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AN EVIDENCE-BASED PROJECT: IMPLEMENTING A NURSING HANDOFF PROTOCOL TO IMPROVE PATIENT OUTCOMES

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IMPLEMENTING A NURSING HANDOFF PROTOCOL

TO IMPROVE PATIENT OUTCOMES

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Nursing Practice
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Sandra Petersen, DNP, APRN, FNP/GNP-BC, Committee Chair

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This is to certify that the DNP Scholarly Project of

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Abstract

AN EVIDENCE-BASED PROJECT:
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TO IMPROVE PATIENT OUTCOMES

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The role of handoff communication is known to impact the patient experience and other patient outcomes. Handoffs are a common practice in healthcare and occur multiple times a day for each patient. Nurses are involved in handoff each shift. Based on clinical inquiry, the following question was postulated: In acute care nurses, how does a standardized handoff communication protocol, compared to no standardized communication protocol, affect outcomes (i.e., patient satisfaction, falls, medication errors, and missed orders) within a 3-month period? After completion of a literature review and critical appraisal, a bedside report protocol was developed and implemented using the Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care. Nurse communication, falls, medication errors, and omitted procedures were monitored along with compliance with the process. During the 3 months after implementation, the Press Ganey communication with nurses score increased from 74.7 to 80.6 by Month 3 and continued to improve for Months 4 and 5. Compared with the

same period of the previous year, the number of falls decreased from 11 to 5. The number of medication errors and omitted procedures was unchanged. In conclusion, implementing a standardized evidence-based approach to nurse-to-nurse handoff for shift report impacts the patient experience. Adverse events like falls can be reduced and patient satisfaction can be improved. Working within an interdisciplinary team to develop policy related to new evidence can promote the ongoing hardwiring of evidence-based initiatives.

Chapter 1:

Development of the Clinical Question and Problem Identification

Background and Significance

The Agency for Healthcare Quality and Research (2019) defined handoff as exchanging responsibility for patient care and emphasized that the opportunity for error exists if clinical information is not accurately transferred. Multiple consequences are related to substandard handoffs, including delay in treatment, omission of care, inappropriate treatment, adverse events, and an increased length of stay (The Joint Commission Center for Transforming Healthcare, 2014). According to The Joint Commission (TJC) (2015), communication was the third most frequent cause of sentinel events in 2014. Handoffs, including nurse-to-nurse shift reports, are included in this category of communication failures. In September 2017, the TJC *Sentinel Event Alert* reported that handoff communication errors continue to be a cause of adverse events and increase patient safety risk. Furthermore, the alert reported that 30% of malpractice claims in teaching hospitals were related to communication failures. Communication failures cost nearly $2 billion annually and result in over 1,700 deaths.

Jewell (2016) reported that the complexity of inpatient care and the overwhelming volume of information exchanges that must occur contribute to most errors in hospitals. The complexity Jewell noted includes the staggering number of providers, which

increases the number of handoffs necessary to accomplish patient care. Kannampallil, Schauer, Cohen, and Patel (2011) reported that complexity is often defined as a system or task that is not simple. Jewell (2016) shared that all transitions of care can benefit from appropriate standardized handoff. The myriad handoffs between nurses, providers, and other disciplines required to provide care in today's healthcare environment are complicated and lead to an increased number of errors, especially when consistency in communication is lacking.

As the most frequent type of handoff, nurse handoffs can number 2 million a year in a mid-sized hospital (Abraham et al., 2016). In today's healthcare environment, nurses are required to communicate with one another as patients navigate various departments within the hospital as well as exchange patient information when starting or ending a shift. The handoff of information between the offgoing and oncoming nurse is common in inpatient nursing and is often referred to as a shift report (Abraham et al., 2016). According to Mardis et al. (2016), effective bedside report could be a solution to communication-related errors.

A body of evidence supports standardized handoff in the hospital setting. The standardization has taken the form of checklists, team training initiatives, and a variety of customized forms (TJC, 2017). TJC (2017) reported that multiple mnemonics exist to assist healthcare clinicians to provide standardized handoff. In their systematic review of research related to nurse-to-nurse handoffs, Mardis et al. (2016) noted that SBAR—Situation, Background, Assessment, Recommendation—was the most common mnemonic used during shift report. Standardized handoff can be delivered effectively by utilizing written tools, verbal report, recorded report, and combinations of these options.

Use of standardized handoff can lead to improvement. As an example, Lee et al. (2014) measured the effectiveness of a checklist for sign-out on patient outcomes and demonstrated a statistically significant reduction in overall and intensive care unit length of stay as a result of the intervention

Patton et al. (2017) completed a quality improvement project related to the standardization of handoff report. They implemented an electronic tool using the mnemonic ISHAPED—Introduction, Story, History, Assessment, Plan, Error, and Dialogue—in response to staff nurse concerns about safety risk related to handoffs. Implementation of the mnemonic tool and standardization of the handoff process resulted in a reduction of medication errors for patients transferred from the emergency department and the acute care unit. Patton et al. (2017) described the change required to improve handoff report and engage nurses in evidence-based practice.

Findings from a preliminary review of the literature revealed that using a standardized handoff at the bedside may lead to nurse and patient satisfaction as well as a reduction in adverse events (Johnson, Sanchez, & Zheng, 2015; Taylor, 2015). In addition to this external evidence, internal data at the study site indicated the need to change practice. At this 900-plus bed urban teaching hospital in the Southwestern United States, there were 143 handoff-related occurrences during fiscal year 2017 (July 2016–June 2017). The 143 events included examples of missed care. Specifically, there were instances of failure to administer blood transfusions or other intravenous medication drips ordered by the provider and an 8% to 10% error rate for wound care order follow through, which were attributed to handoff error.

Development of the Clinical Question

Bedside reporting was sporadically utilized at the study site in early 2000, but it was not implemented in a standardized fashion or monitored at that time. Therefore, based on the national attention given to handoff, the evidence of its benefits, and the need for it at the study site, the following question was addressed: *In acute care nurses, how does a standardized handoff communication protocol, compared to no standardized communication protocol, affect outcomes (i.e., length of stay, falls, medication errors, and missed orders) within a 3-month period?*

This question has all PICOT elements, as noted in Table 1.1.

Table 1.1
PICOT Question

PICOT element		Response
P	Population	Acute care nurses
I	Intervention	Standardized handoff communication protocol
C	Comparison	No standardized communication protocol
O	Outcome	Length of stay, falls, medication errors, and missed orders
T	Time	3 months

To answer this question, an evidence-based model, the revised Iowa Model, was selected.

Selection of Evidence-Based Practice Model

The Iowa model is a common evidence-based model used in hospitals. In response to changes in healthcare, Buckwalter et al. (2017) recently published a revised form of the model that includes patient engagement and expands the areas of piloting, implementation, and sustaining change. The Iowa model was selected for

implementation of a handoff communication protocol because it provides a step-by-step algorithm responding to triggers that indicate an opportunity to improve practice.

Systematic Search for Evidence

A literature search was conducted utilizing the following electronic databases: CINAHL Complete, Medline, PubMed, and Cochrane. Keywords included *handoff, handover, nurse-to-nurse report, shift report, standardization, acute care, nursing,* and *outcomes.* Limiters for the search included the English language and the period of 2006 to 2017. This period was selected because The Joint Commission National Patient Safety Goal on handoffs went into effect in January 2006 (Hughes, 2008).

The CINAHL Complete search yielded 75 articles for handoff communication and standardization. The Medline search yielded 82 articles; PubMed, 86 articles; and Cochrane, 6. To be included in the synthesis, the article had to be a research study that (1) specifically included nurse-to-nurse shift report or handoff and (2) measured patient outcomes. Figure 1.1 shows the flow chart from the initial identification of 250 articles to the selection of the 10 articles for the synthesis. The next chapter discusses this body of evidence.

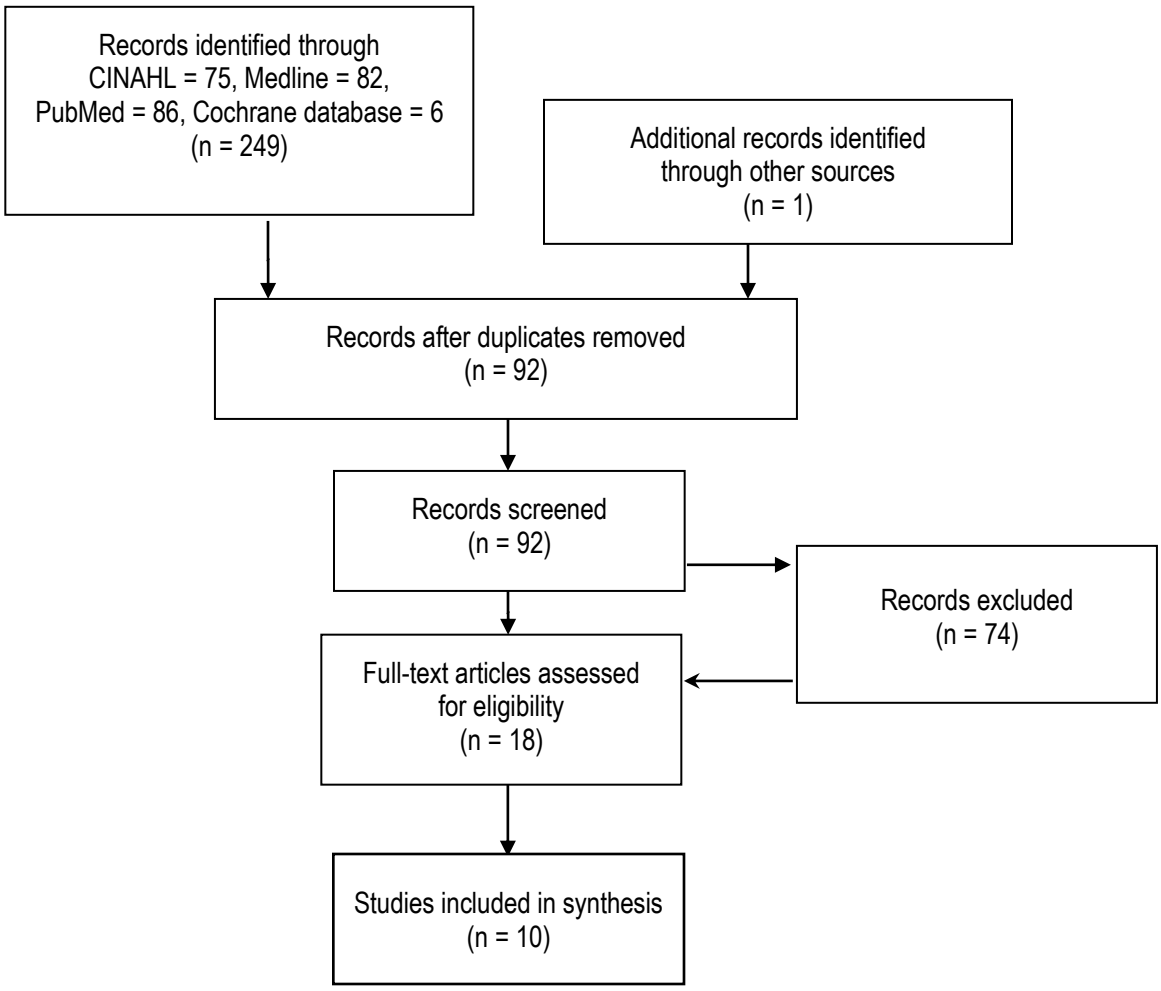

Figure 1.1. Results of systematic literature search. Reasons for article exclusion included not being in English, not being a research report, not specifically addressing nurse-to-nurse shift report or handoff, and not measuring patient outcomes.

Chapter 2:

Critical Approval of Evidence

Body of Evidence

A literature search identified 250 publications that were potentially relevant to the study question. While the search yielded a high number of studies, most did not include nurse-to-nurse handoff or measured nurse satisfaction or compliance with the handoff process rather than patient outcomes. As examples of these articles, Eberhardt (2014) studied the standardized handoff process's impact on nursing satisfaction and nurse compliance, and Kerr and McKinlay (2013) measured handoff impact on nursing documentation. Once the number was reduced to 18 after screening, these articles were reviewed utilizing rapid critical appraisal and general appraisal overview. Melnyk and Fineout-Overholt (2015) emphasized that critical appraisal of the evidence is important when implementing evidence-based practice.

Ten studies were selected for the body of evidence based on the results of the rapid critical appraisal and general appraisal overview findings. Details on each of these 10 studies addressing how standardized communication protocols for nurse-to-nurse handoff affect patient outcomes are provided in Appendix A.

Evaluation

Table 2.1 lists the level of evidence for each of the 10 studies. The body of evidence did not contain any level I or II studies. This finding is not surprising, since a

review article on the effectiveness of interventions designed to improve hospital nursing handoff and on nursing handoff styles associated with improved outcomes for hospitalized patients found no randomized controlled trials and thus no opportunity for meta-analysis-type systematic reviews (Smeulers, Lucas, & Vermeulen, 2014). Smeulers et al. (2014) concluded that the best available studies had simple before and after designs.

Table 2.1
Level of Evidence for Studies Included in the Synthesis

	Paper*									
Level of evidence	1	2	3	4	5	6	7	8	9	10
Level I: Systematic review or meta-analysis										
Level II: Randomized controlled trial										
Level III: Controlled trial without randomization	x						x			
Level IV: Case-control or cohort study										
Level V: Systematic review of qualitative or descriptive studies						x				
Level VI: Qualitative or descriptive study (includes evidence implementation projects)		x	x	x	x			x	x	x
Level VII: Expert opinion or consensus										

* 1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009; 4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017; 8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Two studies were Level III. As an example, Zou and Zhang (2016), in a quasi-experimental study, found that a standardized handoff tool resulted in a statistically significant reduction in handoff-related errors, such as delayed or missed medication orders or tests, pressure ulcers, falls, and care of a central line. One study was Level V. In this study, Mardis and colleagues (2016) completed a systematic review of research articles related to nursing shift-to-shift report. Finally, seven studies were Level VI. As an example, Sand-Jecklin and Sherman (2013) found that a standard communication

process decreased the number of falls, the number of medication errors, and the amount of nurse overtime and increased the satisfaction of both nurses and patients.

Synthesis

Information from these 10 studies was synthesized in terms of intervention type, the period of intervention, monitoring techniques, type of written tool, and outcomes examined. Tables for each synthesis appear in Appendix B.

The interventions studied in the body of evidence included bedside report, written tools, verbal report, electronic tools, training videos, scripting, and team huddles, with most studies including bedside report with a written tool. The written tool varied, but most studies utilized SBAR—Situation, Background, Assessment, Recommendation—or a modified version such as SBART, which is SBAR plus Thank you. Sand-Jecklin and Sherman (2013), Scheidenhelm and Reitz (2017), and Freitag and Carroll (2011) utilized SBAR/modified SBAR with bedside report to demonstrate improvement in patient satisfaction.

The time frames in the studies ranged from 1 month to 1 year. Three studies—those of Sand-Jecklin and Sherman (2013), Freitag and Carroll (2011), and Radtke (2013)—used a 3-month time period. In Radkte's (2013) study, the unit size was small at 16 beds, and that time frame was sufficient to affect outcomes. Zou and Zhang (2016), Freitag and Carroll (2011), and Scheidenhelm and Reitz (2017) used quality monitoring by observation to ensure compliance, adoption, and transition to bedside report.

All the studies with the exception of that of Roberts, Putnam, and Raup (2012) demonstrated that bedside report had a positive impact on patient outcomes. Sand-Jecklin and Sherman (2013), Freitag and Carroll (2011), Zou and Zhang (2016), Athwal, Fields,

and Wagnell (2009), Halm (2013), and Mardis et al. (2016) demonstrated a reduction in falls. Freitag and Carroll (2011) also showed a reduction in catheter-associated urinary tract infections.

Most studies included in the body of evidence were quality improvement or evidence-based practice projects. According to Melnyk and Fineout-Overholt (2015), protection of privacy is an important ethical consideration when implementing evidence-based practice projects. Specifically, Radkte (2013) addressed nursing concerns related to patient privacy when giving bedside report. Another ethical consideration for the studies was obtaining informed consent from patients and nursing staff. Maxson, Derby, Wrobleski, and Foss (2012) sent a letter inviting the nurses to participate and considered the signed letter consent to participate, while verbal consent was obtained from patients.

In summary, the studies demonstrated that standardized bedside report using a written tool had a positive effect on patient outcomes. The most common written tool to guide this report was SBAR. Patient satisfaction and falls were the outcomes most likely to be impacted by using a standardized communication protocol for nurse-to-nurse handoff. Other outcomes included in more than one study were delayed or omitted orders.

Evidence-Based Recommendations for the Current Study

The literature synthesis was used to guide development of this study, particularly in the choice of an intervention of a standardized protocol for nursing shift-to-shift report that includes a face-to-face report between oncoming and offgoing nurses performed at the patient's bedside using a written template based on the SBAR format. Table 2.2

details how the project plan is based on this evidence, including methods for monitoring, the choice of the timeframe, and the outcomes analyzed.

Table 2.2
Project Plan Based on the Evidence

Project intervention	Evidence	Evidence references*	Outcome	Analysis tool
Implement BSR facilitywide	8 out of 10 studies recommended BSR as the best way to complete nurse-to-nurse handoff	1, 2, 3, 4, 5, 7, 8, 10	80% of nurses will provide handoff using BSR method	Direct observation by charge nurses, quality nurses, or educators
Develop a standardized written tool for report	8 out of 10 studies recommended a written template for handoff report	1, 2, 3, 4, 6, 7, 8, 9	90% of nurses will consistently perform handoff using a standardized written template	Direct observation by charge nurses, quality nurses, or educators
Use the SBAR format for the written tool	6 out of 10 studies used the SBAR format	2, 5, 6, 7, 8, 9	Standardized tool will be used 100% of the time for nurse-to-nurse shift report	
Monitor patient satisfaction, falls, and omitted or delayed medication/test	7 out of 10 studies measured patient satisfaction	1, 4, 5, 6, 7, 8, 9	Press Ganey HCAHPS nurse communication will improve by 5%.	Press Ganey mean/HCAHPS percentile; MIDAS reporting system
	6 out of 10 studies measured falls	1, 2, 3, 5, 8, 9	Falls and omitted or delayed meds/test will decrease by 10%.	
	2 out of 10 studies measured delayed or omitted meds /test	1, 2		
Use observation audits/rounding to ensure compliance	3 out of 10 studies included observation audits or manager rounding	1, 3, 8	Weekly observations will occur during implementation	Audit tracking tool
Schedule the pilot project for 3 months	3 out of 10 studies used a 3-month period	2, 4, 8	Compliance will increase meet above process goals 80% BSR, 90% written template	Project leader and nurse manager

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009; 4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017; 8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

BSR indicates bedside report; HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems.

Operationalization of the Evidence-Based Practice Model

This project was operationalized through the evidence-based practice model. The Iowa model was introduced in chapter 1; its application to this project is summarized in Figure 2.1. Since the Iowa model was the official model of the facility, staff and leadership were familiar with it. In addition, the model is simple to use in conjunction with Lean Daily Management and other quality improvement methods.

The model begins with triggers. The triggers for this project included the number of errors involving handoff communication as a common or root cause. The lack of compliance with bedside report was also a trigger. The next step in the model is to state the question or purpose of the implementation. For this study, the clinical question was: "In acute care nurses, how does a standardized handoff communication protocol, compared to no standardized communication protocol, affect outcomes (i.e., length of stay, falls, medication errors, and missed orders) within a 3-month period?" Stating the question early is critical to implementing evidence-based practice. It is also important to determine whether the implementation is a priority for the organization. Based on a trend of handoff-related errors, the chief nursing officer requested that the current process be reviewed and an evidence-based solution be identified and implemented.

Forming a team and identifying key stakeholders is another step in the Iowa model. In implementing a handoff protocol for this study, it was important to include staff nurses, educators, nurse managers, charge nurses, and patients. The clinical question is important and guides the literature search and appraisal. The model includes the assembly, appraisal, and synthesis of the body of evidence, a critical step to ensure that the answer to the question is based on a sufficient body of evidence. In this study,

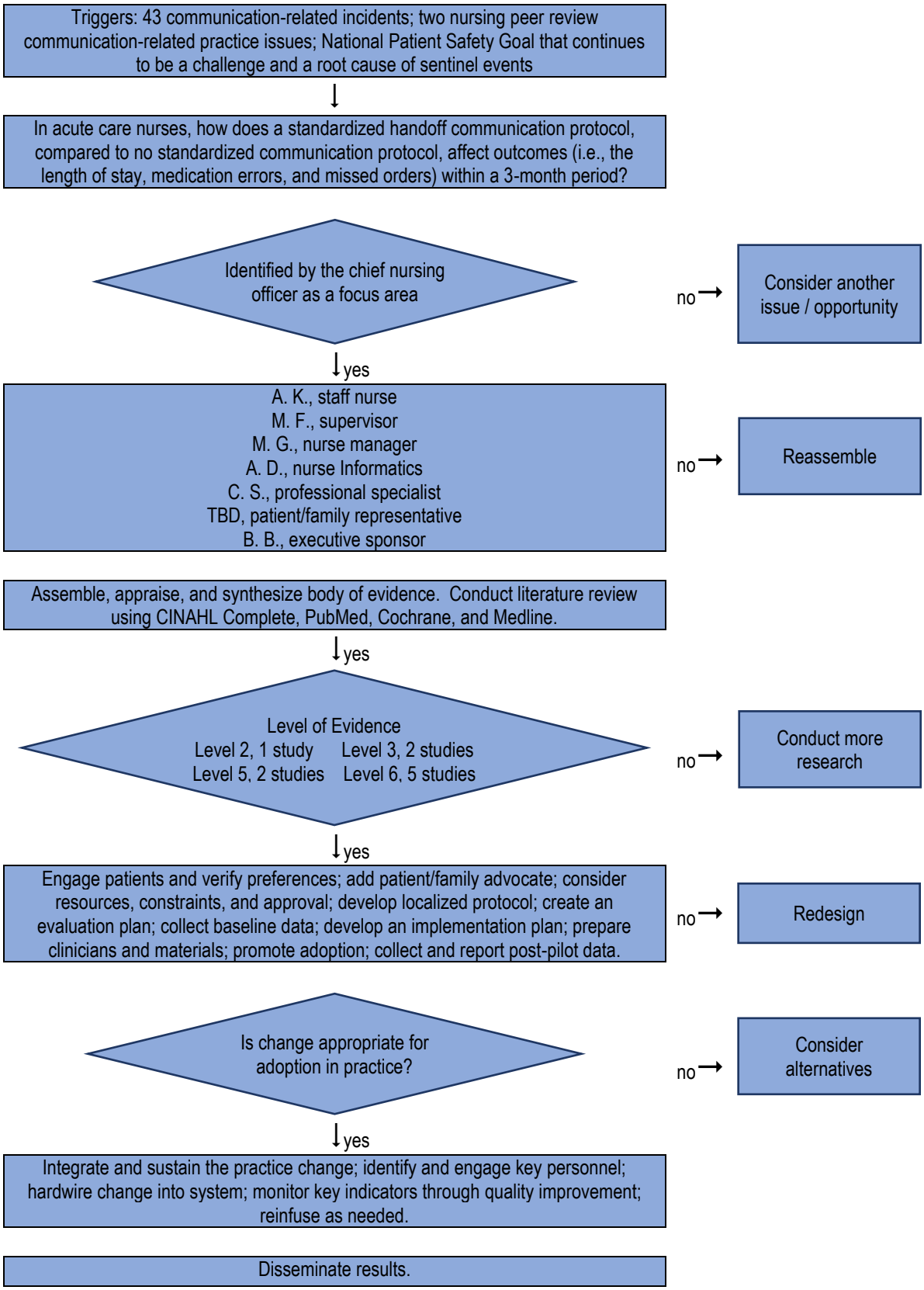

Figure 2.1. Application of the Iowa model to the current study.

this analysis of the literature appeared earlier in this chapter. The model also calls for a decision about the appropriateness of the change, and the research studies related to handoff communication's impact on outcomes were sufficient to support the need for implementing a new process for nurse-to-nurse shift handoff.

The Iowa model has directions for study design and pilot implementation, including resource considerations, patient preferences, collection of baseline data, creation of localized protocols, clinician preparation, evaluation and implementation planning, promotion of adoption, and reporting of post-pilot data. Monitoring processes related to implementing a handoff communication protocol is also important to the sustainability of the project. According to Jurado (2017), quality improvement is the continuous monitoring of data to improve processes. Seidl and Newhouse (2012) explained that the evidence-based process is supported by the application of quality improvement methods and that quality improvement is strengthened using evidence. Details on study implementation are described in the next chapter.

Logic Model

A logic model that incorporates assumptions, inputs, activities, outputs, and metrics was developed to guide the standardized communication protocol for nurse shift-to-shift report (Figure 2.2).

In terms of metrics, the study monitored compliance with protocol, falls, medication errors, missed orders, and patient satisfaction; the long-term goal was to spread the practice to all units and sustain it. Outcome metrics were selected based on the evidence (see Table 2.2). Ensuring compliance with this evidence-based practice implementation included direct observation of bedside report as a process metric to

ensure the protocol was followed. Athwal et al. (2009) used staff meetings and manager rounding to ensure compliance with the nurse-to-nurse handoff communication and provided timely feedback during the implementation phase of their project. Direct observation by a charge nurse, quality nurse, or educator was utilized in two studies to ensure compliance (Freitag & Carroll, 2011; Zou & Zhang, 2016). Currently most units at this study site use Lean Daily Management methods and shift huddles to discuss negative clinical outcomes, including those measured in this project: falls, missed orders, and patient complaints or compliments (early process metric for official patient satisfaction ratings).

Input	Activities	Output	Outcome/Impact		
• Money • Time • Bedside RNs • Unit educator • Electronic health record • Midas • NDNQI (Press Ganey) • HCAHPS (Press Ganey) • Data Vision	• Have monthly meetings • Provide four in-services per unit • Create education curriculum • Create training video • Hold a planning meeting • Pilot rapid cycle • Create future state • Create audit tool • Analyze data	• Structure course for handoff communi-cation protocol • Video • Written bedside report template	Short-term goal: • 80% compliance with protocol	Mid-term goals: • Reduced falls • Reduced medication errors • Reduced missed orders • Patient satisfaction	Long-term goal: • Spread to all nursing units and sustain change
Assumptions Administrative support—funding and policy changes Financial support—sufficient funding to train nurses and implement Support of nurse educators Nurses who are agreeable and will be compliant					

Figure 2.2. Logic model for the study. HCAHPS indicates Hospital Consumer Assessment of Healthcare Providers and Systems; NDNQI, National Database of Nursing Quality Indicators.

Process markers with timelines were identified to help the project meet outcomes. Key dates related to finalization of the SBAR tool, creation of an education video, and education of the pilot unit. Rapid-cycle phases were used based on team feedback and observation findings. Facility-wide roll out occurred in August 2018. The full schedule appears in Table 2.3.

Table 2.3
Project Schedule

Activity	Timeframe
	2017
Preliminary plan approved by facility and academic advisor	Oct
Meet with key stakeholders regarding plan	Nov
Recollect new written templates for bedside report and compare to original collection	Dec
	2018
Schedule meeting with key stakeholders	Jan 8-12
Finalize written tool in SBAR format	Jan 15-20
Schedule meeting for education video	Jan 23-25
Review education video cut	Jan 28-31
Create education packet handouts, video, written tool, and audit tool	Feb 5-9
Present final education process to Professional Development Council	Feb 12-16
Get on change schedule calendar for Shared Governance Councils	Feb 19-23
Present to Nursing Leadership Team	Mar 1
Present to Staff Nurse Advisory Council	Mar 6
Present to Supervisor/Charge Nurse Council	Mar 13
Start education on pilot unit (four face-to-face sessions)	Mar 14-30
Start pilot	Apr 2
Direct observation audits (educator, charge nurse, DNP student)	Apr 2-6
Begin to review weekly outcome metrics	Apr 9
Continue auditing and just-in-time education	Apr 16
Analyze metrics; explore challenges and barriers	Apr 23
Create rapid cycle 2 (second plan-do-check-act) on pilot unit	Apr 30
Share revision to process if needed with pilot unit	May 3
Start rapid cycle 2	May 7
Continue observation audits	May 8-18
Analyze metrics; explore challenges and barriers; decide if a third rapid cycle is needed	May 21-25
If ready to roll out housewide, present revision to process at Shared Governance Councils: Skilled Nursing Advisory Council, Supervisor/Charge Nurse Council, Nurse Manager Council	June 15, 12, 21
Present at Nursing Leadership Council	June 28
Provide education to all units	July 3-31
Go live	Aug 1

Chapter 3:

Project Design and Methodology

Project Design and Methodology Overview

The facility where this evidence-based practice project was implemented is a nationally recognized, faith-based, not-for-profit teaching hospital in the Southwest. The facility is licensed for more than 900 beds and serves over 300,000 patients each year. The facility has received Magnet® status three times and is seeking its fourth recognition. Magnet® recognition is considered a symbol of nursing excellence. The nursing department at the facility is dedicated to providing excellence in nursing and continuously improving outcomes by implementing evidence-based practice. Bedside shift report for registered nurses was initiated within the facility during 2006 to 2007, but the initiative was not sustained and report was not being performed consistently.

The chief nursing officer gave approval for the project and was very supportive of it (Appendix C). The industry mentor was the director of research and nursing education (Appendix D). Educators in this department were key stakeholders because of the need to continue to educate new nurses on the protocol. The academic advisor has academic and practice experience and was vital to the success of this project; she gave approval for this project as well. Clinical hours related to implementation of the project included meetings with various DNP-prepared nurses who have successfully implemented evidence-based projects at the facility, as well as observing senior nursing executives in a

variety of settings and meeting with key stakeholders involved with nurse-to-nurse handoff.

The Joint Commission, the Agency for Healthcare Quality and Research, and various research studies have shown how a standardized nurse-to-nurse handoff has a positive effect on patient outcomes (Athwal et al., 2009; Freitag & Carroll, 2011; Zou & Zhang, 2016). Despite this evidence, in 2017, The Joint Commission released Sentinel Event Alert 58, noting that handoff communication continues to be a root cause in medical errors. This alert outlined the continued concerns regarding poor handoff and provided recommendations.

Intervention and Assessment

Based on the release of Sentinel Event Alert 58 and the evidence, an initiative to reimplement nurse-to-nurse handoff on a 32-bed medical-surgical unit began in July 2018. The initiative included performing report at the bedside with patient involvement using a standardized approach with a written template that included the elements of SBAR: Situation, Background, Assessment, and Recommendation. Discussion and education with the team started in July 2018. Once education occurred, the expectation was for the staff nurses to start complying with set expectations. Process measures included an audit to ensure that the bedside report was performed according to expectations. Nurses were observed for compliance using a standardized audit tool.

Outcome Measures

Outcome measures included patient satisfaction scores related to the nursing domain, falls, medication errors, and procedure omissions. Data for these measures were

collected from two main sources. For patient satisfaction, the study used three questions related to communication within the nursing domain on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS): (1) During your hospital stay, how often did nurses treat you with courtesy and respect? (2) During this hospital stay, how often did nurses listen carefully to you? (3) During this hospital stay, how often did nurses explain things in a way you could understand? Eligible patients are randomly selected to complete the HCAHPS survey (Centers for Medicare and Medicaid Services, 2010). Patient satisfaction scores were retrieved from Press Ganey. For falls, medication errors, and procedure omissions, data were retrieved from the MIDAS+ Incident Reporting System. MIDAS is an electronic system that allows any employee to report errors and near misses.

Data Analysis

Data from the months after implementation were compared with data from the same months from the previous year. This method was used because of similar activities during the same period, such as new nursing residents in orientation coming onboard.

The next chapter discusses the results of this project.

Chapter 4:

Results

This chapter begins by providing results on the extent to which nurses implemented the intervention of bedside report. It then presents results for the outcome measures of patient satisfaction, falls, and medication errors/procedure omissions. Both process and outcome measures are included.

Compliance

The management team audited a minimum of 10 nurse exchanges weekly and provided feedback to staff. A goal of 90% was set, with the expectation of eventually reaching 100%. The compliance rate started at 40%. All staff were educated by July 23, 2018, and auditing formally started that week. As shown in Figure 4.1, beginning in August, most weeks showed compliance of 80% or more, and one week had 100% compliance. The team showed considerable improvement over baseline.

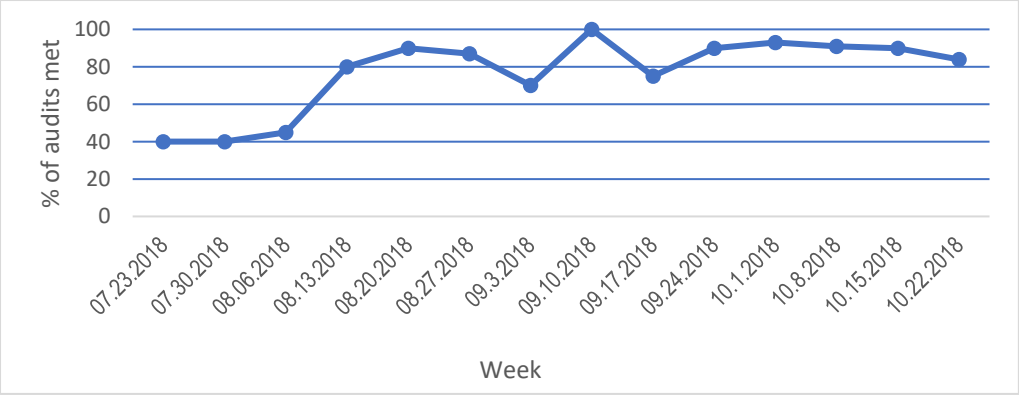

Figure 4.1. Bedside report compliance by week, July to October 2018.

Patient Satisfaction

The initiative did not initially improve the "always" rankings on nurse domain scores, as shown in Figure 4.2. Quality improvement methods were used to understand why the nursing domain and overall patient satisfaction scores did not improve immediately after implementation. With accountability by the management team, continued monitoring, and better nursing compliance with bedside report, the patient satisfaction scores continued to improve. By November and December 2018, scores were clearly much better than they were in those months in 2017.

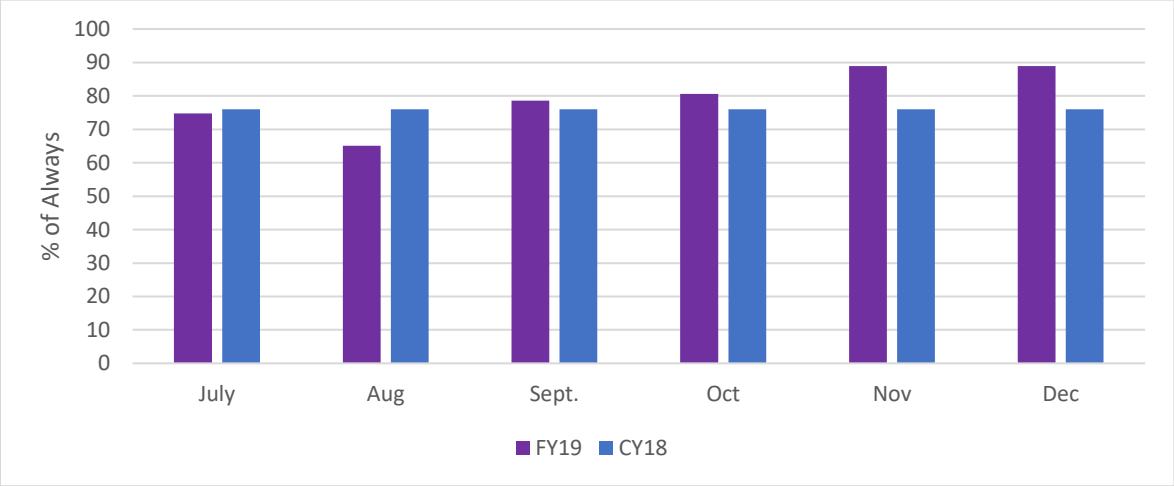

Figure 4.2. Patient satisfaction scores for communication questions in the nursing domain, by month, compared with prior year. Bedside report education was completed on July 23, 2018, and implemented immediately.

Falls

The implementation of a standardized bedside report improved the number of falls when compared to the previous year, as shown in Figure 4.3. Specifically, for July to December 2018, there were 5 falls compared with 11 in July to December 2017. Implementing standardized bedside report has been shown to decrease the number of falls

(Sand-Jecklin & Sherman, 2013; Zou & Zhang, 2016). Reduction of falls is important and is considered a nurse-sensitive quality indicator.

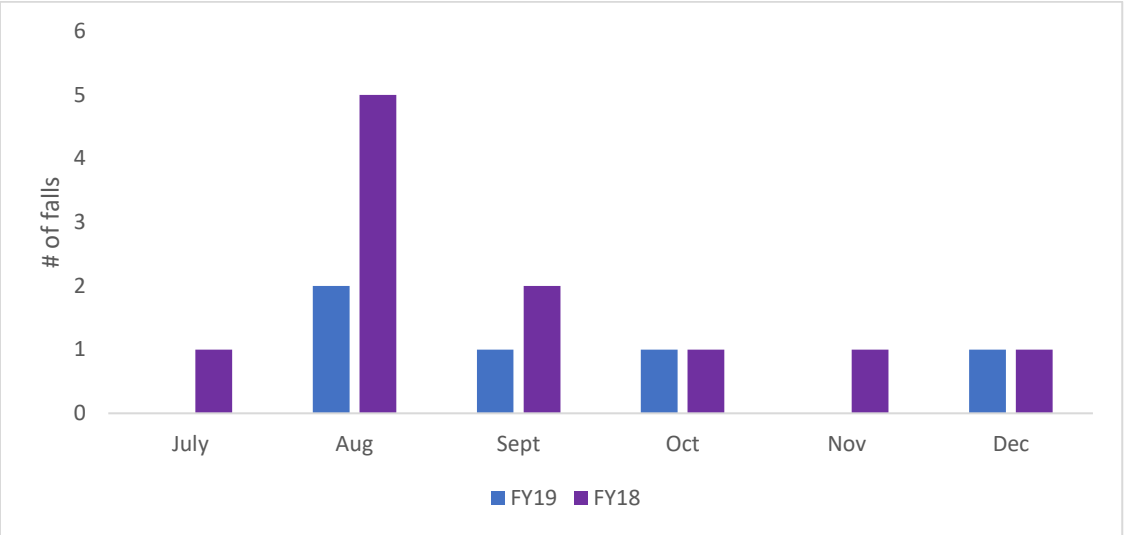

Figure 4.3. Total falls by month, compared with prior year. Bedside report education was completed on July 23, 2018, and implemented immediately.

Medication Errors and Omissions

The original plan included analysis of medication errors and omissions. For the unit where the project was implemented, the number of medication errors and omitted procedures for July to December was very small 2 and remained unchanged after implementation compared with the previous year. The management team planned to continue to monitor all outcome measures after the completion of the project. The next chapter discusses these results and their implications, as well as lessons learned from the process and plans for project sustainability and dissemination.

Chapter 5:

Project Sustainability Discussion, Conclusions, and Dissemination Recommendation

Discussion of Project Results and Impact

Handoff communication errors have been a concern in healthcare for several decades. After reviewing the literature and appraising the evidence, an evidence-based process was created to improve nurse-to-nurse handoff. The implementation of a standardized protocol led to an improvement in patient satisfaction and a reduction in the number of falls. The reduction of errors related to an evidence-based practice solution for nurse-to-nurse handoff demonstrates to other disciplines the possibility of improving the patient experience by implementing evidence-based practices in the handoff process.

DNP-prepared nurses can help hospitals reach the Triple Aim. The Triple Aim, developed by the Institute for Healthcare Improvement, includes patient experience, population health, and reducing cost (Bisognano & Kenney, 2012). This evidence-based project addressed two of those aims: patient experience and cost reduction. Many hospitals use Lean Black Belts who are engineers and do not have a clinical background. Leaders who are DNP-prepared nurses must position themselves to be involved in Lean projects to ensure that evidence-based practice is used to drive outcomes. Nurses must own their practice, including outcomes, and the DNP-prepared nurse is the best person to

lead this expectation. The role of the DNP nurse was evident throughout this project, and interventions were based on evidence.

By implementing evidence into practice and sharing the impact on outcomes, other similar units within the system can learn from the implementation on this medical-surgical unit. Improving patient outcomes in the current environment could impact reimbursement for the hospital and cost for the patient. In addition, the reputation of the hospital could be improved and outcomes for the patient could improve. Sharing the work of this initiative could also help other hospitals looking to improve the handoff process.

Project Sustainability Plans and Implementation

All EBP initiatives face challenges. The challenges of this project were similar to those discussed in the literature, namely, the small numbers of events and the short (3-month) period of follow-up. At the same time, this project represents a pilot phase of the initiative. According to Sylvia and Terharr (2014), data management is ongoing, and data should continue to be collected and monitored as processes are modified to reach the goal. Outcome data need to consistently improve or achieve the goal for at least 6 months to indicate stability. Once improvement is achieved and sustained for 6 months, the project will be shared internally. Auditing will continue to occur to ensure that staff members do not stop performing bedside report. Quality improvement methods will be utilized if outcomes that should be expected based on the literature do not show appropriate levels of improvement.

Sentinel Event Alert 58 resulted in a new urgency around nurse-to-nurse handoff, and the hospital system has a team responsible for creating a policy. Findings of the

project will be shared with this group, which includes two DNP-prepared nurses. The hospital setting where this project was implemented has three DNP-prepared nurses who participate in a variety of quality improvement initiatives.

Barriers and Challenges

Barriers that were shared during the bedside report implementation related to staff confidence and comfort in discussing the patient's condition in front of the patient if the disease was serious or chronic. Staff perceived that including the patient would make bedside report longer with questions that required nurses to be cognizant of the use of medical terminology. The most important challenge was getting staff to understand that this was the method used for report moving forward and not just another project that would go away in a couple of months. Having the leadership team perform audits every month and provide feedback reinforced this message and was key to the initiative.

Lessons Learned

Among lessons learned during the implementation of this project was the need to be agile if another team becomes interested in a similar project. Understanding how to be persuasive within the interdisciplinary team and ensuring that solutions are evidence-based versus "this is the way we currently do it" is an essential skill for DNP-prepared nursing leaders. Often healthcare regulatory and accreditation organizations add to the urgency of the change. This was the case with Sentinel Event Alert 58, wherein nurse-to-nurse handoff was a component of the process. Expediting change became more of an organization priority. If internal evidence indicates an opportunity to improve a process and outcomes, evidence-based practice must be implemented in a timely fashion.

Conclusion

Implementing a standardized evidence-based approach of nurse-to-nurse handoff for shift report impacts the patient experience. Adverse event like falls can be reduced and patient satisfaction can be improved. Working with interdisciplinary teams to develop policy related to new evidence can promote the ongoing hardwiring of evidence-based initiatives.

Dissemination Recommendation

These findings will be shared with similar units through internal poster and podium presentations. After the project is disseminated internally, it will be shared through regional or national conferences to promote ongoing dissemination. A manuscript will also be prepared for publication in a peer-reviewed nursing journal.

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Appendix A:

Summary of the Body of Evidence

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
Zou & Zhang (2016). Rates of nursing errors and handoff-related errors in a medical unit following implementation of a standardized nursing handoff form.	Determine impact of standardized nurse handoff form on delay or omission of medication or tests, pressure ulcers, caring for central lines, and patient falls	None	Quasi-experimental: data collected 1-year pre- and post-intervention	80-bed inpatient med-surg unit in China, 45 nurses, 1963 admits pre-intervention and 1970 during intervention	Independent: 1. Nurse handoff form (written tool) 2. Bedside report Dependent: 1. Delay or omission of meds 2. Pressure ulcers 3. Inappropriate caring for lines 4. Patient falls	• Observations by head nurse • Voluntary reporting by nurse • Quality nurse reported error • Delayed or omitted medications • Pressure ulcers • Inappropriate caring for line • Falls	P value Error rate per 100 admissions	• Handoff-related errors ↓ 2.7 to 0.3 (*P* <001) • Delayed/omitted meds/test ↓ 0.5 (*P*=.002) • Pressure ulcers ↓ from 0.7 to 0.3 (*P*=.03) • Inappropriate care of line↓ from 1.3 to 0 (*P*<.001) • Falls↓ from 0.2 to 0 (*P* <.04)	• LOE III • Weakness: Setting in China, with potential differences in workflow and nurse experience vs the US • Strength: Time period, no nursing turnover, large unit, validity of standardized nurse handoff form • Recommendation: Standardized nurse handoff form and bedside report ↓ negative patient outcomes, medication errors, pressure ulcers, falls, and inappropriate line care
Sand-Jecklin (2013). Incorporating bedside report into nursing handoff.	Measure the impact of a standardized process including a nursing report guideline tool (SBAR format), recorded report, and bedside report	Rosswurm & Larrabee	Quasi-experimental: convenience sample, baseline data collected for 1 month, outcome metrics collected 3 months after implementation	Seven med-surg units at West Virginia University Healthcare	Independent: 1. Standardized guidelines 2. Recorded report 3. Bedside report Dependent: 1. Nurse satisfaction 2. Patient falls 3. Medication errors 4. Nurse	• Nursing survey • Percent reduction	• Frequency of error • Percent reduction	• Adverse clinical outcomes ↓ during shift change • Falls ↓ 35% • Medication errors ↓ 50% • No change in nursing overtime	• LOE VI • Weakness: Small convenience sample, not designed to prevent one nurse from completing multiple surveys, inconsistencies in implementation, improvements not statistically sig-nificant individually (likely due to N)

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
					overtime				but clinically significant • Strength: Nursing survey on process change to improve adherence, 3-month implemen-tation before collecting outcome data; training video for nurses • Recommendation: A process including stan-dardized guidelines, recording of report, and finishing bedside report with patient impacts outcomes.
Halm (2013). Nursing handoffs: Ensuring safe passage for patients	Address the PICO question: What effects do standardized nursing handoffs have on patients, clinicians, and financial outcomes?	None	Evidence-based practice	Four QI studies; one prospective observational, one interven-tional; one systematic review	Independent 1. I PASS the BATON@ BS 2. Standardized SHARE tool 3. SBAR format 4. Telephone handover Dependent: Nurse and patient satisfaction; defects Independent: Systematic review Dependent:	• Pre-post and literature review	Synthesis of evidence	Evidence synthesis demonstrates bedside report with a standardized tool improves patient safety. Highly reliable handoffs include face-to-face, two-way communication, and structured written forms that capture content.	• LOE VI • Weakness: Discussion of the specific outcomes limited • Strength: Method of search and yield included, evaluation table used • Recommendation: Using a standard protocol for handoff report improves patient safety.

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
					Face to face				
Mardis et al. (2016). Bedside shift-to-shift handoffs: A systematic review	Conduct systematic review of research studies related to bedside shift-to-shift handoffs	None	Systematic literature review; searches of Ovid MEDLINE, EBSCOhost, CINAHL, Journals@ovid, limited to English-language research articles published 2008-2014; 280 articles obtained	41 articles	Independent: 1. Handoff tools Dependent: 1. Self-reported measures 2. Process measures 3. Outcome measures	• % Basic stats	Synthesis of evidence	Bedside report improves patient/family satisfaction. Lack of studies with control group.	• LOE V • Weakness: Using English only may exclude some articles. Most studies did not include control group. • Strengths: Used two independent reviewers for search results. • Recommendation: Bedside report is a potential solution to decrease handoff-related errors.
Athwal (2009). Standardization of change of shift report.	Describe a bedside clinical nurse-led initiative to design a standardized shift report that created a more time-efficient process while improving the quality of information reported	None	Unit-based QI project	34-bed unit in a 481-bed tertiary care not-for-profit hospital	Independent: 1. Written report and verbal report at the patient's bedside Dependent: 1. Falls 2. Overtime 3. Time spent on report	• Frequency • Minutes	• Frequency of falls • Time spent on report, overtime	• Time for report ↓ from 30-60 mins to 10-15 mins post-implementation • 1 to 2 falls per month pre-implementation and 1 in 6 months post-implementation	• LOE VI • Weakness: Unable to collect patient satisfaction post-implementation as planned, small sample size • Strength: Included financial implications, clinical nurse-led initiatives • Recommendation: Bedside report can improve handover

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
									communication.
Freitag & Carroll (2011). Handoff communications: Using failure modes and effects analysis to improve the transition in care process	Standardize nursing handoff communication process based on completion of failure mode and effects analysis	Jean Watson's Caring Model	QI, 90-day pilot	Telemetry 24-bed unit in a 100-bed suburban hospital	Independent: 1. SBAR tool in electronic health record 2. Bedside report Dependent: 1. Targeted Press Ganey scores 2. Falls 3. Restraints 4. CAUTI	• % • Mean	↓ ↑ in patient satisfaction mean score	• Overall satisfaction ↑ by 4.4 % • Nursing overall ↑ 5.7% • Nurses' attitude toward request ↑ 5.5% • Attention to special/ personal needs ↑ 8.7% • Nurses kept you informed ↑ 5.5% • Staff worked together to care for you ↑ 5.2% • Inpatient fall rate ↓ 5% • Restrained patient rate ↓ 31% • CAUTI ↓ 34%	• LOE VI • Weakness: Unable to evaluate statistical significance but decreasing never events like CAUTIs is clinically significant • Strengths: Education included role-playing and scripting, weekly meeting to understand barriers • Recommendation: Using failure modes and effects analysis as a QI process helped improve nurse-sensitive quality indicators and targeted patient satisfaction improvement.
Roberts et al. (2012). The interdepartmental ticket (IT) factor: Enhancing communication to improve quality	Evaluate the impact of structured communication on fall rate	Iowa Model	Evidence-based QI	Community hospital in Texas, nurse-to-ancillary handoff	Independent: Standardized communi-cation tool Dependent: Fall rate	• Rates	Number of falls per 1000 patient days	↓ Fall rate	• LOE VI • Weakness: Selective review of the literature • Strengths: Utilized a national database • Feasibility: Evidence-based

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
									QI can be replicated.
Maxson et al. (2012). Bedside nurse-to-nurse handoff promotes patient safety	Determine if bedside report ↑ patient satisfaction with plan of care, ↑patient perception of teamwork, ↑ staff satisfaction	None	QI	11-bed surgical unit, adult patients, 1-month post intervention	Independent: Bedside report Dependent: 1. Patient satisfaction with plan of care 2. Staff satisfaction	• Survey	P value	• Patient informed of plan of care (p = 0.02) • Nursing accountability (p=0.0005)	• LOE VI • Weakness: 11-bed unit, small convenience sample • Strength: Statistical analysis • Recommendations : Bedside report had a positive impact on patients and nursing staff.
Radtke (2013) Improving patient satisfaction with nursing communication using bedside shift report	Determine if standardizing shift report improves patient satisfaction with nursing communication	Peplau's theory of interpersonal relations	Evidence-based practice	16-bed med-surg intermediate care unit at 320-bed tertiary -care facility. Patient satisfaction monitored for 3 months	Independent: Bedside report Dependent: Patient satisfaction (nursing commu-nication)	• Patient. interviews • Internal surveys • %	%	Nurse communication scores ↑ to 87.6% from 75%	• LOE VI • Weakness: Statistical sig-nificance not measured. Quick implementation (within 24 h). • Strength: Focused on one metric, no other variables implemented that would impact outcome • Recommendation: Planning needed for successful implementation and buy in. Bedside report that can improve communication.

Citation: author(s), date of publication, title	Purpose of study	Conceptual framework	Design/ method	Sample/ setting	Major variables studied	Measure-ment of major variables	Data analysis	Study findings	Appraisal of worth to practice: Strength of the evidence, recommendations
Scheidenhelm et al. (2017). Hardwiring bedside shift report.	Increase compliance with bedside report	Peplau's theory of interpersonal relations	Quasi-experimental	Two units (med/surg and OB) in a 149-bed community hospital	Independent: 1. Standardized bedside report with SBAR template 2. Patient letter 3. Bedside report competency Dependent: 1. Nursing adherence to bedside report 2. Patient satisfaction survey results	• Bedside report random observation • Press Ganey questions	Independent-sample t-tests	• ↑ compliance with bedside report at 1 month • Overall ↑ patient satisfaction • OB less improvement	• LOE III • Strengths: Med/surg and OB units, SBAR template, training protocol • Weakness: Small community hospital, unstructured observations. Feasibility. Standardized bedside report and compliance implementation can be easily replicated. • Standardization process is useful.

CAUTI indicates catheter-associated urinary tract infections; LOE, level of evidence; QI, quality improvement; SBAR, Situation, Background, Assessment, and Recommendation.

Appendix B:

Synthesis Tables for the Body of Evidence

Table B.1
Synthesis: Intervention

Intervention	1*	2	3	4	5	6	7	8	9	10
Bedside report	x	x	x	x	x	x	x	x		x
Standardized written tool/guideline	x	x	x	x		x	x	x	x	
Verbal report	x									
Recorded report		x								
Electronic tool				x				x		
Training video for nurses		x								
Scripting for nurses										
Team huddles								x		

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009;
4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017;
8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Table B.2
Synthesis: Intervention Time

Intervention time	1*	2	3	4	5	6	7	8	9	10
1 month			x							x
3 months		x		x				x		
5 months							x			
6 months										
1 year	x								x	
# of pt = 30 1 month afterwards										x

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009;
4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017;
8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Table B.3
Synthesis: QI Monitoring

QI monitoring	1*	2	3	4	5	6	7	8	9	10
Manager rounding			x							
Staff meeting			x							
Trained observers							x			
Charge nurse/quality nurses/educators	x							x		
Nurse survey		x								

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009;
4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017;
8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Table B.4
Synthesis: Type of Written Tool

Type of written tool	1*	2	3	4	5	6	7	8	9	10
SBAR/modified SBAR		x			x	x	x	x	x	
I PASS the BATON					x					
SHARE tool					x					
Custom	x		x		x					
						x				

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009;
4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017;
8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Table B.5
Synthesis: Outcomes

Outcome	1*	2	3	4	5	6	7	8	9	10
Patient satisfaction		↑		↑	↑	↑	↑	↑		↑
Delayed or omitted meds/test	↓	↓								
Pressure ulcers	↓									
Line care	↓									
Falls	↓	↓	↓		↓			↓	↓	
Call lights			↓							
Catheter-associated urinary tract infections								↓		

*1 = Zou & Zhang, 2016; 2 = Sand-Jecklin & Sherman, 2013; 3 = Athwal et al., 2009;
4 = Radtke, 2013; 5 = Halm, 2013; 6 = Mardis et al., 2016; 7 = Scheidenhelm & Reitz, 2017;
8 = Freitag et al., 2011; 9 = Roberts et al., 2012; 10 = Maxson et al., 2012.

Appendix C:

Project Approval Letter

Dear Marcella,

We are grateful and excited to have you conduct your DNP Scholarly Project (EPIP) entitled The Impact of a Standardized Communication Protocol for Nursing Handoff on Outcomes: An Evidence Based Practice Project at [redacted] This is important work and [redacted] will be a better organization for our scholarly effort and application. I have reviewed your project proposal and endorse you to begin implementation for this evidence-based change project. I understand that this project is part of your studies at University of Texas at Tyler DNP Program and will be in place from January 22, 2018 and conclude the week of August 27, 2018.

Please let me know how I may fully support your efforts and I look forward to seeing the impact of your work. My thanks and appreciation for your service to [redacted]

Sincerely,

[redacted]

Appendix D:

Mentor Agreement

UTTYLER DNP INDUSTRY MENTOR MEMORANDUM OF UNDERSTANDING

THE UNIVERSITY OF TEXAS AT TYLER

COLLEGE OF NURSING AND HEALTH SCIENCES

SCHOOL OF NURSING – DOCTOR OF NURSING PRACTICE PROGRAM.

DNP INDUSTRY MENTOR AGREEMENT

I have reviewed the industry mentor guidelines I can provide the student with advanced experiences that meet the DNP Scholarly Project (EPIP) goals as agreed upon by the student, the faculty mentor, and me I understand that there will be no remuneration for this service I will facilitate and review the student's learning activities and will submit the required evaluations to the DNP Program

I, Kristen Wright, agree to serve as an Industry mentor for the DNP student, Marcella Shaw
(name of industry mentor) (name of student)

from Oct 1 2017 to May 2019
(beginning date of mentorship) (anticipated end of mentorship)

OR

☐ For ALL Semesters

OR

For specifically indicated semesters ____Fall _____Spring _____Summer

Please indicate if UTTYLER may disclose your contact information for future students seeking mentors?

☒ yes

☐ no

Industry Mentor Signature _____ Date 10/26/17

For office use only

Reviewed by _____Date _____

Approved as a DNP Industry mentor _____ yes _____ no