



Symposium on Educational Excellence 2024

Evaluation of a validated assessment tool of technical skill competency for high risk, low volume procedures.

Tameka Smith, Division of Pulmonary and Critical Care Medicine; School of Medicine; Oregon Health and Science University

Keywords

Central Venous Catheters; Hematemesis; Curriculum; Simulation Training; Critical Care; Procedural training; Skill competency; Critical Care Fellowship

Abstract

Background: Critical care medicine is an environment that requires a wide skill set of medical knowledge and procedural skills. Trainees in critical care medicine along with future credentialing bodies have an expectation that proficiency in procedure skills are obtained during their training. Simulation training has been used in critical care training typically as task trainers or human patient simulators, which has been shown to be more effective in a recent meta-analysis¹. This can easily be accomplished with the more common procedures such as central venous catheters, arterial line catheters, paracenteses, and intubations. Certain procedures are less common in many clinical environments but still require proficiency should the clinical situation arise. We are currently creating a curriculum that provides a simulation for the pulmonary and critical care trainees to review and practice the skills required for less common procedures such as placement of a Blakemore or Minnesota tube for management of hematemesis from gastric or variceal varices, and placement of transvenous pacers.

A standard validated tool used in the assessment of procedural competency called the OSAT-S (Objective Structured Assessment of Technical Skills) has been published for the more common procedures such as LPs in the pediatric intensive care unit², and central venous catheter insertion³. It is not clear which competency assessment would be most appropriate to utilize in less common procedures as this has not been published previously. Our study aims to utilize the OSAT-S to evaluate procedural skills taught to pulmonary and critical care residents during the rare procedure simulation sessions.

Theoretical Framework

We will be utilizing the principles from the Dreyfus model of skill acquisition theory to assess fellows performing procedures in the simulation environment. This model evaluates the automatic component of processing while incorporating skill development as fellows move from novice, competence, proficiency, expert, then mastery in performing procedures. The evaluation tool will allow observers to assess each fellow objectively.

Methods

A simulation learning session to learn placement of a Minnesota tube or Blakemore tube for hematemesis and for placement of transvenous pacers is scheduled for pulmonary and critical care fellows later this academic year. Prior to initiating the session we will ask the learners to share their experience with these procedures. We will create an evaluation tool for the instructors to use that is modeled off of the OSAT to assess the competency of the learners skill level with these procedures. Each learner will be evaluated by 2 separate instructors with an average score determined between the 2 evaluations. We will expect if the tool is valid that the learners who have more experience with the procedures will have higher competency scores.

Results: To be collected

Impact:

Development of a competency assessment tool for high risk, low volume procedures that can be utilized in a simulation setting would be able to be applied to many different types of procedures and area of medical discipline. This tool will allow training programs to assess learners and provide feedback to learners for specific areas to improve their technical skill.

References

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