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The Effect of Situation, Background, Assessment, Recommendation (SBAR) Education on the Quality of Student Nurses Handoff Report

BY

KERRI GOUPIL

Bachelor of Science Degree in Nursing, University of New Hampshire 2001

THESIS

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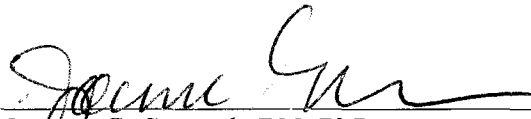
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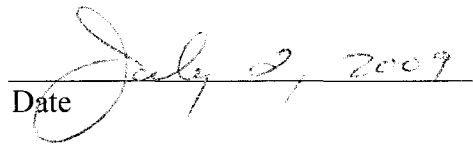
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ABSTRACT

THE EFFECT OF SITUATION, BACKGROUND, ASSESSMENT, RECOMMENDATION (SBAR) EDUCATION ON THE QUALITY OF STUDENT NURSES HANDOFF REPORT

By

Kerri Goupil

University of New Hampshire September, 2009

Leaders in patient safety initiatives have promoted the use of standardized communication at the time of handoff as a means to decrease the margin for errors during the transmission of critical information. One means of standardizing handoff is by using the framework provided by the Situation, Background, Assessment, Recommendation (SBAR) communication technique. This framework provides specific guidelines for organizing and communicating relevant patient information at the time of handoff. To date there is a gap in training and education of handoff practices at the academic level of healthcare students. Potential interventions to address this gap include the positive benefits of appropriate handoff education and training among student nurses.

This aim of this study was to address the quality of student nurses' handoff reports and its significance to a culture of safety. A quasi-experimental pilot study was conducted to assess the effect of an SBAR education program on the quality of student nurses' handoff report. Six students were randomly placed into one of two groups. The intervention group attended an education program designed by the researcher. The control group did not attend the education program.

Statistical analysis revealed a significant difference in the quality of content of handoff reports between students who received SBAR education and those who did not.

However, there was no significant difference in the organization of the handoff report between cohorts. The education program on the tenets of SBAR proved to be beneficial in teaching student nurses how to conduct a quality handoff report. Implications from this study include the positive benefit that introducing quality improvement initiatives at the academic level can have on patient safety.

CHAPTER I

INTRODUCTION

Care delivery processes in today's healthcare system involve numerous interfaces and patient handoffs among caregivers with varying levels of educational training. Handoff is defined as "the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis" (Australian Medical Association, 2006, p.8).

Effective communication among clinicians during times of handoff is critical to patient safety. Ineffective handoffs can contribute to gaps in patient care and violations in patient safety including medication errors, wrong-site surgery, and patient deaths (Friesen, White, & Byers, 2008). In its seminal report, *Crossing the Quality Chasm*, the Institute of Medicine (IOM) (2001) revealed that inadequate handoff reports were among primary causes for errors in patient safety. The handoff is also the subject of one of the Joint Commission's National Patient Safety Goals which requires healthcare organizations to implement a standardized approach to handoff communications (Joint Commission Resources, 2006). This goal emerged subsequent to a Joint Commission analysis of more than 3,000 events resulting in death or serious injury. Communication failures were cited as the root cause of 65% of these events with at least half of the failures occurring during handoff (Joint Commission Resources, 2006).

Healthcare systems are complex continuous process organizations where work is shared between more than one person with varying levels of education and maintenance of continuity between shifts is critical to safety. Healthcare systems have joined the ranks of high reliability organizations such as aviation, space travel and off-shore and on-shore mining as they all share elevated risks for errors in communication during handoff. Researchers from these industries have studied errors in handoff communication long before the culture of patient safety became palpable in the current healthcare system (Lardner, 1996; Patterson & Woods, 2001). Drawing from the work of these researchers, leaders in patient safety began to examine high reliability organizations to assess safety systems being utilized in areas such as handoff.

Champions of the movement to advance safety initiatives in healthcare such as the Agency for Healthcare Research and Quality (AHRQ), the Institute of Healthcare Improvement (IHI) and the IOM have studied evidence-based practices utilized by high reliability organizations such as aviation shown to be successful in decreasing communication errors that contribute to fatalities and tragedies. Safety and quality researchers relate in the literature that application of such practices such as standardized communication in the healthcare industry can decrease incidence of error and negative patient outcomes (Hughes, 2008; IOM, 2001, 2004; Leonard, Graham, & Bonacum 2004). Specifically, the literature examining strategies to improve the safety of the handoff report process indicated that standardizing the communication process is a successful means to combat barriers to effective communication (Amato-Vealey, Barba, & Vealy, 2008; Arora & Johnson, 2006; Haig, Sutton & Whittington, 2006; Solet, Norvell, Rutan, & Frankel, 2005. Results of the Haig et al. (2006) study depicted a

marked decrease in adverse patient events after implementing standardized communication processes during handoff.

One method that has been found to assist with structuring and standardizing communication between caregivers is the *Situation, Background, Assessment*, and *Recommendation* (SBAR) communication technique. The technique was initially developed by the military and refined by the aviation industry to reduce the risks associated with the transmission of inaccurate and incomplete information (Rodgers, 2007). SBAR is a standardized oral communication method; however it has also been used as a template to guide the development of written forms and checklists that accompany patients during times of handoff. The technique allows for framing exchanges of information between clinicians in a way that diminishes the margin for error and the incidence of omitting critical patient data. The framework assists nurses in presenting their thoughts and patient data; *situation, background and assessment*, in a logical sequence that encourages critical thinking; *recommendation,* about what needs to happen next in a patient care situation.

The literature contains articles and studies examining the use of the SBAR communication technique by currently practicing, experienced clinicians (Amato-Vealey et al., 2008; Haig et al., 2006; Velji et al., 2008; Woodhall, Vertacnik, & McLaughlin, 2008). However, less emphasis has been placed on the introduction of standardized communication tools such as SBAR at the academic level of nursing. Wong, Yee, and Turner (2008) identified education and training of students as one of the major themes related to evidence gaps in clinical handoff. The authors conducted an evidence-based literature review regarding the effectiveness of improvement interventions in clinical

handoff. Their evaluation related that although literature frequently mentions the role of education and training in handoff, detailed studies on their structure, implementation or evaluation remain limited.

Traditionally, communicating handoff report from nurse to nurse at shift change has been expressed in the literature by Wolf (1988) as a ritualistic, sacrosanct time where nurses shared cathartic feelings and attitudes about patients, hospital staff, each other and their work in a descriptive, narrative way. Shift report has also been described in the literature as an arena where group cohesion, team building, and teaching and learning the professional jargon of nursing occurs (Lally, 1999; Wolf, 1989). Wolf (1988) also described the shift report as a mechanism whereby new graduates were tested, shaped, sanctioned, and accepted or rejected. According to Wolf, experienced nurses were critical of new graduates' ability to collect data, supply sufficient information, and articulate diagnoses, treatments and plans of care. Wolf (1988) observed in his study that novice nurses' performance during shift report served as some evidence of their competence. According to Wolf graduate nurses were "embarrassed when their reports were long and there was confusion about facts important to their patient's welfare" (p. 270). The author also described the language used during shift report as being "hospital bound and nursing specific" (p.286) making it difficult for nursing students to understand and promoting confusion among them. Therefore, nursing instructors and primary care nurses often spent additional time interpreting shift report to students.

Prior to leaders in healthcare acknowledging the contribution of deficient communication systems to errors, shift report was considered a time where warnings

and acknowledgements of errors were made. The historic culture of "blame and shame" was revealed by Wolf (1988):

> Report was like an open confessional that enabled them to receive the support of their peers and to confront the fact that sometimes they did harm to patients, although unintentionally. Accidents and errors happened and flew in the face of the unspoken warning of nursing learned as nursing students: Never make mistakes; your mistakes take their toll in human terms – you deal with vulnerable people...incidents that happened despite the nurses' vigilance were treated as error. Although a nurse may not have been able to stop the event from occurring, she was responsible and therefore culpable (p. 275-276).

Historically, nursing education has focused on therapeutic communication skills between the nurse and patient. Sherwood and Drenkard (2007) related that the conventional focus of teaching nurses how to communicate has been concerned with developing empathy and the ability to assess and educate patients and families. The authors expressed concern that student nurses are not routinely exposed to standardized communication techniques such as SBAR that are currently being applied in critical team communications such as shift handoffs. The authors also warned educators that the protected environment of student learning experiences may limit the opportunity to practice evidence-based communication skills during their educational experiences.

As the healthcare system continues to morph into one of increasing complexity and the risk of faulty communication systems has been clearly documented (IOM,2000), evidence of initiatives to address the gap in nursing education have surfaced in the literature. In their executive summary the American Association of Colleges of Nursing (2008) has outlined *Essentials of Baccalaureate Education for Professional Nursing Practice* to provide curricular elements and framework for nursing in a culture of safety. *Essential VI* specifically addresses the need for teaching communication practices that enable the delivery of high quality and safe patient care. Finkelman and Kenner (2007) in

their work, *Teaching IOM: Implications of the Institute of Medicine Reports for Nursing Education*, argued that the IOM reports should be at the core of all nursing education programs.

The *Quality and Safety Education for Nurses* (QSEN) project consists of nursing faculty members that have adopted approaches to integrating quality and safety content into nursing education curricula (Day & Smith, 2007). QSEN addressed the challenge of preparing nurses with competencies necessary to continuously improve patient safety and positive outcomes. In respect to teamwork and collaboration, QSEN recommended that nurses learn skills that will allow them to follow communication practices that minimize risks associated with handoffs among providers and across transitions in care (Cronenwett et al., 2007).

In her theoretical work *Novice to Expert*, Benner (1984) discussed the concept of nurses developing "global sets" about patients. According to Benner, sets are accrued over time and predispose nurses to act in certain ways in particular situations. Novice nurses and expert nurses perceive situations from differing sets which can alter how a situation is communicated. Standardizing communication at handoff between nurses has the potential to level the differences between novice and expert nurses when trying to communicate a clinical situation. Benner (1984) highlighted that the novice nurse has no experience of the situations they face and that they must be given rules to guide their performance. In respect to learning how to give handoff report in a culture of patient safety, standardized communication offers a specific criteria and guideline for novice nurses to follow when learning how to communicate shift report to their colleagues.

Conclusively, a scan of the literature revealed a link between the quality of information shared during handoff and the problem of adverse patient outcomes. Handoff inadequacies among novice and student nurses contribute to the complexity of the problem. It is important that student nurses be educated on the significance of the problem and strategies to improve communication. Teaching students how to conduct a quality handoff report using a standardized communication technique such as SBAR has the potential to empower and enable them to communicate handoff report in a manner that enhances patient safety immediately upon entering into practice. Haig et al. (2006), suggested components of a quality handoff using SBAR in a published handoff form that can be used between nurses at shift change (Appendix A). Introduction of standardized communication for handoff at the academic level will help to address identified evidence gaps in education and training in clinical handoff. This research aims to address the quality of student nurses' handoff reports and its' significance to a culture of patient safety.

Given that student nurses will be entering into increasingly complex healthcare systems it is significant to investigate how an educational intervention on the principles of SBAR affects the quality of student nurses' handoff reports. The purpose of this study was to determine the effect of an SBAR education program on the quality and organization of student nurses' handoff reports. The following hypotheses are proposed: Hypothesis 1: Junior baccalaureate nursing students who receive SBAR education will demonstrate a better quality of handoff report than students who do not receive SBAR education. Hypothesis 2: Junior baccalaureate nursing students who receive SBAR

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education will demonstrate better organization of handoff report than students who do not

receive SBAR education.

CHAPTER II

LITERATURE REVIEW

Nurses are entrenched in a complex network of clinical relationships including nurse-patient, nurse-nurse, and nurse-physician interactions. Communication is the nucleus of these relationships and is dependent on the nurse's ability to listen, assimilate, interpret, discriminate, gather, and share information in a constantly changing system made up of many disciplines and hierarchies. Communication patterns are highly variable and can be influenced by factors such as individual style differences, perspectives, education, previous experiences, culture, stress, fatigue and established hierarchies. Among the most critical patient related communications are those that occur during transitions of care at handoff. Communications that occur during transitions in patient care require shared responsibility for timely, relevant, clear, and concise exchanges of patient information often in hectic, chaotic environments. The Institute of Medicine's reports *To Err is Human* (2000), *Crossing the Quality Chasm* (2001), and *Keeping Patients Safe: Transforming the Work Environment of Nurses* (2003) each revealed ineffective communication at handoff as a major cause of medical errors.

The literature was reviewed to gain a comprehensive understanding of both historical and current evidence in respect to the processes, skills, tools, guidelines and models of clinical handoff in the global healthcare industry. Articles, reports, research studies, literature reviews and popular press were examined. Specifically, the review of literature sought to gain insight into evidence of educational practices with student nurses

related to handoff and the standardized communication method SBAR. Additionally, an effort was made to assess research linking handoff practices to issues of patient safety, quality healthcare and education.

Wong et al. (2008) conducted an evidence-based literature review to assess the effectiveness of improvement interventions in clinical handoff for the Australian Commission on Safety and Quality in Healthcare. Among major themes identified in the literature relating to high risk scenarios in clinical handoff were shift to shift handoff between nurses. Risks identified in this domain were linked to lack of structure, policy and procedures. Major themes identified relating to interventions included the positive benefits of appropriate handoff education and training. The authors specifically noted SBAR as a type of handoff that improves communication.

The SBAR framework presents guidelines for organizing relevant information when preparing to communicate with another healthcare team member. SBAR is an acronym for: *Situation*: What is going on with the patient? *Background*: What is the clinical background or context? *Assessment:* What do I think the problem is? *Recommendation*: What do I think needs to be done for the patient? The framework provides a standardized means for communicating in patient care situations and is effective for bridging differences in communication styles. SBAR can be used in any clinical domain, and has been applied in obstetrics, rapid response teams, ambulatory care, and acute care settings. SBAR has been utilized in sanctioned initiatives by the Institute of Healthcare Improvement (IHI) and has been endorsed by the American College of Healthcare Executives and the American Organization of Nurse Executives (Dingley, Daugherty, Derig & Persing, 2008). The Joint Commission on Accreditation of Healthcare

Organizations (JCAHO) has promoted the use of SBAR framework for nurse-to-nurse communication during handoff in an effort to help meet National Patient Safety Goals. In conjunction with the Joint Commission, Haig et al. (2006) published a SBAR handoff report form that can be used for nurse-to-nurse communication (Appendix A).

A review of the literature uncovered both qualitative and quantitative studies that implemented strategic initiatives incorporating SBAR communication techniques to enhance the quality of handoff reports among clinicians. Study aims were found to focus on evaluating educational interventions as well as providing evidence linking use of SBAR to decreased incidence of adverse patient events. The majority of studies were preliminary in nature utilizing observational and survey methods. Pre-test/post-test study designs were often utilized to report on current use of SBAR communication technique among clinicians and effects of educational interventions on standardized communication for handoff report.

The research team of Dingley et al. (2008) carried out an observational study of 495 communication events on two different acute care units. Utilizing a pre-test/post-test design, the study incorporated baseline data collection and implementation of team communication interventions, followed by data collection and analysis over a 24 month period. The purpose of the study was to develop, implement, and evaluate a comprehensive team communication strategy, resulting in a toolkit that could serve as a guide for the education and integration of communication and teamwork factors in clinical practice. SBAR was one of the communication strategies included in the toolkit. It was initially used to organize and present information to communicate changes in a patient's condition, but as use expanded across units, it was also utilized as a framework

for handoff report. Staff and provider education and development were primary components of the communication strategy implementation. Note pads that included SBAR instructions and a guide for preparing to contact another team member or provider were created to use during the implementation phase of the study. The implementation project was evaluated by observing communication between providers. Findings showed a decrease in communication time surrounding a patient concern after implementation of the communication strategies. Nurses (n=111) perceived increased satisfaction with communication and higher rates of resolution of patient issues post-intervention (80% more satisfied post-intervention vs. 67% pre-intervention). Further evaluations were planned by the researchers to assess patient occurrence reports, hospital survey on patient safety culture, staff understanding of patient daily goals and focus group interviews.

Woodhall et al. (2008) reported on survey results obtained pre and post intervention with SBAR communication techniques to improve nurse-physician communications. Prior to implementation of SBAR, baseline data was collected by physician and nurse surveys regarding effective communication within the hospital. The results indicated that most healthcare providers saw room for improvement regarding communication. Based on the results of the initial survey, the SBAR technique was introduced hospital wide in an effort to standardize the transfer of information between nurses and physicians. Flyers, pocket cards, and reference guides were provided to nursing staff to teach the technique. Additionally, laminated nursing shift report templates and report to physician telephone checklists were provided to all inpatient nursing stations. One year after implementation, the same areas of the hospital were surveyed to evaluate perceived efficacy of the SBAR technique. A 20%-40% improvement was seen in all five areas of communication that

were evaluated. The researchers reported that nursing staff were routinely using SBAR during shift report, and both novice and experienced nurses were more confident when calling a physician about a critical situation.

Velji et al. (2008) conducted a three phase study evaluating the effectiveness of an adapted SBAR tool for both urgent (changes in patient status) and non-urgent (team debriefing following a challenging admission) situations in the stroke unit of a rehabilitation setting. In phase 1 of the study, clinical staff, patient and family input was gathered using focus group interviews to help guide, validate and refine adaptations to the SBAR tool. In phase 2, the adapted SBAR was implemented. Clinical and support staff (n=43) took part in a series of workshops to enhance their proficiency in using the SBAR process. In phase 3, evaluation of the effectiveness of the adapted SBAR tool focused on three main outcome areas: staff perceptions of team communication and patient safety culture, patient satisfaction and safety reporting. Data collection, outcome measures and analysis differed for each of the three main outcomes of the project.

First, the researchers evaluated staff perceptions of team communication and patient safety culture by administering the *Hospital Survey for Patient Safety Culture* to all clinical and non-clinical hospital staff. The survey was administered prior to implementation of the SBAR tool and six months after implementation. The survey, developed by the AHRQ, can be used to assess safety culture in hospitals, track changes in patient safety over time and evaluate the impact of patient safety interventions. The survey covers 12 unit specific and hospital wide patient safety domains, including those specific to communication and teamwork. Survey data were analyzed to compare staff members' perceptions across time, both within the study unit and across the hospital. The

survey developers suggested that results must be at least 5% higher post intervention to be considered "better" or at least 5% lower to be considered "worse." There was no statistical difference in handoffs within the stroke unit. However, five dimensions were found to be statistically significant ($p<.05$); organizational learning-continuous improvement, communication openness, feedback and communication about error and staffing and hospital management support for patient safety. The researchers highlighted that the adapted SBAR tool was primarily used between professional staff and physicians to discuss changes in patient care plans, discharge planning, and specific safety issues therefore, any statistically significant changes were a result of how the tool was used within the study team.

Next, patient satisfaction was evaluated by the *Client Perspectives of Rehabilitation Services* (CPRS) questionnaire given to patients who were discharged from the stroke unit six months prior to the implementation phase and those who were discharged six months following the implementation of the adapted SBAR tool. The CPRS contains seven domains that measure client-centered care from the client's perspective using a five-point Likert scale. Preliminary analysis of the data showed marginal improvement within the study team in overall quality of care and in two of the seven domains of patient satisfaction pre and post intervention.

Lastly, in respect to evaluating the project outcome of safety reporting, incident and near-miss reports were tracked on a quarterly basis. Trends to increasing incident reporting were observed within the study unit (41 incidents reported six months prior vs. 73 reports six months after). The researchers recommended that future studies target the

use of SBAR in areas such as handoff to enable a more specific evaluation of its effectiveness.

The strongest study found in the literature linking use of SBAR to decreased adverse events was that of Haig et al. (2006). Investigation of near-miss occurrences and results of root cause analyses resulted in identification of a need to develop a standardized approach to handoff communications among healthcare providers. Accounts of actual cases demonstrated the impact of misinterpreted communication from nurse-to-nurse, nurse-to-physician, and physician-to-physician. After obtaining baseline data on the current use of SBAR, efforts to incorporate SBAR began on a general medical nursing unit utilizing the Plan, Do, Study, Act (PDSA) performance improvement methodology. Team champions spread the use of SBAR throughout the hospital using various mechanisms such as safety education and development of a user friendly tool for shift handoff reports (Appendix A). The outcome measure was number of adverse patient events. The rate of adverse events per 1000 patient days was reduced from a baseline of 89.9 to 39.96. Adverse drug events decreased from 29.97 per 1000 patient days to 17.64. The researchers concluded that use of SBAR in both oral and written communication improved patient safety by providing clear, accurate feedback of information between caregivers. There were fewer incidents of missed information during handoffs since SBAR because concise facts were shared in an organized format.

Mikos (2007) reported on the use of voice technology with built in prompts that follow the SBAR communication model allowing nurses to enter and receive handoff reports through a central server accessible by phone. Mikos' quality improvement team analyzed gaps in existing handoff methods being used in a medical center. Of concern to

the quality improvement team was that existing handoff methods lacked any capability for monitoring or quality improvement. The use of voice technology allowed for auditing and monitoring of handoff reports for quality, clarity and adherence to SBAR methodology. The ability to monitor performance improvement activities would ensure ongoing compliance with JCAHO standards for handoffs as communicated in the National Patient Safety goals.

The aim of Mikos' team was to design a handoff methodology that would improve quality and patient safety by standardizing handoff communication across their facility. They also wanted to increase efficiency and reduce costs to overtime. The user-friendly technology ensured that even students, float nurses, new hires and agency nurses could easily access the system. The process was tested on a 55-bed medical unit for one month and then applied across the entire hospital. The tool allowed the management to sort reports by unit, patient, or caregiver to ensure the consistency of information communicated between clinicians. This ability was useful in conducting root cause analysis of any unusual occurrence such as a patient fall or complaint. Additionally, when training new nurses or students, preceptors could use archived reports as a reference and listen to reports given by students to critique their accuracy and provide feedback.

Mikos reported that after monitoring patient handoffs across the facility, there were improvements in patient safety and quality of care as a result of implementing the SBAR handoff technology. The streamlined process allowed nurses to spend more time in direct patient care and increased surveillance during shift change. Although the article did not quantify results, there was a reduction in patient falls during shift change and an increase in response time to patient call lights at the hospital where the quality improvement

initiative was implemented. The use of voice technology that incorporates SBAR methodology also resulted in a decrease in interruptions and distractions during handoffs. Reporting time was reduced by nearly 70%, from an average of more than 6 minutes to less than 2 minutes per report. The researcher reported an annual savings of $120,000 in incremental overtime at the hospital after using the SBAR handoff method in conjunction with voice technology.

Education and training of students were among the major themes identified by Wong et al. (2008) as evidence gaps in clinical handoff. The researchers found evidence that literature frequently mentions the role of education and training in handoff but detailed studies of their structure, implementation or evaluation remain limited. The authors concluded that despite the increase in published literature on clinical handoff in the last 3-5 years, high quality evidence based interventions that have the potential for transferability remains low. Many of the studies reviewed by Wong et al. focused on clinical handoff scenarios involving high acuity patients and/or high acuity environments but only a few studies addressed guidelines, protocols or education/training as a response to the challenges identified. Comprehensively, the review highlighted an increased awareness of the importance of handoff initiatives for improving safety and quality. The authors' shared that insights generated from conducting the review suggested an emerging trend towards increased intervention-focused studies.

An in-depth appraisal of the literature revealed studies linking handoff practices to issues of patient safety, quality healthcare and education. Ebright, Urden, Patterson and Chalko (2004) utilized interview methods in a qualitative study to describe near misses and adverse-event situations involving 12 novice nurses from various patient care settings

in a Midwest healthcare system. The small, but informative, sample size of 8 reported

cases yielded major themes that preceded adverse-event situations. In 7 of the 8 cases,

participants related incomplete or omitted information during the handoff as a

precipitating factor to the adverse event. It was reported by the participants that handoff

inadequacies involving other novices contributed to the complexity of the situation. One

novice nurse expressed particular concern when receiving handoff from other novice

nurses as the report lacked recommendations of what to look for and comprehensive

pertinent patient data. The study findings maintained that there is a need for future

research targeted on teaching novice nurses how to communicate a quality handoff

report. Educational endeavors allowing the novice to demonstrate competency in

communicating handoff report have the potential to decrease the incidence of adverse-

event situations upon transition from student to practicing nurse.

Similarly, lack of, or ineffective verbal communication at the time of handoffs has

emerged as a common theme surrounding critical and worst events in medicine. Arora,

Johnson, Lovinger, Humphrey and Meltzer (2005) conducted a qualitative study for

evidence of critical incidents and reports of worst events. The researchers interviewed 26

inpatient medical interns caring for 82 patients after two different call nights. Twenty-

five critical incidents were reported as a result of communication failure in the written or

verbal handoff. In 22 of the 25 critical incidents reported, content omissions were found

to be contributory to communication failure at handoff. Nine were omission of active

medical problems, 11 were omissions of medications or treatments, and 10 were tests or

consults.

In the same study, Arora et al. (2005) analyzed reports of worst events caused by poor handoff. It was revealed that omitted content during handoff was contributory to worst events. Failure to report an active or chronic medical problem, code status, and rationale for why certain treatments were not initiated were noted to be among the content omitted. The researchers related that few medical trainees receive formal instruction, supervision, or constructive feedback in the handoff process. The authors recommended standardized communication and educational programs to train residents to communicate effectively as a possible approach to improve handoff processes. Adoption of tools such as SBAR could be used by healthcare educators to teach communication of critical information thus decreasing the chance of omitting vital data during handoff.

Solet et al. (2005) reported lack of formal instruction in handoff communication in their study findings. A quantitative study using electronic survey methods of 125 medical schools was conducted by the investigators. Data collected from this survey revealed that only 8% of medical schools teach how to handoff patients in a formal educational session. The vast majority (86%) of medical students are taught by interns and residents who have likely been taught by their mentors. Kerr (2001) observed similar teaching practices with novice nurses in her qualitative study examining handoff from a socio-technical perspective. Inexperienced nursing staff was given the chance to learn how to communicate handoff by observing more experienced staff. However, the education was limited in the sense that no feedback was given to the novice regarding the quality or content of the handoff.

Empirically, Sherlock (1995) observed and interviewed three student nurses in England regarding handoff practice. Although the sample size was small, the findings

appear to be aligned with findings of more recent studies. Giving of information was a process of variable quality, lacking standardization and organization. Sherlock suggested that failings of the handoff system rested with nurse educators. It was implied that there is little teaching time devoted to analysis of handoff report of students.

The hidden curriculum in medicine and nursing, where a task is learned by observing those in charge of performing the task, is exemplified by these studies. The findings also suggest a lack of formal curriculum in place to teach medical and nursing students how to prepare and execute handoffs of their patients. Lack of a formal curriculum contributes to the educational gap in new professionals' training and persistence of traditional models as expressed in the literature review by Wong et al. (2008). However, evidence was uncovered that reflects awareness of the need for developing teaching models for standardized handoffs in the clinical arena (Arora & Johnson, 2006; Larkin & Burton, 2007).

Drawing on literature by Solet et al. (2005) and motivated by JCAHO's National Patient Safety Goals, Arora and Johnson (2006) developed a model for building a standardized handoff protocol that can be generalized across specialties and disciplines and applied in various healthcare settings. The model is based on the guiding principles that standardized protocols for handoffs need to be tailored to discipline and organization and that the core goal for process and content needs to be standardization. The four steps in the model include: (a) creating a process map to facilitate understanding handoffs as a process and delineating what individuals are required to do in terms of cognitive processes and/or actions to achieve the system's goal, (b) determining the critical content to be transferred during handoff by building a checklist, (c) dissemination of the process

map and the checklist to garner input and clarification from those involved in the process, and (d) developing a plan for monitoring and evaluating the protocol for quality of the process and content of the handoff.

The investigators' model was tested by offering an interactive 90-minute handoff clinic to 7 individual residency programs that take in-house call on an inpatient service. The workshop employed semi-structured interviews where residents were asked to develop a standardized process for handoff using process mapping methodology, create a checklist of critical patient content, and develop a plan for dissemination and training. The Accreditation Council for Graduate Medical Education (ACGME) has set limits on resident duty-hours resulting in an increase in patient handoffs in this cohort. Therefore, the study authors viewed the workshop as an opportunity to influence the practice of future physicians that currently lack formal education on communication during handoffs.

The researchers used process analysis to highlight similarities, differences, and areas for improvement among the protocols. Emergent themes from the process analysis were: (a) handoff protocols should be tailored to respect the discipline's environment, culture, and needs; (b) the aim of the handoff process needs to understand and reduce variations; (c) handoff needs to be highlighted as the transfer of professional responsibility not merely the transfer of information; and (d) process maps should be utilized to detect and correct vulnerabilities that compromise the integrity of the handoff. The authors concluded that ongoing education is instrumental to the implementation of standardized handoff protocols. They have continued to work with residency programs that have not

yet developed standardized handoff protocols and are expanding their focus to nursing as well as other types of interdisciplinary handoffs.

Larkin and Burton (2008) demonstrated how an educational intervention using the framework of Bloom's Taxonomy of Educational Objectives assisted staff members in being able to critically evaluate a patient scenario that resulted in a failure-to-rescue situation. After the near-miss incident, the manager, clinical nurse specialist, and unit educator of a post-operative inpatient unit designed a workshop to assist staff members to navigate through the case study with the objective of preventing further critical situations. Staff was led by the unit educator and the clinical nurse specialist in a synchronized exploration of the case guided by the steps of learning acquisition as reflected in Bloom's Taxonomy. They were instructed to find objective data in the patient record to include the handoff report between nurses that may have contributed to the adverse patient outcome. The handoff was analyzed for omission of critical data and it was determined that communication breakdowns were evident. After completion of the workshop staff identified the necessity to incorporate a standardized method of handoff that allowed for focusing on specific, crucial patient data. It was decided that the SBAR method of handoff reporting would be instituted. Anecdotally, the study authors reported that staff communication among all healthcare team members had improved with the use of SBAR and the potential for positive patient outcomes was improved after the workshop learning experience using Bloom's Taxonomy as a framework.

Leaders in nursing education (Smith, Cronenwett & Sherwood, 2007) from the *Quality and Safety Education for Nurses* (QSEN) project conducted an online pilot survey of pre-licensure nursing programs to assess current levels of integration of quality

and safety content in pre-licensure nursing curricula. The QSEN faculty and advisory board members derived 6 core quality and safety competencies from the IOM (2003) report *Health Professions Education: A Bridge to Quality*: patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. Survey responses were returned from 195 of 629 sample schools, 40% for associate degree only programs and 30% for programs that included baccalaureate and higher degrees. The majority of the respondents were nursing program directors or chairpersons. With competency definitions as the sole reference point, high percentages of educators reported that they used a variety of educational strategies to include these concepts in their curriculum. Educators surveyed also reported a high percentage of agreement that students demonstrated competency in these areas and faculty at their institutions had the expertise to teach the competencies.

After the initial survey, QSEN faculty (Cronenwett et al., 2007) expanded upon the competency definitions by producing a draft meant to reflect necessary knowledge, skills, and attitudes (KSAs) needed for pre-licensure education, with the goal of clarifying rather than prescribing current meanings of the competency definitions. Throughout the process of the development of the draft of the KSAs, QSEN faculty tried to answer the question, "What should nursing promise with regards to its pre-licensure graduates' quality and safety education?" (p.126).

Cronenwett et al. (2007) sought feedback on the draft contents from nursing faculty from 16 universities in the Institute for Healthcare Improvement (IHI) Health Professions Education Collaborative. After the draft was reviewed by the nursing faculty they consistently reported that nursing students were not developing these KSAs. Additional

focus groups were held with faculty who taught pre-licensure students in QSEN faculty members' schools to garner feedback on the development of the draft of KSAs. Focus group participants reported that they did not understand fundamental concepts related to the competencies and could not identify educational strategies currently used for teaching the KSAs.

Furthermore, when a chief nurse executive serving on the QSEN advisory board led a focus group of new graduates, these nurses reported that they lacked learning experiences related to the KSAs, and did not believe their faculty had the expertise to teach some of the content. KSAs integral to teaching handoff report to students included: following communication practices that minimize risks associated with handoffs among providers, choosing communication styles that diminish the risks associated with authority gradients among team members, and appreciating the risks associated with handoffs among providers and across transitions in care.

Further contrast to the results of Smith, Cronenwett and Sherwood's (2007) survey was realized in September of 2006 when QSEN faculty leaders presented the competencies and KSAs at the National League for Nursing Educational Summit. More than 100 associate degree, diploma, and BSN faculty members listened to the results of the initial survey and contrasted those with the responses from faculty focus groups. This audience confirmed the focus group feedback by relating that the KSAs represented a new view of what is required to teach the competencies. More presentations to faculty at national meetings are scheduled by the researchers in the future with the expectation that the profession's vision for pre-licensure KSAs will evolve over time.

Sherwood and Drenkard (2007) stressed the importance of nurse educators assessing the implications that quality and safety issues in healthcare have on curriculum content and teaching strategies. The authors argued that students are not routinely exposed to new standardized communications that are being applied in crucial conversations such as shift handoffs between nurses. They suggested that educators consider utilizing SBAR as a tool to teach students how to organize pertinent information during transitions in patient care and to assist them in learning how to communicate within their own discipline as well as with physicians.

The medical and nursing literature reveal a great deal of variability and conflicting views in the content, style, function and method of handoffs across various settings. The lack of standardization of content, style, function and methods of handoff reports highlights the potential benefit that standardization processes could have in improving the quality of communication, care and collaboration among providers of care. Solet, et al. (2005) reported analysis of medical providers' perception of critical content of handoff report. All subjects agreed on having identifying information, current medical issues, and pending tests included in the report. However, only 71% considered significant test results as vital, 41% considered code status as a significant detail, 35% included interventions and responses to prior events, and only 29% included temperament as a key detail.

Yurkovich and Smyer (1998) reported on a learning project where student nurses practiced giving report in a psych unit and critiqued reports received from peers and other nurses. Components considered essential to report were identification of clients, reason for admission, nursing diagnosis, change in client's conditions or protocols, clients

emotional status and additional information such as lab results, treatments and medications. Students identified the following areas of needed improvement during their critique of reports; client identification, more in depth description of the client's current status, statement of nursing diagnosis, and information that they (students) needed for provision of client care that day. The students also recognized that staff did not make recommendations for therapeutic nursing interventions.

The effect that cognitive overload during handoff can have on the nurses' ability to recall and share critical information has been reported (Anthony & Preuss, 2002; Coiera, Jayasuriya, Hardy, Bannan & Thorpe, 2002; Friesen et al., 2008). A qualitative study conducted by Taylor (2002) observed novices' uncertainty about what information, if any, in a handoff report was significant. Taylor related that factors such as lack of clinical experience, information overload, and decreased understanding of medical terminology may have contributed to the novice's obvious inability to recognize or absorb salient information during handoff.

Sexton et al. (2004) conducted a quantitative study assessing the information content of 23 handoff reports from one general medical ward. The researchers concluded that 84.6% of information covered in handoff could be located in other existing unit documents and 9.5% of information discussed was not relevant to continuity of care. Only 5.9% of handoff content involved discussions related to continuity of care or unit management concerns. The authors argued that streamlining the handoff may improve the quality of information content and reduce the time spent in report. Lack of formal structure and guidelines for the nurse giving report resulted in presentation of irrelevant, repetitive and speculative information. The investigators suggested that the absence of

guidelines may contribute to nurses either omitting critical information or reporting extraneous information not relevant to incoming nurses.

It can be argued that the SBAR method of communicating has the potential to reduce information overload by dividing information into consistent, established chunks that decrease cognitive load. SBAR also provides guidelines and cues that facilitate communication of critical, pertinent information and eliminate the potential for extraneous information. When nurses utilize standardized forms of communication such as SBAR to facilitate communication during handoff both the giver and receiver of information knows exactly what will be communicated and how. It can be further argued that decreasing the margin for failures in communication by using standardized processes has the potential to decrease the incidence for adverse-event situations.

There is a paucity of quality evidence-based data in the nursing literature on nurse-to-nurse communication using SBAR at handoff and its' effect on patient outcomes. Literature discovered pertaining to SBAR and the nurse-to-nurse handoff report was found to be anecdotal in nature, offering strategies and tools for implementation and recommendations for use (Amato-Vealey et al., 2008; Manning, 2006; Pope, Rodzen & Spross, 2007). Studies examining the use of SBAR reviewed in the literature were most often focused on nurse-to-physician communication (Haig et al., 2006; Rodgers, 2007; Velji et al., 2008; Woodhall et al., 2008) with less emphasis placed on applying SBAR to nurse-to-nurse communication at handoff.

Although an abundance of literature recommends teaching standardized communication techniques to students to improve quality of care, there is a dearth of

evidence in the literature on the use of SBAR at the academic level. Articles by Ascano (2008), Hand (2007), and Wood (2008) were uncovered but were anecdotal without a research base. Therefore, at present there appears to be incomplete evidence as to how educational interventions on SBAR communication technique can affect the quality of student nurses' handoff reports.

Introducing quality improvement techniques such as standardized communication to nursing students will enable them to learn the integral role that communication plays in affecting patient outcomes. It is important for student nurses to learn communication techniques during their education that can improve the quality of handoff report so that they will be prepared to communicate safely and effectively upon entering the practice arena. SBAR provides guidelines and cues for students to frame their thoughts and recognize salient, critical data that, when communicated, has the potential to save lives.

Ineffective handoffs that omit critical patient data can lead to a plethora of patient safety problems. Further research and development strategies to reduce these problems are required. What is needed is research in the area of handoff report that assesses modes and methods, such as educational interventions at the academic level, which can be effective in decreasing the margin of error in communication during transitions in patient care.

CHAPTER III

METHODOLOGY

Sample/Setting

A quasi-experimental pilot study was conducted at the University of New Hampshire's nursing simulation lab in Durham, New Hampshire. This type of research is congruent with the specific aim of the study as it is a form of quantitative research conducted to explain relationships and examine the causality between selected independent and dependent variables (Burns & Grove, 2005). The independent variable in this study was the SBAR education program; the dependent variables were the content quality and organization of the handoff report.

The University of New Hampshire's nursing program offers a comprehensive simulation lab with patient beds, a simulation mannequin, and other equipment required to conduct the study. The simulation setting assures no threat to patient safety and a realistic representation of a nursing work environment. The highly controlled setting of the nursing simulation lab allows for reduction of extraneous variables such as noise and interruptions during the study. In addition to providing the necessary resources to conduct the study, the setting was familiar to the research subjects and provided a convenient location for both the students and the researcher.

The target population for the study was English speaking, adult, junior baccalaureate nursing students with experience in medical/surgical nursing and handoff report. The University of New Hampshire cohort had successfully completed the fundamental

components of the nursing program, leaving them more amenable to learning broader concepts of nursing such as communication at handoff. There were 71 potential subjects invited to participate; 6 subjects (9% response rate) agreed to participate. It is unclear why the response rate was low, however one could hypothesize that the subjects may have construed the time commitment to participate in the study as being too long. It is acknowledged that this may be an insufficient amount of subjects to acquire powerful data in a quasi-experimental study. However, for purposes of this academic assignment and consideration of time constraints it is deemed appropriate and is manageable.

Procedure

Students from the target population were invited to participate in the research study via an electronic letter of invitation (Appendix B). A total of six subjects expressed interest in participating in the study. Prior to initiating the study the subjects were asked to read and sign the informed consent (Appendix C). After providing written informed consent, subjects were randomly assigned to either intervention group A or control group B. This strategy improved the probability that subjects with various levels of extraneous variables were equally dispersed in intervention and control groups (Burns & Grove, 2005). The process for randomization consisted of placing the subjects' names into a bag and blindly pulling out names and placing them into either intervention group A or control group B.

All subjects were individually scheduled to participate in the research process at pre-determined times convenient for both the research subject and the researcher. A copy of the procedure (Appendix D) was provided to each subject via electronic mail prior to

arriving at the simulation lab. The procedure was also reviewed verbally with each subject upon arrival to the simulation lab.

Intervention

Prior to the simulation exercise, the 3 subjects assigned to intervention group A attended a 25 minute education program on SBAR taught by the researcher. The 3 subjects in control group B did not attend the education program. The only guidance control group B received prior to the simulation exercise was the verbal explanation given to them regarding the study procedure.

Teaching for intervention group A was facilitated by a PowerPoint presentation and case study (Appendix E). The education program outlined the rationale for standardized handoff communication, proper use of SBAR for handoff, and standards for specific situations such as shift report between nurses. The case study depicted a patient handoff scenario between nurses on a medical/surgical unit with and without the use of SBAR. The subjects were allotted time for questions and answers at the end of the presentation.

Communication Evaluation

Prior to the subjects arrival, the researcher set up the simulated patient to present with an admitting diagnosis of pneumonia complicated by a collapsed lung with a chest tube in place. The patient also had a urinary catheter in place, central venous access, oxygen at 2 liters via nasal administration, and was having acute pain requiring intervention with pain medication. The researcher compiled a mock patient chart and nursing information form containing all pertinent patient data and critical information integral to SBAR communication technique as reflected by the nursing handoff form

published by Haig et al. (2006). The chart and nursing information form were placed at the mock nurse's station for review by the subjects prior to conducting their assessment.

The nursing information form and patient chart provided insight into; patient's name, date of birth, attending physician, chief complaint, admit date and diagnosis, past medical history, allergies, code status, physician orders, recent interventions/responses, labs, radiological studies, procedures, treatments, intravenous fluids and lines, involvement with other disciplines and discharge planning needs. The nursing information form also made reference to the need for the patient to receive a pneumococcal vaccine upon discharge. Additionally, subjects were provided with a medication administration record reflecting the patient's current medication regimen. All subjects (both control group B and intervention group A) were allowed to utilize the patient chart, nursing information sheet and any notes they may have taken during their assessment of the simulated patient prior to and during the taping of the handoff report.

The research subjects were instructed to review the chart and nursing information form as if they were the nurse caring for the patient that day, orienting themselves to the patient's situation. They were then instructed to complete a full physical assessment on the patient and perform an intervention for pain management with intravenous morphine sulfate.

Finally, the subjects were instructed to assume that 8 hours had passed and they were now audio taping handoff report to the oncoming nurse based on the assessment and information they had gathered during the shift. Control group B conducted the handoff exercise based on their prior student experiences with handoff in their clinical rotations

and any didactic instruction they may have had in the classroom. Subjects from intervention group A were not allowed to bring any teaching/learning materials they received during the education program to the nursing simulation lab for the handoff exercise. It was expected that any information on SBAR content or structure taught to the subjects in intervention group A be drawn from memory during the handoff exercise in the simulation lab.

The subjects were asked to identify themselves as nurse from intervention group A or nurse from control group B on the audiotape prior to initiating their handoff report to allow the researcher to differentiate data during the analysis phase of the study. A Sony standard cassette voice recorder was used by the subjects to audio tape their handoff report. Subjects were instructed on how to use the recorder by the researcher prior to initiating the study.

Instruments

The SBAR Quality Tool (SQT) was utilized for data collection and analysis of content quality and organization of the audio taped reports (Appendix F). The SQT is a researcher-developed tool based on a literature search of quality criteria for SBAR communication (Haig et al., 2006; Institute for Healthcare Improvement, 2009). Arora, Johnson, Meltzer, and Humphrey (2008) highlight that research in use of assessment tools to evaluate handoffs is still in its early stages. The authors suggested possible options for assessment of handoff include the use of observed simulated clinical exercises. Arora et al. (2008) highlighted the need for educators and accreditation and

certification bodies to invest in resources to sponsor initiatives that could yield the design of standardized educational programs and assessment systems for handoffs.

The SQT is a yes/no checklist of 30 critical patient data points integral to standardized SBAR communication between nurses during transitions in patient care at handoff. Each item on the SQT is equally important with a potential total score of 0-30. Under the domain of *situation* there are 6 items: patient name, date of birth, physician, admit date, diagnosis, and chief complaint. Under the heading of *background* there are 4 items: medical history, allergies, code status, and interventions/responses. The *assessment* category includes 12 items: neurological, respiratory, cardiac, genitourinary/gastrointestinal, musculoskeletal, skin, psychosocial, vital signs (including pain), blood sugar checks, abnormal labs, radiological studies, and lines/fluids. Under the heading of *recommendations* there are 8 items: goals, consults, tests/treatments, discharge needs, pneumococcal vaccine, fall protocol, restraint protocol, and every two hour turning of the patient. The higher the SQT score the better the handoff report.

Data Analysis

The purpose of the data analysis was to identify whether the same or different information profiles were found in the handoff reports of student nurses who received the education program on SBAR compared to those who did not. Each audio taped report was listened to twice by the researcher and an independent investigator to assure accuracy of the data interpreted. The independent investigator was a registered nurse with twelve years of experience in obstetrics and gynecology. She had experience in SBAR

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communication technique having used it in practice as well as having received prior education on the technique.

Results of the analysis of content quality and organization were compared and discussed until agreement was reached. Inter-rater reliability was determined by dividing the actual number of agreements between investigators by the number of possible agreements between investigators with 1 representing perfect agreement. For content quality there were 180 possible points of agreement and the actual number of agreements was 180. For organization there were 24 possible points of agreement and the actual number of agreements was 24, indicating perfect inter-rater reliability of the SQT.

First, the handoff reports were analyzed for content quality and whether the key components of SBAR communication were present or absent from each report. To analyze content quality the investigators listened to each report twice and systematically checked off absence or presence of SBAR components based on the SQT checklist. The focus of the content analysis was to determine what data points were included in each report under each specific category of situation, background, assessment, and recommendation. For example, under the category of situation the research subject had six potential items that could have been mentioned, as an item was mentioned the box was checked, each checked box received a value of one point. If an item was not mentioned in the report the checkbox remained empty.

Next, organization of the handoff report was analyzed by making note of the sequence of information given in each taped report according to the 4 domains under the SBAR framework. One point being awarded for each category communicated in proper

sequence. If the information communicated in the report was in the proper order according to the framework of SBAR (situation first, background second, assessment third, and recommendation last) then the student received a total score of 4 for organization. If information from one of the categories was omitted or in the wrong order according to the SBAR framework then the student would not receive a point for that category. For example, subject 3 (control group B) omitted information pertaining to the category labeled background, but did address the situation first followed by the assessment and recommendation, therefore that subject received a total score of 3 for organization.

Protection of Human Rights

The Institutional Review Board of the University of New Hampshire reviewed the research proposal and approved the study (Appendix G). To ensure the participants of this study were protected the researcher incorporated the following aspects into the letters of invitation: (a) full disclosure of any known risks or discomforts to the subjects; (b) explanation of the purpose of the research, why the participant was selected, and the expected duration of participation; (c) statement describing to what extent records will be kept confidential; (d) statement that research is voluntary and that refusal to participate or a decision to withdraw at any time will involve no penalty; (e) statement that the participant is making a decision whether or not to participate, and that his/her signature on the consent form indicates that he/she has decided to participate having read and discussed the information presented; and (f) a means to contact the researcher for any questions or concerns regarding the letter of invite or decision to participate.

Research subjects were informed that participation in the study could offer some benefits; however, benefits were not guaranteed. Altruistic benefits for participation in this study included contribution to the research knowledge base of the nursing profession. All subjects received a copy of the PowerPoint educational program and a reference sheet on SBAR communication for use in their personal practice after the study was completed. The subjects also received a $25 gift certificate for their time.

CHAPTER IV

RESULTS

Independent- samples t-tests were calculated using SPSS 17.0 to determine if there

was a significant difference in the quality of content and organization in handoff reports

between student nurses who had or had not received education in SBAR communication.

Hypothesis 1

Hypothesis 1: Junior baccalaureate nursing students who receive SBAR education

will demonstrate a better quality of content of handoff report than students who do not

receive SBAR education.

The mean SQT score for students who received SBAR education (n=3) was 25.2

(SD=1.04) compared to students who did not receive SBAR education (n=3) 12.2 (SD=

6.5). The standard deviation of control group B was high due to one outlier who had a

score of 19.5, as compared to the other two scores from that group which were 7 and 10.

The standard deviation of intervention group A was small because the scores were all

very close (24, 25.5, and 26). An independent-samples t-test comparing the mean scores

of the intervention and control groups found a significant difference between the means

of the two groups (t (4) = 3.41, p <.05).

The quality of content of the handoff reports given by the nursing students educated

in SBAR technique was significantly higher than the quality of content of the handoff

reports given by the nursing students not educated in SBAR therefore Hypothesis 1 is accepted.

Hypothesis 2

Hypothesis 2: Junior baccalaureate nursing students who receive SBAR education will demonstrate better organization of handoff report than students who do not receive SBAR education.

The mean score for organization for subjects who received SBAR education (n=3) was 4 with no deviation as all three subjects demonstrated optimal organization in the handoff report. The mean score for organization for students who did not receive SBAR education (n=3) was 3 (SD=1.0). An independent-samples t test was calculated comparing the mean score of subjects who received SBAR education to the mean score of subjects who did not receive SBAR education. No significant difference was found (t (4) = 1.73, p >.05).

As there was no significant difference between the mean scores of the two groups Hypothesis 2 is not supported.

CHAPTER V

DISCUSSION

The link between patient safety and handoff communication is well reported

throughout the literature. Lack of or ineffective verbal communication at the time of

handoffs has emerged as a common theme surrounding adverse events and near miss

situations in nursing. Furthermore, the literature reveals that education and training of

students is one of the major themes related to evidence gaps in clinical handoff. This

research study consisted of a sample of junior baccalaureate nursing students who have

had exposure to some form of handoff. However, according to the literature, student

nurses are not routinely exposed to standardized communication techniques such as

SBAR during crucial conversations at the time of handoff.

The purpose of this pilot study was to provide preliminary information of the effect

of an SBAR education program on the quality of content and organization of student

nurses handoff reports. An understanding of the effect of SBAR education on student

nurses handoff reports could potentially be used to jumpstart endeavors to design

educational programs on handoff communications in nursing schools.

This study involved a relatively small but informative sample of subjects which must

be considered in any discussion of results. The results of this study suggested that

students who received an educational intervention on the tenets of SBAR demonstrated a

better quality of content of handoff report than students who did not receive the education

program. However, there was no significant difference in the organization of student nurses' handoff reports between the interventional group and control group.

The control group did not include all of the pertinent data under each category of *situation, background, assessment, and recommendation*, although 2 out of 3 subjects did mention at least one item under each category in the appropriate order. Based on the measurement method for organization using the SQT, this resulted in an organized handoff; however the critical content was sparse under each category compared to the intervention group.

The subjects in the intervention group were able to extract more salient patient data from the conglomerate of information in the patient chart, nursing information sheet and the physical assessment during the simulation exercise than the control group. This can be attributed to the time spent with each subject during the education session discussing what information is critical and why it is critical. Emphasis was placed on the relationship between errors of omission during handoff to adverse events and negative patient outcomes.

The education program provided the intervention subjects with a specific framework and guidelines as well as an interactive case study that defined what information is critical to share in a standardized handoff according to the SBAR framework. Armed with this knowledge and set of guidelines the intervention subjects demonstrated a better quality of content of handoff that focused on relevant data and eliminated extraneous data. However, the subjects in the intervention group did not have a perfect score on quality of content of the handoff report. This can be a result of having had only one

25minute teaching session. Consistent, perhaps weekly education on SBAR communication technique with the opportunity to apply the concepts in clinical rotations would be more beneficial and produce better learning outcomes thus more complete handoff reports.

The 3 subjects in the intervention group communicated all six critical data points under the domain of *situation*. In contrast, 1 subject in the control group omitted all six critical data points under this category of the SBAR framework. This included the patient's name, date of birth, admitting diagnosis, chief complaint, physician, and admit date. Rather, the subject in the control group initiated the report with assessment data and focused on the pain intervention. This supports the need for students to have clear, evidence based guidelines that provide clear instruction on what information should be included during the transfer of responsibility of a patient. The SBAR communication technique can provide such guidelines.

Subjects in the control group omitted 3 out of 4 data points under the heading of *background*, with the exception of one outlier who shared most of the data included under this heading. The subjects that received the educational intervention communicated both "interventions" and "responses" whereas the control group only communicated interventions, neglecting the response portion.

Under the *assessment* category, both groups reported on various data points included under this domain. However, the intervention group was more systematic in reporting their assessment including most, if not all, of the data points considered critical to SBAR communication technique under this domain. This can be attributed to the teaching

provided during the education session that stressed a systems approach to thinking when communicating an assessment of a patient during handoff.

Subjects from both groups communicated "tests/treatments" under the *recommendation* domain. However, "goals" were mentioned more often by the educational group compared to the control. Subjects in the control group were remiss in addressing the "fall protocol" compared to 2 out of 3 subjects in the intervention group that did address it in the audio taped handoff.

Similarities among the cohorts were evident in that all the subjects addressed the "turn every 2 hours" part of the recommendation component in the handoff reports. This may be due to the students having been exposed to current initiatives being promoted in healthcare systems to address skin breakdown issues.

With the exception of one subject from the intervention group, subjects from both groups neglected to mention the need for the patient to receive a pneumococcal vaccine prior to discharge. The Joint Commission includes screening for this vaccine in their National Patient Safety Goals and considers it a critical component in the recommendation section of SBAR handoff. Additional teaching sessions with opportunities to practice the SBAR technique in the simulation lab or during clinical rotations has the potential to increase student nurses awareness to national patient safety goals, thus improving the quality of handoff report and increasing positive outcomes for patients.

Limitations

This study had several limitations. The majority of subjects invited to participate chose not to respond, so it is questionable if the results are representative of the majority of nursing students in the junior class. The small sample size, in particular, was a limitation in this quasi-experimental study as it affected the statistical power to detect differences in the data being analyzed. Although the results indicated a significant difference in content quality, supporting the first hypothesis, the sample size was too small to elicit any power. The data collected on organization of the handoff reports failed to support the second hypothesis, however this does not mean the educational intervention was useless. Rather, the results were impacted by small sample sizes and extraneous variables that were not measured such as prior student exposure to handoff practices that may or may not have included standardized communication.

Differences in the intervention and control groups cannot be attributed specifically to the implementation of this one pilot project as there were many extraneous variables that threatened the validity of the project. For purposes of this academic assignment the researcher developed a measurement tool based on a literature search of SBAR components. Further consideration needs to be given as to how best to measure and evaluate the validity of such a tool. Although the measurement tool needs additional testing, it may prove useful in further future evaluation of SBAR education.

Additionally, the sample was from the same University therefore, whether the findings could be generalized to other academic settings remains a question to be addressed by future research. Face validity should have been assessed by having a second

nurse review the materials to determine if they agreed that the information in the documents was representative of information they would expect to find in a patient's chart and nursing information sheet.

This study used the scenario of a nursing shift change report in a simulated acute care unit. The outgoing nurse verbally summarized information about the patient under her responsibility at the end of the shift on an audio tape. Many handoffs in healthcare systems use variations of supporting tools such as fax machines, computers, or written summaries to communicate handoff report. Therefore, it would be difficult to transfer these findings to situations where students used means other than an audio recorder to communicate handoff.

Although the simulation lab had similar characteristics to many healthcare settings, it lacked the realistic component of interruptions, noise and a chance for the oncoming nurse to ask questions face to face. The controlled setting of the handoff exercise did not contain complex system factors known to be involved in failed communication such as workload, time, environment, and attitude. For these reasons, the study is by no means definitive but, instead, a preliminary attempt to understand the effect that an education intervention has on the quality and content of student nurses handoff reports.

These findings are subject to expectation-led teacher effects which occur when the teacher inadvertently influences subjects to produce outcomes consistent with their expectations; this would manifest itself in increased scores for the intervention group.

Lastly, the subject's academic standing or baseline knowledge of handoff practices was not assessed in either group, and could have influenced the outcome of the handoff

reports. Perhaps there were some over achievers who studied the content of the education

intervention more than others or self-motivated students from the control group who may

have explored SBAR independently prior to the exercise.

CHAPTER VI

CONCLUSION

The results of this pilot study show promise in designing interventional strategies to teach student nurses how to conduct handoff report in a way that improves patient safety and is potentially a valuable contribution to safety research and practice. This preliminary research was conducted in an attempt to measure the effect that an educational program on SBAR has on student nurses handoff reports and provide evidence that further teaching in this area is worthy of time and resources.

The major conclusion realized was that the SBAR educational program did provide the students in the intervention group with a framework, structure and guidelines that enabled them to include more critical data points about the patient than the students from the control group. After receiving a PowerPoint presentation and case study example on the tenets of SBAR, student nurses in the intervention group showed evidence of being able to differentiate salient patient data from extraneous patient data. The educational program provided to the students assisted them in conducting a handoff report with less incidence of omission of critical content. Given that the student nurses in this study received a one time, limited educational session in SBAR with positive results, it can be concluded that continued, consistent education in this area, would continue to increase their proficiency in communicating handoff in a manner that decreases the incidence of adverse patient events.

The study provided insight and guidance toward potential didactic efforts that could help to address the problem of adverse events linked to ineffective handoff. It is important to standardize the handoff process and educate nursing students in the most effective ways to perform handoffs. Nursing students need explicit instruction in communication and teamwork rather than by learning by trial and error. Employing educational programs on standardized methods of handoff communication in nursing programs ultimately can be the difference between patient safety and an adverse outcome or medical error.

RECOMMENDATIONS

Education

This study demonstrates the value of utilizing an education program among nursing students in the academic setting to increase knowledge of SBAR for handoff communication. Such standard educational programs should be considered to train student nurses to communicate effectively at the time of handoff. Nurse educators should consider embracing patient safety initiatives such as SBAR for teaching handoff practices to combat perpetuating dysfunctional values, attitudes, and behaviors around this crucial conversation. Addressing the barriers to effective nurse-to-nurse communication with an emphasis on standardizing the handoff process and teaching nursing students the proper handoff methods, may be one way to reduce errors. The study findings also support practice with SBAR in the simulation lab to enable students to feel confident to transfer this skill to the clinical arena. By introducing SBAR at the academic level to student

nurses it will prepare them for the kind of ongoing involvement in quality improvement and error reduction that will be expected of them upon entering into practice.

Future Research

It is recommended that future research be geared toward developing valid tools to measure content and organization of standardized handoff reports to allow for a more robust evaluation beyond the limits of this pilot study. Further research is needed to replicate these findings in other nursing education programs, with a view to ensuring that handoff processes are considered by any educational program to reduce error and improve the quality and safety of healthcare systems. Also, quasi-experimental studies involving a larger number of subjects would yield a richer data set that could be more generalizable and statistically powerful. Longitudinal studies would help to determine the effectiveness and sustainability of the educational intervention over time. While it was not the purpose of this study to correlate the quality of student nurse handoff content and organization with errors in patient safety or poor outcomes, such studies need to be done. Ultimately, the goal of future research should be to show a reduction in adverse events and better clinical outcomes through the adoption of educational interventions on standardized communication at the academic level.

Nursing Practice

By being exposed to SBAR at the academic level, students can partner with staff nurses during clinical rotations and contribute to improving communication processes that will eventually lead to outcomes that are beneficial. SBAR provides nurses a means to communicate complete but relevant handoffs. Implementation of standardized

language for handoff helps nurses to maintain the balance between delivering too much or too little information during transfer of patient responsibility. Nurses from all areas of practice should consider use of standardized handoff methods such as SBAR to learn basic communication skills when transferring responsibility for patients. Then using their learned skill, they could mentor less-experienced colleagues.

Faculty Development

Faculty members who are knowledgeable about teaching strategies that support patient safety initiatives as described by the IOM will adequately prepare the next generation of nurses to practice in a culture of safety. Nurse educators should consider creating formal tracking systems to monitor the effectiveness of using SBAR in the clinical arena with students. While practicing clinicians are participating in changes to enhance safety, faculty can help students understand and apply quality and safety concepts such as standardized communication to their individual student experiences.

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APPENDICIES

APPENDIX A

Joint Commission on QUALITY and PATIENT SAFETY

Hand-off Form

SITUATION: Patient Sticker
               Admit Date: _____
Dx:

CC:

BACKGROUD:
Med Hx

Allergies

Code Status

Interventions / Responses

ASSESSMENT:

Neuro	Vital Signs (include pain)
Respiratory	
Cardiac	Accu Checks
GI / GU	
Musculoskeletal	Abnormal Labs
Skin	XR results
Psychosocial	Lines / Fluids

RECOMMENDATIONS:

Goals

Consults

Test / Treatments

Discharge Needs

Admission	Daily
Reconciliation	Turn q 2 hrs
CHF / AMI / Pneumonia Indicators	Fall Protocol
	Restraint Protocol
Discharge	
Pneumonia Vacc	

Figure 3. The hand-off form can be used by nurses at shift change.

APPENDIX B

LETTER OF INVITATION

February 16, 2009

Dear Student,

I am a graduate student at the University of New Hampshire in pursuit of my Master's Degree in Evidence-Based Practice. You are invited to participate in a study on nursing handoff (shift) report because you are a junior nursing student with experience in acute care.

If you agree to participate you will be randomly assigned to one of two groups. If you are assigned to group A you will be required to attend a 15-25min PowerPoint presentation outlining the rationale for standardizing handoff communication, proper use of SBAR for handoff communication, and standards for specific situations such as shift report between nurses. If you are assigned to group B you will not be required to attend the PowerPoint presentation. Both groups A and B will be requested to assume the care of a simulated patient in the nursing simulation lab. You will be given a patient chart containing all information relevant to the care of the simulated patient for reference and review during the exercise. You will then be requested to perform a complete physical assessment of the patient and a simulated intervention for pain management. Upon completion of the patient care simulation you will be required to audio tape handoff report as if you were reporting to an oncoming nurse at change of shift. Participation for subjects in the interventional group (group A) may take up to one hour (15-25mins for the PowerPoint presentation and 30 minutes for the handoff report simulation exercise). If you are assigned to group B your participation is expected to take approximately 30 minutes.

There are no risks associated with this study. As compensation for your participation you will receive a $25 gift certificate. You will receive a copy of the PowerPoint presentation and a reference sheet on standardized communication when the study is completed for future personal reference. These materials have the potential to enhance your personal practice.

Your identity will be protected and the data generated will be presented in an anonymous manner. Attached is a consent form to be signed and returned to me if you choose to participate. You may withdraw at anytime during the study. Please contact me via email at kjd42@unh.edu if you are interested in participating in this study.

Respectfully,

Kerri Goupil, RN, BSN
Graduate Nursing Program
University of New Hampshire

APPENDIX C

INFORMED CONSENT LETTER FOR ADULT PARTICIPANTS

Dear Junior Nursing Student:

I am a graduate student at the University of New Hampshire in pursuit of my Master's Degree in Evidence-Based Practice. You are invited to participate in a study on nursing handoff (shift) report because you are a junior nursing student with experience in acute care.

If you agree to participate you will be randomly assigned to one of two groups. If you are assigned to group A you will be required to attend a 15-25min PowerPoint presentation outlining the rationale for standardizing handoff communication, proper use of SBAR for handoff communication, and standards for specific situations such as shift report between nurses. If you are assigned to group B you will not be required to attend the PowerPoint presentation. Both groups A and B will be requested to assume the care of a simulated patient in the nursing simulation lab. You will be given a patient chart containing all information relevant to the care of the simulated patient for reference and review during the exercise. You will then be requested to perform a complete physical assessment of the patient and a simulated intervention for pain management. Upon completion of the patient care simulation you will be required to audio tape handoff report as if you were reporting to an oncoming nurse at change of shift. Participation for subjects in the interventional group (group A) may take up to one hour (15-25mins for the PowerPoint presentation and 30 minutes for the handoff report simulation exercise). If you are assigned to group B your participation is expected to take approximately 30 minutes.

There are no risks associated with this study. You will receive a copy of the PowerPoint presentation and a reference sheet on standardized communication when the study is completed for future personal reference. These materials have the potential to enhance your personal practice. Compensation for your time will be in the form of a $25 gift certificate.

Participation is strictly voluntary; refusal to participate will involve no prejudice, penalty, or loss of benefits to which you would otherwise be entitled. If you agree to participate and then change your mind, you may withdraw at any time during the study without penalty.

I seek to maintain the confidentiality of all data and records associated with your participation in this research. You should understand, however, there are rare instances when I am required to share personally-identifiable information (e.g., according to policy, contract, regulation). For example, in response to a complaint about the research, officials

at the University of New Hampshire, designees of the sponsor(s), and/or regulatory and oversight government agencies may access research data. Audio tapes and data will be kept in a locked file cabinet at the University; I and my faculty advisor will have access to the data. At the completion of the study all data and audio tapes will be destroyed. The research will be conducted by me.

If you have any questions about this research project or would like more information before, during, or after the study, you may contact Kerri Goupil, principle investigator, at (603)626-1996 or (603)345-8399 or at my email kjd42@unh.edu. If you have questions about your rights as a research subject, you may contact Julie Simpson in the UNH Office of Sponsored Research at (603) 862-2003 to discuss them.

Sincerely,

Kerri Goupil, RN, BSN
Graduate Nursing Student, UNH

Yes, I,_____ consent/agree to participate in this research project.

No, I, _____ refuse/do not agree to participate in

this research project.

APPENDIX D

PROCEDURE

All Subjects – Intervention Group A and control Group

Enter Nursing Simulation Lab

You will find the Nursing Information Form, Patient's Medical Chart, and Medication Administration Record at the mock nurses' station for your review prior to your physical assessment.

Once you have familiarized yourself with the patient's information proceed to the simulation mannequin to conduct your physical assessment.

The patient is having acute pain – Sharp, constant, 6/10 at the chest tube insertion site and will require intravenous morphine as per MD orders and Medication Administration Record.

You will administer pain medication as ordered and hypothetically reassess the pain.

After you have completed your assessment and pain intervention proceed to the audio tape recorder to tape handoff report as if you were taping to the oncoming nurse.

If you so choose, you may access any materials available to you for taping handoff report (Nursing Information Form, Patient Chart, personal notes).

Please introduce yourself on the audio tape recorder as either nurse from intervention group A or nurse from control group B. This is very important so that the principle investigator can differentiate data for analysis of the content of the handoff report.

APPENDIX E

SBAR
Standardizing Handoffs for Patient Safety

Kerri Goupil, RN, BSN
University of New Hampshire

SBAR

- **S-** Situation
- **B-** Background
- **A-** Assessment
- **R-** Recommendation

OBJECTIVES

- Describe the relationship between SBAR and patient safety
- Describe essential components of SBAR communication for handoff report at nursing change of shift
- Demonstrate use of SBAR for handoff communication at nursing change of shift through a case scenario

DEFINITION OF HANDOFF

- The transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis

INEFFECTIVE HANDOFFS CAN LEAD TO:

- Wrong treatment
- Delays in medical diagnosis
- Life threatening adverse events
- Patient complaints
- Increased healthcare expenditures
- Increased hospital length of stay

INSTITUTE OF MEDICINE REPORT

- 2001 Institute of Medicine report *Crossing the Quality Chasm* cited inadequate handoff reports as among the primary causes for errors in patient safety

JOINT COMMISSION REPORT

- Communication failures cited as the root cause of 65% of events resulting in death or serious physical injury to patients
- At least half of communication breakdowns occurred during handoff

JOINT COMMISSION 2009 NATIONAL PATIENT SAFETY GOAL 02.05.01

- Implement a standardized approach to handoff communications including an opportunity to ask and respond to questions

WHAT IS SBAR?

- A mnemonic that stands for *Situation, Background, Assessment, Recommendation*
- A communication technique that provides a framework for communication between members of the healthcare team about a patient's condition
- Communication occurs effectively with information being transmitted in the same format and order every time

Why SBAR for Student Nurses?

- Easy to remember
- Prepares student nurses to give quality handoff reports and acquaint them with the real world of nursing and patient safety issues
- Can be used to frame any conversation i.e. with clinical instructor, preceptor, other students
- Helps students to provide patient information in an organized manner

Essential Components of SBAR in Handoff Report

- Situation:

    Patient Name
    DOB
    Attending Physician
    Admit Date
    Diagnosis
    Chief Complaint

Essential Components of SBAR in Handoff Report

- Background:

    Medical History
    Allergies
    Code Status
    Interventions/Responses

Essential Components of SBAR in Handoff Report

• Assessment:

Neuro	Vital Signs
Respiratory	Accu Checks
Cardiac	Abnormal Labs
GI/GU	XR results
Musculoskeletal	Lines/Fluids
Skin	
Psychosocial	

Essential Components of SBAR in Handoff Report

• Recommendations:

Goals
Consults
Tests/Treatments
Discharge Needs
Pneumococcal Vaccine
Turn q 2hrs
Fall Protocol
Restraint Protocol

PATIENT HANDOFF SCENARIO WITH AND WITHOUT USE OF SBAR

63

SBAR Quality Tool (SQT)

SITUATION:

1. Patient Name ☐

2. Date of Birth ☐

3. Physician ☐

4. Admit Date ☐

5. Diagnosis ☐

6. Chief Complaint ☐

BACKGROUND:

7. Medical History ☐

8. Allergies ☐

9. Code Status ☐

10. Interventions/Responses ☐

ASSESSMENT:

11. Neuro ☐

12. Respiratory ☐

13. Cardiac ☐

14. GI/GU ☐

15. Musculoskeletal ☐

16. Skin ☐

17. Psychosocial ☐

18. Vital Signs (include pain) ☐

19. Accu Checks ☐

20. Abnormal Labs ☐

21. Radiological Studies ☐

22. Lines/Fluids ☐

RECOMMENDATIONS:

23. Goals ☐

24. Consults ☐

25. Tests/Treatments ☐

26. Discharge Needs ☐

27. Pneumococcal Vaccine ☐

28. Fall Protocol ☐

29. Restraint Protocol ☐

30. Turn every 2 hours ☐

APPENDIX G

University *of* New Hampshire

Research Integrity Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

16-Feb-2009

Goupil, Kerri
Nursing, Hewitt
518 Shasta Street
Manchester, NH 03103

IRB #: 4491
Study: The Effect of Situation, Background, Assessment, Recommendation (SBAR)
Education on Student Nurses' Handoff Report
Approval Date: 16-Feb-2009

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has
reviewed and approved the protocol for your study as Expedited as described in Title 45,
Code of Federal Regulations (CFR), Part 46, Subsection 110.

**Approval is granted to conduct your study as described in your protocol for one
year from the approval date above.** At the end of the approval period, you will be
asked to submit a report with regard to the involvement of human subjects in this study. If
your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined
in the attached document, *Responsibilities of Directors of Research Studies Involving
Human Subjects.* (This document is also available at
http://www.unh.edu/osr/compliance/irb.html.) Please read this document carefully before
commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to
contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in
all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

Julie F. Simpson
Manager

cc: File
Fetzer, Susan

APPENDIX H

6/10/09

Kerri,

Permission is granted to use a copy of the "Handoff Report Form" in your thesis.

Thanks,

Lakeisa M. Richardson
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Joint Commission Resources
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