

Simulation in Anaesthesiology: An Investment in Patient Safety

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Dear Editor,

The advent of simulation as a teaching modality has been a key innovation as part of modern medical education. This is particularly true regarding the field of Anaesthesiology. Anaesthesiologists are at the forefront of patient safety. The College of Anaesthesiologists hold a conference, specifically discussing patient safety, in Winter of each year. Additionally, their coat of arms contains the phrase “Salus Dum Vigilamus” which is literally translated as “Safety While We Watch”. Simulation aims to enhance this pedagogy that patient safety is paramount. High-fidelity simulators and scenario-based training have steadily increased in popularity, allowing insight and preparation for situations that involve the critically ill. As part of my own curriculum, as an intern doctor, we have been exposed to simulation and have been privileged enough to experience it in high fidelity suites such as those in the Royal College of Surgeons. There is a palpable sense of relief when the on-call anaesthesiologist arrives to the scene which often signals the end of the simulation.

The Kirkpatrick Model is a four-level framework for evaluating training models. Level 1 refers to ‘reaction’ which measures participants’ satisfaction. Level 2 refers to ‘learning’ which assesses knowledge and skill acquisition. Level 3 refers to ‘behaviour’ which evaluates the application of skills in practice and level 4 refers to ‘results’ which examines the broader impact on organisational outcomes. In the context of airway management training, simulation has been shown to result in statistically significant improvements at level 3 of the Kirkpatrick Model compared to non-simulation. This suggests that simulation training better enhances practical skill execution and behavioural outcomes even though both methods may result in a similar improvement of theoretical knowledge, at level 2 of the model¹.

An important point of discussion is that the mode of delivery of simulation is equally as important as comparing the use of simulation vs non-use. The application of high-fidelity simulators does not always add value to training. The utilisation of less expensive technology may not detract from quality and effectiveness². From a broader perspective outside of the field of anaesthesiology, teamwork is a fundamental aspect of medical training. Inter-departmental and inter-disciplinary simulations are becoming increasingly recognised as a

crucial component of patient safety. Simulation will only continue to be incorporated into daily hospital life, both as a tool to develop new skills or procedures, and a valuable way to learn via debriefing events.

In the future, I can see simulation becoming a core aspect of medical training. It will become the norm for students to be deeply involved in this new medium of learning across a range of specialties. There is also clear value regarding the incorporation of other members of the MDT, nursing in particular, which gives an appreciation to the real-life roles and responsibilities of other team members. Additionally, students see simulation as a method of learning as opposed to only a tool for assessment or examination. In recent times, master's programmes have been developed around the area of simulation alongside Fellowship post training. The National annual 'SimWars' competition adds a competitive nature to the use of simulation amongst Medical Schools, but only for the very few who participate in it. I was fortunate to be a part of the winning University College Dublin team in 2025, and I firmly believe that this experience has enhanced my medical practice. Ultimately, the demand for innovation has rapidly increased. The limitations of the impossible are becoming ever more attainable. Consequently, to maintain patient safety, I believe simulation has a central role. Additionally, as simulation's use increases, more research and concrete evidence for its effectiveness will become available.

Declarations of Conflicts of Interest:

None declared.

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