

# Virtual reality during the COVID-19 pandemic.

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Photos taken during an FY VR session. (Seager, 2021). Written consent obtained.

## Background.

Simulation, often used as an educational tool in medicine, can be defined as “an artificial representation of a real world process to achieve educational goals through experiential learning” (Al-Elq, 2010, p. 1). Simulated clinical scenarios, accompanied by debriefing and delivered in addition to clinical training, can offer participants a safe learning environment, aiming to improve clinical competence, skills and enhance patient safety (Al-Elq, 2010). High-fidelity simulation using virtual reality (VR), “a computer-generated simulation in which a person can interact within an artificial three-dimensional environment using electronic devices” (Mitchell, 2020), has been suggested to improve performance in certain skills in the operating theatre (Seymour et al., 2002), and described as a way to “bridge the gap between theory and practice” (Al-Elq, 2010, p. 37). Virtual reality clinical scenarios, created by Oxford Medical Simulation (OMS, n.d.), form a mandatory part of foundation training in the East of England deanery (HEEEofE, n.d.). Using headsets to immerse learners in a virtual clinical environment, for example a hospital bedspace, participants can interact with virtual patients and colleagues, and watch as the patient’s clinical condition alters depending on their actions. Royal Papworth Hospital offers foundation trainees VR sessions facilitated by medical education fellows, and incorporating post-scenario debriefs. Sessions have been adapted recently to allow continuation despite the COVID-19 pandemic.

## Methods.

- 13 VR simulation sessions, 2 ½ to 3 hours each, have been delivered at Royal Papworth Hospital during the COVID-19 pandemic, May 2020 – February 2021.
- 1-3 Interim Foundation year 1 (FiY1), Foundation year 1 (FY1) or Foundation year 2 (FY2) doctors attended each session; all were encouraged to take study leave, allowing freedom to attend outside of clinical commitments.
- Oculus headsets, Alienware laptops and Oxford Medical Simulation (OMS) clinical scenarios were used for all sessions.
- Sessions were facilitated by medical education fellows varying from Foundation year 3 to Registrar level, who led group technical and non-technical debriefs following each scenario.
- Sessions were delivered to doctors of similar year groups, enabling identical clinical scenarios to be completed simultaneously.
- Examples of scenarios included asthma, seizures, opioid overdose, cardiac disease, pancreatitis, anaphylaxis, diabetic ketoacidosis, pneumothorax, sepsis and gastrointestinal bleeding.
- Adaptations for the COVID-19 pandemic included social distancing, single-use face masks and eye covers, silicone VR equipment covers, and regular equipment and environmental cleaning.
- Attendees were asked to complete an electronic feedback survey following each session.

## Conclusions.

- The use of virtual reality simulation as an educational tool for junior doctors has been possible despite the COVID-19 pandemic, by incorporating relevant additional safety measures.
- VR sessions facilitated by clinical fellows, with post-scenario debriefs, are popular, and can offer a safe environment for doctors to learn and discuss both technical and non-technical aspects of patient management with peers.

## Results.

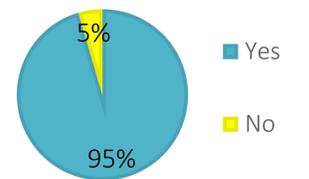
- 22 doctors completed feedback following a facilitated VR simulation session; 7 FiY1s, 7 FY1s and 8 FY2s.
- 95.5% of respondents said they would recommend VR simulation to their peers.
- 90.9% of respondents said the clinical fellow debrief was helpful.
- 45.5% called for more or longer sessions.
- When asked if they felt more confident managing a sick patient, average score was 4.7/5.0, with 5 being ‘strongly agree’.
- Average score for whether facilitated sessions enhanced their learning experience was 4.8/5.0.
- Doctors stated gaining skills in time management, prioritization, delegation, escalation, teamwork and structured patient assessment, among others.

“Safe way to experience emergency scenarios”

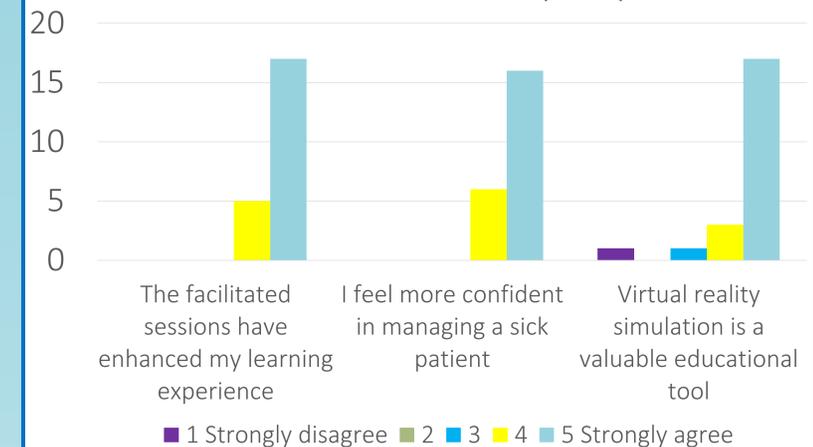
“It felt real”

“Good preparation for acute scenarios in real life”

Would you recommend virtual reality simulation to your peers?



Post session feedback from 22 participants



## References.

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