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Anesthesia residents using in situ simulation to educate operating room nursing personnel on high-risk, low-frequency anesthetic events

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Purpose: The operating room (OR), usually an environment of routine, can also be unpredictable. Nursing personnel are expected to have the knowledge and capabilities to respond to a variety of events including high-risk, low-frequency ones. In situ simulation run by anesthesia residents and medical students allows for rare events to be replicated so personnel can experience events they would not frequently encounter.

Methods: The study consisted of two rare, life-threatening simulated scenarios run in an OR at the Health Sciences Centre with OR nurses as participants: (1) malignant hyperthermia and (2) local anesthetic systemic toxicity. Each session had three components: (1) a pre-briefing and teaching session by an anesthesia resident immediately prior to the simulation; (2) a simulated scenario using a basic CPR mannequin as the patient and embedded simulated personnel (ESP) (anesthesia staff and anesthesia and surgical residents) as the OR physicians; and (3) a facilitated, structured debriefing following each session, meant for discussion, reflection on the experience, and identifying barriers. Within the scenarios we replicated plausible and realistic situations. A patient monitor displayed vital signs and the ESP responded as they would in a real situation. The participants were expected to respond to the requests of the ESP in a usual fashion. During the debriefing session, satisfaction with the experience was documented using the Debriefing Assessment for Simulation in Healthcare (DASH) form, a seven-point scale (ranging from extremely ineffective to extremely effective) rating six elements of the experience to quantify the participants' satisfaction. **Results:** Eight (8) of 15 participants completed the DASH forms. Overall, they felt that the instructors set the stage for an engaging learning experience (6.25); maintained an engaging context for learning (6.5); structured the debriefing in an organized way (6.25); provoked in-depth discussions that led them to reflect on their own performances (6.25); identified what they did poorly and why (5.57); helped them see how to improve or sustain good performance (6.00). **Conclusions:** In situ simulation taught and run by anesthesia residents and medical students was found to be a useful educational tool for perioperative nurses to learn about high-risk, low-frequency anesthetic events.