Promoting Continuing Competence and Confidence in Nurses Through High-Fidelity Simulation-Based Learning

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Abstract

In many health care settings, nurses are challenged with higher acuity patients in technical and evolving environments. Practicing nurses are expected to adapt by independently acquiring new clinical knowledge through experience and independent study. However, health care institutions have struggled with providing quality patient care and supporting nurses’ learning through experience at the same time. High-fidelity simulation-based learning addresses this need by providing no-risk experiential learning that expands skills without jeopardizing patient safety. There is limited literature discussing the use of high-fidelity simulation-based learning in continuing competency and staff development for practicing nurses. This article identifies opportunities for employers to use high-fidelity simulation-based learning programs that promote continued competency and confidence in practicing nurses.


Practicing nurses are increasingly challenged with higher acuity patients in intensely technical and evolving clinical environments. They are routinely expected to accurately assess patients, plan interventions, and determine the need for added professional support at the bedside. In hospital settings, “nurses are the drivers of care via their skill at assessment and decision making” (Wolf, 2008, p. 169). Yet, nurses struggle with maintaining a level of competence and confidence with nonroutine events and are expected to independently acquire new clinical knowledge (i.e., undergo continuing competency) through experience and independent study. This suggests that hospital-based nurse educators need to adapt traditional education programs to include ones that prepare nurses to be confident in their clinical abilities as well as competent enough to tackle relevant outcomes.

Target outcomes that are salient to health care include the concepts of patient safety, flow through the system, and timely access to services (McGaghie, Draycott, Dunn, Lopez, & Stefanidis, 2011; Nagle, McHale, Alexander, & French, 2009; Slater, Lawton, Armitage, Bibby, & Wright, 2012; Strouse, 2010; Wilcock, Janes, & Chambers, 2009). Increased efficiency within these processes can have a direct impact on health care costs or deficit management. Nurses, as core team members in most health care settings, can be instrumental when addressing outcomes through increased proficiency in clinical processes (Buckley & Gordon, 2011; Buykx et al., 2012; Lewis, Strachan, & Smith, 2012; Straka, Burkett, Capan, & Eswein, 2012). How can health care institutions support learning through experience (i.e., develop confidence and competence with clinical skills) without jeopardizing patient safety?

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High-fidelity simulation-based learning programs have demonstrated the ability to bridge the gap between theory and practice, increase learners’ ability to synthesize knowledge, and promote learner insight (Decker, Sportsman, Puettz, & Billings, 2008, p. 74). This translates into faster growth of foundational skills, potentially affecting the rate at which nurses can contribute to improved outcomes. This article identifies strategies for health care institutions to use high-fidelity simulation-based learning programs with front-line general duty nurses. Used successfully in undergraduate programs (Cant & Cooper, 2009; Jankouskas, Haidet, Hupcey, Kolanowski, & Murray, 2011; Lasater, 2007; Sears, Goldsworthy, & Goodman, 2010), this mode of educational delivery can support nurses of all proficiency levels in expanding their clinical skills while still impacting outcomes such as patient safety, flow, and access.

HIGH-FIDELITY SIMULATION

High-fidelity simulation is a type of simulation that “in-corporates a computerized full-body manikin that can be programmed to provide realistic physiological responses to student actions” (Lewis et al., 2012, p. 83). This type of simulation provides learners with the greatest amount of reality or fidelity possible. The goal of high-fidelity simulation is to use experiential learning to provide nurses with the opportunity to practice clinical episodes that alter their way of understanding and perceiving future clinical situations. The simulation experience is meant to guide clinicians to develop skills by mirroring the true contextual environment and situation (Decker et al., 2008). In nursing, practice is a key component to skill-based learning.

Simulated events differ from “real life” in that simulated events are participant-centered and offer the opportunity for feedback and debriefing. This is essential for effective learning. Adult learning studies suggest that more active education, such as simulation, improves the ability for recall and application. In this environment, learners are able to experience events and practice skills prior to facing a real problem (Hodder, 2006). Feedback provided during a debriefing process postsimulation ensures recall of events is accurate and the most important educational points are covered. It also allows learners to identify and develop self-analysis skills. This is important to nurses as professionals because reflection is an essential component to demonstrating a commitment to required continuing competency (Canadian Nurses Association, 2004).

BACKGROUND

Simulation training has been in use in the aviation and military industries as a highly effective strategy for scenario-based education programs. Its use in health care is relatively new by comparison (Cant & Cooper, 2009; Lasater, 2007; Merchant, 2012; Strouse, 2010). In this setting, simulation is used to teach assessment and treatment skills, enabling students to make errors in a safe and controlled environment (Wolf, 2008). Merchant (2012) indicated that simulation training is most effective in enhancing learning with teaching methods that “(a) provide valuable and timely feedback, (b) allow for repetitive practice, (c) capture clinical variation, and (d) establish controlled and safe learning environments” (p. E7).

The concepts of professional self-confidence and competence form the foundation of developing sound clinical judgment and safe practice in nurses (Blum, Borglund, & Parcells, 2010). In addition, there is evidence that suggests a relationship between simulation-based learning and the development of self-confidence and competence in undergraduate programs (Blum et al., 2010; Hayes et al., 2012; Roh, Isenberg, & Chung, 2012; Roh, Lee, Chung, & Park, 2013; Smith & Roehrs, 2009; Wolf, 2008). Despite these successes, there is a relatively small amount of research exploring the use of simulation to develop these same concepts with practicing nurses in clinical areas (i.e., medical and surgical) (Arafteh, 2011; Buckley & Gordon, 2011; Leigh, 2011; Nickerson, Morrison, & Pollard, 2011). This knowledge gap identifies an opportunity for employers to facilitate practicing nurses’ professional development by using high-fidelity simulation as a tool to develop these foundational nursing elements.

ENHANCING PATIENT SAFETY

An aging population and the presence of increased comorbidities require that nurses provide care to increasingly ill patient populations. In addition, these patients often are situated on general medical and surgical wards where workloads are high. These factors emphasize the need for nurses to have good clinical assessment skills and identify when additional support is required. Using simulation as an educational forum, patient safety events can be recreated so that learners are trained to react by initiating actions, coordinating team members, and communicating needs appropriately. In essence, the high-fidelity simulation learning session becomes a dress rehearsal to build nursing skills during an unanticipated occurrence in a clinical area.

A simulation program that builds on competence and confidence in a way that meets the needs of different levels of nursing expertise is achievable. For example, a high-fidelity simulation activity with a focus on patient safety in a deteriorating patient may target
early identification and communication of the patient’s condition as the primary learning goals. A group of novice learners would likely require a more guided instructional format with their first introduction to key concepts and then may progress through several simulation scenarios to more independent participation. In this case, the instructor would lead or model expectations at the beginning of the educational session and gradually build participant independence by offering fewer cues as the group progresses.

If the learner group includes more experienced nurses, the progression from guided participation to independence may be faster, with greater escalation in patient acuity and fewer cues at earlier points in the learning session. Supervised simulation experiences allow both levels of learners to practice their response in a stressful situation and decrease anxiety related to the deteriorating patient. This may, in turn, increase confidence and competence during actual clinical experiences (Blum et al., 2010).

The key to success in these examples is understanding the needs of the learning group. Broad concepts such as early identification and communication of deteriorating patients can be adapted to all levels of learning. The greatest challenge is maintaining a balance so that a level of engagement is achieved with different types of learners. Success here ensures novice nurses are not overwhelmed with new information and more experienced nurses are still challenged when participating in familiar clinical scenarios. The original goal of developing confidence and competence is achievable through careful assessment of different levels of instructional need.

QUALITY INITIATIVES

Hospital organizations have operational priorities that focus work based on a quality assurance or accreditation perspective. The objectives of these projects often are aimed at gaps in service delivery such as integration of new best practice guidelines or new equipment to facilitate safer patient care. Hospital-based nurse educators, who are directed to develop programs and disseminate information, often struggle to create relevance for bedside nurses. This reduces buy-in and uptake of practices that often are validated through use in other areas. However, delivering changes within a simulated clinical scenario creates a contextual foundation, allowing learners to see relevance immediately (Cant & Cooper, 2009; Hodder, 2006). This, in turn, promotes adoption of new processes that meet the needs of the hospital organization as well as promoting the use of evidence-informed practices by nurses.

Because most of these types of initiatives tend to be introduction of new processes or new guidelines, the starting point for all learners is consistent regardless of their level of experience. Integrating simulation-based learning with these types of initiatives can be accomplished by encompassing the education within other learning activities. In the previous example of the deteriorating patient, the educator can add layers to the simulation scenario allowing learners to perform the specified organizational requirement. For example, imagine a hospital site has acquired new ventilators and nurses must demonstrate competency in alarm response and tracheal suctioning using new equipment. The educator may design a scenario that begins with activation of the ventilator high-pressure alarm due to an occluded airway, leading to the deterioration of the patient. The learners must respond to the alarm and demonstrate proper suctioning technique while the educator evaluates competency of these items via a skills checklist. The educator has succeeded in creating a relevant context for the organizational requirement, thereby increasing chances for successful knowledge transfer, and the learners have the opportunity to develop competence with new equipment.

FLOW THROUGH THE SYSTEM AND ACCESS TO SERVICES

Competent and confident nurses can have the potential to impact patient flow through the health care system. A competent and confident general ward nurse who is able to avoid a crisis event through early identification and communication can impact patient flow by avoiding use of expensive intensive care unit beds. This potentially decreases the total number of days a patient is hospitalized, and the patient flows through the system faster. Using this same example, the nurse’s early actions also helped avoid the use of a valuable resource (i.e., the intensive care unit bed), ensuring that another, more acutely ill patient has access to the right resources at the right time (i.e., access).

However, nurses often lack confidence in their ability to identify changes in patient acuity and are reluctant to communicate them, which can lead to compromised patient care (Cooper et al., 2011). Multidisciplinary education has been shown to improve this aspect of team dynamics and increase confidence with communication in crisis events (Bosseau Murray & Foster, 2000; Dadiz et al., 2013; Jankouskas et al., 2007; Messmer, 2008; Strouse, 2010; Van de Ven et al., 2010). Nurses are central here because as the discipline with the greatest amount of patient exposure, they are the link between the patient and other professions. Incorporating multi-
disciplinary simulation-based training into a standard professional development curriculum allows nurses to define their role as integral members of the health care team.

In reality, hospital-based education is conducted independently or in small isolated groups (Shapiro et al., 2004; Slater et al., 2012; Strouse, 2010). These initiatives are focused on individual skill and knowledge acquisition rather than on team-based project implementation. However, patient care is a multiprofessional process, and education should be provided in a multiprofessional context. Developing strategic partnerships with other disciplines that have established simulation programs is one method of bridging this gap. Other disciplines have integrated simulation into their education programs (Leigh, 2011), and a partnership would allow existing programs to maximally use their resources as well as benefit from the perspective provided by nurses with experience in clinical environments. Costs are decreased related to avoiding establishment of an independent program, and a more realistic multidisciplinary simulation experience promotes collaboration and collegial learning.

RETURN ON INVESTMENT

The scenarios described are only examples of the potential strategies for institutions to apply simulation-based learning as a type of educational forum in continuing competency efforts. There is no benchmark figure representing the return on investment for nursing, or other disciplines, for high-fidelity simulation learning. Comparison to aviation models suggests that simulation training hours may decrease the time to proficiency in select skills, although specific target outcomes vary from discipline to discipline, making direct application of this concept difficult to achieve (Qayumi et al., 2012). According to Leigh (2011), it is important to emphasize other benefits such as the “reaction of learners and change in knowledge, attitudes, and skills” (p. 56).

Hospital educators can evaluate the success of the learning activity using various methods. Several measures can be used to gauge the effectiveness of simulation as a learning modality and also assess how it compares to other educational forums. There is enormous potential for simulation to be used as a teaching-learning strategy to develop anything from psychomotor skills (i.e., skill acquisition) to cognitive skills (i.e., communication and teamwork). Competency assessments, skills checklists, and other measures can be used to determine the effects of simulation-based education. Other outcomes that can be explored as return on investment strategies include simulation as a retention and recruitment tool. Meaningful education and the development of confidence and competence have been shown to have a strong correlation with staff engagement and satisfaction, leading to less turnover (Hayes et al., 2012).

Resources needed to establish a simulation facility providing this type of education can be considerable, yet there are no standards in the development of simulation facilities or programs. Estimates for infrastructure costs alone can range from $2,720,000 to $5,220,000 (Canadian $) (Qayumi et al., 2012); this does not include costs associated with equipment, personnel, and curriculum development. Provided educators have access to a preestablished facility and curriculum, hourly wages may represent the greatest investment by the supporting facility. Again, there are no consistent recommendations for length of time spent on organizational supported continuing competency programs; however, the British Columbia simulation initiative aims to provide 3 to 9 days of simulation activity to practicing professionals, based on an in-depth needs assessment using a multiprofessional collaborative model (Qayumi et al., 2012).

In Manitoba, Canada, general duty nurses are paid approximately $36 (Canadian $) per hour. Using this pay rate as a guide, a 3-day education session program would cost approximately $864 per learner (Manitoba Nurses Union, 2009). Return on this investment could potentially be measured through patient flow data where avoidance of additional hospital days or admissions to the intensive care unit (related to early recognition and intervention of patients with increased acuity) can save approximately $1,600 to $8,000 (Canadian $) per day (Winnipeg Health Sciences Centre, 2013). According to Cooper et al. (2011), up to 80% of these in-hospital adverse events are predictable, and in many cases, patients deteriorate for many hours before a critical event is realized. If this education is effective in preventing crisis events through early identification and early intervention, then the impact on deficit management has the potential to be considerable.

CONCLUSION

To meet patient needs, clinicians need to adapt to an ever-changing situation in the face of multiple pressures. Nurses of all competency levels would benefit from simulation scenarios where they can practice the skills needed to strengthen clinical performance in a safe and facilitative setting. According to Benner (1982), nurses move through levels of proficiency as
they acquire and develop skills. Movement through this continuum reflects changes in skill performance from relying on context-free application of general concepts to integration of past experiences and intuition. Although nothing can replace true patient experiences, simulation-based learning can model them, thereby helping nurses gain confidence and competence with clinical skills at earlier stages than traditionally expected (Buckley & Gordon, 2011; Cant & Cooper, 2009; Cook et al., 2011; Lasater, 2007; Schubert, 2012; Sears et al., 2010).

Traditionally, nurses have been responsible for performing continuing competency independently. They have struggled with the need to provide quality patient care and learn through experience at the same time. Employers can help bridge this gap by offering educational opportunities using high-fidelity simulation-based learning. High-fidelity simulation-based learning scenarios can be developed to support multiple priorities. These include relevant outcomes such as patient safety, flow through the health care system, and access to services. Targeting these outcomes allows employers to provide staff with a richer learning experience, thereby promoting safe, quality patient care.

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