Safe Medication Administration:
A Simulation Workshop for Advanced Beginner Nurses

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Background/Significance:

In 2007 the Institute of Medicine published "Preventing Medication Errors," highlighting action agendas to improve safety of medication usage. This report emphasized the impact of medication errors on mortality rates, with a reported 400,000 preventable injuries and deaths in hospitals related to medication errors. The estimated total cost for these errors is over 3.5 billion annually. As a result, recommended actions for nursing include a focus on the principles of safe medication administration, an enhancement of communication among patients and health care providers, and training for utilization of clinical resources and decision-making tools.

The Problem:

Advanced beginner nurses (e.g. nurses who have recently graduated from a nursing program and demonstrate marginally acceptable performance, Benner, 2001), have minimal medication administration experience. This may lead to inappropriate decision-making and medication administration errors. At Barnes-Jewish Hospital advanced beginner nurses have no opportunity to demonstrate safe medication administration and troubleshoot complex scenarios in a safe learning environment after they complete orientation.

Purpose:

The purpose of the scholarly project was to promote safe medication administration using simulation and to improve confidence in the advanced beginner acute care nurse when administering high-risk medications.

Objectives for the participants in this workshop:
✧ Safely administer high-risk medications to simulated patients
✧ Interpret lab values related to high-risk medication administration
✧ Verbalize monitoring required for high-risk medications
✧ Provide patient education for high-risk medications
✧ Interact with the simulation patients as if they are real patients

Method:

A simulation workshop was offered to 21 nurses who were six months out of orientation with 11 voluntary participants. IRB approval was obtained from Washington University at St. Louis and Vanderbilt University Medical Center.

A pre/post-test study design was used with this convenience sample using a five-point Likert scale, asking confidence scores related to safe medication administration practice with high-risk medications and the use of simulation as an educational method.

Verbatim comments regarding nurses' issues with medication administration and value of the workshop were gathered.

Part One
Discussion of Safe Medication Administration
Review of Policies & Procedures
Pre-survey
The participants paired off and spent 20min at each simulation station:
- Heparin (IV gtt)
- Insulin (SQ)
- Beta blocker & diuretic (IVP)
- Chemotherapy (PO)

Part Two
Group Initiative to care for a high-fidelity simulation patient with an opioid & benzodiazepine overdose as a rapid response event.
Assigned RN Roles for Resuscitation Effort
Facilitator Roles: Voice of the patient in the control room, a Resident MD, ACT Resident, and family member
Debriefing (at completion of resuscitation event)
Post-survey

Results:

Significant improvement in confidence scores was demonstrated using the Wilcoxon Signed-Ranks test, using a two-tailed test with a p < .05. Effect size was calculated with Cohen's criteria with the HRM having a large effect of 0.63 and the SIM with a medium effect of 0.45. Verbatim comments reflected an improved confidence in administering high-risk medications and a value of utilizing clinical resources and order sets to make clinical judgments.

Descriptive Statistics: Mean Confidence Scores
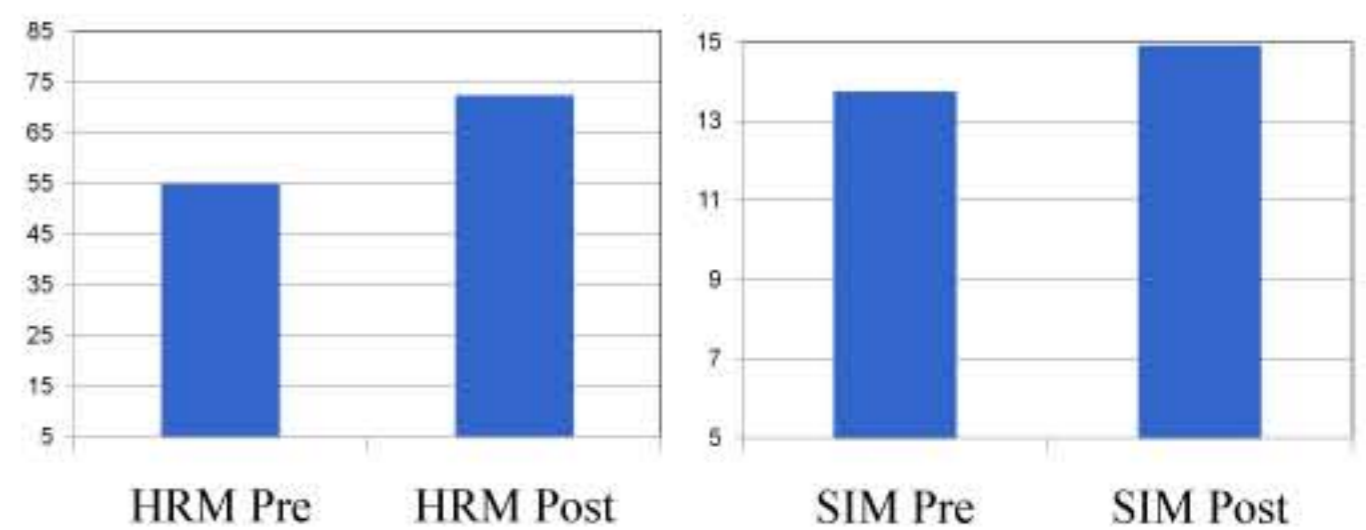
Test Statistics

	HRM Survey	SIM Survey
Z	-2.938	-2.212
Asymp. Sig (2-tailed)	.003	.034

Implications for Practice:

This scholarly project supports the evidence that continuing education for advanced beginner nurses improves confidence scores. By employing simulation as a learning method, the nurses demonstrated safe administration of high-risk medications in a non-threatening learning environment. The greater the confidence, the more likely the nurse will succeed at the skill. Safe medication administration is an imperative patient safety initiative, and hospital leaders must support safe medication administration competency initiatives.