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A Simulation-based Training Partnership between Education and Healthcare Institutions

Louanne Melburn & Julie Rivers

Abstract

Partnership projects between education and practice beyond clinical placement provide opportunities for growth and improved quality for both the educational unit and the health care facility. Such a partnership happened between Quinte Healthcare Corporation and Loyalist College to benefit students, educational curriculum, nurses new to their career (nurse interns), and ultimately patient safety and care.

Background

New graduate nurses hired to work on an acute medical unit in Ontario rural hospitals are leaving their positions for a number of reasons. In a survey conducted by the human resource department at Quinte Healthcare Corporation (QHC) two years ago, the number one reason that new graduate nurses cited for leaving the acute medical unit within this organization was their perceived lack of skills and knowledge to deal with the high workload demands. In a project funded by Alberta Health and Wellness, new graduates used analogies such as, "in over my head", "barely treading water" and "almost sinking" to describe their feelings upon entering the practice setting. New hires consistently talked about their fear of not doing a good job, missing some critical piece of information, or making a mistake. This fear had a grip on most of the new graduates for an extended period of time (6 months to a year) and created considerable stress (Romyn et al., pg. 8).

At the time of the QHC survey, the acute medical units in two of the four hospitals had a twenty-seven percent turnover rate of Registered Nurses. Costs associated with orienting and training new graduate nurses are significant. On the acute medical units at QHC, the average cost of orienting one new graduate nurse over seven weeks is $10,000. According to Beecroft et al. (2001), "replacement cost for just one new graduate having less than 1 year of experience can range from $40,000 to $60,000 and in some cases may be as high as $100,000." (Beecroft, cited in Winfield, 2009, p. E7) At the Ottawa Hospital, estimated savings of $360,000 for the reduced cost of registered nurse turnover were realized through an internship program trial (Smith, 2008, p. 79).

Partnership project description

In October 2007, QHC applied for and received funding through the Nursing Secretariat of Ontario, through a Health Force Ontario initiative, to trial a one-year internship program for the two acute medical units experiencing high turnover rates.

The QHC internship program consisted of 22 nurses who had graduated from a post secondary institution within the last year. The

traditional orientation consisted of a seven-day corporate orientation followed by three days spent with the educator and clinician in a classroom setting. Interns were assigned a mentor with whom they spent the next four to six weeks on the medical unit.

The Health Force Ontario funding permitted the following enhancements to the traditional intern orientation:

- a nurse clinician was hired for the medical floor to assist the interns in their first year of work.
- a competency skills self-assessment tool based on Benner's levels of expertise (Benner, pp. 20-35) was developed and implemented for the nurse interns
- a 2.5 day simulation-based training experience was developed and implemented on site at Loyalist College

Starting in March 2008, the QHC Professional Practice department partnered with Loyalist College School of Health and Human Studies to design and implement a simulation-based training component for the QHC internship program. The professional practice staff were aware of the College's Human Simulation Lab and the potential for learning for interns using this technology. The Simulation Specialists, medical floor educator, and nurse clinician met to discuss the intern learning needs. Input regarding training needs of new hires was sought from recently hired nurses, nurse managers, and the current cohort of interns. These data informed the development of appropriate clinical scenarios for the simulation-based training sessions. One specific situation all informants suggested was training related to experiencing a code blue (cardiac arrest) as this situation creates anxiety for almost all new hires. Other suggested areas of focus were related to prompt recognition of deteriorating patient status and hospital protocols related to telemetry, oxygen, IV meds, hypoglycaemic management, intraprofessional communication and consultation related to scope of practice, and accessing interprofessional assistance.

Once the simulation-based training scenarios/clinical experiences were designed, five experienced nursing staff from the medical floor were offered an educational day to pilot test the simulations. The experienced nurses provided feedback regarding clinical accuracy, relevance, and design of the training scenarios and they were revised accordingly.

The simulation component of the internship program was interspersed throughout the first 6 months of intern training.

- The first simulation experience was a half day session that introduced the interns to the simulation suite, equipment, expectations, and learning outcomes. This session was offered approximately 2 months into the internship program.
- The second simulation experience was a full day immersion of simulated clinical experiences. Interns participated in 5 simulated clinical patient experiences including: a patient with telemetry experiencing chest pain, a patient experiencing pulmonary embolus, a patient experiencing a hypoglycaemic reaction, a patient with known CHF experiencing respiratory distress, and a patient experiencing cardiac arrest. This session was offered 4 months into the internship program.
- The third simulation experience included simulations of patient

care experiences requested by the interns after their second session. These simulated clinical experiences included: a patient with a GI bleed, a patient with a blood transfusion reaction, a patient with a bowel obstruction requiring nasogastric tube insertion, a patient experiencing inappropriate use of restraints, and a palliative care patient experiencing a crisis. This session also included a repetition of a patient experiencing pulmonary embolus with a different presenting patient history. The pulmonary embolus scenario was included to determine retention of learning from the second simulation session, and the interns did perform more effectively and efficiently compared to their first encounter

Project Results

At the end of the year, 90% of the new hires remained employed on the acute medical units. This was a 17% improvement in the retention rate of Registered Nurses on the medical units from the previous year. Program participants often cited their number one reason for staying was the support they received through the internship program. The challenge since the project ended has been the ability to sustain this program with limited financial, human and physical resources.

Benefits of the partnership

From the perspective of both hospital management and the new graduates, the benefits were plentiful. Stated benefits to the new graduate included improved self-confidence, increased knowledge, heightened assessment skills, enhanced practical skills, stronger decision-making, prioritizing, and problem solving skills. When asked if the simulation training sessions were beneficial, new graduates responded with comments including, "expanded my thinking on certain scenarios, increased my confidence, able to practice critical thinking, increased my exposure to acute situations and gave me the opportunity to learn from mistakes and practice in situations that can occur frequently on the floor that I have little experience with". One nurse said it allowed her to "look at the big picture."

At the time of implementation there was a 27% turnover rate of Registered Nurses on the Belleville medical unit and at the conclusion of the program there was a 90% retention rate at the end of the year which was a substantial saving for the corporation.

As well, due to the increased retention of new hires, hospital managers were able to grant more vacation/time off thereby decreasing the risk of nursing staff burnout at both the staff and management level. This in turn helped maintain or improve nursing staff morale.

Sharing of knowledge and resources between the college and hospital had additional benefits involving all three stakeholders (college, hospital, newly hired graduate). New graduates experienced a place where they felt safe to practice their newly acquired skills in the simulation lab, which lead them to ask questions about practices on their units without feeling intimated by their colleagues. The college was able to gain specific insights regarding what the new graduates were experiencing once they began their career in acute medicine, which could then lead to improved training and educational practices for future graduates.

From the college perspective benefits of the partnership were

numerous. The sharing and understanding of protocols related to patient care assisted lab staff and faculty with the teaching of nursing skills in the Nursing and Practical Nursing programs.

The sharing of resources to include in education like the SBAR communication tool provided authentic and relevant training for students with respect to their future work environment(s).

The opportunity to interact with clinical specialists and develop partnerships was helpful with respect to building contacts and relationships for future development of simulation based student learning activities, which require consultation with clinical experts to ensure relevant and accurate clinical information.

The project provided the college Simulation Specialists with increased experience in designing simulation-based learning activities for a variety of learners. In this project three different approaches to simulation-based training were designed:

1. Simulation for beginning practitioners to bring them along the Benner (Benner, 2001) continuum of experience and seeing the effect of simulation in doing so.
2. A mastery learning event (with the code simulation) designed so that learners repeated the simulation until they had mastered the concepts, processes, clinical judgement, and skill application.
3. A repeat scenario designed to explore retention of learning over a 3 month period. The second pulmonary embolus scenario, with a different presenting medical history, permitted us to explore how the experience of the first pulmonary embolus simulation and debriefing experience affected learner actions in the future (retention of learning).

Finding out that patient care was positively impacted was very rewarding (see section below for details). To outside observers, one story may have little impact, but to the patient involved there was enormous impact on his/her individual health and well being.

Benefits to patient care

This partnership was not constructed as a research project but there were some significant events and findings from the internship simulation experience that indicate a positive effect on patient care and safety.

The experience of the repeat pulmonary embolus simulation revealed that learners were more efficient and complete with their patient assessment in the second experience, had improved confidence in their abilities and assessments, and demonstrated more comprehensive communication with interdisciplinary healthcare partners in the simulated experience.

One of the interns experienced a code situation at work within a month of the simulation learning event and the staff present advised that the intern's actions were very efficient during the crisis. The intern reported recalling the simulation learning at that time and applied it in the real

situation.

One of the interns identified to the physician a patient experiencing respiratory distress as potentially experiencing pulmonary edema. This early intervention improving the patient's health outcome. The intern was commended for recognizing the symptoms early by the team caring for the patient.

Limitations and future directions

No further simulation training for intern orientation has occurred due to the cost of required resources. The scenarios developed during the project remain available for use by both parties. Simulated patient manikins have been purchased by QHC with a plan to use for staff training. Conversations between QHC and Loyalist College continue with relation to potential partnerships and funding opportunities.

The potential for research was realized from this project. Research related to specific areas of simulation-based training or education remains broad, but areas of interest sparked by this project include:

- What is different about simulation in training versus education settings?
- What factors about simulation increase retention of learning?
- How many simulations are adequate in a day of training?
- What type of simulation design is appropriate for specific learning outcomes such as assessment, critical thinking, emergency situation management, scope of practice clarification, etc.?

Final remarks

The partnering of health care institutions with educational units beyond clinical placement has numerous benefits for society as a whole. The partnership between QHC and Loyalist yielded benefits to individual educator expertise, education quality at both facilities, student and newly graduated nurse development, experienced nurses' contribution to the discipline, new knowledge development regarding use of simulation in healthcare training, intraprofessional and interprofessional scope of practice understanding, and interagency collaboration and understanding. Ultimately the goal of both agencies is improved quality of patient care and patient outcomes. This project did exhibit the potential for improving patient care and outcomes through observational and anecdotal evidence, encouraging the partners to continue to pursue this line of action and research in the future.

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Louanne Melburn, RN., BN, MA Ed. Clinical Educator, Medicine, Professional Practice, Quinte Healthcare Corporation, Belleville, Ontario. She can be reached at rnmellou@sympatico.ca

Julie Rivers, RN, BScN, MA Ed. Simulation Specialist, School of Health and Human Studies Loyalist College, Belleville, Ontario. She can be reached at jrivers@loyalistc.on.ca

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