Evaluation of a Novel Simulation Rotation for Pediatric Residents to Teach Crisis Resource Management Skills

Purpose: Pediatric residents lack the knowledge and hands-on practice required to be competent leaders at resuscitations and code events. To evaluate this known educational gap, we conducted a local needs assessment and found that our pediatric residents have little resuscitation experience and do not feel confident leading resuscitations.

Objectives: To develop a simulation-based rotation for pediatric residents to improve capability and confidence in crisis resource management skills including leadership, airway and breathing support, circulation and arrhythmia management.

Design: Using Kern's six steps of curriculum development, we designed a 10-day rotation for 2nd and 3rd year pediatric residents that included 31 high-fidelity simulations (Figure 1). Other teaching modalities included skills trainers, didactic sessions and self-directed learning. The course content was developed using Pediatric Advanced Life Support (PALS) materials and gaps identified in the needs assessment. Detailed learning objectives and a topic checklist were created. Course facilitators developed most simulations, and some were adapted from previous publications.

We evaluated the curriculum using the Concise Assessment of Leader Management (CALM) instrument which evaluates leadership, communication, team management, and medical management (Figure 2). We scored residents leading their first and last simulation using the CALM tool. Residents also completed a pre- and post-course survey that included a five-point Likert scale for self-perceived confidence and capability when approaching a patient needing resuscitation.

Results: Among the 25 residents who have completed the simulation rotation, 10 were evaluated using the CALM tool, and 17 completed the pre/post survey. There was significant improvement in the CALM score on the residents' last simulation as compared to their first simulation (median 52 vs 35, p-value <0.002, n=10; Figure 3) indicating improvement in leadership ability at the end of the course. Residents also reported significant improvement in self-perceived confidence (median 2 vs 4, p-value < 0.0002, n=17) and capability (median 2 vs 4, p-value < 0.0001, n=17) when approaching a patient needing resuscitation before and after the course.

Conclusions: We developed a simulation-based rotation for pediatric residents that improved leadership skills and resident self-perceived levels of capability and confidence when approaching a patient resuscitation. Future work should focus on assessment of competency and retention of resuscitation skills learned in this course."

Comments: I have multiple figures as well and can expand a lot on the Kern's six steps, needs assessment and data.