Evaluating the Influence of a Standardized Bedside Handoff Process in a Medical–Surgical Unit

Ronnita Usher, DNP, APRN, RN, FNP-BC, FNP-C; Sherill Nones Cronin, PhD, RN-BC; and Nancy L. York, PhD, RN, CNE

The handoff of care, when key information is shifted from one provider to another, is a primary targeted process to promote safe care (Braun & Paparella, 2012; Small, Souza, Magny-Normilus, & David, 2016). During the handoff, ineffective exchange of information creates opportunities for error, resulting in incomplete and inconsistent sharing of information among care providers (Jukkala, James, Autrey, Azuero, & Miltner, 2012; Kear, Bhattacharya, & Walsh, 2016; Patterson & Wears, 2010), and this can lead to adverse events, costing the United States billions of dollars annually (Athwal, Fields, & Wagnell, 2009; De Vries, Ramrattan, Smorenburg, Gouma, & Boermeester, 2008; Kohn, Corrigan, & Donaldson, 2000; Taylor, 2015). As a result, the Joint Commission, Agency of Healthcare Research & Quality, and the World Health Organization have identified handoff communication as a National Patient Safety Goal, stating that health care organizations must improve the effectiveness of handoff communication among providers (Revere, 2008) and recommending a standardized handoff approach.

HANDOFF COMMUNICATION CHARACTERISTICS

There are three primary handoff methods: taped, written, and bedside (Benson, Rippin-Sisler, Jabusch, & Keast, 2007; Bruton, Norton, Smyth, Ward, & Day, 2016; Kapadia & Addison, 2012; Ofori-Atta, Binienda, Chalupka, 2015; Pillow, 2007). For these handoffs to be effective, the Joint Commission recommends that handoffs among care providers include several characteristics:

- First, interactive communication allowing for questions and answers among the patient and their family, the giver, and the receiver nurse, and the sharing...
of real-time information regarding the patient’s status, care, treatment, services, and discharge planning with minimal disruptions.

- Second, effective handoffs providing the opportunity for the receiver to review historical data from the previous shift’s care.
- Finally, a verification process and a standard tool such as teach-back-show-back, or Situation, Background, Assessment, and Recommendations (SBAR), is recommended (Arora & Johnson, 2006, p. 647).

The focus of this project is the standardized bedside handoff, defined as a consistent method allowing two-way face-to-face communication at the bedside (Baker, 2010; Ford, Heyman, & Chapman, 2014; Jukkala et al., 2012; Patterson & Wears, 2010). This type of handoff allows for visualization of the patient and instant transfer of vital information (Thomas & Donohue-Porter, 2012). Bedside handoffs improve the efficiency of shift reports, decrease the occurrences of missed information, improve patient safety, and save money and time (Caruso, 2007; Chung, Davis, Moughrabi, & Gawlinski, 2011).

The institution at the center of this project had incorporated some of the Joint Commission's handoff recommendations into their nurses’ daily practice, but the policy had not been updated for several years. Although handoffs were occurring at the bedside, the handoffs lacked structure, standardization, and consistency in information shared. Inspired by the staff's desire to improve bedside handoffs in a 38-bed medical–surgical unit, a meeting was held with nursing leadership to address the concerns and to formulate a plan to correct the issue. The meeting was well received, and nursing leadership and nursing staff endorsed changes to the handoff process. As a result, the Project Lead formed a unit-based team of nurses to modify the current processes, based on best practices. The Project Lead worked as an advanced practice nurse in the unit providing patient care, serving as a consultant, and working closely with other disciplines to improve quality care and patient outcomes. The role of the Project Lead was to plan, initiate, execute, and monitor the project. Each member of the nursing leadership team served as unit-based change champions who actively promoted, supported, and understood the vision of the project. The nurse manager's role was to mentor the nurses in the unit, whereas the assistant nurse managers worked closely with the nurses to provide re-education on the project as needed. The clinical educator worked closely with the nurses providing additional education, while also serving as the subject matter expert.

**PURPOSE**

The purpose of this project was to evaluate the influence of a standardized bedside handoff process in a medical–surgical unit on nurses’ perceptions of communication, handoff accuracy and completeness, whiteboard use for communication, and handoff report time. The project followed the hospital’s quality improvement process model, Define Measure Analyze Improve and Control (DMAIC) (Figure) (George, Rowlands, Price, & Maxey, 2005; Seidel & Newhouse, 2012).

**DEFINE THE PROBLEM**

To define the problem, the Project Lead facilitated two focus groups in the unit, with the purpose of identifying barriers to the bedside handoff process and the root causes of inadequate handoff practices. The focus groups were voluntary and open to all nurses in the unit. Common themes identified from the focus groups included concerns with the length of time required by the current bedside handoff process, the number of interruptions during handoffs, and variations in the handoff process from one nurse to another. Information gathered from the focus groups was incorporated into a web-based training module and the modified Situation, Background, Assessment, Recommendation, and Thank (SBAR [T]) pocket card given to nurses.

**METHOD**

To measure the bedside handoff process, the Project Lead used two tools: the Medical Intensive Care Unit Shift Report (MSR) Communication Scale, and the SBAR (T) competency checklist.

**Measurement Tools**

The MSR scale measures nurses’ perceptions of handoff communication during shift report (Jukkala et al., 2012). The 9-item scale analyzes data in three domains, communication openness, quality of information, and shift report. Each scale item is measured on a Likert scale with 1 = strongly agree to 4 = strongly disagree, for a total possible score of 36, with lower scores indicating a greater perception of communication among nurses on the medical–surgical unit (Jukkala et al., 2012).

The Dillman Total Design survey method was used to guide the distribution of the survey. This method consists of a series of steps designed to increase the likelihood of participant response (Dillman, Smyth, & Christian, 2008).

The SBAR (T) competency checklist was used to assess quality, consistency, and completeness of bedside handoffs by evaluating nurse-specific behaviors. The Studer Group originally created the SBAR (T) checklist to guide handoffs among emergency department nurses in U.S. hospitals (Baker, 2009). It consists of 21 nurse-specific behaviors that should occur between the offgoing and oncoming nurse.
The behaviors were outlined in the SBAR (T) dimensions: Situation, Background, Assessment, Recommendation, and Thank. For the purpose of this project, each line item on the SBAR (T) competency checklist was scored and keyed as a met (yes) or not met (no) behavior, for a total possible score of 42. Lower scores indicated an improved and complete bedside handoff report. Length of time to conduct bedside handoff was also measured and recorded in minutes timing the offgoing nurse at the beginning and end of the report.

The Project Lead performed 15 random observations before implementation of the project. Handoff observations occurred on day shift, night shift, day shift work on weekend-only shift, and night weekend-only shift to capture a broad cross-section of practice behaviors. As there was only one observer (Project Lead) completing the SBAR (T) competency checklist, this eliminated the need to assess interrater reliability.

New Standardized Bedside Handoff Education

Nursing staff received information from the nursing leadership regarding the project by way of secured e-mails, flyers, staff meetings, one-to-one interactions with the Project Lead, and finally “shift starters,” which are the unit’s announcements and strategies for a productive day. All structured communications were developed by the Project Lead. To prepare for the implementation of the revised process, nurses were required to complete a 30-minute web-based learning module in the institution’s eLearning platform. This required education was mandated and supported by the nurse manager. The web-based training module was developed by the Project Lead in conjunction with the clinical educator and included definitions of bedside handoff, standardization of handoff, peer-to-peer accountability, and SBAR and how it relates to handoff. In addition, nurses were provided with information regarding the offgoing and oncoming nurses’ roles in bedside handoff, the role of the electronic medical record in handoff, and the structured sequence of bedside handoff. Finally, the nurses viewed a video demonstration of an effective standardized bedside handoff process.

In addition to the online training, each nurse was given the modified SBAR (T) pocket card. The pocket card outlined expected nurse-specific bedside handoff expectations and was provided to assist nurses in conducting accurate and complete reports. The pocket card

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Analyze and Improve the Process

The Project Lead analyzed the baseline data to identify gaps in the handoff process, perceived barriers to conducting efficient handoffs, and root causes of the barriers. This information was shared with nursing leadership, and together with staff the existing process was modified to include a standardized approach to handoff at the bedside. Using SBAR (T) as the guide, a structured bedside report was developed.

Figure. Six Sigma DMAIC Model (George, Rowlands, Price, & Maxey, 2005).
was explained in detail via the web-based training module.

After initial training was completed, the project was implemented by the Project Lead. The revised process was reinforced during daily rounds, shift starter, staff meetings, and interdisciplinary rounds. One-to-one coaching opportunities were identified, and mentoring was done by the Project Lead, nurse manager, clinical educator, and assistant nurse managers.

**Evaluation**

Thirty-two nurses (100%) participated and completed pre-project scales, whereas 25 nurses (78%) completed the post-project measurement. Nurses’ ages ranged between 35 and 44 years, with the majority of the nurses being women (n = 55, 91.2%) and bachelor’s prepared (n = 30, 52.6%). Thirty-three percent had more than 10 years of experience, with tenure on the unit of between 6 months and 2 years (35.1%).

**Communication**

The first aim of this project was to determine the influence of a bedside standardized handoff process on nurses’ perceptions of communication. Independent t tests were used to compare the results of the MSR scale pre- and postimplementation (Table), revealing a statistically significant improvement in the nurses’ overall perceptions of shift report preimplementation (M = 7.31, SD = 1.18) versus postimplementation (M = 6.60, SD = 1.44) of the project (t = 2.05, df = 55, p < .05). In addition, there was significant improvement in the nurses’ perceptions of standardized bedside handoff versus the usual handoff pre- (M = 19.34, SD = 3.65) versus postimplementation (M = 17.44, SD = 3.34) of the project (t = 2.05, df = 53.56, p < .05).

**Accuracy**

The second project aim was to assess the handoff accuracy and completeness by way of the SBAR (T) competency checklist. During the project, a total of 30 bedside handoff observations were conducted by the Project Lead. An independent t test was conducted to compare competency checklist scores pre- and postimplementation of the project. There was no significant difference

<table>
<thead>
<tr>
<th>Domain</th>
<th>Mean (SD)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open communication</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I find it enjoyable to talk with other nurses on this unit.</td>
<td>7.15 (2.33)</td>
<td>1.68</td>
<td>.10, ns</td>
</tr>
<tr>
<td>It is easy to ask advice from nurses on this unit.</td>
<td>1.81 (0.64)</td>
<td>1.60 (0.71)</td>
<td></td>
</tr>
<tr>
<td>It is easy for me to talk openly with nurses on the unit.</td>
<td>1.69 (0.69)</td>
<td>1.28 (0.46)</td>
<td></td>
</tr>
<tr>
<td>Communication between nurses is very open.</td>
<td>1.81 (0.64)</td>
<td>1.48 (0.57)</td>
<td></td>
</tr>
<tr>
<td>Quality of information exchanged</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The accuracy of information passed among nurses on this unit leaves much to be desired. b</td>
<td>4.86 (0.96)</td>
<td>4.72 (1.21)</td>
<td>0.54 .59, ns</td>
</tr>
<tr>
<td>I feel that certain nurses do not complete understand the information they receive. b</td>
<td>2.38 (0.62)</td>
<td>2.32 (0.75)</td>
<td></td>
</tr>
<tr>
<td><strong>Shift report</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The change of shift report I receive prepares me to care for my patient.</td>
<td>7.31 (1.18)</td>
<td>6.60 (1.44)</td>
<td></td>
</tr>
<tr>
<td>It is often necessary for me to go back and check the accuracy of information. b</td>
<td>2.19 (0.59)</td>
<td>1.88 (0.53)</td>
<td></td>
</tr>
<tr>
<td>The change of shift report I receive on my patients helps me do my job well.</td>
<td>3.06 (0.67)</td>
<td>2.88 (0.78)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19.34 (3.65)</td>
<td>17.44 (3.34)</td>
<td>2.05 .05</td>
</tr>
</tbody>
</table>

Note. ns = not statistically significant.

* Lower mean scores indicate higher level of agreement. Coding 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree.

b Item was scored in reverse.

in the scores for the SBAR (T) competency checklist scores pre- (M = 29.07, SD = 4.47) and postimplementation (M = 27.7, SD = 2.91) of the project (p > .05). However, the postimplementation phase mean score did show a trend toward improvement in handoff accuracy and completeness.

Chi-square tests were used to compare specific expected handoff behaviors. Although the total score did not significantly improve, some behaviors within the SBAR (T) competency checklist showed significant improvement, including the off-going nurse introducing the oncoming nurse ($\chi^2 = 3.98, df = 1, p < .05$) and oncoming nurse identifying any barriers to care for the patient ($\chi^2 = 6.65, df = 1, p < .01$).

**White Board Usage**

The third project aim was to evaluate the whiteboard use for communication among the nursing staff, identified as an important step in the handoff process. Thirty-three percent of the nursing staff used the whiteboard to communicate prior to implementation of the project. This behavior remained unchanged throughout the project, remaining at 33% (p > .05).

**Time**

The last aim of the project was to assess bedside handoff report time. The length of time for the off-going nurse to complete report was compared pre- and postimplementation of the project, using an independent t test. Total length of time to give report ranged from 2 to 10 minutes during the entirety of the project. There was a significant decrease in total length of time from pre- (M = 5.87, SD = 2.53) versus postimplementation of the project (M = 3.33, SD = 1.23) ($t = 3.48, df = 20.30, p < .00$).

**DISCUSSION**

The aim of this project was to evaluate the influence of a standardized bedside handoff process on a medical–surgical unit. The first aim was to evaluate a standardized bedside handoff and its influence on nurses’ perceptions of communication. This project demonstrated an improvement in the nurses’ perceptions of shift report, which is consistent with the original research findings (Jukkala et al., 2012). The shift report subscale suggested that nurses on the unit felt better prepared to care for their patients and perform their job following implementation of the project. This is similar to findings of a study conducted by Wakefield, Ragan, Brandt, and Tregnago (2012), in which nurses agreed that bedside handoff improved nurse-to-nurse communication and the quality of the information.

The second aim was to evaluate the completeness and accuracy of bedside handoffs with nurses using the SBAR (T) handoff pocket card. Results of the project were varied with improvements found on identification of barriers to care and the introduction of the oncoming nurse. While the other specific behaviors did not reveal immediate improvement in completeness and accuracy of handoff, the pocket card did serve as a reminder of the importance of accurate handoffs. Research has shown that a standardized handoff tool improves patient safety and outcomes (Starmer et al., 2017).

The third aim of the project was to increase whiteboard use for communication. The results of this project did not demonstrate a change in whiteboard use after the implementation of the new process. The use of the whiteboard was not a new handoff element; therefore, this lack of change could be the result of a routinized practice, which is difficult to alter. Seghal, Green, Vidyarthi, Blegen, and Wachter (2010) have noted that a system for auditing whiteboard usage is essential for compliance with this communication practice. Therefore, further efforts to encourage and monitor use of the practice are needed.

The last project aim was to reduce the length of bedside handoff time. The project did result in a statistically and clinically significant 2-minute reduction in handoff time. This result is consistent with current studies that demonstrate a reduction in time ranging from 2 to 15 minutes when conducting the handoff at the patient’s bedside (Athwal, Fields, & Wagnell, 2008; Caruso, 2007; Evans, Grunawalt, McClish, Wood, & Friese, 2012). A reduction in time to complete bedside handoff not only saves the nursing staff time, but also serves as a cost savings to the organization (Cairns, Dudjak, Hoffmann, & Lorenz, 2013).

**CONTROLLING THE IMPROVED PROCESS**

Several vital lessons were learned during the conduct of this project. Restructuring the bedside handoff process required a great deal of leadership support, consistent communication, and unit-based change champions. Visible leadership during shift change was a key strength of this project. Unit-based nursing leadership was available 24 hours per day to address any concerns during the trial of the new process. Unit-based nurse leaders communicated the importance of an effective bedside handoff to nurses on a regular basis during interdisciplinary rounds, staff meetings, and at shift starters.

Another key strength of the project was the early identification of nurses who served as change champions on various shifts. The early focus groups assisted us in identifying change agents. The champions helped the Project Lead to keep their peers abreast of the project and actively engaged. The focus groups also provided an op-
portunity for nurse peer-to-peer discussions, supported nurses’ buy-in for the need for change, and allowed the opportunity to summarize the current practice for bedside handoff.

Varied and frequent communication practices, such as shift starters, daily rounding, and staff e-mails, kept the project relevant and visible to staff. The support of hospital and unit leadership, in addition to nursing champions, led to an 86% participation rate for the project. Unit-based project champions, the nurse manager, assistant nurse managers, clinical educator, and clinical advanced practice expert assisted in encouragement during the project and reeducation when needed. This approach also played a vital role in nurse participation.

A larger sample of the bedside handoff observations is warranted prior to replicating the standardized bedside handoff hospital wide. Unfortunately, competing priorities, such as additional projects in nursing units, are unavoidable. Nurse leaders should manage and oversee the total number of projects in a unit to ensure nurses are not overwhelmed with additional changes. Finally, nursing turnover is inevitable and barriers to staffing cannot be avoided, which can often result in a break in the change process. Nurse leaders should work with clinical educators to make certain all newly hired nurses are educated on new projects and expectations.

CONCLUSION

Continual education is essential to the sustainment of bedside handoff. Several agencies recognize improved communication as a worldwide patient safety goal. These agencies recommend that nurse leaders educate, hardwire, and audit communication among nurses at the bedside. In this project, the SBAR (T) method served as an educational recall mechanism for information and promoted collegiality among nurses. As noted in the literature, the SBAR (T) method has been adopted in the emergency department (Baker, 2009) and can also be applied in a medical–surgical unit.

REFERENCES


Starmer, A., Spector, N., West, D., Srivastava, R., Sectish, T., & Landrigan, C. (2017). Integrating research, quality improvement, and

