

Enhancing High Risk Procedural Skills Training through Active Learning, Emerging Technology & Simulation

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The series integrates evidence-based procedure training with a review of applicable anatomy for multi-level learners, promote competency and improve confidence by embracing active learning principles, emerging technologies, and simulation educational theories. Immediate feedback on procedural skills is provided using a competency rating form (developed with Delphi Method). Intentional pre-briefing and debriefing for the simulation scenarios provide a clear understanding of actions and the opportunity for reflection to enhance future clinical performance. Pre-and post-surveys assess perceived confidence, experience and ability to perform the procedure.

Need-based sessions delivered include lumbar puncture, central line, airway management, paracentesis, thoracentesis, and upper extremity, knee, and hip injections. Each session includes an: evidence-based didactic, applied anatomy skill station, procedure skills station, and simulation experience. The didactic covers the clinical anatomy and procedure to ensure a similar foundation. The applied anatomy station integrates a variety of modalities (VR AR, prosection). A clinical procedure skill station with surgical donors provides a realistic, low stress environment. Standardized Patient Encounters and Hi-Fidelity Simulation Scenarios explore application of the procedure, differentials, complications and contraindications. Skill sessions have less noise and distraction with in-the-moment feedback, while scenarios have uninterrupted action followed by intentional debriefing.

All participants demonstrated competency. Participants found the simulation valid and transferable to patient care, felt more prepared and confident to perform the skill, and preferred learning through this teaching model.

Skill stations were successfully integrated with anatomical resources and simulation to provide an environment well reviewed by learners that improved their perceived confidence and ability to perform the procedure.

Baseline levels were not established with the competency checklist. Future research includes a planned longitudinal study to show an improvement in competency from baseline.