Journey Toward Integration of Simulation in a Baccalaureate Nursing Curriculum
Kathleen Masters, DNS, RN

ABSTRACT
Simulation is increasingly being used as a teaching strategy in nursing education. The best learning outcomes occur when simulation is integrated into the curriculum rather than added to a crowded curriculum. Faculty are challenged to integrate simulation experiences into the curriculum in a way that promotes optimal achievement of student learning objectives. The purpose of this article is to describe the journey toward the integration of simulation in a baccalaureate nursing curriculum. A description of the journey from the beginning, through Health Resources and Services Administration funding, as a participating site in The NCSBN National Simulation Study, and through curricular redesign are presented in the context of faculty growth and lessons learned. The ultimate purpose is to provide guidance to faculty teaching in nursing programs that may be struggling with some of the same issues that beleaguered faculty during our journey. [J Nurs Educ. 2014;53(2):102-104.]

There is a temptation to simply add simulation to an already crowded curriculum; however, the best learning outcomes occur when simulation is integrated into the curriculum (Starkweather & Kardong-Edgren, 2008) and when best educational practices are “incorporated in the design and implementation of simulation” (Jeffries, 2005, p. 97). Thus, faculty are challenged not only to facilitate simulation experiences but also to integrate these experiences into the curriculum in a meaningful way that promotes optimal achievement of student learning objectives. What follows is the description of one baccalaureate nursing program’s journey toward the integration of simulation into the curriculum.

The Beginning
We began our journey as many nursing programs did in the early 21st century—with the purchase of a high-fidelity manikin but no plan for meaningful use. Our faculty attended the workshop that was provided with the manikin purchase and agreed that simulation sounded like a good idea, but we had no champion and we still had no strategic plan.

The director of the school of nursing who purchased the initial high-fidelity manikin challenged the faculty to integrate simulation throughout the baccalaureate curriculum. A pilot was conducted with one clinical faculty who had some exposure to simulation facilitating simulation for one semester instead of instructing students in the clinical facility. All students enrolled in the second adult health clinical course rotated to simulation twice during that semester. This was repeated the following semester with the next cohort of students in the same clinical course.

Based on the experience gained during the pilot, a grant proposal was submitted to the Health Resources and Services Administration to increase enrollment in the baccalaureate program through a plan to add two students to each clinical group and then rotate two students from each group into simulation each week. The plan would accomplish two things. First, it would increase enrollment in the baccalaureate program, which was the focus of the funding opportunity. Second, it would provide the funding that was necessary in order to hire faculty to facilitate high-fidelity simulation experiences in more than just one pilot course.

The proposal was funded, and two full-time faculty were hired for the purpose of facilitating simulation in the baccalaureate program. The newly hired faculty traveled to the Laerdal...
Training Center in Texas for 1 week of in-depth training to learn how to write scenarios, load scenarios onto the computer, maintain the equipment, prepare for simulation, facilitate high-fidelity simulation, and lead debriefing experiences. In the beginning, we used simple scenarios that were purchased with our manikin, but as the expertise and confidence of the simulation faculty grew so did the number and complexity of our scenarios. Initial scenarios included the expectation of student assessment of a patient with an uncomplicated diagnosis, implementation of nursing interventions based on assessment data, and demonstration of communication skills using SBAR (Situation, Background, Assessment, and Recommendation). Gradually, the complexity increased to include scenarios involving patients with physiologic complications, shock, and cardiac arrest. During the 3 years of grant funding, we gradually added simulation to the adult health, advanced adult health nursing, maternal–child nursing, pediatric nursing, and mental health nursing courses. We substituted approximately 10% of traditional clinical experiences with simulation. During the same 3 years, we increased enrollment in the baccalaureate program nearly 40%. Prefunding enrollment for the baccalaureate program ranged between 268 and 296 students. The enrollment at the conclusion of the 3 years of funding included more than 430 students with a May graduating class of 110, compared with the prefunding period when graduates in May totaled 73. This increase in enrollment generated the funds necessary to maintain one of the simulation faculty positions.

However, things were not perfect. The simulation faculty had become fairly expert in using simulation as a teaching strategy, but the faculty who were facilitating the simulation experiences were not the same faculty who were teaching the courses in the program. Because most of the faculty teaching in the baccalaureate didactic and clinical courses were not engaged in the simulation experiences, a disconnect existed. Issues arose with clinical evaluation during simulation, student preparation for simulation experiences, and matching simulation experiences with student learning objectives in the didactic and clinical courses. Thus, although we had students rotating to simulation from nearly every clinical course in the curriculum, simulation was occurring throughout the curriculum, but it was not integrated into the curriculum. We wanted to do more simulation and wanted to do it better, but we had stalled in a pattern that, although it helped in the beginning, was no longer working for us.

The Middle

As we were grappling with how to truly integrate simulation into the curriculum, a call for proposals came out from the National Council of State Boards of Nursing (NCSBN) for schools to participate in the NCSBN National Simulation Study. We applied and were selected to participate in the multiyear, multisite study. The model for simulation in this research study was different from what had been done in our program. In the national study, the entire clinical group of students and their clinical faculty rotated to simulation together rather than using a student-only rotation system. This model provided the breakthrough moment that was needed to move forward with the simulation program. With this model, the clinical faculty could actually see what their students were doing during simulation and how their students were performing during simulation experiences. Many faculty were surprised by the performance of their students. Some students performed better than faculty expected. But in some cases, previously unidentified student weaknesses became apparent to faculty as students were observed during simulation. When faculty began to attend simulation experiences with their students, they were also able to appreciate the complexity of the patient scenarios. As a result, the clinical faculty, who are primarily full-time faculty, became engaged in the use of simulation as a teaching strategy. Faculty began to actively participate in the selection of scenarios to match student learning objectives in didactic and clinical courses, and they began to participate in planning the timing of simulation and debriefing experiences to match course content to take full advantage of the simulation learning experience.

At the end of the first and second semesters of the NCSBN National Simulation Study, the primary questions asked of the simulation study team by the clinical faculty were, “What about my students next semester? Will you be able to get them in simulation along with the students in the study?” After experiencing simulation with these students, faculty did not want the next group of students to miss out on what they viewed as a valuable learning opportunity.

Now, faculty who have spent time in simulation with students exhibit the confidence to begin to facilitate simulation with the help of a technician. Faculty are using simulation experiences both as a substitute for traditional clinical experiences and in the classroom during didactic courses through the use of live-feed technology. Faculty actively seek out simulation training so they will have the skills to facilitate simulation experiences more effectively for their students. This transformational growth among faculty has been rewarding and exciting but necessary to maintain these experiences for the students. We continue to have only one dedicated full-time simulation faculty member and technician.

Not only was the model for simulation different for the NCSBN National Simulation Study but the amount of simulation was also different from the previous practice. Students in the study had simulation experiences in every clinical course except for their preceptorship. For the students in the study cohort, substitution of traditional clinical experiences with simulation included a 50% group, a 25% group, and the control group (approximately 10%). Prior to the study, students were in simulation experiences only approximately 10% of their clinical time, which meant that there was a gap in between experiences and there were almost always issues around student comfort with the equipment and student anxiety in simulation. The students in both the 25% and 50% groups who spent a significant amount of time in simulation are familiar with the equipment and are therefore able to focus on the patient scenario rather than on equipment and performance anxiety. These students verbalize positive comments about the learning that occurs during simulation and debriefing experiences. The faculty who spent time with the students in both simulation and traditional clinical environments also commented that these students seem to have superior ability working within teams and making clinical decisions more quickly. The students with less time in simulation, even after 2 years of nursing courses that included some...
simulation, seem to spend more time before and after simulation talking about how nervous they are about the simulation experience.

We have learned some practical lessons along the way. One important lesson was that we must create a safe learning environment for students, yet the environment must be balanced with student accountability for preparation. For example, because our students receive patient assignments the night before traditional clinical experiences to prepare for the patient care experience, we posted brief versions of the assigned scenario patient information online so students could prepare for the simulation experience. Originally, we also posted the role of the student in the scenario. We found out quickly that students in a family role were not as well prepared for the scenario as those who were assigned a nursing role. Following the advice of a colleague, we changed the posting to include only the student’s assigned patient scenario, but not the student role, so that all of the students assigned to each scenario would prepare thoroughly for the simulation experience. We have also learned that varying the daily routine helped to prevent boredom due to the predictable nature of the simulation day. For example, including a skills station or a standardized patient experience during the middle of a day with several high-fidelity scenarios helped to break up the day, which could have quickly become routine, consisting of preconference, scenario, and debriefing, followed by another scenario and debriefing.

Not Quite the End

The journey does not end here. Our progress toward integrating simulation throughout our curriculum continues with the beginning of a new baccalaureate curriculum. Drawing on our experiences, the faculty demonstrated increasing sophistication and thoughtful simulation planning in the new curriculum. As the new baccalaureate curriculum was designed, some of the key questions faculty asked were related to how much simulation to incorporate into the curriculum and where the simulation experiences belonged. Rather than prescribing a set percentage or number of days of simulation across the curriculum as we had done in the past, we now plan for the integration of differing amounts of simulation in different courses. For example, one of the adult health nursing courses will have 50% simulation next semester, whereas the pediatric nursing course will have 30% simulation. Some courses, such as adult health, pediatrics, and maternal–child, will primarily use high-fidelity manikins for simulation, whereas other courses, such as public health nursing and mental health nursing, will primarily use patient actors. Some simulation will be in clinical courses as a substitute for traditional clinical experiences, and some simulation experiences will occur in the classroom setting during didactic courses using live-feed technology; these decisions based on the student learning objectives and expected student competencies.

This journey has taken 7 years. Although we have not yet fully arrived at our destination, we have made tremendous progress toward our original goal. Along the way, we have enlarged our goal to include student learning we had not envisioned previously. In addition to integrating simulation into our baccalaureate curriculum, we are currently working with nutrition and dietetics faculty on campus to design interprofessional simulation experiences for nursing and nutrition students, with a focus on interprofessional competencies. As our faculty continue to grow in confidence, knowledge, and skill in the use of simulation as a teaching strategy, we are confident that we will continue to discover new roads to travel that have not yet been imagined.

References
