Educating Oncology Nurses With Simulation: A Chemotherapy Spill
Sherry A DeMacedo RN-BC,OCN

Background/Problem Statement

- IOM report (2011) Nurses are in need of an improved education system pre and post licensure
  - Lack of correlation between continuing education and competency
  - Recommends simulation technology in nursing education programs
- National Institute for Occupational Safety and Health ALERT
  - Increase awareness to healthcare workers exposed to antineoplastic drugs
  - Causes: skin rashes, infertility, miscarriages, birth defects, and Cancer
- Current Practices
  - Chemotherapy Biotherapy Certificate Course
  - Statements of need from Nurses over the US
  - Current Miriam Hospital Antineoplastic Agents (chemotherapy), containment and disposal of spills policy.

Methods

The purpose of the quality improvement (QI) project was to determine if the use of a simulated chemotherapy spill increased the competencies and confidence of oncology nurses employed on an inpatient chemotherapy unit.

- **Design**
  - Mixed method QI project, using pre and post voluntary, confidential quantitative surveys with the option for qualitative comments.
  - Site / Sample
    - The Miriam Hospital a 247 bed Magnet designated Hospital in Providence, RI
    - 29 oncology nurses employed on a 25 bed oncology medical/surgical unit

- **Intervention**
  - Groups of 2-3 RNs were chosen to participate in 1 of 3 mock chemotherapy spills
  - Objective – Locate and follow current policy and MSDS for proper spill cleanup
  - May use all unit resources, coworkers, computers and unit supplies
  - Debriefing directly followed by simulation

- **Analysis**
  - IBM SPSS statistics software version 24, for paired t-tests and frequency analysis.

Review of Key Literature

- INACLS defines simulation as, “A pedagogy using one or more typologies to promote improved and/or validate a participants progression from novice to expert” (Ulrich et al., 2014, p. 6)
- Simulation increases feeling of preparedness and confidence in responding to disaster situations
- Simulation has been shown to be as effective as clinical experience
- Active learning in simulation facilitates the development of competency

Implications for Advanced Practice

- APRN’s should strongly consider the use of a mock chemotherapy spill when educating oncology nurses on locating and utilizing policies, MSDS and properly responding to a chemotherapy spill.
- APRN can expand the QIP to include a larger cohort in a variety of oncology environments to expand the generalizability of the data.
- The QIP presented can be used as a guide for the APRN to create additional educational programs utilizing simulation.
- APRN’s should consider using simulation to create and review new and existing policies.

Summary & Conclusions

- All six comparable questions revealed statistically significant improvements, P = < .001
  - Increased RN’s comfort and awareness locating current hospital policy and MSDS for the individual drug
  - Increased the RN’s familiarity with the contents with in a chemotherapy spill kit.
  - Increased RN’s knowledge and confidence in responding to a chemotherapy spill.

Unanticipated Findings

- Revealed omissions and discrepancies within the current hospital policy

Results

**Comparable Survey Questions**

- 2. Familiarity with current policy
- 3. Comfort locating the policy
- 4. Comfort locating MSDS for the specific drug
- 5. Familiarity with contents of a chemotherapy spill kit
- 6. Confidence responding to a chemotherapy spill and action according to current hospital policy?

- Feel the simulation better prepared you to handle a chemotherapy spill?

Kolb’s Experiential Learning Theory

NLN Experiential Learning Framework

**References**

