A Novel Milestone-Based Evaluation Tool for Pediatric Resident Simulation
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Background

- Simulation has been identified as a method for improving patient safety and quality through teamwork and communication training by providing exposure to a wide array of scenarios which supplement real-life clinical experiences, especially for events that are rare or high-risk. This is particularly true in Pediatrics, and thus, simulation has become an integral aspect of pediatric resident education.
- The Accreditation for Graduate Medical Education (ACGME) has developed “The Pediatric Milestone Project” for evaluating pediatric resident competencies in patient care, medical knowledge, professionalism, interpersonal skills, systems-based practice, and practice-based learning and improvement, in a more objective fashion.
- Simulation is a novel way to incorporate the new milestone-based assessments through direct observation.

Objective

- To create standardized in situ scenarios to be used as part of pediatric resident simulation training.
- To create an evaluation tool based on the core themes of the ACGME Milestone Project for each scenario.
- To use these evaluations to better evaluate pediatric residents competency, team work and communication

Methods

- Six standardized in situ scenarios were created for resident training each with a specific evaluation tool based on interpersonal and communication skills, professionalism, patient care, and systems-based practice.
- Groups of three residents, an intern, PGY2 and PGY3, as well as a nurse and respiratory therapist, run weekly standardized scenarios which are followed by debriefing sessions.
- Following each session, two observers complete case specific evaluations (Fig.1) on each resident.
- Ratings of 1-5 on a Likert scale (Novice- Expert) are assigned to each resident for each milestone. These were then averaged and compared to the cumulative performance on evaluations from the previous six months of clinical rotations.

Results

- Nineteen residents out of 39 completed both case scenarios
- The residents performance on Case # 1 SVT was compared to their previous 6 months of clinical rotation evaluations. The mean score on the clinical evaluations was 3.69 (SD 0.5), the mean of the SVT evaluation was 2.63 (SD 0.90) and the mean of the Anaphylaxis evaluation was 2.67 (SD 0.85). See Figure 2.
- The difference between the mean of the clinical evaluations and the SVT simulation evaluation was 1.06 with p <0.001 and a 95% CI (0.58 to 1.54).
- The difference between the mean of the clinical evaluations and the Anaphylaxis simulation evaluation was 1.02 with p <0.001 and a 95% CI (0.57 to 1.49).

Discussion

- As predicted, the simulation based evaluations showed a significantly lower result than the residents cumulative evaluations.
- This can be explained by the fact that the simulation evaluations were performed by direct observation and on situations which were high-risk and required interpersonal communication and teamwork.
- Figure 2 illustrates the progression of competency from PGY1 to PGY3 in the simulation evaluations. However, fact the clinical evaluations did not reflect this trend and can be explained by lack of direct observation and the evaluators lack of experience and familiarity with new ACGME milestone based evaluations.
- This disparity demonstrates that evaluations in a variety modalities are necessary to accurately assess competency of residents.

Implications for Practice

- Using simulation evaluations will help to improve the breadth and depth of residents evaluation portfolio and augment measurement of resident knowledge, communication and competency.
- Simulation provides a novel, accurate and effective modality for milestone-based evaluation.

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