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Featured Article

Implementing Simulation Training for New Cardiothoracic Intensive Care Unit Nurses

Bryan Boling, DNP, APRN, CCRN-CSC, CEN^{a,b,c,*},
Melanie Hardin-Pierce, DNP, RN, APRN, ACNP-BC^a, Lynne Jensen, PhD, APRN-BC^a,
Zaki-Udin Hassan, MBBS^c

^aUniversity of Kentucky, College of Nursing, Lexington, KY 40536-0232, USA

^bUK Healthcare, Cardiothoracic Intensive Care Unit, Lexington, KY 40536, USA

^cDepartment of Anesthesiology, University of Kentucky, Lexington, KY 40536, USA

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effectiveness of
simulation training;
critical thinking;
nurse internship
outcomes

Abstract: New critical care nurses struggle with knowledge application and low self-confidence. Internship programs are helpful; however, data on their effect on critical thinking and knowledge application are scarce. The use of high-fidelity simulation training is effective at improving provider learning and confidence. This article describes the design and implementation of a simulation training program for a nursing internship program in the cardiothoracic intensive care unit. The use of an educational framework to guide the process is also presented. Although it can be a time- and resource-intensive effort, creating a custom program is effective in the training of new nurses.

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The transition from nursing student to professional nurse may result in high levels of stress and anxiety for those stepping into that role for the first time. The challenges of adapting to a new role and of applying theoretical knowledge to practical situations, coupled with low levels of self-confidence experienced by the new graduate nurse, may all contribute to this stress (Delaney, 2003). This is particularly true for nurses in the cardiothoracic intensive care unit (CTICU) due to the additional knowledge required and equipment that must be managed in the hours immediately after cardiac surgery. All of this

makes the orientation of new graduate nurses in the CTICU challenging.

Internship programs for new graduate nurses were developed to help aid in the transition from classroom to clinical practice (Herdrich & Lindsay, 2006). While these programs have been shown to increase self-confidence among new nurses, there are limited data surrounding their effect on knowledge application and development of critical thinking skills (Anderson, Hair, & Todero, 2012).

The use of high-fidelity simulation has been shown to be an effective training tool. A number of professional fields including aviation and nuclear power have had success in incorporating high-fidelity simulation into their training

* Corresponding author: bryanboling@gmail.com (B. Boling).

programs, and its use has likewise been shown to be beneficial in health care (Abe, Kawahara, Yamashina, & Tsuboi, 2013; Kaddoura, 2010; Kane, Pye, & Jones, 2011). Simulation training is particularly beneficial with regard to improving learning and confidence on the part of the trainee (Boling & Hardin-Pierce, 2016).

Key Points

- The transition from student to critical care nurse is challenging.
- The use of simulation as part of new nurse training is effective if managed correctly.
- Custom scenarios take time to create, but may be more valuable than stock scenarios.

The objective of this article was to describe the process of designing and implementing a high-fidelity simulation training program as part of a new graduate nursing internship in the CTICU of a 900-bed university hospital in the southeastern United States. This internship lasts six months and pairs new graduate nurses with experienced preceptors.

In addition to the standard bedside teaching common to new nurse orientation, the internship incorporates didactic instruction on a variety of topics related to the CTICU delivered by experienced CTICU nurses and physicians. Simulation training, however, has not previously been included. Before beginning this pilot program, Institutional Review Board (IRB) approval was obtained for the purposes of collecting and analyzing data.

Design

Framework

The framework chosen to guide the implementation of the simulation class was the Nursing Education Simulation Framework (Jeffries, 2005). This framework focuses on five essential components of simulation training: teacher factors, student factors, educational practices, scenario design characteristics, and outcomes evaluation.

Teacher Factors

Unlike traditional classroom lectures, simulation instruction is centered on the student. However, the teacher is an essential component. In simulation training, the teacher may function either as a facilitator, guiding the scenarios and using them as a vehicle with which to teach, or as an evaluator, monitoring the students to assess their abilities and/or knowledge (Jeffries, 2005). The purpose of the simulation class was educational rather than evaluative. The role of instructor was that of facilitator, not evaluator. To that end, students were allowed to interrupt and “pause” the scenario to ask questions. The instructor was also allowed to “pause” the scenario to clarify a point or to teach a concept, particularly if the student seemed to be

struggling. For this pilot program, one instructor, a veteran CTICU nurse and experienced teacher, was used.

Student Factors

Students in simulation classes need to be somewhat responsible for their own learning as the focus of the class is on the student rather than the teacher (Jeffries, 2005). In the design and implementation of a simulation class, it is important to take into account various student factors including demographics and preclass knowledge and abilities. The students in this class were all new graduate nurses, the majority of whom held Bachelor of Science in Nursing degrees. Table shows the demographic data for participants in the pilot program.

Timing was another student-related factor in this program. This was important because the class needed to occur early enough in the internship process to be of benefit in later clinical situations, but late enough so that new nurses would have had time to acclimate to the role of ICU nurse. It was important for the participants to have enough basic knowledge and experience that the exercise would not result in undue frustration.

It was decided that the class should take place 8-10 weeks into the internship program. This time frame would allow the participants to begin to have some independence in the role of professional nurse and to become accustomed to the basic environment of the CTICU. By this point, the nurses would also have had didactic classroom instruction in advanced hemodynamics, including pulmonary artery catheter data, calculation of systemic vascular resistance, and the relationship between the data and the patient’s hemodynamic status.

Because of the graduated responsibility of the internship program, none of the participants would have direct, hands-on experience in the care of the patient in the immediate postoperative period before participation in the class. This was important to remove the possibility of clinical experience as a confounder.

Table Demographic Characteristics of Study Participants

	N (%)
Gender	
Male	3 (25)
Female	9 (75)
Ethnicity	
White	10 (83.3)
Black	1 (8.3)
Asian	1 (8.3)
Educational background	
Bachelor of Science in Nursing (BSN)	11 (91.7)
Associate Degree in Nursing (ADN)	1 (8.3)
Prior exposure to ICU?	
Yes	10 (83.3)
No	2 (16.7)

Note. ICU = intensive care unit.

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