

# Perioperative Simulation and Patient Safety Training in a Pediatric Hospital

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**Introduction:** The Risk Management Foundation of Harvard's self-insurance company reviewed their perioperative/surgical claims. Most claims of injury and death contained elements of poor communication and teamwork consistent with research in multiple high-risk domains. Surgical patient mishaps and adverse outcome reduction are a priority.

**Methods:** This new program will attempt to improve the safety of our surgical patient population through a systematic, highly integrated training program using high-fidelity medical simulation and a Crisis Resource Management (CRM)-based curriculum to teach patient safety principles, teamwork and communication. Non-simulation based initiatives will also be implemented (*i.e.*, regular briefing/debriefing, safety drills and practitioner directed changes). The program's *Phase I* will train PACU nursing and anesthesia staff; this program will undergo further development and expand to the OR. Outcome measures include a post-course evaluation, serial measurements of the "safety climate," and a one-year follow-up survey on self-perceived effectiveness of the training.

After IRB approval, *Phase I* began with distribution of the *Safety Climate Survey*, (Bryan Sexton - University of Texas) to PACU nursing staff (participation was voluntary and anonymous). This short, well-validated survey established a baseline measurement of current perceptions of teamwork, collaboration, management and working conditions prior to our interventions. Surveys will be re-administered every 6-12 months assessing change over time. We recently began the planned three-hour introductory courses of 5-8 trainees (at least one anesthesiologist) in the PACU. This simulation-based training includes: introduction to simulation systems (SimBaby or PediaSim); didactic CRM lecture and basic patient safety principles; and two simulated scenarios appropriate for the pediatric PACU setting. Each scenario is followed by structured debriefing using videotape to highlight the important points of behavioral, teamwork, and medical skills required for optimal patient management. A post-course evaluation looked at overall course quality, debriefings, realism and aspects related to perceived usefulness of this training.

**Results:** 34 PACU nurses (total = 40-50; survey required permanent staff) were given the baseline *Safety Climate Survey* and 24 responded (71%). The *Safety Climate Mean* was 4.23 (maximum = 5). The *Percentage of Respondents Viewing Safety Climate as Positive* was 71%. The post-course survey (N = 8) rated overall course quality, quality of debriefing and realism = 4.6 (5 = excellent; 4 = very good). "I learned things useful in my clinical practice" = 5.0; "CRM principles are useful for PACU providers" = 4.9; "I think I will perform better in future critical events" = 4.8. All felt this training should happen at least every 6-12 months. Comments were very positive and included: "Well done! Informative and enlightening to realize the importance of establishing roles and evaluating response to emergencies;" "video very helpful;" "I felt better after debriefing."

**Discussion:** An integrated program to create a high reliability perioperative environment is being developed; the initial phase of a three-hour program to introduce CRM and patient safety principles to PACU and anesthesia staff was highly received by trainees. The baseline *Safety Climate Survey* data demonstrates a large percentage of staff felt their work conditions and environment in the PACU was

safe. Demonstrating a change over time will be difficult and other outcome measures need to be developed.