

IN PRACTICE

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DEVELOPING ADAPTABILITY: HOW A HUMAN FACTORS-BASED SIMULATION IMPROVES CONFIDENCE IN MANAGING ANAESTHETIC EMERGENCIES

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Introduction: Anaesthetic emergencies, though infrequent, pose a significant threat to patient safety. Simulation-based training offers participants the opportunity to immerse themselves in safe, realistic clinical scenarios, allowing them to hone their skills without risking patient harm. For the educator, the challenge lies in balancing the vast array of emergencies to be taught with limited resources available. We explored whether focusing on transferable skills, specifically human factors, can improve confidence in managing these emergencies.

Methods: The East and North Hertfordshire Anaesthetic Novice Simulation (ENHANS) course, a one-day program designed for novice anaesthetists, ran five times between April 2023 and March 2024. It covered a range of common and complex anaesthetic emergencies with a focus on human factors. It combined pre-course material with debriefing sessions following each simulated scenario. These debriefings, led by trained facilitators, followed the 'description, analysis, application' technique, focusing on understanding what, why, and how actions evolved during the scenario and allowing participants to learn through reflection [1]. We also explored how human factors affected the progress of the scenario.

To assess effectiveness, participants completed pre- and post-course questionnaires using a five-point Likert scale. These questionnaires evaluated confidence in managing various anaesthetic emergencies, including both those directly practiced and those not explicitly covered.

Results: Forty participants attended the simulation across five sessions. We observed a statistically significant improvement (Wilcoxon Signed-Rank test) in self-reported confidence in managing anaesthetic emergencies (mean pre-course score: 1.9, post-course: 3.9, $p < .05$). Confidence also improved for practiced scenarios (mean pre-course score 2.1, post-course 4.0, $p < .05$) and for unpractised scenarios (mean pre-course 2.3, post-course 3.3, $p < .05$).

Discussion: Our findings demonstrate a statistically significant improvement in self-reported confidence across all emergency scenarios, including those not directly practiced. This suggests a key strength of the course: its focus on transferable skills. By emphasising human factors, like communication, teamwork, and situational awareness, ENHANS equips participants with a broader framework applicable to diverse emergencies. This aligns with the concept of 'deliberate practice', where core skills development fosters greater adaptability in novel situations [2].

The positive outcomes of this study support integrating human factors training into simulation-based education for anaesthetists. This approach offers several advantages. Firstly, it allows for efficient use of limited resources by focusing on transferable skills. Secondly, it equips participants with a broader toolbox applicable to diverse emergencies, potentially enhancing patient safety.

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

1. Eppich W, Cheng A. Promoting excellence and reflective learning in simulation (pearls). *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare*. 2015;10(2):106–115.
2. Briesse P, Evanson T, Hanson D. Application of Mezirow's transformative learning theory to simulation in Healthcare Education. *Clinical Simulation in Nursing*. 2020;48:64–67.