

ACS 2025 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

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Research In-Progress

Implementation of a Curriculum to Enhance Proficiency for Bedside Procedures in Pediatric Surgery

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Introduction: Advanced practice providers (APPs) and residents rotating on pediatric surgery may not have exposure to bedside procedures that they may be required to perform. Procedural simulation is a feasible method to build proficiency in these uncommon procedures. Furthermore, use of simulation training for APPs allows them to become the teachers and continually train surgery residents. Finally, long-term assessment of skill retention is needed for these uncommon procedures, and low-cost, easy to use simulation sessions allow for a controlled environment to assess proficiency.

Methods: Models for five common pediatric surgical bedside skills were developed and implemented with pediatric general surgery attendings, APPs, and resident input. We designed a didactic component to supplement the models, including clinical scenarios and a quiz to be completed prior to the session. Learners complete surveys to assess prior exposure, confidence, and autonomy before and after sessions. Objective assessment of skill acquisition is modeled after OSATS exams, with endpoints of time, accuracy, and completeness of skills.

Preliminary Results: Pilot sessions of a five-station pediatric surgical bedside procedure simulation skill curriculum were attended by pediatric surgical APPs and surgical faculty. The learners overwhelmingly felt that practicing bedside procedures encountered in pediatric surgical patients is very beneficial and necessary. Future pilot sessions will include pre/post learner self-assessment, quantitative measures to distinguish novice and expert clinicians and a didactic pre/post session quiz.

Next Steps: Monthly simulation sessions will be implemented to capture new residents coming on service. When these bedside procedures are encountered clinically, providers will be surveyed on the role of simulation in their proficiency and autonomy. Residents will be retested regularly for skill retainment and will complete surveys comparing simulation to real-life procedures. Additional procedures may be added including suturing complex wounds, trocar insertion, NG tube bridling. Existing models will be continuously re-assessed for improvement.

The simulation procedures accurately mimic procedures performed on patients.

