

**Method/design:** Through a focus group including parents/caregivers of children receiving LTV via a tracheostomy, who are already at home, we aim to co-produce this project, with the patient voice and experiences at its core. We plan to undertake the SBE with one or more parents/caregivers in a location separate from the clinical setting, that is designed to replicate their home environment as best as possible<sup>[1]</sup>; present will be one facilitator from Simulation Services (SS) and one clinical expert from the LTV team. We have written a bank of scenarios, including accidental decannulation, ventilator failure and respiratory arrest requiring cardio pulmonary resuscitation and phoning of the emergency services. However, scenarios will be chosen and individualized to suit each family's needs. We will debrief in a separate room and this will be led by the SS facilitator, with the expert from the LTV team invited in to support with their clinical knowledge.

**Implementation outline:** Over the next 4 months, baseline data will be collected with a Likert scale of confidence ratings for each of the planned scenarios, prior to the SBE. We will collect these data again immediately after the SBE, and then again at 3 months. We will also ask, at both of these time points, if there is anything additional that the parents/caregivers would have wanted from the SBE and how it can be improved. These data will allow us to evaluate and develop the programme for future families through a plan-do-study-act cycle approach. To understand where SBE fits within the wider education provided to parents/caregivers, we will ask them which elements of their education they have found most useful, and why.

#### REFERENCE

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#### PARAMEDIC ONLINE SIMULATION: A NOVEL APPROACH

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10.54531/CQWQ8045

**Background:** In response to an initial lack of opportunity for frontline ambulance placements during the early stages of the COVID-19 pandemic, a university lecturing team developed a novel, interactive online simulation format for student paramedic education.

**Aim:** The technique aimed to provide the students with the opportunity to continue to practice and refine their questioning and clinical decision-making abilities, even without having a physical patient present.

**Method/design:** The subsequently developed format was designed to help ensure continuing development of newly acquired clinical assessment principles. Case-based scenarios took the students through key stages of a pre-hospital patient encounter. These were carefully created to resemble the real-life setting as closely as possible.

**Implementation outline:** The Blackboard Collaborate teaching platform was utilized in conjunction with pre-designed slides on Microsoft PowerPoint to facilitate the learning activity. Open access images of specific scenes, hazards, people and medication were selected to create visual cues and context for the initial stages of the call, with pre-recorded sounds enhancing this experience. Students were encouraged to use microphones and the chat functionality of Blackboard to interact with their simulated patient, who was played by a lecturer, and responded

in real time. Simulated monitors and pre-recorded heart and lung sounds were utilized to provide students with clinical information in a similar timeframe and format to real-life clinical encounters. On the basis of the information gathered, students then devised clinical treatment plans and delivered virtual 'handovers' verbally. Debriefing immediately followed the scenario, with self-reflection from participating candidates actively encouraged and supported. Spectating students were then invited to provide their observations on the scenario itself, including facilitation of peer review. All scenario debriefs further contained specific learning points for discussion and exploration, helping to ensure learning was meaningful, with a strong relationship to contemporary issues in paramedic practice. Students reported a high level of satisfaction with this technique, repeatedly describing it anecdotally as both engaging and useful to their clinical development. Facilitator learning has included refinement of techniques and strategies, along with widening participation with other professions. Subsequently, the format has been employed in teaching a range of different healthcare professions, along with being used for online inter-professional learning events between student paramedics, nurses, and midwives, and registered pre-hospital clinicians alike.

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#### MAKING VIRTUAL A REALITY DURING A PANDEMIC: IMPROVING LEARNING OPPORTUNITIES IN MEDICAL EDUCATION THROUGH VIRTUAL REALITY SIMULATION

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10.54531/TGCJ1767

**Background:** William Osler was the first to be credited with taking medical students out of the lecture theatre and to the bedside<sup>[1]</sup>. However, the COVID-19 pandemic has not just taken medical students out of lectures but also away from the bedside. Virtual reality simulation (VRS) can provide students with a computer-generated environment where users interact with virtual surroundings and patients in any location<sup>[2]</sup>. To mitigate the gap in clinical experiences we created an education package using VRS for medical students during the initial phases of the pandemic.

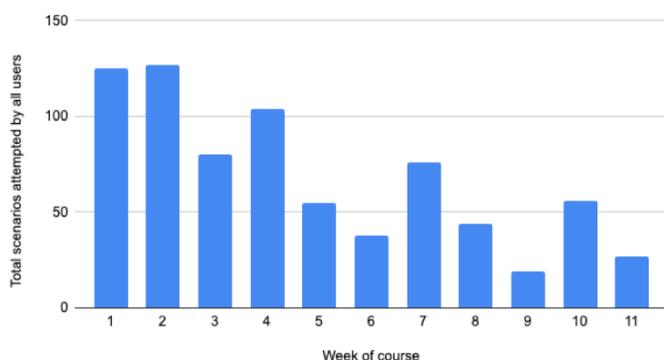
**Aim:** Could VRS provide a meaningful learning opportunity during the first wave? Could we elicit the strengths and weaknesses of virtual simulation in medical learning?

**Method/design:** We used the Oxford Medical Simulation (oxfordmedicalsimulation.com) VRS platform where the learner manages an acutely unwell patient with specified learning objectives (opting for the 2-D to make it accessible to students at home). Scenarios were grouped, accompanied by didactic learning resources and released on a weekly schedule. Data were collected with consent on the number of scenarios accessed, performance score and student feedback.

**Implementation outline:** The VRS course ran for 5 weeks (access extended to 11 weeks). In total, 224 students expressed an interest in accessing the VRS platform. Of the 224 students, 64 accessed the scenarios (50% first-year students). The students accessed 821 scenarios. The average score on all first attempts of scenarios was 75%; second attempts 78% and third attempts 90% (Figure 1). Qualitative feedback: 'I like...the

'real' feel of talking to the patient, informing next of kin....it surprised me how real my patient feels'. 'They are incredibly useful. ... I much prefer doing them on a computer screen than in 3D. It does make for a different way of revising'.

#### Use of simulations over time



**Figure 1:**

The high initial response rate suggested student interest and engagement. The low (21%) conversion rate to accessing the VRS platform may be explained by initial technical issues and the voluntary nature of the project. The quantitative data show the importance of repetition in improving learning. Participation over time may improve with incorporation into the medical school curriculum. Lower usage among the final-year medical students may be explained by volunteering and early commencement of clinical duties. This innovation reveals some strengths of VRS: basic equipment; learner-directed; improved performance and student interest. Overall, the VRS platform allowed the delivery of a rapid response to fill a gap in clinical education. The next phase of this project will be to provide live tutor-supported debrief.

#### REFERENCES

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2. Jensen L, Konradsen F. A review of the use of virtual reality head-mounted displays in education and training. *Educ Inf Technol.* 2018;23(4):1515–1529.

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#### A FRESH MODEL IN THE VEHICLES FOR LEARNING: REDESIGNING AN ESTABLISHED, TRADITIONAL AIRWAY COURSE TO BE DELIVERED IN A MULTI-SITE HYBRID FORMAT IN THE COVID-19 ERA

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[10.54531/GDRA5954](https://doi.org/10.54531/GDRA5954)

**Background:** The Royal College of Anaesthetists (RCOA) stipulates that anaesthetists should be able to use advanced/novel airway management techniques. The RCOA-accredited annual Challenging Airway Course in Northern Ireland is a staple of the calendar, providing an opportunity for all those involved in airway management to gain, refresh and replenish skills. Having already been cancelled in 2020 due to the pandemic, there was a strong appetite, particularly within the trainee body, that it should be staged in some form this year.

**Aim:** The aim of the study was to deliver a high-quality course that outlined the theory behind airway management, without loss of the hands-on aspects of equipment/techniques, to a large candidate group in a COVID-19 safe environment.

**Method/design:** Alteration of the face-to-face course to run in a hybrid multi-site format with both online components and practical workstations.

**Implementation outline:** The course was delivered simultaneously in real time across the multiple deanery teaching hospitals. There was a central hub from which the course lead could synchronize timings/broadcast recorded material. As part of contingency plans for any unanticipated technical difficulties, lectures were pre-recorded and played for candidates on the day. These were punctuated with four practical workstations that mandated two delegates per station. Additionally, some content was recorded for viewing online as pre-course material and new simulation videos of a failed intubation drill and the subsequent debrief were also created. For some unable to attend site locations, a fully virtual experience was also an option. These modifications allowed us to: maximize attendance without breaching social distancing guidelines; retain the hands-on aspect of using equipment/techniques and also maintain an excellent faculty to candidate ratio to allow ample time for practising/asking questions. The pre-course material also empowered the candidates to feel better prepared for the day. Post-course anonymous feedback was completed by the vast majority of delegates and was overwhelmingly positive. Pre-course material, facilities, content, lectures, simulations and workshops were rated highly. The use of airway exchange catheters was mentioned as the introduction of a new skill for many delegates. Apart from one candidate, no one had attended any RCOA-accredited airway events in the preceding year but 100% of the candidates would recommend this course to their peers. Amidst challenging times, we successfully restyled an established and respected course. The novel hybrid multi-site format allowed a larger number of candidates to network face-to-face and gain knowledge/practical skills within a COVID-safe environment. Until such times as 'normality' and perhaps beyond, this may be a new formula for learning.

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#### CAUTION AND CONTEXT: COVID-19 AS THE EDUCATIONAL FOCUS FOR INTER-PROFESSIONAL LEARNING

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[10.54531/EHBK4388](https://doi.org/10.54531/EHBK4388)

**Background:** Traditionally our university-affiliated Office of IPE delivers a 3-phase (exposure, immersion, competence) inter-professional education (IPE) curriculum which is a graduation requirement for students. On 13 March 2020, on-site classes were suspended due to the first confirmed case of COVID-19 in the state. Faculty rapidly implemented alternative methods of instruction to complete coursework for the spring semester utilizing COVID-19 as the educational focus and hosting these learning events on the virtual platform.

**Aim:** The aim of the study was to lean into the educational opportunities provided by the global pandemic to continue to provide high-quality IP education including simulation, crafting these educational events to meet the pandemic needs of our community.

**Method/design:** During the COVID-19 pandemic, healthcare students and faculty stepped forward with a desire to serve during this health crisis. Several public health support