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Research Brief

Using Simulation to Cross-Train Staff and Build Effective Teams

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cross-training;
quality and safety in nursing;
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TeamSTEPPS;
teamwork

Abstract

Background: Maximizing nursing resources is imperative for hospitals to meet budget. Merging units is often viewed as cost effective. Clinical simulation can be used to both cross-train staff and enhance perceptions of teamwork, thus contributing to patient safety.

Sample: Fifteen nurses and eight technicians underwent simulation as part of a cross-training project. Four nurses and four technicians participated in a pre-posttest study as part of the project.

Methods: Two simulation sessions were used to assist medical surgical nursing staff in caring for pediatric patients. The 35-item Teamwork Perceptions Questionnaire was used to measure teamwork.

Results: Non-parametric Wilcoxon signed ranks test demonstrated a significant improvement in the Teamwork Perceptions Questionnaire situation monitoring subscale ($p < .05$; $p = .012$).

Conclusion: Successful simulation training was accomplished, as well as improved perception of one aspect of teamwork. During debriefing of the simulation exercises, an additional unexpected benefit of problem-solving transpired.

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Hospitals continuously trim budgets. Because staff salaries and benefits are the highest expenses, hospitals seek innovative ways to maximize nursing resources. Merging units is often viewed as cost-effective. For staff nurses involved in such mergers, the idea of working with unfamiliar patient populations can be intimidating. The use of high-fidelity human patient simulation with unfolding scenarios can be used to both cross-train staff and to enhance perceptions of teamwork. This professional development project was planned and implemented to assist medical surgical nurses experienced in caring for adults to become better skilled in caring for pediatric patients on a newly merged patient unit (pediatrics, adult oncology, and adult medical surgical), 3West.

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Background

Lack of teamwork is associated with adverse events. The benefits of good teamwork are well documented: increased patient safety through reduction in falls, fewer clinical errors, performance improvement, quality end of life care, and improved patient outcome (Figueroa, Sepanski, Goldberg, and Shah, 2013; Garbee et al., 2013; Kalisch and Lee, 2011; Klipfel et al., 2014; Paull et al., 2013). Both the Institute of Medicine and the American Association of Colleges of Nursing recommend educational interventions that engender teamwork (Goliat, Sharpnack, Madigan, Baker, & Trosclair, 2013).

Key Points

- Simulation activities can successfully be used to cross-train nursing staff and build effective teams.
- Debriefing may lead to additional problem-solving beyond simply reviewing and evaluating the actual simulation.

Teamwork must be taught and learned; it requires practice (Klipfel et al., 2014). Simulation offers effective, interactive clinical learning (Martin, Keller, Long, & Ryan-Wenger, 2016; Paull et al., 2013), providing a venue to practice working as a team. Experiential learning, in a ''no-risk-for-harm'' setting, has been shown to effectively influence critical thinking, self-efficacy, confidence, satisfaction, and control over practice (Goliat et al., 2013; Klipfel et al., 2014). Simulation has been linked to teamwork and patient safety as associated with (a) assessing critical patient physiologic parameters through observation and accurate communication, (b) planning appropriate interventions based on current and changing patient information, (c) intervening to stabilize the situation, (d) evaluating the situation, and (e) becoming part of a team (Lisko & O'Dell, 2010).

In this project, simulation was used to assist experienced direct care staff in learning to care for a different patient population in a safe environment such as a simulation laboratory. Specific aims for the project were (a) to provide information and practice to medical surgical nurses in caring for pediatric patients and (b) to foster team building. A pretest/posttest design using a convenience sample was used.

Sample

This project took place in a 255-bed hospital in the mid-south United States. The sample comprised of 15 registered nurses and 8 nurse technicians assigned to the newly merged unit. Of the 23 people who cross-trained via simulation, all of them completed a pretest, and eight also completed a posttest that measured perceptions of teamwork. Of these eight, four were registered nurses, and four were techs. These eight were studied for changes in perceptions of teamwork from pre-simulation to post-simulation.

Methods

Setting and Ethics

Institutional review board approval was obtained. Informed consent was acquired from the participants. Training took place in the hospital's simulation laboratory. The staff had worked together on the new unit (3West) for approximately six months before simulation exercises were conducted. They had received didactic classroom sessions concerning pediatric care before 3West opening. Groups of three to four went through simulation together. They were oriented to the simulation room including the video equipment and the simulator, told briefly how the simulations would proceed, and informed that debriefing would occur after each case; then, the entire process would be debriefed after concluding both the sessions.

Measure

Immediately before the training, participants completed a 10-minute survey, Teamwork Perceptions Questionnaire (TPQ). The identifier used for later matching to a posttest was last four digits of the participant's employee number.

The TPQ is a 35-item instrument designed and tested collaboratively by the Department of Defense and the Agency for Healthcare Research and Quality as part of a nationally recognized program called Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS 2.0, 2013). Constructs of the survey are team structure, leadership, communication, mutual support, and situation monitoring (Appendix 1). Cronbach's alpha reliability coefficients for each construct range from 0.88 to 0.95.

Intervention

Project leaders consisted of two nursing faculty experienced in high-fidelity simulation using unfolding scenarios, the clinical educator for 3West, and the director of nursing professional development for the hospital. Many hours were spent preparing for the simulation, including (a) planning the flow, (b) checking equipment, (c) preparing the unfolding scenarios, (d) loading the fictitious patients into the simulated electronic record and the simulator, (e) working with 3West manager regarding staff scheduling, (f) making available the hospital's policies, procedures, and standards of care, and (g) doing a ''dry run'' one day before the first scheduled session to practice and troubleshoot.