

[NM-181] Squeezing teaching strategies into clinical practice. Utilizing simulation in the operating room environment for fiberoptic intubations.

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Simulation has been proven useful in the education of specific skill sets during anesthesiology residency. Most simulation training involves the fabrication of the operating room setting removing the learner from the operating room. This report describes the use of a bronchoscopy simulator, in the OR environment, used directly prior to actual patient care. To perform the fiberoptic intubation safely, calmly, and with confidence, it was elected to recreate the airway and perform a simulation prior to intubation.

The airway was simulated using common tubing from the OR of approximate size, shape, and angles of pediatric larynx, trachea, and bronchi. The passage contained landmarks marked with different colors to serve as checkpoints. Each resident was given ample opportunity to use the bronchoscope in the simulator directly prior to the arrival of the patient. In our experience each patient was intubated using the fiberoptic bronchoscope successfully with relative ease after practice on the simulator. When most fiberoptic intubations are required management is often delegated to higher level fellows or attendings. So use of the bronchoscope for the pediatric airway for the resident can be completely foreign during the first attempt.

Several studies have been conducted in order to specifically evaluate the efficacy of bronchoscopy simulation (1). The literature has been conflicting in outcomes. A study at Penn State Hershey Medical Center found extreme standard deviations in skills when learning nasal endoscopy on a fiberoptic simulation (2). Another study found that using a simulator could advance resident skills to levels similar to that of attendings (1).

Proper use and training with the simulation equipment is paramount in creating a realistic environment.(1) We hope to show that even handmade, low cost simulation practices for small periods of time throughout the normal work day could be of benefit to resident education. We also believe that by transferring simulation directly to the actual operating room prior to actually demonstrating the same skills on a living patient could improve the educational value of simulation and patient outcomes.

This bronchoscope simulation provided the opportunity to learn how to manipulate and fine tune the bronchoscope with relative ease. This in turn, led to much improved comfort during the actual fiberoptic intubations. It is our hope that by utilizing an affordable system and translating simulation directly to the operating room, could greatly improve the resident education and patient care.

1)Goldmann K, Steinfeldt T. Acquisition of Basic Fiberoptic Intubation Skills with a Virtual Reality Airway. Simulator. Journal of Clinical Anesthesia 2006; 18:173- 178.

2)Dalal P, Dalal G, Pott L. Learning Curves of Novice Anesthesiology Residents Performing Simulated Fiberoptic Upper Airway Endoscopy. Canadian Journal of Anesthesia 2011; 58: 802-809.

