Title:
Simulation Revelations for Research

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Session Title:
Merging Education, Research, and Simulation Innovation at Intermountain Healthcare
Slot:
D 06: Sunday, 29 October 2017: 2:45 PM-4:00 PM
Scheduled Time:
3:05 PM

Keywords:
Novice Research, Influencing Change and Simulation Revelations

References:
Friedrich-Rust Mireen et al. (2013) Capnographic monitoring of propofol-based sedation during colonoscopy. *Endoscopy 2014, 46, 236-244.*

Manifold, C. A., Davids, N., Villers, L. C. Wampler, D. A. (2013). Capnography for the nonintubated patient in the emergency setting.

   The Journal of Emergency Medicine, 45, No.4, 626-632

Abstract Summary:
Simulation experiences are frequently being requested by Hospital Educators to update and train staff. One of these experiences alerted simulation facilitators to a patient safety concern which inspired a novice research project. This study is changing practice in our facility. What happens in simulation, is really happening on the units!

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will understand that patient safety concerns may be made evident during a simulation experience. A question may arise that needs to be studied further.	Examples of patient safety concerns and a research idea that developed during simulation will be shared.

The learner will understand that it is possible for a nurse without previous research experience to conduct a simple study and influence change.	Will discuss the research question and steps taken to begin a research project. Steps that were taken to initiate change after the completion of the study will also be discussed.

Abstract Text:

Abstract for Simulation Revelations for Research

The use of simulation for training of hospital staff has been dramatically increasing in our individual facilities within Intermountain Healthcare Corporation. Educators from all patient care departments have been requesting assistance from our simulation facilitators to conduct simulation experiences for their employees. We have discovered that what happens in simulation, is really what is happening on the units! Significant patient safety issues along with knowledge gaps of the staff have been identified.

One such concern arose from a simulation experience conducted with the out- patient gastroenterology nurses. A Respiratory Therapy Educator and a Clinical Nursing Educator, who were also simulation facilitators, were asked to simulate a standard GI procedure that had nurses sedating and managing the patient's airway. Nurses were monitoring patient's vital signs with respiratory rate and pulse oximetry, during the procedure, along with giving sedation and documenting medications and everything included with the procedure. During the simulation debriefing, a discussion arose about accuracy of pulse oximetry in identifying hypoventilation or apnea in a sedated patient. The question arose, "Could end-tidal CO_2 monitoring (ETCO2) identify hypoventilation or apnea earlier than pulse oximetry (SPO2)?"

The simulation facilitators decided to conduct an observational study to research this question. They studied 40 patients undergoing sedation using ETCO2 monitoring, while comparing them to SPO2 values. This was a collaborative research project by this Respiratory Therapist and the Clinical Nursing Educator.

During the study, additional concerns were identified regarding depth of sedation, pushing of IV medications, assisting the physician, monitoring vital signs, and charting along with being responsible for managing the patient's airway.

Facility and corporate nursing leadership, Quality Improvement and Risk Management were notified of concerns and given our recommendations. Changes initiated since these observations include: additional nursing staff to manage patient airways; ETCO2 monitoring along with pulse oximetry has become a standard of care instead of pulse oximetry alone; anesthesiologists volunteering to complete a trial of sedating patients themselves and then managing their airway while in the GI lab. Following this trial, anesthesiologists identified the same concerns the respiratory therapist and clinical nurse educator identified. Currently, some insurance companies will not cover sedation

by an anesthesiologist for these procedures. Hospital leadership is presenting this information to insurance companies to change their financial reimbursement policy.

A second situation was brought to this simulation team for assistance. Patient wounds that were present on admission had been missed which resulted in Root Cause Analysis being initiated. They were approached by the Wound Care Manager to assist with training for all nursing staff on thorough skin assessment on admission. The Wound Care team requested buttocks on a manikin with spreadable cheeks. Some of the missed wounds were hidden in the cleft between the buttocks and not visible on the initial visual assessment. Buttocks were constructed on the simulation manikin with panty hose and pillow segments representing the buttock cheeks for this training. Later, skin from an old manikin was added over the top of the pillow segments to provide a more realistic natural appearance. This sparked an idea to contact our Corporate Simulation Technologist and the Innovation Team about developing a more durable task trainer for this essential training. The Innovation Team is working on 3D printing of such a trainer that could be marketed for this very important purpose.

Simulation is an exciting adventure; each experience can take an unpredictable turn or spark an idea. Our experiences demonstrate that one need not be an experienced researcher in order to conduct a research project and promote change to enhance the quality of patient care. both of these experiences illustrate the beauty and necessity of merging education, research and simulation innovation when patient safety is identified as a concern. Quality patient care and safety can be greatly improved by identifying problems in a simulated patient care environment.