Use of Multiple Patient Simulators to Enhance Prioritizing and Delegating Skills for Senior Nursing Students

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ABSTRACT

The student clinical experience is rich, yet challenges arise in providing experiences where leadership skills can be developed and used in nursing practice. To increase student confidence and enhance student ability to safely and effectively prioritize, delegate, and implement care for numerous patients, a simulation-based learning (SBL) experience was developed. The SBL experience involves multiple patient simulators, case study analysis, and a debriefing session. Ninety-seven senior nursing students participated in this program. Students reported through Likert surveys to either “agree” or “strongly agree” that the SBL was well organized (87%, n = 84), prompted realistic expectations (59%, n = 57), the scenarios were believable (73%, n = 71), case studies increased understanding (66%, n = 64), and that the SBL experience increased understanding of prioritizing and delegating care (69%, n = 67). Seventy-eight percent (n = 76) reported “more confidence in ability to work as a team” and 55% (n = 52) reported “more confidence in prioritizing and delegating care.”

The clinical experience is both educational and rewarding for students and faculty; however, challenges arise in providing students with a variety of experiences where the leadership skills of prioritizing and delegating care can be developed. Many of the challenges are systems based; the interventions needed by patients on the unit are specialized; the acuity of the patient may be high, thus preventing the student from being assigned more than one patient; and continuity of care for students is difficult, with a rapid turnover of patients due to limited hospital stays. Students focus on becoming proficient at skills and using the nursing process rather than the advanced skills of prioritizing and delegating. An opportunity to care for multiple patients or delegate care to other health care professionals generally does not occur until the last semester of the nursing education process, further hindering the ability to master this skill. However, upon graduation, nursing students are expected to make the transition to practicing nurse with the expectation that they already possess these high-level leadership skills. The emphasis on providing an avenue to broaden leadership skills in the clinical setting is highlighted by the National Council State Board of Nursing’s (2007) recent inclusion of test items related to management of care. In addition, reports from the American Association of Colleges of Nursing (2008) and the Institutes of Medicine (2003) recommend that faculty alter learning experiences to ensure that graduates are educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics. To adequately address these critical needs, teaching strategies must be used that concentrate not only on the acquisition of knowledge, but also on the application of conceptual and critical thinking in prioritizing and delegating care in the clinical setting.

The use of patient simulators serves as an effective teaching strategy because it allows for deliberate practice of clinical and communication skills, standardization of patient care experiences, and exposure to rare or limited...
clinical scenarios. In additional, patient simulators provide educators with an effective strategy for teaching the critical thinking skills necessary to make clinical decisions and teamwork skills in a variety of clinical settings (Flanagan, Nestle, & Joseph, 2004; Lee et al., 2003; Rauen, 2001). To increase student confidence and enhance student ability to safely and effectively prioritize, delegate, and implement care for numerous patients, a novel program using a simulation-based learning (SBL) experience was developed. Through the SBL experience, multiple patient simulators are used in conjunction with a focused case study seminar. The implementation and evaluation of the three-patient simulation, case study analysis, and debriefing process will be discussed.

BACKGROUND

The use of simulation first gained prominence in the field of aviation as early as the 1930s. However, it has been only in the past 15 years that simulation has been used in the health care arena, primarily in medical education at the resident or practitioner level (Issenberg et al., 1999; Lighthall et al., 2003; McLaughlin, Doezema, & Sklar, 2002; Reznik et al., 2003). Simulation provides for the acquisition of skills through repeated practice and handling of emergency situations without consequences to the patient. The use of patient simulators also provides educators with an effective strategy for teaching clinical decision making and allows more objective student evaluation through standardization of patients (Feingold, Calaluce, & Kallen, 2004; Flanagan et al., 2004; Lee et al., 2003; Rauen, 2001).

Nurse educators initially implemented patient simulators at the graduate level (Scherer, Bruce, Graves, & Erdley, 2003) but have extended this strategy to include undergraduate nursing courses (Bearnson & Wiker, 2005; Brenner, Adudderl, & Amason, 2008; Hanneman, 2005), undergraduates in conjunction with advanced practiced nurses (Spunt, Foster, & Adams, 2004), new student nurse orientation programs (Casey, Finek, Krugman, & Propst, 2004; Nelson et al., 2006; Rauen, 2004), and teams of practicing health care workers (Brett-Fleegler et al., 2008; Eppich, Adler, & McGaghie, 2006; Marsch et al., 2005; Weinstock et al., 2005). Long (2005) described the positive results obtained from first conducting the simulation with nursing students, then repeating the exercise with multidisciplinary teams, and finally with practicing nurses and physicians in an Advanced Cardiac Life Support course.

Studies reporting student confidence levels using simulation as a teaching strategy are limited. Feingold et al. (2004) conducted a patient simulation with senior nursing students assessing for skills performance and clinical decision making at both the beginning and the end of the semester. Results demonstrated that more than 80% of students reported the simulation experience adequately tested clinical decision-making skills, was valuable (69%), and enhanced learning (75%). However, less than half believed the experience increased their confidence in the clinical setting or improved clinical competencies.

The most recent literature in nursing education (Brenner et al., 2008) reported the impact of simulation technology on the perception of confidence and comfort levels of nursing students entering their first clinical experience. Using Assessment Technologies Institute’s self-assessment inventory to determine student learning and coping styles and the State-Trait Anxiety Inventory to measure student anxiety, one group participated in a simulation session prior to the first clinical day in addition to the laboratory session. For comparison, a group participated in the laboratory session only. The simulation group indicated a statistically significant decrease in stress levels prior to first-time clinical experience.

The use of multiple simulators to teach undergraduate nursing students is even further limited. Currently, only one article (Radhakrishnan, Roshe, & Cunningham, 2007) reports the use of two human patient simulators in one student scenario. This pilot study used a small (N = 12) and homogeneous convenience sample of senior second-degree BSN students to study the link between patient simulation and clinical performance improvement. Performance categories were safety, basic assessment, prioritization, problem-focused assessment, ensuing interventions, delegation, and communication. The intervention group participated in two 1-hour simulation practice sessions with a complex two-patient assignment in addition to the clinical requirements. The control group completed clinical requirements with no simulated practice. At the end of the semester, both groups participated in a two-patient simulation scenario. Students in the intervention group achieved significantly higher scores for safety and basic assessment skills than did those in the control group. Other clinical parameters showed no significant differences in performance.

Several studies have also reported the transition from student to novice nurse. Casey et al. (2004) performed a study to identify the stresses and challenges experienced by 270 graduate nurses in 6 hospitals. Casey et al. (2004) reported that graduate nurses do not feel skilled, comfortable, or confident for as long as 1 year after being hired:

- Graduates with fewer than 6 months of experience most often indicated that lack of organizational skills seemed to be a key barrier to optimal performance in their new role.
- They were concerned with the amount of new information and skills they needed to integrate while trying to be timely in their delivery of care. (p. 308)

Nelson et al. (2006) developed a forum to assist preceptors to teach prioritization to nurse orientees to decrease the difficulty in the transition from assignment with a preceptor to independent practice. This was in response to preceptors reporting the need for increased support in mentoring and developing strategies to establish priorities and sequencing of nursing actions.

Due to the perception that preceptors lack control over the types of experiences a learner will have or the conditions in which skills can be observed, learned, or prac-
The use of simulation was integrated into a critical care nursing orientation course in the hospital (Rauen, 2004). It was identified that new critical care nurses could potentially complete an entire orientation period and not experience a common or high acuity event to practice safely. Following the simulation session, positive results were reported, including increased confidence and increased assessment skills.

**IMPLEMENTATION OF THE PRIORITIZING AND DELEGATING SIMULATION-BASED LEARNING EXPERIENCE**

The Simulated Clinical Environment

The priority setting and delegating simulation scenario occurs in the simulation center of a university-affiliated nursing school. This simulation exercise used three-patient simulators simultaneously for each simulated clinical experience. Each simulator represented a particular patient from the case study with appropriate intervention needs based on findings on the manikin, such as intravenous fluids, wounds needing wound care, ecchymosis indicating a potential problem, or Foley catheter. Unique to the simulation laboratory is an audio-visual system housed in a control room with one-way mirrors to facilitate the simulated experience. Faculty can orchestrate a simulation scenario from this area, interacting with the students using an intercom system. When the simulation is completed, students attend a debriefing to review and discuss critical content areas.

Student Characteristics

Students were assigned by established clinical group (10 to 12 students per group) to participate in a 4-hour SBL experience. Faculty conducted these 4-hour sessions weekly for one semester until all student groups rotated through. A total of 97 upper-division baccalaureate nursing students in the final semester of their senior year participated in this session. The SBL experience was designed to synthesize material from several different courses in regard to content on leadership, delegation, management, and prioritization. The students were given released clinical time to participate in the simulation experience. Clinical and simulation faculty supervised the training.

The SBL experience serves as a novel teaching strategy; therefore, in describing this activity as such, it was deemed exempt from institutional review board requirements. To protect the students involved in the activity, all teacher-made tools that were used were anonymous. Demographic information was collected prior to the SBL experience. The age of students for this session ranged from 22 to 29 years. Sixty-one percent of the students reported prior hospital experience in nursing as either a nurse extern or a nursing assistant. Seven percent of the students had training in advanced cardiac life support, pediatric advanced life support, or advanced trauma life support. All students had previously participated in a minimum of seven simulations in the course of their nursing curriculums. Students reported the value of past simulation experiences as very valuable (31%, n = 30), moderately valuable (59%, n = 57), and minimally valuable (10%, n = 10). In addition, 98% (n = 95) of the students participated in a 4-hour interprofessional team training session using the teamSTEPPS™ (Agency for Healthcare Research and Quality, 2009) method. The team concepts of effective communication (SBAR [[Situation, Background, Assessment, and Recommendation], closed-loop communication, call-out, check-back), situational monitoring, leadership, and mutual support were emphasized.

**Student Requirements**

In addition to the demographic survey, students anonymously rated their level of confidence in prioritizing and delegating care, as well as their confidence in working effectively in a team prior to participating in the SBL experience and after the SBL experience. An anonymous post-SBL experience questionnaire that contained two open-ended questions regarding what students liked most and least about the session was distributed to evaluate the effectiveness of the entire experience. Faculty evaluated student performance on a priority and decision-making scale and a critical action checklist to assist with guiding in the debriefing process. The actual SBL experience was not evaluated for student grading purposes.

**Simulation-Based Learning: Simulation and Case Study**

The SBL experience begins with a 20-minute to 30-minute orientation reviewing the format for the day, as well as general instructions for the simulation and the case study assignment. Two students self-select roles of the “nurse” or the “nurse orientee” for the 20-minute simulation experience. Roles were designated as such to place one of the participants in a more superior or experienced position (the “nurse”). In a pilot of this simulation, the students were assigned roles of “nurse” and “nurse extern,” which proved to be unsuccessful because this left an inequitable division of responsibilities. Therefore, the “nurse orientee” role was created to replace the “nurse extern” role.

The two participating students listen to an audiotaped change-of-shift report on the three simulated patients. Faculty acknowledged that current practice is to present bedside shift reports, but the taped report ensured standardization of information to each group. Instructions were given to students that the out-going night shift nurse, who had given the report, would not be available to answer questions. The scenario was designed to have the report piece be purposely incomplete to determine whether students would try to collect more information through the mock patient chart or patient assessment. Of the three patients reported on, one of the patients was stable, one had the potential for problems, and one was admitted during the night and considered unstable. Students were informed that this may not be a typical patient population for a given unit but that the scenarios were created to allow for a variety of patients.
The prioritizing and delegation SBL experience was designed to incorporate some of the specific quality and safety measures noted by the American Association of Colleges of Nursing (2008) and the Institutes of Medicine (2003) report, Essentials for Baccalaureate Nursing Education, as well as the Agency for Healthcare Research and Quality (2009) recommendations of using the teamSTEPPS model (Table 1).

Table 1: Incorporation of Quality and Safety Measures

<table>
<thead>
<tr>
<th>Patient-centered care</th>
<th>Scenario designed to incorporate family member’s comments and concerns, patient education, on-going patient assessment based upon changing needs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork and collaboration</td>
<td>“Nurse” and “nurse orientee” must assume role of team member and act accordingly, multiple responsibilities happening concurrently to purposefully create conflict, emphasizing the use of SBAR (Situation, Background, Assessment, and Recommendation) communication techniques for effective and accurate communication, delegating to encompass all members of the healthcare team.</td>
</tr>
<tr>
<td>Evidence-based practice</td>
<td>Debriefing of individual patient care based upon evidence, clinical expertise and patient values. Students were encouraged to use personal digital assistants as needed during the simulation.</td>
</tr>
<tr>
<td>Quality improvement</td>
<td>Debriefing sessions included identification of errors in care, patient consequences, and appropriate ways to report errors. Also included strategies for effective communication to receive the highest benefits from the healthcare team.</td>
</tr>
<tr>
<td>Safety</td>
<td>During orientation, students were informed to care as they would in the clinical setting. This included using universal precautions and proper patient identification.</td>
</tr>
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</table>

Following the report, time was allowed for students to discuss the plan of care for the day. The nurse was expected to prioritize patient care based on acuity levels of the patients, competencies of the staff, and stability of the patients. The most urgent needs of the patient were to be identified, and the nurse would then delegate and make appropriate adjustments in care. The nurse orientee must likewise prioritize care and confer with the nurse when appropriate. As the students provide care to the three patients, the faculty members are in the control room posing as the patient, the family member, or a member of the healthcare team should the student need to interact or obtain information from another source. On the basis of the level of assessment data collected and associated interventions, the health status of two of the three patients can deteriorate rather rapidly and the nurse must quickly make critical decisions regarding how care will be given.

Students continually rotated through the 20-minute simulation throughout the first portion of the SBL experience. While students wait their turn to participate in the simulation, they discussed case studies with a variety of situations in which delegating and prioritizing care was required. Once all students had rotated through the simulation, the students participated in a group debriefing for approximately 1 hour. During the debriefing session, the objectives and critical elements of the scenario are discussed in general terms. Not only does this give feedback to all students, but also typically one student may have been very involved with the most critical patient and was not fully aware of what was happening with the other two patients. The general overview of expected patient care gives all students the opportunity to view the clinical situation as a whole. This also gives students the opportunity to vocalize personal attitudes toward performance, clinical decision making improvement, and feelings regarding adapting to the nursing role without supervision. The following content was reviewed during the debriefing period: rationale for prioritization and delegation, including determinants of patient acuity levels; actual student assessment versus ideal assessment, analysis, and implications for care; patient-centered and family-centered care; systematic reporting to others on the healthcare team; prioritizing care when multiple adverse events are occurring simultaneously; importance of using all members of the healthcare team; discussing student attitudes toward delegating to other healthcare professionals; and developing strategies to more effectively delegate actions to others in the clinical setting.

Student Outcomes from the Simulation-Based Learning Experience

An anonymous survey was placed on the course Blackboard site for the students to evaluate the SBL experience (Table 2). Students reported either strongly agree or agree that the SBL exercise increased understanding of prioritizing and delegating care (68%, \( n = 66 \)), more confidence in prioritizing and delegating care (55%, \( n = 53 \)), and more confidence in ability to work as a team (78%, \( n = 76 \)). Sixty-six percent \( (n = 64) \) reported that the case studies increased their understanding. Components of team training have been recently reinforced into the curriculum with an unexpected finding that more students reported “more confidence in ability to work as a team” (78%, \( n = 76 \)) than “more confidence in prioritizing and delegating care (55%, \( n = 52 \)). Faculty noted that students would frequently “huddle,” in accordance with teamSTEPPS to organize care without solicitation.

Positive student comments relating to this experience included the following:

- “I liked this simulation a lot because they provide exposure to a real life situation.”
The impetus to develop this prioritizing and delegating SBL exercise was to bridge the role between student and novice staff nurse through increasing student knowledge and confidence in the advanced leadership skills of prioritizing and delegating care. The SBL exercise was successful because self-reported confidence in both prioritizing and working in teams was increased, as well as understanding about how to prioritize and delegate care.

Students repeatedly expressed their appreciation for being able to “juggle” multiple patients and be solely responsible for their care within the confines and safety of the simulated environment. Anecdotally, faculty observed a wide range of student behavior in adapting to the professional nursing role as a leader or delegator during the simulation. Students were more accustomed to being assigned their own limited patients to provide care to without using the other members of the team for assistance. To reinforce the appropriateness of delegating to the team, strategies were discussed in the debriefing session.

The SBL experience encompassed many facets in caring for several patients. Listening to report and accurately documenting and applying the information for each patient begins the process. The majority of the students did well with this, but unfortunately and unexpectedly the faculty noted elements of student difficulty in keeping patient information with the correct patient. During times of collaboration with nurse partners, comments were made giving specific information about a patient but with the wrong patient identified. In addition, when students made telephone calls to other members of the health care team, they confused patient information. Faculty attributed this to possible nervousness, lack of reality in the simulated environment, limited student exposure to multiple patients, and limited encounters using SBAR for communication.

Performing a complete assessment and health history to collect the appropriate data from each patient was the next step in the process. Again, the majority of students collected subjective and objective data appropriately, whereas others tended to rush through the process. Incomplete assessments led to delayed or missed cues for appropriate nursing care, causing patient problems later that could have been averted. Faculty focused the debriefing session on the importance of safety issues in correctly identifying patients and the importance of the assessment to reinforce these basic skills.

**TABLE 2**

Post-Simulation-Based Learning Exercise Evaluation

<table>
<thead>
<tr>
<th>Student Participants (N = 97)</th>
<th>Strongly Agree (n)</th>
<th>Agree (n)</th>
<th>No Opinion (n)</th>
<th>Disagree (n)</th>
<th>Strongly Disagree (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More confident in ability to prioritize and delegate patient care</td>
<td>9% (8)</td>
<td>46% (44)</td>
<td>19% (18)</td>
<td>23% (22)</td>
<td>3% (3)</td>
</tr>
<tr>
<td>More confident in ability to work effectively in a team</td>
<td>20% (19)</td>
<td>58% (56)</td>
<td>12% (12)</td>
<td>8% (8)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>Simulation and debriefing increased understanding of prioritizing and delegating care</td>
<td>22% (21)</td>
<td>47% (46)</td>
<td>4% (4)</td>
<td>20% (19)</td>
<td>6% (6)</td>
</tr>
<tr>
<td>Case studies increased understanding of prioritizing and delegating</td>
<td>17% (16)</td>
<td>49% (48)</td>
<td>14% (14)</td>
<td>15% (15)</td>
<td>3% (3)</td>
</tr>
<tr>
<td>Prepared me to work effectively in hospital or clinic</td>
<td>13% (13)</td>
<td>44% (43)</td>
<td>16% (16)</td>
<td>23% (22)</td>
<td>3% (3)</td>
</tr>
<tr>
<td>Training was well organized</td>
<td>24% (23)</td>
<td>63% (61)</td>
<td>3% (3)</td>
<td>7% (7)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>Prompted realistic expectations</td>
<td>13% (13)</td>
<td>46% (44)</td>
<td>13% (13)</td>
<td>21% (20)</td>
<td>7% (7)</td>
</tr>
<tr>
<td>Scenarios were believable</td>
<td>14% (14)</td>
<td>59% (57)</td>
<td>12% (12)</td>
<td>14% (14)</td>
<td>–</td>
</tr>
</tbody>
</table>

*“Practice the skills in a non-threatening setting.”

*“Having to make choices about what to do for each patient.”

*“The critical thinking aspect of how to prioritize. We were given three patients that needed help, but I challenged myself to which patient I would need to focus on most.”

Student negative comments or areas needing improvement included the following:

*“I feel simulations should always be followed by a second simulation for students to apply what they have learned the first time around.”

*“I did not feel like it was at a level that we were appropriately prepared for.”

Some of the students expressed concern that there were no nursing technologists to delegate tasks to and that the nurse had to perform all of the patient care. Students also expressed feelings of inadequacy after participating in the simulation because they perceived that it highlighted what they do not know or what they are not particularly good at doing.

**DISCUSSION**

The impetus to develop this prioritizing and delegating SBL exercise was to bridge the role between student and novice staff nurse through increasing student knowledge and confidence in the advanced leadership skills of prioritizing and delegating care. The SBL exercise was successful because self-reported confidence in both prioritizing and working in teams was increased, as well as understanding about how to prioritize and delegate care.

Students repeatedly expressed their appreciation for being able to “juggle” multiple patients and be solely responsible for their care within the confines and safety of the simulated environment. Anecdotally, faculty observed a wide range of student behavior in adapting to the professional nursing role as a leader or delegator during the simulation. Students were more accustomed to being assigned their own limited patients to provide care to without using the other members of the team for assistance. To reinforce the appropriateness of delegating to the team, strategies were discussed in the debriefing session.

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Synthesizing the assessment findings through critical thinking and using knowledge from pathophysiology enhanced patient care. Again, there were varying levels of student behavior in synthesizing information, but overall faculty were pleased with student performance and implementation of critical thinking in delivering nursing care. Students communicated well with one another to collaborate on patient care responsibilities, assist one another as needed, and reframe their plan of care as patients’ needs changed. Students also demonstrated an extreme amount of patient empathy, a willingness to share patient education information, and family-centered care as appropriate.

Approximately 25% (n = 24) of the students reported to disagree or strongly disagree that the SBL experience increased their confidence in priority setting and in working effectively in the hospital or clinic. Faculty contributed these negative responses to several possible factors: the learner does not enjoy simulation as a teaching strategy; not feeling comfortable in “acting out” in the simulated environment; discomfort in knowing faculty are observing them in the control room; feeling that the simulation highlighted perceived inadequacies in front of their peers; and the student tendency to judge personal performance more harshly than the faculty. Faculty noted that many of the top students tend to be dissatisfied with their performance level and consequently expressed dissatisfaction with the entire process. Faculty also observed through prior simulations that students appreciate the simulation more than indicated with immediate feedback with self-reflection of the experience over time.

Revisions will be made to the survey to establish whether those students who reported a low level of “value” to previous simulations were the same students who reported negatively to this simulation. Based on student feedback, revisions will be made to the case study session to include more written information on the roles and scope of practice of other members of the health care team to assist with proper delegation procedures.

CONCLUSION

The SBL exercise will continue to be a part of the curriculum because it successfully met the objective of increasing student confidence and understanding in prioritizing and delegating from both the faculty and student perspectives. Most telling was the repeated student appraisal in hoping they could complete simulations such as this one each week until they graduated. Students repeatedly expressed that this SBL exercise was the most realistic of their previous simulations and truly gave insight into the shifts in responsibilities experienced when bridging the gap between the nursing student role and the practicing nurse. The SBL exercise was also successful for demonstrating the effectiveness of the novel use of multiple simulators in realistic patient scenarios.

REFERENCES


Radhakrishnan, R., Roshee, J., & Cunningham, H. (2007). Mea-
suring clinical practice parameters with human patient simulation: A pilot study. *International Journal of Nursing Education Scholarship, 4*, Issue 1, Article 8.


sis management course for emergency medicine. *Academic Emergency Medicine, 10*, 386-389.


