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Improving Nurse-to-Nurse Handoff Communication at the Bedside through Simulation-Based

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Abstract

Communication among nursing staff is crucial to the outcome of patient care. Poor handoff and communication among professionals can have a negative impact on the safety of patients. The systemic nature of the problem with miscommunication among healthcare clinicians supports the necessity of standardization of communication among nursing as a handoff of care.

Change of shift report, or nurse-to-nurse report ensures the transfer of critical information to promote patient safety and best practices. Transferring and communicating pertinent information from one shift to the next is one factor in providing continuity of care. Bedside Shift Report (BSR) is an opportunity to reduce errors and ensure communication among nurses. Many benefits for BSR include relationship building among staff, visualization of the patient, increased patient satisfaction, and patient safety. Benefits of BSR include, changing current culture of nurse-to-nurse handoff to the patient's bedside requires nursing leaders to utilize transformational leadership throughout the process. Evidence supports a practice change in nurse-to-nurse handoff using simulation in the hospital environment. This DNP project established BSR competency through simulation training. Registered nursing staff demonstrated nurse-to-nurse handoff communication through simulation competency training after didactic education. Outcomes measures included, improving nursing communication shown by "communication with nurses" scores through HCAHPS scores. A post simulation evaluation tool was completed by each participant evaluating the experience. Ultimately, the DNP project promotes simulation for education on nurse to nurse handoff competency.

Keywords: *communication, handoff, simulation training, and nursing,*

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Nursing plays an important role in healthcare provided to patients 24 hours per day. Communication among nursing staff is crucial to the outcome of patient care. Poor handoff and communication among professionals can have a negative impact on the safety of patients (Collins, 2014). According to the Inspector General, Health and Human Services Department, less-than-competent hospital care in 2010 contributed to the deaths of 180,000 Medicare patients (as cited in Ofori-Atta, Binienda, & Chalupka, 2015). It is estimated between 210,000 and 440,000 patients admitted to the hospital each year suffer from some kind of preventable harm that contributes to their death (Ofori-Atta et. al., 2015).

Problem Description

The clinical problem identified is change of shift nurse-to-nurse handoff that occurs from one nurse to the next. Transforming nurse-to-nurse handoff at the change of shift from the current and traditional process at the nursing station to the new evidence based practice of bedside shift report (BSR) is a change in culture and practice. Standard workflow for BSR includes: Informing the patient of the process for BSR on admission, asking permission if sleeping to wake the patient and who to include in the discussion, introductions of the team, performance of safety checks focused on assessment related to patient acuity and condition, relay tests, procedures scheduled and review of the plan of care.

According to O'Daniel & Rosenstein (2008) in a four day hospital stay, a patient may interact with 50 different employees, including physicians, nurses, technicians, and others. In the clinical setting, critical information must be communicated accurately. Medical errors can occur due to lack of communication. These errors, especially those caused by a communication

failure, have the potential to create severe injury or unexpected death. An estimated 80 percent of serious medical errors are related to miscommunication, including incomplete or poor quality handoffs among caregivers (The Joint Commission Update, 2018). In a typical teaching hospital, an estimated 4,000 patient handoffs occur each day or 1.6 million each year (Wheeler, 2014). The frequency of handoffs increases the chance of missing critical information at the time of the handoff (Wheeler, 2014). Establishing and encouraging patients to be involved in their care and implementing a standardized handoff communication process when a change of nursing care occurs, allows compliance with 2018 National Patient Safety Goals with improving the effectiveness of communication among care givers (The Joint Commission Update, 2018).

Medical errors, specifically when a communication failure has occurred, are pervasive within healthcare today (O'Daniel & Rosenstein, 2008). Engaging and partnering patients and families while sharing accurate and current information at the change of shift helps decrease errors related to communication failures (Connolly, 2017).

The systemic nature of the problem with miscommunication among healthcare clinicians supports the necessity of standardization of communication among nursing as a handoff of care (Stewart & Hand, 2017). The nurse-nurse handoff, is recognized among nurses as significant in maintaining continuity of care and when done poorly, may have substantial safety issues (Anderson, Malone, Shanahan & Manning, 2014).

Nurse-nurse handoff is distinctive to nursing and ensures transferring of critical information to promote patient safety and best practices. Nursing handoff is considered required knowledge within nursing education for standard of practice but is still a challenge (Athanasakis, 2013). Changing the culture of nurse-to-nurse handoff at the desk to the patient's bedside requires nursing leaders to utilize transformational leadership throughout the process. This will

allow not only compliance with patient safety goals but evidenced-based-practice for handoff communication. The simulation competency experience can enable nurses to learn and rehearse handoff skills, using a standard format tool within a safe and supportive environment (Collins, 2014). This allows for an effective way to change the culture for the practice setting.

Handoff communication must include current patient information regarding status and care, treatment and service and any changes in patient condition both recent and historical (Berkenstadt, et al. 2008). The handoff process should be interactive with an active discussion among the healthcare professionals or nursing staff involved in the handoff (Berkenstadt et.al., 2008).

According to Caruso (2007) ensuring continuity and consistency in the communication of information between nurses is one strategy of preventing adverse events and ensuring patient safety. According to Matic, Davidson, & Salamonson (2010) communication among nurses is an important element in the planning and evaluation of patient care. Benefits of BSR enhance quality and safety at the bedside (Maxson, Derby, Wrobleski, & Foss 2012).

Available Knowledge

A review of the literature was completed focusing on nursing communication and handoff at the change of shift. Simulation training for competency training and evaluation of handoff or bedside shift report was included in the review. The focused area was within the inpatient hospital setting. Two main data bases were used including the Cumulative Index of Nursing and Allied Health Literature (CINAHL), and the Cochran Collaboration. Other data were collected from the Joint Commission and Institute of Medicine (IOM) on line databases.

Key words used in the initial search of each database included nursing communicaton, handoff, and simulation training. Other search terms included handoff, bedside communcation,

nursing, shift and report. An extensive review resulted in 88 studies which included systematic reveiws, as well as quantitative and qualitative research designs. The articles were further reviewed and condensed to a total of 10 articles providing the most essential information on nursing handoff and simulation-based competency training within nursing. The systematic review found BSR among nurses, to improve patient safety, provide patient centered care, increases patient and nurse satisfaction, and improve nurse communication. The settings of each study varied but many were in healthcare facilities.

BSR

Stewart & Hand (2017) conducted an integrated literature review, using the search terms of Situation, Background, Assessment, and Recommendation (SBAR), communication, and patient safety while completing a literature review through PubMed, CINAHL Complete, and Cochrane Library databases for peer reviewed articles. The purpose of the systematic review was to evaluate the effect of SBAR use on patient safety and communication between healthcare providers.

Stewart & Hand (2017) investigated the independent variable of SBAR, and included multiple variables and diverse methodologies, making it the best method for analyzing literature related to SBAR's impact on communication and patient safety. Qualitative thematic analysis results were entered in a table to identify recurring themes regarding SBAR use and the effect on communication and patient safety between healthcare providers. Use of SBAR created a common language for communication of key information, increases confidence of speaker and receiver of handoff, improves efficiency, efficacy, and accuracy and improves the perception of effective communication and is well received among staff. The results of the study showed that nurses should implement SBAR as a guide for all handoff communication of patient care

information. Secondly, education using the SBAR tool should be added to nursing curricula to incorporate into the method of communication and practice during clinical experiences. Role-play simulation was shown to be an effective educational method for teaching the SBAR technique among nursing students.

Kilic, Ovayolu, N., Ovayolu, O., & Ozturk (2017) conducted a descriptive and cross-sectional study to determine the approaches and attitudes of nurses regarding clinical handoff in Turkey. The study was a systematic review of qualitative or quantitative descriptive studies. The study was conducted between April 2013 and July 2013 in seven institutions located in a city of Turkey. The population of the study consisted of all nurses, who were working at these hospitals between the mentioned dates; the sample consisted of 48 nurses who were voluntary to participate in the study. Demographic variables were collected including nurse's age, gender, marital status, education, work experience, department, work status, work type and the average number of patients receiving care during a day. The questionnaire regarding the approaches and attitudes of nurses on clinical handoff involved 26 questions to determine the approaches and attitudes of the nurses regarding clinical handoff. The questionnaire was administered by using a face-to-face interview method. The statistical package for the social sciences (SPSS) for windows was used to carry out statistical analysis. Numbers, percentage, and chi-square analysis were used to analyze the data. The findings from the study demonstrated that, the positive aspects of clinical handoff indicated by the nurses were as follows: "Simplifies the follow-up of patient information", "Simplifies the acquisition of information about the patient and the disease" and "Gives an opportunity to get information that I did not know or did not understand" (respectively 80.2%, 74.2%, and 67.7%). The negative aspects of clinical handoff mostly specified by the nurses were as follows: "Clinical handoff takes too much time" (24.4%) and

"increases work load" (14.4%). A limitation of the study was that the data were based on opinions of the nurses and no observation was carried out during patient handoff. While clinical handoff had advantages such as the acquisition of information about the patient and the disease and follow-up of patient information, the disadvantages included taking too much time and increasing the workload which is considered to effect sustainability.

Sand-Jecklin & Sherman (2014) conducted a quasi-experimental pre and post implementation design study to implement a change in practice which included a blended form of bedside nurse shift handoff that was recorded as well as handoff at the bedside. The quantitative assessment included seven medical surgical units in a large university hospital. The evaluation included nurse and patient satisfaction on the new format and the impact on patient safety. Outcomes measured included patient and nursing satisfaction, falls, overtime, and medication errors. Baseline data were collected on nursing perception on shift report processes and patient perceptions on nursing care. An educational video for the blended change was developed along with guidelines and examples of BSR. The bedside component added to report included the discussion of plan of care, visualization of patient incisions, drains, lines, pain assessment and review of potential safety issues.

The survey tool used was the Patient Views on Nursing Care and was adopted with permission from the Larrabee patient judgements of nursing care instrument (as cited in Sand-Jecklin & Sherman, 2014). The Patient Views on Nursing Care survey had 17 items. The survey was completed by 233 patients at baseline and 157 patients three months post-implementation; 154 patients at the 13-month post implementation. The results of the study showed statistically significant improvement post implementation impacted by the change in BSR. Patient falls decrease from 20 to four at the 13 month post implementation and medications errors decreased

from 20 to 10 at the three-month post implementation. Satisfaction with nursing care was high at baseline, before and after implementation. Nursing perceptions of report were significantly improved in areas related to patient safety and involvement in care and accountability post implementation. Overtime was not impacted due to BSR even though nursing perception of BSR was related to being more time consuming. Narrative comments were globally positive including good care, caring nurses, and professional. Limitations included a convenience sample of medical surgical patients scheduled for discharge and all nurses who were on the home unit. This may not have represented the entire population of the organization.

Maxson et al. (2012) conducted a descriptive study to determine if bedside nurse-to-nurse handoff increases patient satisfaction with the plan of care and patient perception of teamwork. Bedside nurse-to-nurse handoff communication staff satisfaction and accountability were measured. A convenience sample of 60 patients enrolled; 30 before the practice change and 30 after the change. Both patients and staff were given self-designed surveys before and after the practice change. Patients were surveyed and asked if they believed they were informed about their plans of care or the day, their perception of open communication between members of the healthcare team with the plan of care, satisfaction with the amount of input they had in the plan of care, and perception of professionalism and confidential manner used in report by the staff. The staff survey measured changes in accountability, adequacy of communication at the change of shift, prioritization of workload, performance of medication reconciliation, and the ability to communicate with care providers immediately after handoff. Data were collected through investigator developed surveys given to patients and staff nurses. The patient survey had five questions and each was answered using a five-point Likert scale (1 = best, strongly agree and 5 = worst, strongly disagree). The questions included nurse-to-nurse shift report

makes people accountable, provides adequate communication between nursing staff at the change shift, allows for prioritizing workload, the ability to perform shift change medication reconciliation, and the ability to communicate with physicians immediately after shift report regarding patient care. Mean scores before the practice change ranged from 1.5 to 2; scores after practice change all had a mean score of one. The significance was noted in the question referring to the patient being informed of his or her plan of care for the day ($p = 0.02$). No validity or reliability measures were reported for the survey instrument. The survey was used to collect data from 30 patients before implementing bedside nursing handoff, and another 30 patients one month after bedside nursing handoff was implemented. Fifteen nurses with a mean of two years in the profession completed the pre- and post-survey. The data were analyzed using Wilcoxon rank-sum test. Statistical improvement was obtained with patients' satisfaction and involvement in their plan of care. Every question in the nurse survey demonstrated statistical significance ($p < 0.05$) with the exception of one: nurse-to-nurse shift report helps me prioritize my workload ($p = 0.06$). Nurses' perception improved significantly regarding nurse-to-nurse accountability ($p = 0.0005$), medication reconciliation ($p = 0.0003$), and ability to communicate immediately with physicians regarding patient care after shift handoff ($p = 0.008$). This study showed bedside nurse-to-nurse shift handoff had a positive impact on patients and nursing staff.

Athanasakis (2013) conducted a literature review with many search terms including nurses, nursing shift, handovers and bedside handovers. This was conducted using the manual key words nurses, nursing, shift handovers, bedside handovers through PubMed manually and included qualitative and quantitative or mixed designed research published between 2000 and 2012. A total of twenty-eight studies were identified and after exclusions, 19 studies were used for the study review. Three major themes were noted. The first included the handoff

component. The second included the change type of handoff being part of a big picture, linking the project to standardization initiatives, providing reassurance on safety and quality, smoothing out logistical difficulties and learning to listen. The third theme was standardization of the handoff. Handoff components include six categories: location, participation, patterns/structure, content, temporal characteristics and nursing records. The findings showed that effective communication practices among nurses have effective handoffs, effective patient care quality and patient safety maintenance. Further studies may include structured or not, multidisciplinary and standardization to support further validity of effective communication practices. The evidence demonstrates an application for nursing that may include handoff being required in nursing education as knowledge for standard of practice. Nursing students should be aware and understand how to apply the communication process to prepare them for professional registered nurse (RN) inpatient nursing practice as they become RN's in the inpatient setting.

Simulation

Yu & Chang (2017) used a convenience sample in two Korean universities which 62 senior nursing students who had experienced clinical practice over the course of two semesters. The study was a non-equivalent control using a pre and posttest quasi-experimental design. The study was conducted using a role-play simulation program for undergraduate nursing students during the period of March 1 through June 15, 2015. The aim of the study was to improve communication quality and clarity; implement a program; and analyze its effects on SBAR communication, communication clarity, handoff confidence, and education satisfaction. SBAR communication was measured using a checklist containing 12 items and responses were provided using a three-point Likert scale (0 = no performance, 1=lacking, and 2= reasonable). Role play and simulation were evaluated through five scenarios including pre-session without SBAR and

then through case scenarios using SBAR, and critical thinking and action planning. The students were divided into two groups: Control and experimental. The control group received lectures on theory for handoff and clinical practice while the experimental group received role play and simulation in five scenarios. Education was given on operation of communication concerning the simulation and directed to communication using SBAR. Communication clarity was assessed using Cho's (2013) eight-item modified version of the Communication Clarity Scale (CCS). Communication clarity was measured by: notification of urgency of patient problem with emphasis on how emergent, appropriate, emphatic, rational notification, important vital signs reported, clear, brief problem summary, clear message regarding treatment, clear requests when asking for help, and clear and specific information. Responses were provided using a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores ranged from 8 to 40, and higher scores indicate higher levels of communication clarity. Measurements included appropriate, emphatic, rational, notification of a patient problem, notification of vital signs, provision of a clear message regarding required treatment, clear direct requests for help or advice and clear request for specific information or guideline. Cronbach' alpha was 0.77 in Cho's original research and 0.84 in the current study. Handover confidence was measured using a visual analog scale ranging from 0 (no confidence) to 10 (strong confidence). Education satisfaction was measured using a visual analog scale ranging from 0 (dissatisfied) to 10 (very satisfied). Data were analyzed using IBM SPSS Statistics for Windows, version 20.0 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics showed participants' general characteristics; independent t-tests were performed to show differences in SBAR communication scores, communication clarity, handover confidence, education satisfaction between groups; and Cronbach's alpha was calculated to determine reliability. The results demonstrated a

homogenous sample according to age, sex, SBAR communication, communication clarity, handover confidence, and education satisfaction between groups. The results demonstrated that scores for five of the eight items in the (CCS) in the experimental group had improved post intervention communication clarity in nurse to-doctor handover. The effect size measured was 0.5. Role-play simulation was supported as an effective educational method for teaching the SBAR technique to nursing students and can be used in other settings to improve handoff. Limitations included different simulation scenarios that were used to determine communication levels and an increase in the difficulty of comparing effects observed prior and subsequent to the program accurately.

Berkenstadt et al. (2008) performed a qualitative descriptive study designed and conducted at one of the hospital's medical step-down units, on a five-bed unit that is part of a 35-bed medical department. The study was completed related to lack of nursing shift handoff creating medical errors. Based on the analysis of missing documentation of the insulin doses in the nursing notes, no adjustment according to blood glucose results, observation of nursing shift handoff at the nursing station and risk managements analysis, a study was designed for simulation based training on BSR. The event led to an evaluation of the medical process and led to proactive quality and safety intervention including a simulation training component. The study observed all 25 members of the nursing staff that signed an informed consent approving passive observation of their practice during handoffs and active participation in the simulation-based training that followed. In the first step of the study, 224 observations on nursing shift handoffs were completed using a checklist. The checklist was established by expert opinion and modified according to the findings in the first 24 observations. Two-hundred twenty-four observations on nursing shift handoffs were completed by a single observer using a

preconfigured checklist. Interviews were completed with five senior nurses. The intervention included the development and implementation of a written checklist/protocol for the handoff, the development and incorporation of simulation-based handoff training into a full-day teamwork and communication workshop, in which the teams had an opportunity to practice the use of the handoff protocol. Observation focused on the verbal communication between nurses, the actions performed by the nurses, and the use of the written patient charts during the handoff process. A total of 390 observations were completed in this study, 224 before the simulation intervention, and 166 following the intervention. A proactive risk management process was used along with simulation based training and motivated a prospective evaluation of safety gaps and inadequacies for the handoff process. This led to the simulation based training to improve clinical skills while emphasizing on handoff. This was inspired by the British systems analysis methodology. Results demonstrated that mechanical ventilation handoff observed went from 28% to 89% ($p < 0.0001$) following simulation intervention, one patient at a time, and the observations were distributed in a balanced manner between shifts and nurses sedation orders from 64% to 100% ($p = 0.0001$), orders for medication administered during continuous infusion from 65% to 100% ($p = 0.0001$) and feeding orders from 54% to 87%, ($p < 0.0001$). After the intervention, there was an increase, during the handoff process, in the number of nurses indicating the patients' names, ages, diseases, and the reasons for step-down unit admission. There was an increase in the number of nurses indicating the occurrence of events during the previous shift from 88% before intervention to 100% following the intervention. In the number of nurses presenting treatment goals for the next shift increased from 43% before the intervention to 69% following the intervention. Following the intervention, an increase was seen in the number of nurses referring during the handoff process to the patients' physiologic parameters presented by the monitoring

system to patients' fluid balance and to physicians' medical orders. However, following the intervention, the monitor alarms were checked and adapted to the patient's status in only 4 of 166 cases (2%; 0 of 224 before the intervention); the mechanical ventilator was checked in 25 of 38 cases (66%; 7 of 88 cases before the intervention), and the medications being administered in continuous infusion were checked in 20 of 31 cases (65%; 12 of 109 cases before the intervention). The findings showed the ability to demonstrate the value of the intervention and the positive influence of simulation-based training on most post intervention observations.

Groves et al. (2017) conducted a simulation-based pilot study investigation to determine if priming safety through nursing handoff communication created a change in nursing safety-oriented behavior. The study hypothesized that nurse participants primed with the value of patient safety would perform more safety-oriented actions during the simulation than those not primed. The theoretical framework of safety priming functions as the foundation. The study was a randomized control trial (RCT) and mixed methods pilot design. A convenience sample of 20 registered nurses were recruited from medical surgical acute care units in a Midwestern Academic Medical Center. The sample size of 20 was based on requirements for conducting a pilot study using a new methodology. The setting consisted of a high fidelity simulation lab. The independent variable used was safety priming and the dependent variable was nurse safety-oriented behavior. An observation tool called the Safety Action Performance Scale (SAPS) measured the dependent variable. The tool consisted of 43 items and was designed to capture safety actions constituting safety-oriented behavior, including routine and expected to be done for every patient. Content validity for SAPS tool was established by the SAPS tool by reviewing supportive literature where priming mechanisms found significant effects on behavior and by a review from nursing experts practicing at the site. The 43 items in the SAPS was developed in

conjunction with the scenario which reflects appropriate evidence based responses to the safety risks shown in each scenario. Trained observers assign a zero for non-completion or one point for completion of safety oriented behavior. The points were summed as a total score, which is an evaluation approach used in many health care education simulation trainings. Reliability for scoring was established through consistent camera angles ensuring all areas of the room could be identically observed for each participant. Stimulated interviews were conducted after each simulation to examine the presence of safety priming, the independent variable.

Demographics showed that all nurses (n=20) were female, age 30.3 $\pm$ 7.3, with 6.2 $\pm$ 5.3 practice years. There was a small difference in safety oriented behavior between groups but no statistically significant differences between control and intervention groups at alpha = .05 indicating the control and intervention groups were not substantially different due to small sample size with a small effect. Nurses who received a safety culture priming intervention scored slightly higher than nurses who did not. The total SAPS scores ranged from 14 to 32 for the control group and 20 to 33 from the intervention group. The intervention group performed slightly higher than the control group with a small effect size 26 ± 46 and 24.9 ± 5.3 ($p = 0.63$; $d = 0.22$) respectively. The simulated recall interviews were conducted after simulation and nurses receiving the safety priming intervention performed slightly but non-significantly more safety actions than nurses who did not (60.5% vs. 57.9%). Estimates showed 37 participants in each group were needed to achieve 80.8% power to detect a modest 10% point increase in safety actions completed. This is a primary limitation and lack of power. Clinical practice implications of items completed 80% or more included introductions of oneself, expressing plan to address pain, most elements of head to toe assessment, fall prevention measure, all that may be

considered routine but necessary and a definite safety component. The study helped build the stage for future safety designs.

Collins (2014) performed a qualitative and descriptive study design to review how student nurses can develop their communication skills by looking specifically at how the University of Derby used simulation to teach pre-registration student nurses effective handoff techniques. The study outlines the potential impact of ineffective handoff skills on nurse's confidence, competence and coordination as well as patient safety. The study included two cohorts of second-year students (at the end of their year), with a variety of placement experiences. All participants had undertaken placements in both primary and secondary care. Participants were exposed to clinical settings where handoff was used for differing reasons and differing ways such as verbal face-to-face, telephone and audio recorded. The simulation pilot taught the use of the handoff framework based on the SBAR approach for enhancing communication. The tool aims to help both the person giving and the person receiving the handoff to understand the necessary information, what needs to be shared and actions necessary. The SBAR framework has four stages: situation, background, assessment and recommendation. Measurement was completed by qualitative audit feedback from the students who took part in the simulation. The academic team reviewed the qualitative data including the simulation handoff exercise, which includes seven steps: Principles, Scenario, without SBAR, with SBAR, Peer feedback, personal reflection and action planning. Data showed this form helped nursing students develop communication skills for handoff. Data showed that form and structure simulation assists in developing nursing student's communication skills. This study showed that handoffs in every simulation experience can assist in development of practice skills and all can be used to improve continuity of care, patient safety and outcomes. A potential limitation for the

study is the lack of interprofessional simulation exercise using SBAR approach and will require future studies of handoff.

Walsch, Messmer, Hetzler, O'Brien, & Winningham (2018) conducted a pretest-posttest design that examined the effects of bedside shift educational program on accountability and structural empowerment. The study included a demographic questionnaire, the Specht and Ramier Accountability Index (SRAI) and the Conditions for Workplace Effectiveness Questionnaire (CWEQ) 11 which were administered pre and post educational intervention. The SRAI instrument evaluated the impact of organizational changes designed to enhance the practice of professional nursing. The SRAI tool consisted of 11 items on which participants indicated the extent they agree with each statement on a scale from one to four, one = definitely false to four = definitely true. The CWEQ measured the concept of structural empowerment which evaluated workplace culture. The CWEQ-11 questionnaire was implemented for data gathering and is a modification of the CWEQ-1 and consists of 19 items measuring structural empowerment and two global empowerment scales that was used for construct validation purposes. Items on each of the subscales were totaled and averaged to provide a score for each subscale ranging from one to five using a Likert scale (one = none or strongly disagree to five = a lot or strongly agree). The CWEQ-11 demonstrated strong internal reliability with work effectiveness (12 items) with a Cronbach's alpha of .92, n = 166; nursing job activities (satisfaction), three items: Formal power with; and empowerment a Cronbach's alpha of .91, n = 170, organization relationships (communication), four items: Informal power) with a Cronbach's alpha of 86, n = 168; and empowerment (nine items) with Cronbach's alpha of .94, n = 168. Construct validity for the CWEQ-11 was established in a previous study [Laschinger, Finegan, Shamian, & Wilk, 2001] (as cited in Walsch et al., 2018).

The Collaborative Deliberation Model for patient care was used as the framework for work collaboration in communicating. A convenience sample of nurses who worked in a 250-bed hospital, on two medical surgical units participated. In total, 184 RN's were included with 104 completing the pretest and 73 RN's completing the post test. The RN's were given a 45-minute learning module presentation on BSR. This included recent best practices on BSR, focusing on patient safety, communication, patient and family involvement while addressing accountability, work effectiveness, job activities, and satisfaction.

Results of the study showed statistically significant differences in all subscale mean ranks including global empowerment, work effectiveness, organization relationships and communications, nurse job activities and satisfaction. The participants identified an experienced improved bedside shift reporting capabilities with positive staff and patient outcomes after the educational session. The results demonstrate that building healthier positive work environments offer opportunity to empower nurses for achieving their work and accept accountability of outcomes which allows greater collaboration with their patients resulting in improved outcomes. The participants voiced concerns of time constraints of BSR, fear of unknown, and confidentiality issues at bedside with semi private rooms and visitors. Limitations include generalizability due to convenience sample from one hospital to another.

National Recommendations

In recent years, BSR has been shown to have positive benefits such as improved satisfaction; improve nurse communication, and shorter nursing report at shift change (Sand-Jecklin & Sherman, 2014). BSR dates as far back as 1978, when implemented by Memorial Sloan-Kettering Cancer Center in New York with positive outcomes including improved communication and patient satisfaction (Ofori - Atta, et al., 2015).

Patient Safety. The Joint Commission along with input from the Sentinel Event Advisory Group, developed national patient safety goals and identified actions with the potential to protect patient safety (The Joint Commission, 2018). The patient safety goal required health care organizations to "implement a standardized approach to "handoff" communications, which allows patients an opportunity to ask and respond to questions for the plan of care (The Joint Commission, 2018). According to The Joint Commission (2018), strategies for improving handoff communication include using effective communication techniques, limiting interrupts at shift change, and standardization of shift-to-shift report, while ensuring smooth handoffs. Enhancing communication should include providing a comprehensive, structured approach with an electronic tool when available (Joint Commission International Center for Patient Safety, 2005). Addressing issues of hierarchy, ensuring questions are always encouraged and making sure experienced nurses take in account for novice nurses and level of experience are considered important in handoff of care (Welsh, Flanagan & Ebright, 2010).

BSR. According to the Agency for Healthcare Research and Quality (AHRQ) (2009) nearly half of hospital staff indicate that patient information is lost during shift handoffs. The AHRQ recommends handoffs be structured, include opportunity for questions and answers, and be supplemented by readily available medical records including an electronic form when available (AHRQ, 2009). Evidence supports the practice of BSR-for nurse-to-nurse handoff communication and improves quality care for patients and families (Frazier & Garrison 2014). Because BSR takes place with the patient present, they are given the opportunity and encouraged to be involved in their care.

SBAR. Kaiser Permanente in Colorado was the first to adapt the SBAR communication template for use in the healthcare field in an effort to reduce communication errors taking place

at times of handoff [Institute for Healthcare Improvement (IHI), 2016]. The SBAR tool established a common way for communication regarding patient care. SBAR is a powerful tool utilized and described as best practice by the Joint Commission (The Joint Commission, 2018). SBAR improves effectiveness of communication or handoff among individuals on the care team. Key components included in SBAR are as follows: Briefly define the situation, provide the background information that relates to the situation, state the current assessment, and what is needed from the other caregiver or the recommendation for plan of care (The Joint Commission, 2018). SBAR is easy to use and can help staff learn the key components needed to send a complete message (IHI, 2016)

Simulation. According to Welsh, Flanagan, & Ebright (2010) development of a mnemonic for each setting and a training program for staff is important. Training for successful handoffs may be accomplished through simulation and include time for debriefing. In the IOM report, *To Err is Human: Building a Safer Health Care System*, simulation training is recommended as a strategy used in prevention of errors within the clinical setting (IOM, 2000). According to the IOM (2000), health care organizations and teaching institutions should participate in the development and use of simulation for training novice practitioners, problem solving, and crisis management. Clinical simulation is a teaching strategy that allows learners to develop, refine, and apply knowledge and skills in a realistic clinical situation (Durham & Alden, 2008). Participants can experience interactive scenarios specifically to meet educational needs. Learners participate in simulated patient care scenarios within a specific clinical environment, gaining experience, learning and refining skills and developing competencies (Durham & Alden, 2008).

Simulation offers a unique method for experiential learning and evaluating and can be used in the hospital environment to support and validate the clinical judgment and competency of nurses (Decker, Sportsman, Puetz, & Billings, 2008). The simulation competency experience

can enable nurses to learn and rehearse handoff skills within a safe and supportive environment (Collins, 2014). Simulation based education provides an opportunity for training in team and interpersonal communication skills, showing a well-recognized patient safety factor that is rarely addressed in traditional medical education (Berkenstadt et al., 2008). Simulation based competency training that is simulation is reproducible and will allow benefits for rolling out across the facility. According to Scheidenhelm & Reitz (2017), hardwiring is essential in the implementation of BSR. Monitoring compliance with BSR and mentoring staff have been reported as effective practices in supporting success with hardwiring of BSR (Schedienhelm & Reitz, 2017).

Synthesis

The overall strength of the body of evidence collected supported nurse-to-nurse handoff communication. A critical analysis of evidence demonstrated similarities and differences of communication among nurses and nurse-to-nurse handoff.

Themes within the literature included an increase in clarity and competence, improved communication and safety, effective patient care quality, value of simulation intervention, and patient satisfaction when performing nurse handoff at the bedside. After simulation educational sessions, evidence demonstrated BSR capabilities having a positive staff influence and improved patient outcomes. Researchers provided evidence of safety and communication with use of standardized tools and simulation competency education with nurse-to-nurse handoff at the bedside.

Four of the studies used simulation for training of nurse-to-nurse handoff communication, indicating the value of practice with simulation for handoff. However, two of these studies demonstrated differences related to an increase in accountability. Only one study indicated patient and family involvement in the plan of care. Another study showed increased

nurse/student satisfaction, while another indicted relationship building for the patient/family/nurse. The study sample sizes, age, gender, and demographics varied, as well as the location which incorporated international settings for the studies.

Theoretical Rationale

Transformational Leadership is the most prevalent leadership style noted in the literature and was introduced by Burns (Burns, 1978). The theoretical framework used for changing the culture of traditional nurse-to-nurse handoff to BSR handoff utilizes transformational leadership. According to Doody & Doody (2012), transformational leadership promotes adaptability and flexibility for change within organizations as they face constant change and allows leaders to be adaptive and flexible in their role.

Nursing leadership utilizes transformational leadership to influence and motivate nursing to establish changes in practice within a clinical setting. Transformational leadership is one of the most effective models of leadership because it recognizes the importance of rewarding and satisfying the needs of followers by engaging them emotionally and intellectually. Leaders who model transformational leadership can challenge others, engage effectively, improve productivity, and patient care (Thompson, 2012).

The central concept for transformational leadership is a shared vision, which becomes a common goal for an organization (McEwen & Wills 2014). Healthcare environments are ever changing and staff must feel they can be creative, and innovative and participate in shared decision-making. Transformational leadership creates a change in culture to allow staff involvement. Staff can feel that responsibility is shared among leadership and front line staff. Transformational leadership in its core competencies for leadership development has mentoring

and role-playing development workshops. It allows for performance evaluations with outcome measures by the entire team due to involvement in decision-making (Schwartz et al. 2011).

Transformational leadership has three assumptions. The first is that people follow others who inspire them. Secondly, a leader with vision and passion can obtain great things but must retain personal integrity, and be willing to stand up for others while maintaining motivation. The third assumption is to inject enthusiasm and energy into effort in order to get things done (Clark, 2009).

According to Doody & Doody (2012) transformational leadership is favored as a leadership style to ensure future generations of nurses have the proficiency to create effective solutions to some of the most crucial issues. It allows for engaging, inspiring, motivating and influencing of staff to act in a way by appealing to their moral values. Nurse leaders utilize transformational leadership to influence nurses in new processes and motivate team members to establish innovation as part of Evidence-based practice (EBP) in an effort to transform bedside care. Transformational leadership theory variables and practice variables are similar and congruent with today's nursing practice setting within many hospital settings, especially in Magnet organizations.

Transformational leadership style engages the team and create buy in before making changes (Doody & Doody, 2012). On-going flexibility by nursing leadership is crucial as a new process continues to roll out throughout the organization. Nurse-to-nurse handoff is considered a nursing practice issue in maintaining continuity of care due to the importance of transferring and communicating pertinent information from one shift to the next (Anderson, Shanahan, & Manning 2014). It is distinctive to nursing and ensures transferring of critical information from one shift to next. BSR promotes patient safety and best practices. Utilization of nursing

leadership through transformational leadership was used to influence nursing in the new process and motivate nursing to establish BSR as part of EBP. This was established through supportive clinical decision-making and facilitation of a new nursing practice for change of shift report from the current practice at the nursing station to the patient bedside using a standard structured format and guideline.

Specific Aim

The specific aim of this DNP project was to implement Improving Nurse-to-Nurse Handoff Communication at the Bedside through Simulation-Based Competency Training to meet the following goals: Improve participants' confidence of BSR utilizing the National League of Nurses Confidence in Learning tool; successful demonstration of BSR by participants assessed by the Creighton Simulation Evaluation Instrument (C-SEI) instrument in areas of communication and technical competency and improve nursing communication with patients shown by "communication with nurses" scores through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).

Context

Setting and Target Population

A 954-bed, general medical and surgical facility located in Lexington, Kentucky was the site for the project. The healthcare facility consists of four separate pavilions within the health system located on one campus. The project was on a 32-bed telemetry unit. The study population included a convenience sample of all registered nurses working within the telemetry unit.

There were no exclusion criteria for registered nurses and participation was voluntary. A letter of support was given from the facility to complete the project (See Appendix A).

Project Congruence to Agency

The foundation of the healthcare facility strategic plan is patient-centered care, focusing on patient experience, strategic cultural alignment, and growth in complex care. Upon review by a consulting agency for efficiencies, performing BSR was identified as a major barrier and needed immediate improvement. Early data was completed through audits of handoff by the consultants and BSR was deemed almost non-existent. A patient survey conducted through Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) found that the rating for "communication with nursing staff" was not at the facility wide target of 80% before the project intervention.

Evidence-based-practice (EBP) is utilized throughout the organization and nursing autonomy is established within the nursing strategic plan. One area of focus within the nursing strategic plan is structural empowerment, new knowledge, innovation and improvement: Implementation of EBP to improve care. The professional practice model includes patient and family centered care, EBP, professional development, and advanced practice in specialty care. The facility values include empowerment of nursing and innovation and learning and are encouraged to question nursing care and promote EBP. Bedside shift report or nursing handoff communication is part of the nursing strategic plan for the fiscal year 2017, 2018, and 2019. Bedside shift report is sustainable within the organization due to focused efforts in EBP. Nursing leadership and buy in from the beginning set the stage for project sustainability.

Stakeholders

Key stakeholders included the nursing strategic planning group, nursing practice council, nursing staff at the bedside, nursing leaders, Clinical Nurse Specialists, physicians, unit clerks, nursing care technicians and the patient advisory committee. Meetings were conducted with

each of these groups for project planning. Utilization of clinical leaders such as Clinical Nurse Specialists were involved from the beginning for greater buy in from staff. Nursing leadership buy in was established with the appropriate stakeholders, including the Patient Care Manager (PCM), and Assistant Chief Nurse Executive.

The patient advisory committee includes previous patients and families that give input into new practice changes who partner with nursing and other services as changes are made to promote patient centered care. Setting the stage was pertinent, so that all disciplines understand the importance of why nursing is at the bedside at change of shift for patient handoff.

Coaching and engaging staff in planning of BSR roll out was encouraged throughout the change process. Reward and recognition was pertinent as the BSR process was audited. Feedback to nursing from patient survey data was established and shared.

Methods

Intervention Description

Prospective RN participants were identified by using one nursing floor within the facility. There were approximately 50 RNs working on the chosen Telemetry unit and all were offered participation in the project. The Project Lead (PL) attended staff meetings led by the PCM. During the staff meetings, a cover letter was given to each RN's explaining who the PL was and invited them to participate in the project as fulfillment of the requirements for the completion of EKU's DNP Program (See Appendix B). The PL explained the purpose of the project and what the project involved. A letter was sent via email to individuals who do not attend the staff meetings.

The education Powerpoint and literature review were shared ahead of class via email and posted on the unit by each of the computers. The didactic educational session included the

objectives, purpose of BSR, staff perceived barriers, review of literature, facility policy and guideline, the current SBAR electronic format, and step-by-step demonstration of BSR. Time was allowed for discussing barriers and historical challenges from the groups.

BSR competency was established through simulation training. The simulation included a step by step process from the facilities BSR practice guideline. Time alloted included four, three hour sessions. Simulation training included the current standard electronic format using SBAR according to the facility's policy. Registered nursing staff demonstrated nurse-to-nurse handoff communication through simulation-based competency training after a didactic education session conducted by the PL. The focus was on communication and technical skills using the C-SEI tool. Patient scenarios were used for evaluating communication effectiveness, and technical skills following hospital policy including patient identifiers, and performing handoff correctly. The educational sessions ended with a debriefing among participants. The sessions allowed the RNs to review and discuss how to complete BSR more efficiently in the future.

Data Collection Points

Data were collected at specific points during the project. The PL was responsible for all data collection or retrieval of data. At the beginning of the session, demographic data was completed by each participant. The C-SEI tool was completed directly after the simulation project with participants. The NLN Confidence in Learning tool was used to determine satisfaction and self confidence in learning after the simulation activity was completed with each participant. HCAHPS data for nurse communication scores was collected from the facility data base after the educational session. HCAHPS scores on nursing communication was collected 30 days pre and post intervention and the same timeframe in the previous year of

2017. The data were measured by a % in comparison to other bench marked units. All survey data were anonymous.

Resources

The start-up budget for this project was minimal. Copies of assessment tools and education materials were printed and incurred a cost of approximately $25.00. There were no capital or operational budget costs associated with this project. Cost of the Patient Care Manager (PCM) can be considered indirect cost since the PCM had two staff meetings for one hour each. The purpose of the meeting included discussion of the project and recruitment of participants. This amount for one hour would be $45.00/hour, totaling $90.00 dollars. The staff were clocked in during the project but were working a shift already scheduled. There was no additional salary cost for participants. The total cost included $110.00 dollars.

Timeline of Project Phases

The DNP project timeline began in the spring of 2018 with approval from the facility. The DNP project review with the implementation facility's nursing research council was completed in June, 2018. In September 2018 project materials for the education simulation were developed. The Institutional Review Board (IRB) application was submitted electronically in September 2018 to the Eastern Kentucky University IRB committee. Approval for the IRB was granted on October 17, 2018. The project intervention was completed in the month of January with four different sessions to accommodate staff. The evaluation procedure, and outcomes measures and data analysis were completed in February and March of 2019. The Doctorate of Nursing Practice (DNP) project disseminated in the month of April.

Implementation of Framework

Plan, Do, Study, Act (PDSA) was used for implementation of the nurse-to-nurse handoff communication project. According to the Institute for Healthcare Improvement (2018), PDSA is a shorthand for analyzing change shown by development of a plan for the change (Plan), acting out the plan or test (Do), observing and learning from the actions (Study), and determining what are the changes that need to be made to the test (ACT).

The Plan consisted of the literature review, mapping out the process for project implementation, and IRB approval. The "Do" included recruitment of participants and implantation of the simulation-based competency training. The "check" included utilization of the NLN Self Confidence in Learning tool at the end of each session. This document was completed by each participant. The PL evaluated the simulation sessions by using the C-SEI tool. A short debriefing session occurred so that participants could share their experiences and learning. The "act" was analyzing the data and informing the clinical setting of results, including HCAHP's data pre educational session and 30 days post session. A review of the process occurred and included any future changes if implemented in other areas and sustainability for this inpatient unit along with others in the healthcare setting. Sustainability would include other key stakeholders such as staff development and enterprise key stakeholders such as enterprise directors for buy in as an organizational initiative. The team involved consisted of the project lead, ACNE, unit manager, director, and bedside nurses.

Measures

Demographics

Each participant completed a demographic data collection tool (Appendix C). The variables included were the demographics of age, gender, race, license, years of nursing

experience, and highest nursing degree including Associate Degree Nurses (ADN), Bachelors of Science in Nursing (BSN), and Masters of Science in Nursing (MSN).

C-SEI Tool

Permission to use the C-SEI tool was given via Creighton University via email correspondence (See Appendix D). Questions regarding training requirements for use of the tool was ask via email. Todd et al. (2008) developed the C-SEI tool, which has been used for simulation evaluation (See Appendix E). The instrument includes questions about the objectives and information, support during the session, problem solving related to simulation, feedback and guided reflection, and fidelity or realism of scenarios used and how to apply to daily patient care. The C-SEI is made up of four sections (assessment, communication, critical thinking, and technical skills). Not applicable can be an option if it does not apply to that simulation. The simulation for BSR included the communication and technical pieces of the C-SEI tool. The communication section evaluates communicates effectively with providers (delegation, medical terms, SBAR, RBO), communicates effectively with patient and significant other (verbal, nonverbal, teaching), writes documentation clearly, concisely and accurately, responds to abnormal findings appropriately, and promotes realism professionalism. The technical skills section instrument evaluates the adherence to patient safety protocols. This section includes patient identifiers, utilizes standard precautions including had washing, administers medications safely, managers equipment tubes and drains and therapeutically and performs procedures correctly. Each section is a score of one point if the competency is demonstrated and zero points if the competency is not demonstrated, and not applicable, if the statement does not apply to the simulation exercise. There is no summation of the total score. According to Todd et al. (2008), content validity was established from the

literature and from the review of the tool by an expert panel. Reliability was established using sixteen simulation sessions, with two trained evaluators at each session. Percent agreement by evaluators ranged from 84.4% to 89.1%. The C-SEI tool was completed directly after the simulation project with participants.

National League of Nurses (NLN) Confidence in Learning Tool

The NLN Confidence in Learning tool was used to determine satisfaction and self confidence in learning (See Appendix F). The NLN Confidence in Learning tool is a 13-item instrument designed to measure student satisfaction (five items) with the simulation activity and self-confidence in learning (eight items) using a five-point Likert scale with one being strongly disagree and five being strongly agree. Reliability was tested using Cronbach's alpha which demonstrated 0.94 for satisfaction and 0.87 for self-confidence. Use of the NLN tool does not require permission.

HCAHPS Satisfaction Survey

The hospital performance measure for the specific unit included nursing communication through the HCAHPS satisfaction survey. The HCAHPS survey asks discharged patients 32 questions about their recent hospital stay. The survey asks patients to rate the frequency of events during their care as never, sometimes, usually, or always. The HCAHPS survey is organized under the following headings: Your Care from Nurses, Your Care from Doctors, The Hospital Environment, Your Experiences in the Hospital, When You Left the Hospital, and Overall Rating of the Hospital.

Baseline data were acquired from the pilot unit and was collected up to 30 days post simulation education of BSR. The data were collected via Press Ganey (an independent company which distributes patient surveys), sent to the facility, and shared through our Patient

Experience office internal site. The data were updated weekly and aggregate data were shared with all staff. The PL had access to the patient experience system and had previously undergone training for data retrieval as well as data reporting.

The HCAHPS data for nurse communication scores was collected 30 days pre and post project intervention for nursing communication. These data were measured by percent in comparison to bench marked units within other academic medical centers. Press Ganey data are anonymous as reported to the institution, no names or identification are given to leaders.

Analysis

The PL used the codebook (Appendix G &H), to guide data entry into the IBM SPSS Statistics for Windows, Version 24.0 Armonk, NY: IBM Corp IBM SPSS® Version 24 for statistical analysis. Descriptive statistics were reported on the demographic data including age, gender, race, license, years of nursing experience, and highest nursing degree including ADN, BSN, and MSN. Comparisons of confidence and learning (NLN Confidence in Learning Tool) were performed using Chi-square analyses and/or Fisher's exact test. Statistical significance was reported based on the p value < 0.05. Percent change of HCAHPS data on the domain of "Communication with Nurses" was also conducted comparing 30 days-prior to the intervention and 30-days after; statistical analysis was not performed because only two data points were compared which represented aggregate data rather than individual response.

Ethical Considerations

EKU's IRB granted exempt status approval for the project for a three-year period, on October 17th, 2018. Even though the PL is employed at the facility in a nursing director role, no conflict of interest exists.

Results

For this project, 21 RN's participated from a voluntary convenience-sample. Age of participants ranged from 21-63 years with a mean age of 38 ± years. The majority (52%) of participants were age 40 or younger. There was variance in the number of years participants had; the majority had between 0-5 (43%) and 6-15 years of experience (52%). Only 5% had beyond 15 years of experience. Level of education indicated that the majority were at least prepared at the baccalaureate level or higher (76%); less than a quarter (24%) had an associate degree in nursing.

Comparisons of confidence and learning (NLN Confidence in Learning Tool) aspects were performed using Chi-square analyses and/or Fisher's exact test based on groupings by age and years of nursing experience (Appendices H & I). All participants indicated they either 'agreed' or 'strongly agreed' with the measures including satisfaction with current learning and self-confidence in learning. It was determined that nursing professionals who were 41 years and older all strongly agreed that the provided teaching methods were helpful and effective compared to only 46% who were 40 years and younger (X^2: 7.6 (1), $p = 0.012$) (Appendix I). It was also determined that simulation was a suitable match for learning style in newer nurses (≤ 5 years of experience) compared to nurses with more experience (≥ 6 years). Of the nurses (n = 9) who indicated having five or fewer years of experience, 100% strongly agreed that the simulation was suitable while only 58% of nurses with six or more years of experience felt the same way (X^2: 4.9 (1), $p = 0.045$) (Appendix J). There were no additional differences in groups on the measures of the NLN Confidence in Learning Tool between either group.

The C-SEI tool used by the PL for evaluation only included two sections on communication and technical aspects. Only four items were incomplete on the assessment post simulation and included lack of two identifiers when addressing the patient.

Comparison of the HCAHPS data on the domain of "Communication with Nurses" was also conducted. Historical data from 30-days prior to the educational offering was collected (70.1%) and data for 30-days post educational offering was collected and found to be 80.1%, indicating a 10.0% increase in patient evaluation of adequate communication.
It is unknown if this increase is significant because these data are reported in aggregate and averaged across surveys returned, thus individual responses were not available for detailed analysis.

Discussion

Summary

Throughout the literature, simulation was shown to facilitate the development of communication skills and increases confidence in performing handoff. This DNP project indicated that nursing staff handoffs through simulation experience were considered helpful. This project demonstrated that nurses with five years or less experience, considered the simulation experience helpful and a process for newer nurses to gain confidence in a safe and non-judging environment. Newer nurses are familiar with simulation learning from nursing schools and simulation is a newer concept to healthcare facilities. This may explain the difference in suitability of learning styles by years of experience. Simulation was demonstrated as an effective learning tool and allowed nursing staff to gain experience and confidence in a safe, supportive environment. Participants experienced interactive scenarios specifically to meet educational needs.

The C-SEI evaluation in communication and technical skills only showed patient identifiers missing from four individuals and all other categories were completed correctly. This tool was completed directly after the simulation exercise and real patient scenarios were used for

the simulation. This concept was important for the staff experience using the type of patients cared for on the unit.

The HCAHPS domain of communication with nurses increased 10.0%, 30 days post BSR simulation experience. This demonstrated an increase in patient satisfaction with nursing communication. This HCAPS scores substantiated the improvement in communication between the nurse and patient shown by the increase post simulation. This feedback to the nursing unit created a better understanding of how communication improvement can build better relationships with patients and families. With positive evidence including standards of practice by regulatory agencies, nurse-to-nurse handoff communication can be considered an important part of ongoing education within the facility.

Many benefits for BSR include relationship building among staff, visualization of the patient, increased patient satisfaction and patient safety (Maxson et al., 2012). Evidence supports the practice of BSR for nurse-to-nurse handoff in improving quality care for patients and families (Frazier & Garrison 2014). Nurse-to-Nurse handoff at the bedside, has the potential to decrease medication errors, enhance patient centered care, improve communication among nurses, physicians, patient/family,and other members of the health care team (Maxson et. al., 2012).

Interpretation

The results of this DNP project demonstrate that simulation as an educational venue for nurses participating in BSR is feasible and effective. The didactic educational sessions on nurse-to-nurse handoff communication and simulation activity for BSR could be standardized as an educational model throughout the organization for handoff education. Staff development may dedicate staff to implement the project within nursing orientation and with annual competencies for a

wide spread initiative. The PL provided all evidence and resources to the medicine service line managers for future competencies. The training information will be used within the medicine service line for nurse-to-nurse handoff simulation based competency training. BSR is a priority of the nursing strategic plan, and is therefore sustainable within the facility.

Limitations

This project method had limitations. A potential limitation with the use of the NLN Confidence in Learning Tool could be social desirability bias. The PL works within the facility and closely with the nursing staff and could have a tendency to please the PL by evaluating agree or strongly agree with the simulation activity. The PL had no direct oversite of the RN's and reassured the RN's, that confidentiality was maintained throughout the project. No identifiers were associated with the individual other than a code made by the RN. A short time frame was utilized for data collection within the project itself. Limited time on monitoring HCAHPS data post intervention should be considered. Sustainability can be established by the PCM in monitoring of HCAHPS data.

Conclusions

In conclusion, miscommunication among healthcare clinicians supports the necessity of standardization of communication among nursing as a handoff of care. Simulation is considered an evidence-based approach used in providing nursing education today. Due to the successful positive simulation feedback, nurse-to-nurse handoff or BSR can be established through staff development and provided to all nursing units throughout the project facility. This will allow for review of standardized format and BSR guideline as an expectation within the project facility. Simulation competency experience enabled nurses to learn and rehearse handoff skills and can be considered as an effective educational strategy to improve patient care.

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Appendix A
Letter of Support

UK HealthCare

GOOD SAMARITAN HOSPITAL

University of Kentucky 310 South limestone Lexington, KY 40508

859-226-7000

ukhealthcare.uky.edu

April 19th, 2018

To Whom It May Concern,

This letter is to indicate my support of Lisa Thornsberry's nursing research project, Improving Nurse to Nurse Handoff Communication at the Bedside through Simulation-Based Competency Training, to be conducted at UK HealthCare Good Samaritan Hospital.

Nurse to nurse handoff communication is an important element of our practice. Conducting nursing research in pursuit of best practice is an element of our nursing strategic plan and critical to our success as leaders in healthcare. We look forward to learning from Mrs. Thornsberry's research.

Please feel free to contact me at 859-323-8801 if I can provide any additional information.

Sincerely,

Brandy Mathews

Brandy G. Mathews

Assistant Chief Nurse Executive UK

Appendix B

Improving Nurse to Nurse Handoff Communication at the Bedside through Simulation-Based Competency Training

Lisa Thornsberry, MSN, RN

Eastern Kentucky University

Department of Baccalaureate & Graduate Nursing

Dear Registered Nurse,

I am a Doctorate in Nursing Practice (DNP) student in the Department of Baccalaureate and Graduate Nursing at Eastern Kentucky University in Richmond, Ky. You are invited to participate in a project as fulfillment of the requirements for completion of the program. The purpose of my project is to implement simulation training for nurse-to-nurse handoff communication at the bedside to improve nursing confidence and skill in performing bedside shift report (BSR) and also improve nursing communication scores. The project will be made up of a didactic learning experience followed by a simulation learning experience. There are no risks or harm to you or your position within the organization.

You will be ask to complete a Confidence in Learning tool to determine satisfaction and self-confidence and a demographic survey. You will be evaluated by an evidenced-based instrument called the Creighton Simulation Evaluation Instrument (C-CEI) during simulation. The surveys you complete will be anonymous and results will be reported only in aggregate format.

Your participation in the project is voluntary. You are not obligated to participate and may withdraw from the project at any time. If you have questions about the project, please contact me at 859-285-7654 or my faculty advisor, Dr. Gina Purdue at 859-622-1974.. Questions or concerns about your rights as a study participant may be directed to EKU Division of Sponsored Programs at 859-622-3636.

Lisa Thornsberry

DNP Student

Eastern Kentucky University

Appendix C

Improving Nurse to Nurse Handoff Communication at the Bedside through Simulation-Based Competency Training

Demographic Data Collection Tool

Please list the following demographic information. Your Identification (ID) is a number only known to you.

ID: _____

Age: _____

Gender: _____

License: _____

Race: _____

Years of nursing experience: _____

Highest nursing degree: Circle: ADN BSN MSN Other

Appendix D
Permission to Use Creighton Simulation Evaluation Instrument

Hi Lisa, Yes, I am including the link for the training. I don't think you will find it too time consuming and it is critical for achievement of inter-rater reliability.
https://nursing.creighton.edu/academics/competency-evaluation-instrument

After completion of the training you may use the C-CEI

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From: Thornsberry, Lisa [mailto:Lisa.Thornsberry@uky.edu]
Sent: Sunday, April 15, 2018 2:57 PM
To: Tracy, Mary E <MaryTracy@creighton.edu>
Subject: DNP project

I would like permission to use the C –SEI tools for a simulation project on Bedside shift report for my DNP project. I will be completing this through Eastern Kentucky University's DNP school. Do I need to complete training in order to use this tool? Thank you.

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Appendix E
Creighton Simulation Evaluation Instrument (C-SEI)

Measurable Objectives—Possible points 0 or 1	Patient A	Patient B	Patient C	Patient D
Assessment				
Obtains Pertinent Subjective Data				
Obtains Pertinent Objective Data				
Performs Follow-up Assessments as Needed				
Assesses in a Systematic & Orderly Manner Using the Correct Technique				
Communication				
Communicates Effectively w/Providers (delegation, medical terms, SBAR, RBO)				
Communicates Effectively with Patient and S.O. (verbal, nonverbal, teaching)				
Writes Documentation Clearly, Concisely & Accurately				
Responds to Abnormal Findings Appropriately				
Promotes Realism/Professionalism				
Critical Thinking				
Interprets Vital Signs (T,P, R,BP, Pain)				
Interprets Lab Results				
Interprets Subjective/Objective Data (recognizes relevant from irrelevant data)				
Formulates Measurable Priority Outcomes				
Performs Outcome-Driven Interventions				
Provides Specific Rationale for Interventions				
Evaluates Interventions and Outcomes				
Reflects on Simulation Experience				
Technical Skills				
Uses Patient Identifiers				
Utilizes Standard Precautions Including Hand Washing				
Administers Medications Safely				
Manages Equipment Tubes & Drains Therapeutically				
Performs Procedures Correctly				

Appendix F

Student Satisfaction and Self-Confidence in Learning

Instructions: This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark:
1 = STRONGLY DISAGREE with the statement
2 = DISAGREE with the statement
3 = UNDECIDED - you neither agree or disagree with the statement
4 = AGREE with the statement
5 = STRONGLY AGREE with the statement

Satisfaction with Current Learning	**SD**	**D**	**UN**	**A**	**SA**
1. The teaching methods used in this simulation were helpful and effective.	○ 1	○ 2	○ 3	○ 4	○ 5
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	○ 1	○ 2	○ 3	○ 4	○ 5
3. I enjoyed how my instructor taught the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
4. The teaching materials used in this simulation were motivating and helped me to learn.	○ 1	○ 2	○ 3	○ 4	○ 5
5. The way my instructor(s) taught the simulation was suitable to the way I learn.	○ 1	○ 2	○ 3	○ 4	○ 5
Self-confidence in Learning	**SD**	**D**	**UN**	**A**	**SA**
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	○ 1	○ 2	○ 3	○ 4	○ 5
7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	○ 1	○ 2	○ 3	○ 4	○ 5
8. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting	○ 1	○ 2	○ 3	○ 4	○ 5
9. My instructors used helpful resources to teach the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
10. It is my responsibility as the student to learn what I need to know from this simulation activity.	○ 1	○ 2	○ 3	○ 4	○ 5
11. I know how to get help when I do not understand the concepts covered in the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
12. I know how to use simulation activities to learn critical aspects of these skills.	○ 1	○ 2	○ 3	○ 4	○ 5
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time..	○ 1	○ 2	○ 3	○ 4	○ 5

 Revised December 22, 2004

Appendix G
Demographics Code Book

Variable Name	**Variable Explanation**	**Coding (Value Labels)**	**LOM**
ID			
Age	Age in years		Scale
Gender	Gender of participant	0 – Male 1 – Female	Nominal
Race	Race	1=Caucasian 2= African American 3=Asian 4=Hispanic 5=Other	Nominal
Years of experience	Years of experience of RN	1=0-5 2=6-10 3=11=15 4=16+	Nominal
Highest nursing degree	Nursing degree	1 – AND 2 – BSN 3 – MSN 4 – Other	Ordinal

Appendix H
NLN Confidence in Learning
Code book

Variable Name	**Variable Explanation**	**Coding (Value Labels)**	**LOM**
ID	Identification number		
SSQ1	Sim methods helpful and effective	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ2	Provided a variety of learning materials	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ3	Enjoyed how instructor taught	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ4	Materials were motivating and helped me to learn	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ5	Taught suitable to the way I learn	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ6	Confident that I am mastering content	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ7	Confident simulation covered critical content	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ8	Developing skills and	1=Strongly Disagree 2=Disagree 3=Undecided	Ordinal

	obtaining knowledge	4=Agree 5=Strongly Agree	
SSQ9	Helpful resources to teach sim	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ10	Responsibility as the student to learn	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ11	I know how to get help when I don't understand	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ12	I know how to use sim to learn critical aspects of these skills	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal
SSQ13	It is the instructors responsibility to tell me what I need to learn	1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree	Ordinal

Appendix I
Results by age grouping: NLN Confidence in Learning Tool

	40 years and younger (n = 11)	**41 years and older (n = 10)**	**X^2 (df), *p*-value**
SSQ1:			**7.6 (1), 0.012**
Agreed	6 (55%)	0 (0%)	
Strongly Agreed	5 (45%)	10 (100%)	
SSQ2:			1.5 (1), 0.36
Agreed	5 (45%)	2 (20%)	
Strongly Agreed	6 (55%)	8 (80%)	
SSQ3:			0.96 (1), 1.00
Agreed	1 (9%)	0 (0%)	
Strongly Agreed	10 (91%)	10 (100%)	
SSQ4:			0.69 (1), 0.64
Agreed	4 (36%)	2 (20%)	
Strongly Agreed	7 (64%)	8 (80%)	
SSQ5:			0.15 (1), 1.00
Agreed	3 (27%)	2 (20%)	
Strongly Agreed	7 (73%)	8 (80%)	
SSQ6:			1.22 (1), 0.36
Agreed	2 (18%)	4 (40%)	
Strongly Agreed	9 (82%)	6 (60%)	
SSQ7:			2.01 (1), 0.48
Agreed	2 (18%)	0 (0%)	
Strongly Agreed	9 (82%)	10 (100%)	
SSQ8:			0.15 (1), 1.00
Agreed	3 (27%)	2 (20%)	
Strongly Agreed	8 (73%)	8 (80%)	
SSQ9:			0.15 (1), 1.00
Agreed	3 (27%)	2 (20%)	
Strongly Agreed	8 (73%)	8 (80%)	
SSQ10:			0.03 (1), 1.00
Agreed	4 (36%)	4 (40%)	
Strongly Agreed	7 (64%)	6 (60%)	
SSQ11:			3.18 (1), 0.21
Agreed	3 (27%)	0 (0%)	
Strongly Agreed	8 (73%)	10 (100%)	

SSQ12: Agreed Strongly Agreed	 3 (27%) 8 (73%)	 3 (30%) 7 (70%)	0.19 (1), 1.00
SSQ13: Agreed Strongly Agreed	 5 (45%) 6 (55%)	 1 (10%) 9 (90%)	3.22 (1), 0.149
Table 1. Results of comparisons between age groups (40 and younger, 41 and older) on measures of agreeance of the NLN Confidence in Learning Tool. $p \leq 0.05$ denotes significance.			

Appendix J

Results by years of experience: NLN Confidence in Learning Tool

	5 or fewer years of nursing experience (n = 9)	**6 or more years of nursing experience (n = 12)**	**X^2 (df), p-value**
SSQ1:			1.94 (1), 0.33
Agreed	4 (44%)	2 (17%)	
Strongly Agreed	5 (56%)	10 (83%)	
SSQ2:			0.00 (1), 1.00
Agreed	3 (33%)	4 (33%)	
Strongly Agreed	6 (67%)	8 (67%)	
SSQ3:			0.79 (1), 1.00
Agreed	0 (0%)	1 (8%)	
Strongly Agreed	9 (100%)	11 (92%)	
SSQ4:			2.35 (1), 0.18
Agreed	1 (11%)	5 (42%)	
Strongly Agreed	8 (89%)	7 (58%)	
SSQ5:			**4.92 (1), 0.045**
Agreed	0 (0%)	5 (42%)	
Strongly Agreed	9 (100%)	7 (58%)	
SSQ6:			2.35 (1), 0.18
Agreed	1 (11%)	5 (42%)	
Strongly Agreed	8 (89%)	7 (58%)	
SSQ7:			0.05 (1), 1.00
Agreed	1 (11%)	1 (8%)	
Strongly Agreed	8 (89%)	11 (92%)	
SSQ8:			1.40 (1), 0.34
Agreed	1 (11%)	4 (33%)	
Strongly Agreed	8 (89%)	8 (67%)	
SSQ9:			1.40 (1), 0.34
Agreed	1 (11%)	4 (33%)	
Strongly Agreed	8 (89%)	8 (67%)	

SSQ10: Agreed Strongly Agreed	 2 (22%) 7 (78%)	 6 (50%) 6 (50%)	1.68 (1), 0.37
SSQ11: Agreed Strongly Agreed	 1 (11%) 8 (89%)	 2 (17%) 10 (83%)	0.13 (1), 1.00
SSQ12: Agreed Strongly Agreed	 2 (22%) 7 (78%)	 4 (33%) 8 (67%)	0.31 (1), 0.66
SSQ13: Agreed Strongly Agreed	 4 (44%) 5 (56%)	 2 (17%) 10 (83%)	1.94 (1), 0.33
Results of comparisons between experience groups (5 years or fewer, 6 years or more) on measures of agreeance of the NLN Confidence in Learning Tool. $p \leq 0.05$ denotes significance.			