

IN PRACTICE

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A REVOLUTIONARY COLLABORATIVE ENT AND ANAESTHETIC TRAINEE AIRWAY COURSE: UTILISING NOVEL VIRTUAL REALITY AND AUGMENTED REALITY TECHNOLOGY

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Introduction: The introduction of virtual reality within healthcare and specifically within simulation-based

education, is a novel opportunity to enhance the care of our complex airway patients. ENT and anaesthetic teams frequently manage airway emergencies out-of-hours, yet our airway teaching programs have historically been delivered separately. There is a recognised need for both specialties to train together to develop team-working skills and share knowledge when managing difficult airways [1].

Methods: We present our first regional collaborative airway teaching course delivered in February 2024 aimed at both ENT and anaesthetic trainees. This extensive high-fidelity full day program utilised a variety of teaching modalities including virtual reality (VR) oculus 3 headsets, Orsim bronchoscopy simulators, a simulated emergency cricothyrotomy station and collaborative paediatric inhaled foreign body moulages. Our VR headsets have both adult and paediatric tracheostomy simulations and emergency 'front of neck access' scenarios in-built. An additional multi-player function allowed cross-specialty team working. Orsim delivered a pioneering flexible nasendoscopy technology to recreate difficult endotracheal intubation. Our emergency 'front of neck access' simulation utilised a bespoke manikin to recreate the real-time tactile feedback. The paediatric inhaled foreign body moulage put our delegates through a comprehensive scenario from A&E to our own ENT theatre suite.

Results: Regarding formal feedback, those participants that felt 'very confident' or 'extremely confident' in managing a paediatric inhaled airway foreign body improved from 0% to 83%. With regards to skills acquisition, those participants that felt 'very confident' or 'extremely confident' in performing flexible bronchoscopy improved from 50% to 92%. ENT trainees' confidence in discussing difficult airway cases with an anaesthetic colleague improved from 20% to 80% and for anaesthetic trainees improved from 45% to 100%. All participants found the teaching day useful and 100% agreed that there should be more formal collaborative teaching between ENT and anaesthetic trainees.

With respect to the VR simulation, 50% agreed that VR simulated scenarios mimicked a real-life scenario better than conventional manikin-based sim. 100% found it useful to perform the simulation with a trainee from a different specialty. 100% felt that VR simulation allowed a safe environment to learn, highlighting the psychologically safe learning environment that often limits conventional sim teaching.

Discussion: This study has demonstrated that the incorporation of novel virtual reality teaching methods into our regional collaborative ENT & anaesthetics airway teaching, improved outcomes in trainees ability to manage tracheostomy and paediatric emergencies.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable

REFERENCES

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