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Featured Article

Simulation Puzzles: An Exemplar of Simulation Program Development

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Abstract: Development of a successful simulation program for learners entering the health care field has been problematic for many service and academic entities. Successful simulation program planning, initiation, implementation, evaluation, and revision in a northern California undergraduate baccalaureate nursing program have produced active integration of simulation throughout the nursing curriculum. Several themes emerged as characteristics that promote program success and are shared in this exemplar.

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In 2006, as a newly minted advanced-practice nurse with an MS from the University of California, San Francisco, I accepted an intriguing job as a simulation laboratory coordinator. Although the formal concept of a simulation program was unfamiliar, I vaguely understood that the Advanced Cardiac Life Support, Pediatric Advanced Life Support, Basic Life Support, and Neonatal Resuscitation Program courses that I took and eventually taught were, in essence, simulation based. Some of the questions in my job interview, such as "Can you sew?" and "What was the last home repair project you did?" were somewhat puzzling at the time but make perfect sense now.

Program Development Background

The new position was with a small, private university that had secured a sizable grant from the RGK Foundation and a smaller sum from the Gordon and Betty Moore Foundation to build, equip, and staff a cutting-edge nursing simulation laboratory. As the only member of the simulation laboratory staff, I was charged with the development of a simulation program for a burgeoning undergraduate nursing program with an enrollment of nearly 400 students. The program was also to provide simulation laboratory access to interested community health care practitioners and educators.

Developing and then implementing a successful simulation program turned out to be like working a gigantic jigsaw puzzle in which there are no edge pieces and any one piece would fit multiple places. With extensive assistance and support from the nursing skills laboratory manager, the university's Information Technology (IT) Department, the Nursing Department leadership, and Laerdal Medical Corporation (the vendor for our high-fidelity simulators), our nursing simulation program has enjoyed tremendous success and has been widely integrated into our nursing curriculum within the first two years. This rate of integration has eclipsed many academic and service program development efforts at other institutions.

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Initial Program Construction Characteristics

Occupying a central position in this edgeless puzzle was the commitment of the Nursing Department Chair to integrating simulation into the curriculum. The expectation that faculty would participate in the simulation was courteously—but strongly—emphasized. The puzzle piece that may have allowed that stipulation to be well received by faculty already burdened with heavy academic loads was the commitment of the simulation laboratory coordinator to take a lead role and work collaboratively with the faculty to develop scenarios and design simulation clinical agendas. Another piece put in place early was the development of quality scenarios based on recent clinical experiences of faculty and tailored to the learning needs of the nursing students. Emphasis on the process of debriefing was planned from the beginning and continues to be vital. Optimal learning occurs when simulation is customized to the best level of facilitation and debriefing approach for each set of learners (Fanning & Gaba, 2007). Debriefing sessions allow students the rare opportunity to transparently explore internal decision-making processes and constructively critique their own performance and the performance of others.

Key Points

- Utilization of simulation-based training can optimize the training of nursing students as well as multidisciplinary health care professionals.
- Successful simulation program development for learners in health care is multifactorial.
- Networking among educators and health care professionals interested in using simulation is vital for simulation program development success.

The next piece put in place was the time allotted to the simulation lab coordinator and a few key faculty members who had expressed interest in simulation to attend training and conferences focused on simulation in nursing education. The entire fall semester of the first year was strategically dedicated to training staff and faculty. This training period included significant time and collaborative work with the IT department to structure, test, and determine ongoing support needs for the computer and audiovisual equipment in the simulation lab. Minimal student involvement, other than pilot testing scenarios with select student volunteers, was planned. Then a core group of faculty and staff was to be trained in the hands-on basics of simulation. Included in the dedicated training time for staff and faculty was a deadline, when the program would "go live" with actual student participants. This deadline was the start of the following spring semester. The program was launched on time and has continued, with more than 1,400 student/learner uses in four academic semesters. During the inaugural portion of program development, three vital and large program puzzle pieces slipped into place and continue to strongly influence the direction of program development.

Networking and Resources

The first of these three pieces was membership in the International Nursing Association for Clinical Simulation and Learning (INACSL). It was of enormous value to have access to the formative networking and collegial interplay found on the INACSL discussion list and Web site and at INACSL-sponsored conferences. INACSL now functions as a clearinghouse of useful information, documents, and scenarios, as well as being a think tank for novel ideas and approaches to implement simulation-based teaching—learning experiences.

The second piece was our academic institution's membership in a professional group, the Bay Area Simulation Collaborative (BASC). Members are from northern California academic nursing programs and health care institutions, with statewide expansion already in process. Once again, networking, administrative and policy leadership, strategic planning, high-quality training, research facilitation, and collaborative practice coalesced into a phenomenal, vibrant, and motivating resource for every conceivable aspect of simulation program development.

The third big piece was a personal experience in one of the oldest multidisciplinary simulation programs. This experience will always be a spectacular puzzle piece that sparked my personal vision for providing simulation as a mode of learning. In a tour of the simulation lab at the Palo Alto Veteran's Hospital, in Palo Alto, California, I was given a close look at how powerful the use of simulation to train health professionals can be. This program was developed by Dr. David Gaba and colleagues, who are pioneers in the use of simulation training in health care. A primary use of that simulation lab is health care crisis team response and resource management training. The day I observed, learners included the anesthesiology service medical students; anesthesiology medical staff and faculty; and nursing, respiratory therapy, and pharmacology students and staff. The scenario was typical, with an adult patient experiencing cardiorespiratory arrest and needing advanced life support. The anesthesia resident was to be in the lead role. The different specialties worked together through the scenario with varying degrees of success and failure on several points, one of which was a significant medication error made by nursing and pharmacology participants. The nurse participant announced the error to the team on discovery. Of interest was the fact that neither the error nor the announcement was in the original scenario plan. After the announcement, patient management was redirected and resumed, with a positive patient outcome. Initially the debriefing portion that followed was expertly facilitated with minimal lecture-style