departmental induction process.

**Methods:** Junior doctors completed a questionnaire to identify their learning needs. On the basis of this, six high-fidelity immersive simulation scenarios were designed: post-operative bleeding, post-ERCP pancreatitis, post-NG tube insertion aspiration pneumonia, anastomotic leak, post-operative wound dehiscence and post-operative cardiac arrest. The scenarios were constructively aligned to both technical and non-technical learning objectives. Scenario participation was followed by a facilitated debrief. Participants completed a pre- and post-course questionnaire exploring their experience on surgical wards, confidence managing surgical ward emergencies and evaluation of the course.

**Results:** Two pilot sessions have been facilitated, involving seven junior doctors. Highlighted challenges of surgical ward work include the need for independent decision-making, obtaining senior support and ensuring review of post-operative patients. Pre-course, confidence was particularly low in identifying and managing post-operative emergencies, identifying patients who need to return to theatre and making escalation decisions for surgical patients. Confidence was higher in escalating to surgical seniors and recognizing own limitations. Post-course, confidence had improved in all technical and non-technical skill domains. Participants found the scenarios and subsequent debriefs relevant and educationally valuable. The main suggestion for improvement was to include the course earlier in the rotation. Data collection is ongoing.

**Implications for practice:** Our results show that junior doctors find specific simulation-based training in surgical ward and post-operative emergencies extremely valuable, with improved confidence in technical and non-technical skills. We hope to embed this training as part of the departmental induction within our health board and suggest that simulation training for junior doctors on post-procedural emergencies would be of widespread benefit.

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## 203 ULTRASOUND IDENTIFICATION OF THE CRICOTHYROID MEMBRANE FOR EMERGENCY FRONT OF NECK ACCESS


Amy Parekh[1], Richard Kaye[1], Clemetina Calabria[2]; *[1]Buckinghamshire Healthcare Trust, Stoke Mandeville, UK[2]The Royal Edinburgh Hospital, Edinburgh, UK*


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**Background:** The difficult airway society states that emergency front of neck access skills should be recapped every 6 months amongst those practitioners expected to perform the skill. Furthermore, the national audit states that, of the 25 emergency cricothyroidotomy cases, 9 failed. These were largely due to incorrect identification of the midline and tube misplacement. There is a convincing argument for training practitioners in ultrasound identification of the cricothyroid membrane, mitigating the risks of incorrect midline identification and blood vessel damage [1].

**Aim:** Our aim was two-fold: introduce and embed the skill of ultrasound identification of the cricothyroid membrane for use in emergency front of neck access and encourage regular recap of these skills through a training package of blended learning, consisting of videos, 'tea trolley' style theatre training and a more formal simulation-based course that focuses on the ultrasound and front of neck access skill and human factors as we know this is a key factor in the success or failure of this scenario.

**Methods:** A pilot course was rolled out amongst anaesthetic trainees to assess relative comfort with performing emergency front of neck access. The course consisted of a short lecture on the background and anatomy, teaching of the ultrasound skill using live subjects, practising of ultrasound-guided front of neck access on animal necks and finally a simulation with debrief surrounding implementation of the skill itself and human factors. This course is now being rolled out regionally and aims to teach all trainees in the region. We encourage trainees to generate their own informal logbook of ultrasound cases, whereby they consent patients to undergo a short ultrasound scan in the anaesthetic room prior to intubation, have their neck marked and then are rescanned

after intubation to confirm correct identification. This should be done with 'normal' airways, not just those expected to be difficult, as this practice embeds the skill. Our 'tea trolley' style teaching is yet to be commenced but will involve ad hoc teaching within the theatre suite including the multi-disciplinary team who would be involved in such an event – the anaesthetist, operating department practitioner and theatre team. Finally, we are generating a video bank, which can be accessed in users' own time to recap and review the process and troubleshooting of ultrasound identification of the cricothyroid membrane and ensuing cricothyroidotomy.

**Results:** An improvement was reported in trainees' comfort levels to perform ultrasound-guided cricothyroidotomy and all trainees felt that this was a worthwhile skill to embed into their practice. These improvements were tested via a pre- and post-course questionnaire. The same we hope will be true for the tea trolley training and we aim to address the human factors involved during these sessions too.

**Implications in practice:** The aspiration is that ultimately ultrasound identification of the cricothyroid membrane for emergency front of neck access will at the very least become a skill that all trainees are formally taught and encouraged to practice and at the most will become the new standard for plan D airway access in the difficult airway society guidelines.

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## 141 SIMULATION: A TOOL TO OPTIMIZE THE ACTIVATION OF NOVEL HOSPITAL AND CRITICAL CARE PATHWAY

Elizabeth Thompson[1], Melanie Hawkins[1]; [1]*Royal Devon and Exeter NHS Foundation Trust, UK*

10.54531/AOJR5259

**Background:** As part of the national COVID-19 response, an NHS Nightingale Hospital was established for our region. An initial cohort of patients was admitted with resource allocation, demanding that limitation of care be clearly defined, including avoidance of invasive ventilation. Within weeks, an increasing bed capacity need drove preparation to admit patients who might require escalation to mechanical ventilation. This shift in admission criteria demanded significant change to the hospital's service provision, including the ability to stabilize and transfer critically ill patients from this satellite location to an acute partner trust [1].

**Aim:** The aim of this study was to perform a rapid, prospective analysis of the critical care patient pathway and surrounding environment at a novel Nightingale Hospital using high-fidelity simulation.

**Method:** Following a need assessment and discussion with stakeholders, *in situ* simulation was undertaken using a Hal® (Gaumard) manikin with a multi-disciplinary team. The immersive scenario, requiring intubation of a deteriorating COVID-19 patient, was undertaken in real time, debriefed and then repeated to assess interventional safety improvements. A demonstration video narrative was produced as a learning aid for dissemination to all supporting staff who may be involved with this clinical scenario, potentially at short notice.

**Results:** The internal environment and infrastructure were adequate to perform the task. A significant number of latent threats were identified and actioned during the simulation (Table 1). Qualitative feedback demonstrated that simulation was a useful and effective experience to increase confidence in performing this high-risk procedure in a remote location. Feedback on the video was positive and it was approved for dissemination to staff who may be involved in managing these patients.

**Table 1:** Latent threats found at the Exeter Nightingale hospital during simulated intubation of a critically unwell COVID-19 patient

| Domain | Latent threat | Action |
|---|---|---|
| Safety | Intubation checklist | Adopted and amended by members of the visiting teams. A video was created for demonstration purposes. |
| Equipment | Unfamiliar ventilators Breathing circuits incompatible Arterial lines Central lines Sterile packs Pressure bags Ultrasound probe covers Sterile gloves Theatre hats Tapered high-volume low-pressure endotracheal tubes, with integrated above cuff suction port Size 3 face masks Yanker suckers CPAP masks compatible with the 'Jenny' ventilator | A training video for use on the ventilator was made with information sought from the company representative. Boxes were unpacked and checked. Any additional equipment requested by the team was documented and ordered. Nightingale clinical lead informed of the extra requirements. |
| Drugs | Lack of critical care drugs | Intensivist involved with the investing team liaised with the Nightingale pharmacist to order any additional drugs. |
| General | Equipment unchecked and boxed identified. | The team unpacked and checked equipment and set it up for clinical use. |
| Staffing | Requirements for operation department practitioners, anaesthetists on near standby Transfer to the main hospital site | Transfer simulation planned with the ambulance service to test the multi-disciplinary components. The clinical lead was informed of the findings. |
| Resource planning | Ability to manage patients prone at the remote site | Staffing requirements were reported back to Nightingale lead consultant |

**Implications for practice:** *In situ* simulation with a high-fidelity manikin proved to be a useful and reproducible tool in developing and testing the systems involved in managing critical care patients at a novel hospital. In accurately simulating a real-time clinical scenario, the care pathway is experienced and contextualized within the team. It offers an opportunity to expose deficits in the system without causing harm (Kaba and Barnes, 2019). Evidence gathered can be easily and rapidly reported to operational leaders allowing timely decision-making, change implementation and mitigation of preventable risk. This makes simulation a cost- and resource-effective quality improvement method. In addition to patient safety process testing, *in situ* simulation offers a valuable individual and collective training opportunity, providing realistic orientation for clinicians and staff. In recording the