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Evidence-Based Protocol: Standardizing Handoffs to Improve Outcomes

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Abstract

Nurse to nurse handoffs were identified as an area for improvement in an acuity-adaptable, progressive care (AAPC) unit in a Midwestern hospital. By using the Plan, Do, Study, and Act (PDSA) quality improvement framework, the content of handoffs was standardized by the creation and use of a handoff tool, organized in a Situation, Background, Assessment, Recommendation (SBAR) manner. Outcomes of nursing satisfaction and incidental overtime were improved after the implementation of the handoff tool. This cost neutral project has a cost savings potential of $2000/year with the reduction of incidental overtime.

Keywords: Handoffs, Report, PDSA, SBAR, Incidental Overtime, Nurse Satisfaction.

Chapter 1: Introduction and Background

This evidence-based practice protocol is an explanation and exploration into standardizing nursing change of shift handoffs to improve patient outcomes. A clinical handoff is defined as "an exchange of information from one caregiver to another to ensure the continuity of care and to transfer the responsibility of care" (Smeulers, Lucas, & Vermeuleh, 2014, p. 2). Clinical handoffs occur during changes of shift on nursing units. Approximately 300 million handoffs occur yearly in the United States, making handoffs the most frequent communication of significance between caregivers (Eggins & Slade, 2015). These handoffs occur every time nurses change shifts and are a part of the everyday work of nursing (Athanasakis, 2013).

In the past decade, clinical handoffs have received a great deal of attention from quality improvement experts. Starting in 2000 the patient quality and safety movement was re-energized with the Institute of Medicine's sentinel report *To Err is Human: Building a Safer Health System,* which estimated that 44,000-98,000 patients were dying of medical errors each year (Kohn, Corrigan, & Donaldson, 2000). In 2006, the World Health Organization (WHO) made clinical handoffs part of their *High 5s Project,* which aimed to take five of the patient safety areas of concern and introduce standard operating protocols to sustain reductions in patient safety events. In 2011, 70% of adverse errors were identified as involving communication breakdowns (Johnson, Jeffries, & Nicholls, 2011). Just a year later, The Joint Commission (2012) estimated that 80% of serious medical errors involved miscommunication between caregivers at the time of handoff. The Joint Commission (2012) reacted to this finding by releasing the Targeted Solutions Tool for handoff communications. Thus, handoffs are an area of nursing practice that can benefit from a standardized process. This paper will describe a protocol to improve the content quality of handoffs on an acuity-adaptable, progressive care (AAPC) unit, with the aim

of improving nursing satisfaction with handoffs and reducing incidental overtime from the nursing staff.

Introduction of the Microsystem

Purpose

This evidence-based project will take place in a mid-sized, faith-based hospital organization located in the Midwestern United States. The hospital is located in an urban setting. As part of a faith-based organization, the mission of the health system includes compassion and service to heal the community. Nursing in the health system has a strategic direction of advancing the culture of nursing excellence by using shared leadership and evidence-based practice that empowers nurses to deliver holistic, compassionate, and patient-centered care within a respectful and collegial environment (Manns & Murphy, 2016). The core values of nursing include spirituality, knowledge, advocacy, compassionate care, and collaboration, which align with the core values of the health system (Manns & Murphy, 2016).

Patients

The AAPC unit is a 32-bed inpatient unit that cares for a mix of patients. Preferentially, all kidney transplant patients and kidney transplant donor patients are cared for on the AAPC unit, as are patients who have had vascular procedures, patients who have renal failure and require dialysis, and patients with congestive heart failure. Furthermore, the unit will take care of any patient who has a diagnosis of congestive heart failure or renal failure and are admitted with a different diagnosis and are not ill enough for an intensive care unit level of care. The top nine diagnoses on the AAPC unit only represents 32% of the patients who are discharged from the unit. This fact reveals the breadth and width of the service line on the unit. The average age of patients is 57.9 years, with an equal distribution of male and female patients, and an average

length of stay of 4.06 days. Patients are most often admitted from the emergency department, directly admitted from a physician office, or transferred from the operating room.

Professionals

Patients encounter many different caregivers during their stay. On the AAPC unit, patients are cared for by the nursing staff, the physician providers, and other key support staff.

Nursing. The unit has a total of 46 registered nurses (RNs) supported by 26 patient care associations (PCAs) and 84% of the RNs have their bachelor of science in nursing degree (BSN). Four nurses are progressive care certified nurses (PCCN) in addition to the unit's manager and Clinical Nurse Leader (CNL). The experience on the unit follows a normal distribution slightly skewed toward higher experience. More than half of the RNs on the unit have more than three years of experience. Nursing assignments and staffing are flexible due to the acuity-adaptable nature of the unit. At times nurses can have anywhere from three to five patients depending on the patient's acuity level.

Processes

Every unit has key processes that are essential to quality patient care. Nelson, Baltaldan, Godfrey, and Lazar (2011) describe processes as for how a microsystem delivers care. The unit's key processes that are important for this evidence-based practice protocol include multi-disciplinary rounds and nursing handoff.

Multi-disciplinary Rounds. Patient care rounds occur Monday through Friday from 1000-1100 on the unit. Those involved in rounds are the primary RN caring for the patient, as well as the unit's CNL, RN case manager, transition coordinator, medical social worker (MSW), dietician, and a physician as needed. The purpose of these rounds is to coordinate the care of the patient, decrease length of stay, and support patient outcomes. Often in rounds the nurses state

that “I didn’t get that information in handoff,” or “I got that in handoff, but it’s different than what was in [the electronic health record (EHR)].” The information communicated during handoff is reflected during multi-disciplinary rounds.

Nurse-to-Nurse Handoff. The master of science nursing (MSN) student has observed the handoff process within the unit. Nurses complete the handoff process at shift changes. The main shift changes are at 0700 and 1900. Less often handoffs occur at 1100, 1500, and 2300; these handoffs may or may not occur daily and are dependent on the unit’s census and the patient’s level of acuity. Some nurses arrive as early as 30 minutes before their shift to peruse the EHR, and ensure that they have the correct information. On this unit, the handoff occurs at the patient’s bedside, with the EHR open for the nurses to utilize. Gathering information for clinical handoffs and conveying information during clinical handoffs has significant variation. Nurses each have their preferred pre-printed worksheet that they fill out with pertinent patient information. Among nurses, these sheets vary, and therefore handoffs have different flows of information depending on the nurse and the sheet they use.

Practice Problem

Salient Findings of the Practice Problem

Missing, false, or unnecessary information can be a potential source of harm for patients (Zou & Zhang, 2016). Variations of the handoff process can also lead to nursing dissatisfaction with the process, and be a cause for incidental overtime (Evans, Grumawalt, McClish, Wood, & Friese, 2012). Staff interviews revealed several common frustrations regarding the handoff process, including complaints of the handoff not flowing logically, missing or extraneous information, and the oncoming nurse interrupting the off going nurse. During a recent staff meeting, the unit’s manager presented incidental overtime data. Incidental overtime is the extra

time nurses are paid because they are unable to complete their tasks on the scheduled punch-out times (Evans, et al., 2012). On the unit, the average monthly incidental overtime was 10 hours in 2015, yet the average monthly incidental overtime for the last four months in 2016 was 20.6 hours. This has doubled in one year's time. Nurses on the unit have identified having a non-standard report as a contributing factor in the increase in incidental overtime.

Introduction of the Literature

Communication failures in healthcare are linked to adverse patient outcomes (Anderson, Malone, Shanahan, & Manning, 2014). Since 2012, The Joint Commission has estimated that 80% of sentinel events are related to communication failures. In response to this finding, The Joint Commission has instructed institutions to examine their handoff procedures and have provided tools to do so. Researchers have studied handoffs from many aspects. Standardization of the handoff process includes the use of mnemonic tools or written handoff sheets most often coupled with a safety scan of the environment (Chapman, Schweickert, Swango-Wilson, Aboul-Enein, & Heyman, 2016; Evans, et al., 2012). The use of a tool and a safety scan at the bedside have resulted in a decrease of incidental overtime, call light usage, and increased nursing satisfaction with the handoff process (Thomas & Donahue-Porter, 2012; Rush University, 2014; Kerr, Klim, Kelly, & McCann, 2016; Klee, Latta, Davis-Kirsch, & Pecchia, 2012). Additionally, recent research has shown links between the use of a standard handoff form and decreases in errors such as falls (Zou & Zhang, 2016). The current literature supports a standardized handoff process.

Introduction of Project

The purpose of this project is to implement a standardized handoff process to improve nursing and patient outcomes. The Nursing Role Effectiveness Model (NREM) will be used as

the conceptual framework for this project (Doran, 2011). Baseline data will be collected as part of the unit's microsystem assessment, as well as a nursing handoff survey which was handed out in January 2017. Results of the survey as compiled and brought to the February 2017, unit-based shared leadership meeting. During this meeting, ideas for standardizing the handoff protocol were elicited from the nurses. A review of the current literature was completed. Members of the unit-based shared leadership team along with champions for the process will meet to develop the new process. The nursing informatics team will be involved for the potential electronic health record solutions. Potential go-live for the standard process will be the end of March 2017. Process improvement will be made using the lean methodology (Harris, Roussel, & Thomas, 2014). In June, three months after implementation, the handoff surveys will be repeated, and incidental overtime will be re-evaluated.

The timing of the project is ideal. Nurses not only have expressed dissatisfaction with the current process of handoff, but in the last four months, incidental overtime has doubled. Nurses on the unit have identified different handoff processes as a contributing factor. Barriers will be the availability of nursing informatics and whether the current EHR will support any changes necessary to have a handoff sheet that prints out pertinent information in a situation, background, assessment, and recommendations (SBAR) format. Regardless, the current microsystem culture is supportive of this evidence-based practice project.

Chapter 2: Literature Review

Communication failures in healthcare are linked to adverse patient outcomes (Anderson et al., 2014). Since 2012, The Joint Commission has estimated that 80% of sentinel events are related to communication failures (The Joint Commission, 2012). In response to this finding, The Joint Commission has instructed institutions to examine their handoffs and they have provided tools to do so (The Joint Commission, 2012). An AAPC unit in a large Midwestern hospital has identified that nurses are frustrated with handoffs. Additionally, incidental overtime for this unit has doubled in one year's time without changes to patient population and staffing levels; the management of the unit attributes at least part of this overtime to ineffective nurse-to-nurse handoffs at the change of shift. Thus, this literature review was conducted to find the evidence-base method to conduct nursing handoffs between shifts.

Method

A database search using CINAHL, PubMed, Dynamed, and Google Scholar was performed. Search terms included *handoff, handover, inpatient, standardization, nursing, incidental overtime, overtime,* and *methods*. Inclusion criteria comprised peer-reviewed research studies that were published in English between the years 2009-2016. Additionally, every attempt was made to use medical and surgical handoffs. Excluded from this review are hospital to hospital handoffs, mental health handoffs, and prehospital handoffs. Once inclusion and exclusion criteria were met, nineteen articles were included (Table 1).

Results

Many researchers and institutions have studied aspects of handoffs. Common areas for research include the process of handoffs, the location of handoffs, and the content of handoffs. Additionally, nursing satisfaction, patient/family satisfaction, time for handoffs, incidental

overtime, and patient safety outcomes are common outcome measures. Several themes emerged when examining the literature including individual communication strategies, utilizing the EHR, and using structured tools.

Critique of the Evidence

Content and Format of Handoffs

There are many studies that have examined how people communicate with each other. High reliability organizations have found reductions in errors after implementing handoffs that involve face-to-face verbal interactions, opportunities for questions, updates from staff other than the outgoing staff, topics that are initiated by both incoming and outgoing teams, and writing a summary before the handoff (Drach-Zahavy & Hadid, 2015). Errors that were reduced included medication dosage errors, late completion of care orders, and missing documentation. Similar support for verbal handoff were found in an Australian study (Johnson et al., 2014) in which speech recognition technology was used to compare transcripts of verbal handoffs and written handoffs. The analysis showed that verbal handoffs contained more information than the written handoffs. The verbal handoffs included essential clinical information such as care planning, outcomes and goals of care, and pending tasks and tests; this information may influence care delivery more (Johnson et al., 2014).

In a randomized controlled trial, Lee, Cuming, Devcich, and Boyd (2015) hypothesized that nurses would be more likely to remember pertinent information from handoff if the outgoing nurse either expressed concern about a piece of information, stated that a piece of information was in the health record, or both. Interestingly, they were unable prove a link between remembering information and expressions of concern. They found that nurses with five or more years of experience had more confidence in handoff information when the outgoing nurse

expressed concern about a piece of information. This study has future implications for practice as it shows that communication may be different for more experienced nurses than it is for less experienced nurses.

In other industries such as aviation, the use of standardized tools for handoffs have been met with great success (Obrien, Flanagan, Bergman, Ebright, & Frankel, 2016). These tools are thought to help with communication issues when there is a clear gradient of authority. However, nurse to nurse handoffs occur among peers and have not been as thoroughly studied. Obrien, Flanagan, Bergman, Ebright, and Frankel (2016), examined the types of questions that arise during handoffs, and who was asking those questions. They found that incoming clinicians asked more questions than did the outgoing clinicians. Most clinicians did not explicitly ask the incoming providers if they had questions, but the incoming providers asked the questions regardless. There were no trends in the types of questions asked. They concluded that standardized tools and formats are necessary, but there may be features of spontaneity and novelty that need to occur. A shortcoming of this study is that the researchers did not link these types of handoffs to any patient or staff outcomes.

This research gives beginning support that in order to reduce errors and increase confidence in the information transferred, handoffs need to be verbal and face-to-face with time for questions (Drach-Zahavy & Hadid, 2015; Johnson et al., 2014). Additionally, the type of questions cannot be standardized; in other words, good communication has freedom and originality and those aspects of communication need to be allowed during handoff (Obrien et al., 2016).

Utilizing the Electronic Health Record

Handoffs are complex. One study showed that even when there is a robust electronic health record (EHR), nurses still prefer to use a paper form (Staggers, Clark, Blaz, & Kapsandoy, 2012). In this study, nurses used an electronic form generated from the EHR for handoffs. Some nurses printed out the electronic handoff tool and added the patient information they felt was missing from the tool, while most nurses used their own form. At the time of this qualitative study, even the most advanced health record system did not provide the tools desired by nurses for handoffs. Nurses stated they need to write information down so that when they are interrupted, they may refer to their paper sheet. Paper handoff forms are embedded in the culture of nursing handoffs. This study highlights the importance nurses place on having a portable tool, and the importance of involving nurses in the design and continual improvement of an electronic handoff tool.

Rosenbluth et al. (2015) conducted a needs assessment at nine different pediatric hospitals and organizations in regard to developing a standardized handoff tool. They were able to develop consensus among these organizations in regard to the standard essential and recommended patient data for the subsequent development of a handoff tool. They found that when it is possible for nurses to print out a paper form from the EHR, they prefer fields that are auto-populated with information from the EHR (Rosenbluth et al., 2015). Although this study focused on the development of a standard handoff tool, there is no information regarding satisfaction with the tool or links to patient outcomes. If possible, the EHR should be used to auto-populate agreed upon handoff data that can be printed off for nurses to carry with them (Staggers et al., 2012; & Rosenbluth et al., 2015).

Structured Tools

Mnemonic Tools. Researchers have found that mnemonic tools help to increase quality of content, improve the process, and decrease errors of omission during handoffs (Anderson et al., 2014; Gopwani, Brown, Quinn, Dorosz, & Chamberlain, 2015; Thomas & Donahue-Porter, 2012; Chapman et al., 2016). A literature review of 45 articles concerning bedside handoffs shows that issues raised while performing handoffs may be overcome by using a standard process (Anderson et al., 2014). There were no differences in outcomes among the types of mnemonic tools examined in the review. Anderson et al. (2014) concluded that there was strong evidence that standardized tools or mnemonics decreased errors of omission while enhancing efficiency and allowing for teaching or learning to occur. Additionally, completeness of handoff improved after implementation of a standard handoff tool using a mnemonic (Gopwani, Brown, Quinn, Dorosz, & Chamberlain, 2015). In a similar study, Thomas and Donahue-Porter (2012) found improvements in nurse and patient satisfaction following the implementation of a standard handoff tool using a mnemonic. Payne, Stein, Leong, and Dressler (2012) found that perceptions of handoff content and errors improved when a structured tool was adopted. In summary, there is not a mnemonic tool that has proven better than another, but the use of a structured tool is well supported in the literature.

Improving Patient Outcomes. Patient outcomes are important considerations when examining handoff processes. Researchers have attempted to link patient outcomes, such as falls, with standardized handoffs. Researchers have been able to show correlations between completeness of handoffs and nursing management errors such as communication errors and documentation, but have been unable to link standardized handoffs to outcomes such as falls (Johnson, Sanchez, & Zheng, 2016). Meliones, Mericle, and Norman (2011) developed a

standard handoff for pediatric cardiothoracic patients. Significant improvements were found in turnaround times, lab draw times, standard chest x-rays performed, and the percent of patients who required bedside monitoring and were on those monitors. In 2016, Zou and Zhang correlated a standardized handoff process with patient outcomes such as falls. Almost 4,000 patient admissions were examined before and after implementation of a standard nurse handoff form (Zou & Zhang, 2016). The standard form included two parts: part one included patient identification, diagnosis, signs and symptoms, scheduled tests and procedures, input and output, and allergy alerts. The second part included fall risk status, oxygen therapy, heart monitor, intravenous lines, nasogastric tube, indwelling urinary catheter, and pressure ulcer risk. The nurses first gathered as a group, and the charge nurse from the previous shift led a huddle that contained the overall status of the unit. Then, the nurses would perform bedside handoffs that included double checks of part two of the handoff tool. After implementation, handoff related errors and overall nursing errors were significantly reduced. Additionally, falls occurring on the unit went from four per one hundred admissions to zero per one hundred admission. These studies and others support the proposition that using a standardized process can improve patient outcomes.

Improving Nurse Outcomes. There is evidence that with the implementation of a standard process, nursing satisfaction improves (Chapman et al., 2016), nursing documentation improves (Kerr et al., 2016), and incidental overtime decreases (Evans et al., 2012). Recently, researchers found a high level of nursing satisfaction with bedside handoff following the implementation of an information technology supported SBAR tool (Chapman et al., 2016). Nurses reported high levels of overall satisfaction, comfort with using the tool, communication of patient care, and information received during the handoff. However, the nurses on the unit

studied included a high percentage of bachelor of science in nursing prepared nurses. Additionally, nurses who have 15 years or more experience reported higher level of satisfaction than less experienced nurses. The results from this study should be used with caution on units with less experienced and less educated nurses.

In another study, an emergency department started using a standard checklist and format for handoff (Kerr et al., 2016). The nurses were given notepads that had the standard handoff, SBAR, printed on them as a guide. By performing pre- and post-implementation nursing surveys, auditing charts, and doing direct observations, researchers could link the new standard handoff process to better nursing documentation. Additionally, nurses perceived the new process as providing them with adequate information on all patients. Nurses also reported information flowed in a systematic and organized manner, and critical vital signs were mentioned more often. This study did not attempt to link patient safety outcomes or adverse events to standardized handoffs, but researchers view this as an area for future research.

Incidental overtime is a result of nurses not able to leave work on time (Evans et al., 2012). In addition to having patient safety and satisfaction improvements, researchers have studied the effects of handoffs on the accrual of incidental overtime. Researchers have found implementing a standard process, handoff tools, and a safety check decreases the number of nurses who punch out late (Cairns, Dudjak, Hoffman, & Lorenz, 2013; Evans et al., 2012; Rush University, 2014; Klee et al., 2012). Even a seemingly small decrease in overtime, such as ten minutes per day, adds up to a yearly savings of $95,000 to $143,500 a year (Cairns et al., 2013). Considering these findings, using a standard handoff tool is not only necessary for patient and nurse satisfaction, but is also an important fiscal consideration.

Conclusion

There is moderately strong evidence to support implementing a standardized process to increase nursing satisfaction with the process, improve patient outcomes, and decrease incidental overtime. Many descriptive studies have examined clinical handoffs in some aspect. However, the best-designed study was also the most robust, with almost 4,000 admission stays examined. Zou and Zhang (2016) exhibited great improvements in patient safety after the application of a standard nursing handoff form. Other well-designed studies had improvements in nursing documentation following standardization (Kerr et al., 2016), perceptions of fewer errors following standardized handoffs (Payne et al., 2012), and a decrease in incidental overtime (Cairns et al., 2013). There are many single descriptive and qualitative studies that describe these results. There are few studies that are quasi-experimental, and even fewer randomized controlled trials. Most often studies combine several independent variables such as structured tools and bedside handoffs, making inferences on which intervention contributes to the results difficult. Future research needs to continue to replicate the findings of this literature review and should include higher levels of evidence such as randomized controlled trials. In conclusion, the AAPC unit in a Midwestern US hospital may benefit from an evidence-based standardized handoff form, while continuing to do a verbal bedside handoff.

Chapter 3: Conceptual/Theoretical Context

Handoffs are an area for improvement within an acuity adaptable, progressive care (AAPC) unit in a Midwestern hospital. This unit is a high functioning unit that routinely scores higher than the national average for falls, catheter-associated urinary tract infections, central line associated blood infections, and hospital-acquired pressure ulcers. Nurses and nurse leadership on the unit have voiced frustrations with handoffs regarding missing or unnecessary information, nurses interrupting each other, and poor flow of report. To best describe this issue a conceptual model is used to organize factors important in examining the problem, will depict outcomes and explain how those outcomes can be measured, and how the MSN prepared nurse can use evidence-based interventions to impact the problem.

Handoffs and the Nursing Role Effectiveness Model

To better describe the work of nurses, conceptual frameworks are used to organize the roles and functions of nursing (Irvine, Sidani, & Hall, 1998). One such framework is the Nursing Role Effectiveness Model (NREM). The NREM is an expansion of Donabedian's structure, process, and outcome model which is a well-established model to assess nursing practice in organizations (Doran, 2011). Donabedian's model describes how structure affects process which affects outcomes (Doran, 2011). The NREM breaks down each aspect of Donabedian's model further into subgroups (Figure 1).

Structure

The structure component of the NREM is split into the nurse, the organization, and the patient. Structures include the nurses' experience, a description of the patients, and how the organization delineates the workload. The NREM proposes that processes and outcomes are

influenced by the structure of the organizations (Doran, 2011). Each of the structural components of the NREM are applied to the current organization and clinical problem as stated below.

Patient characteristics. Patient characteristics significantly impact the care that needs delivering and what the caregivers need to communicate in the process of care (Johnson, Sanchez, & Zheng, 2015). In the AAPC unit, patients are older than eighteen years with an average age of fifty-eight years. Cardiac, renal, vascular, and renal transplant patients are preferentially located on the unit. Because of the diversity, complexity and multiple comorbidities of these patients, ensuring a complete transfer of information is even more important and difficult (Abraham, Kannampallil, & Patel, 2014).

Nurse Characteristics. Nurses provide care to these patients and sway how care and handoffs are structured (Athanasakis, 2013). Holly and Poletick (2013) found that handoff techniques and knowledge of them vary widely among nurses and should be taught to all nurses. Also, the quality of handoffs are related to the experience level of the nurses (Johnson, Carta, & Throndson, 2015). On the AAPC unit, 84% of nurses are baccalaureate prepared and over than 50% of the nurses on the unit have more than three years of experience. Education in regard to handoffs is provided in orientation, using lecture and role-playing activities.

The care on the unit is complex. Nurses typically work 12-hour shifts two to three days a week depending on their work status. Because nurses work only two or three shifts per week, the continuity of care is fragmented. Almost every patient taken care of by a nurse is an unfamiliar patient that the nurse must research and be updated on their current stay.

Organizational Characteristics. The NREM describes the organizational variable within the structure variable as including staffing mix, workload, and assignment pattern (Irvine et al., 1998). Staff mix, meaning the ratio of Registered Nurses (RNs) to patient care associates

(PCAs), is set into the unit's cost structure. Nurses on the unit have a workload of three to five patients depending on the acuity of the patients. There are north and south sides of the unit, and nursing assignments are geographical in nature. Nurses have agreed that this is the best way to patterns their assignments. Studies have shown that patient information is more thorough when nurses have manageable workloads (Johnson et al., 2013). The structure variable on the APCC unit includes patients with multiple comorbidities, experienced nurses, and manageable workloads. At this time, these variables do not need interventions to improve handoffs.

Process

The NREM divides the process of nursing into three roles: the independent role, the dependent role, and the interdependent role. The independent role of nursing includes actions nurses take when only nursing is responsible, including assessments, interventions, and follow-up (Irvine et al., 1998). Any action a nurse takes that is dependent on a physician's order is the dependent role of the nurse. These activities include administering medications and ensuring the completion of laboratory, radiology, and other tests. Finally, the interdependent role of nursing involves the coordination of care and how the nurse communicates patient care and patient status to the healthcare team (Irvine et al., 1998).

Independent Role. Handoffs are a process that occurs because patients require care night and day. Handoffs between nurses are a function of nursing's independent role. Nurses do not perform handoffs because a provider ordered them to do so. Nurse to nurse handoffs do not involve other members of the healthcare team. On the AAPC unit, all nurses participate in handoffs. At this time, nurses state that they do not trust any information given during handoff. Mistrust of information provided during handoff is not unique to this unit, as others have found similar trust issues (Flemming & Hubner, 2013). Also, handoffs on the AAPC unit occur at the

patient's bedside with some patient involvement. Involving patients and performing bedside handoffs have been shown to promote safety and patient-centered care (Athanasakis, 2013).

There is considerable variation in the content of information that is handed over to the oncoming nurse because of the lack of a standard format. Currently on the AAPC unit, there are ten preprinted handoff sheets for nurses to use. Each of these sheets contain similar, but different information. Content is organized in a different layout for each sheet. The hospital organization recommends that nurses use the standard communication tool, Situation, Background, Assessment, and Recommendations (SBAR), which is a thoroughly researched communication tool (Abraham et al., 2014). Although using SBAR as a communication strategy is preferred, the unit's handoff sheets are not organized in an SBAR format, nor does verbal report follow the SBAR format.

Multiple research efforts involve the standardization of content given during handoff. For example, Johnson, Jeffries, and Nicolls (2011) implemented a minimum data set for handoffs as a tool to use to give a complete picture of the condition and the care of the patient. They found that a minimum data set directs nurses to give a complete verbal handoff of their patients care, but that the minimum data set needs to be flexible and reflect the needs of the microsystem. Similar findings with the quality of information were found by Johnson, Sanchez, and Zheng (2016) following the implementation of structured content and the use of an electronic form for handoff. Research suggests that using a standardized tool, like SBAR, decreases the loss of information during communication (Anderson et al., 2014). The use of a standardized handoff tool and using data pulled from the EHR are possible areas for a quality improvement project.

Dependent Role. The dependent role of nursing in the NREM includes actions that nursing performs because of a medical provider order. Outstanding orders are occasionally

passed on to the oncoming nurse during handoffs. However, this communication is reportedly inconsistent. The report of pending orders may be more reliable with implementing a standardized communication tool for handoffs (Johnson et al., 2015).

Interdependent Role. Finally, nurses and other health care services are interdependent. Nursing is pivotal in coordinating care of the patient by working collaboratively with many hospital services. On the AAPC unit, to effectively coordinate with these services the information regarding patients is not consistently given during handoffs. Once again, the use of a standard set of data for handoff may improve the omission of information provided during handoff (Johnson et al., 2014). Because of the mistrust of information given during handoff, the inconsistent communication of outstanding orders, and the absence of pertinent patient information, a major focus for a quality improvement intervention may be standardizing the handoff process.

Outcomes

Lastly, the NREM can describe how the structure and processes of nursing influence outcomes. Outcomes of nursing care include adverse events, cost considerations, and both nursing and patient satisfaction. Many researchers have discovered that interventions to improve handoffs can produce improvements in many nursing-sensitive patient outcomes. Johnson, et al. (2016) found that when a standard handoff generated from the electronic health record was used, the quality of handoffs was increased. Importantly, they showed a subsequent decrease in falls and communication errors nine months after implementations. Others have found a decrease in missed care after standardizing handoffs (Breuer, Taicher, Turner, Cheifetz, & Rehder, 2015).

In the AAPC unit, many times during interdisciplinary rounds nurses cannot answer questions regarding their patients because of information not given during handoff. Researchers

have also found significant decreases in missed tasks, lost items, and improved prevention of adverse events with standardized handoffs. These events may decrease costs to an organization. Although standardized handoffs theoretically might decrease costs due to lower lengths of stay or decreases in readmission rates, there has not been enough research to substantiate that claim (Smeulers et al., 2014). However, there is evidence that using a structured nursing handoff can increase patient and nurse satisfaction with handoffs (Johnson et al., 2015). Thus, standardizing handoffs may indirectly decrease costs because of reimbursements related to patient satisfaction and the retention of nursing staff.

Using the current handoff process in the context of a conceptual model can direct interventions that address the true problems. The NREM is a reliable and valid model to describe the work of nursing, to organize the work of nursing, and to highlight areas of nursing that need improvement (Doran, 2011). By using the NREM in the context of handoffs, the interventions required to improve handoffs are made clear. Quality improvement efforts will focus on interventions that address the structure of handoffs and the independent role of the nurse to participate in effective handoffs.

Measuring Outcomes

Measuring outcomes are necessary to prove that changing a process is having an effect. There are three main outcomes that are affected by standardizing the handoff process: patient satisfaction, nursing satisfaction, and adverse safety events.

Patient Satisfaction

Satisfaction with the handoff process can be measured in several ways. First, leadership on the unit can do informal rounds on patients and "get a feel" for how patients perceive handoffs (Chaboyer, McMurray, & Wallis, 2008). This process is found to be unspecific in the

literature because it is difficult to assess what the interviewers are basing their opinions on (Ford, Heyman, & Chapman, 2014). Structured patient interviews can be pivotal in the qualitative measurement of patient satisfaction (Ford et al., 2014). Ford, Heyman, and Chapman (2014) were among the first researchers that published a quantitative measure of patient satisfaction with a handoff process. A fourth method is inferring patient satisfaction with a process from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. However, it is difficult to determine which factor is influencing the HCAHPS patient satisfaction scores, and thus doing so should be done with caution.

Nursing Satisfaction

Similar to patient satisfaction, nurse satisfaction can be measured in a few ways. Nursing retention rates are tracked in organizations, but just like HCAHPS scores and patient satisfaction, it is hard to know which variable is affecting the rate. Leadership rounding and feedback from the nursing staff can be used effectively to make changes within a process (Thomas & Donohue-Porter, 2012). Proprietary nursing satisfaction surveys can be used to quantify satisfaction (Thomas & Donohue-Porter, 2012). A nursing satisfaction survey should include the elements needed for an exemplary handoff, in order to identify areas that need to be addressed. Specific to nursing satisfaction and handoffs, questions on surveys include: if report time is adequate, information is pertinent, patient condition matches report given, interpersonal relationship status between shifts, questions are answered, and overall satisfaction with handoff (Thomas & Donohue-Porter, 2012; Anderson et al., 2014). Conversely, Johnson, Carta, and Throndson (2015) state that barriers to effective handoffs include too little information, too much information, inconsistent quality of information, limited opportunities for questions, and frequent interruptions. Therefore, an effective nursing satisfaction survey would assess those qualities.

Adverse Safety Events

Serious safety events can be attributed to poor communication between caregivers (Johnson et al., 2016). Additionally, poor handoffs are a root-cause of poor outcomes for patients (Johnson et al., 2015). Foster and Manser (2012) found that standardizing handoff sheets significantly improved missed tasks, lost items, information lost over consecutive handoffs, retention of information by staff, and the prevention of adverse events. Researchers have stated that incomplete and inaccurate handoffs may lead to failure to rescue and failure to prevent serious patient harm (Holly & Poletick, 2013). After enhancing their handoff practices, Breuer, Taicher, Turner, Cheifetz, and Rahder (2015) found fewer antibiotic delays and quicker pain medication administration when transferring from the operating room to the intensive care unit. Fall rates and medication error rates would logically improve after implementing a standardized handoff; however, researchers have not been able to link those factors (Johnson et al., 2016). Johnson, Sanchez, and Zheng (2016) found a sustained reduction in communication errors between nurses after standardizing handoffs.

Conclusion

In conclusion, clinical handoffs are an area that has room for improvement on an AAPC unit. The MSN student can have a positive impact on patient and nursing outcomes by leading change in a microsystem that is based on the best evidence available. Standardizing handoffs on the AAPC unit may improve the outcomes of nursing satisfaction with the process while also decreasing adverse patient outcomes and incidental overtime.

Chapter 4: Clinical Protocol

On the AAPC unit, handoffs have always occurred in various manners throughout the years. Three years ago, handoffs started occurring at the patient's bedside with the EHR open for nurses to utilize. Nurses each have their own preferred pre-printed worksheet they fill out with pertinent patient information. Among nurses, these worksheets vary, and therefore handoffs have different flows depending on the nurse and the sheet used. The incompleteness of handoff is exemplified when the interdisciplinary care team conducts rounds in the morning. Often, the nurses do not have the pertinent information that the team needs. Nurses have expressed frustration with the various ways nurses' handoff patients to each other. Average monthly incidental overtime has doubled during the last four months of 2016. Because of these factors, timing for a change on the AAPC unit is optimal. The purpose of this evidence-based practice protocol is to revise the current process of handoff to improve nursing satisfaction with the process, decrease nurses interrupting each other during handoffs, reduce the sharing of unnecessary information, and decrease average monthly incidental overtime accrued by nurses.

Description of Protocol

To modify the current handoff process, the current practice will be examined using the NREM framework (Irvine et al., 1998) (Figure 1). Initial data will be collected from key stakeholders (Nelson, Batalden, & Godfrey, 2007). Outcomes of interest include nursing satisfaction with handoffs, interruptions during handoffs, completeness of information, and unnecessary information (based on surveys before and after implementation), monthly average incidental overtime (compiled by the nurse manager), and patient satisfaction (based on monthly results from Press Ganey surveys, specifically "nurse communication"). Additional outcomes include demographic information such as years of experience as a nurse, years of experience on

the unit, and shift worked. The surveys will also include what nurses like about the current handoff process, and what they would like to see changed about the handoff process.

Plans for Implementation

Based on feedback from key stakeholders, a new process for handoffs will be developed and trialed using the Plan, Do, Study, Act (PDSA) cycles to assess and modify the process for improvement (Nelson et al., 2007). Revisions of the process will occur via rapid cycles of PDSA until standard work as agreed upon by both nursing leadership and nurses at the bedside. Data will be obtained before, during, and after implementation of the protocol. Data will be shared with key stakeholders and staff during implementation.

Plan. During the plan phase of the PDSA cycle, the change that will be tested is determined, as well as details such as who, what, when, and how the change will occur (Nelson et al., 2007). Key stakeholders (members of the unit based council (UBC) and the unit's Clinical Nurse Leader (CNL)) will meet during the unit's monthly UBC meeting. Discussion will include the current state of the handoff process, brainstorming areas for improvement, and potential outcomes. From this discussion, a nursing survey will be developed to measure the outcomes that are being addressed. Because the members of the UBC meet monthly, rapid PDSA cycles will occur after discussions with individual members while they are working on the AAPC unit. The initial change will involve members of the UBC and any interested early adopters. The initial change will occur in a PDSA format until an agreed upon change is achieved. Once this happens, the change will be implemented on the unit. Education of the change and the outcomes being measured will occur during a routine monthly staff meeting.

Do. The Do phase of the PDSA cycle is when the suggested change actually occurs (Nelson et al., 2007). A date for the change to occur will be chosen and communicated to staff

via the staff meetings and the daily pre-shift huddle. The MSN student will observe the process and solicit feedback. The Do phase will last for one to two weeks before any new change is considered.

Study. After the Do phase, the Study phase is a time to reflect on the selected change, continue to gather feedback, and debrief members who were involved in the change (Nelson, et al., 2007). During the Study phase, feedback will be compiled and discussed with the key stakeholders. Any unexpected findings will be examined and discussions will occur about possible next steps. The initial process change will be piloted by members of the UBC and any interested early adopters. When the process is more refined, the change will include the whole nursing staff.

Act. The Act phase of the PDSA cycle is when information during the previous phase is gathered and the team decides what changes to the process may improve the desired outcomes (Nelson et al., 2007). The PDSA cycles will continue until standard work is developed. At first, these cycles will be rapid and large changes will occur. Once the process stabilizes, the change will involve the whole nursing staff. As these cycles move forward, change that occur will be smaller and less frequent. Feedback will continue to be collected throughout this project. Once the final process has occurred and stabilized for at least one month, nursing staff will be re-surveyed. At this time, sustainment of the process will be discussed.

Resources, Challenges, Computers, and Cost

Reaching consensus and gaining buy-in from bedside nurses will be a challenge. Open communication and active listening to concerns will create a trusting atmosphere for nurses to express their concerns. It would be beneficial if the handoff tool could be printed from the EHR;

this possibility will be investigated. However, the organization has currently prohibited changes in the EHR for the current time, which is a barrier.

For this evidence-based project, the necessary resources will be minimal. For staff feedback and the development of the standard handoff form, key stakeholders will meet during the regular meeting of the UBC. Staff will receive education about the new handoff process during staff meetings. The nurses will have one week after the staff meeting to familiarize themselves with the layout of the standard handoff form prior to full implementation. Supplies necessary for this project include paper and access to a copy machine. As these are already provided by the unit, no additional funds need to be allocated. As this project will not cost any additional funds, it is a low-risk intervention. This project may decrease incidental overtime that is caused by nurses who punch out late (Klee et al., 2012; Rush University, 2014; Cairns et al., 2013). This represents a potentially large cost savings for the unit. This project may also increase nursing satisfaction and may improve patient outcomes such as delays or omissions of tests or medications, pressure ulcers, errors with peripheral and central lines, and patient falls (Zou & Zhang, 2016)

Conclusion

This evidence-based protocol to standardize the process of nurse-to-nurse between shift handoffs by utilizing a standard handoff form will attempt to increase nursing satisfaction, decrease nursing interruptions, reduce unnecessary information, and decrease incidental overtime. The implementation of a standard handoff form is a no cost intervention with the potential for high-cost savings

Chapter 5: Clinical Evaluation

Nurse to nurse, between shift handoffs are an area for improvement on an acuity-adaptable, progressive care (AAPC) unit. Nurses reported room for improvement in receiving unnecessary information, not enough information, and the flow of handoff. Additionally, incidental overtime on the AAPC unit has increased over the last year. Research suggests that implementing a standardized handoff tool will improve these outcomes. A standardized handoff tool was developed by the MSN student and nurses on the AAPC unit. This handoff tool has been used on the unit since March 2017 and has improved nursing satisfaction, content of handoff, and incidental overtime.

The implementation of this evidence-based project protocol went according to the plan (Figure 2). The timing of the project was ideal. Nurses had already identified that the cause of increase incidental overtime was the various ways handoffs occurred, which contributed to nurses punching out late. Additionally, nurses had voiced frustrations during care coordination rounds that necessary information was missing during handoffs. This evidence-based practice protocol reflects the efforts and dedication of the nursing staff and nursing leadership on the AAPC unit.

Evaluation of Protocol Implementation

Plan

Nurses had expressed frustrations with the flow of handoffs, missing information, and extraneous information received in handoffs. When the nurse manager presented incidental overtime data at the December 2016 staff meetings, the nurses identified handoffs as the primary cause. Because handoffs had already been identified as a possible area for improvement related to care coordination rounds and were now seen as a root cause behind incidental overtime, an

intervention was needed. Planning for the intervention began by gathering baseline data in the form of a voluntary nursing handoff survey. Other baseline data included the monthly amount of incidental overtime. Surveys were distributed and collected over a one-week period in January 2017. All fifty-two nurses on the unit were given the opportunity to be surveyed, and thirty-three surveys were returned, a sixty-three percent return rate. Results were compiled and presented at the February 2017 Unit Based Council (UBC) meeting. Themes from the pre-implementation survey included intentional rounding one hour before shift changes and a standard handoff process. After the presentation of the survey results, brainstorming of possible solutions occurred. Because intentional rounding one hour before shift changes was already standard work, and nursing management was already re-emphasizing this standard work and holding staff accountable, the UBC agreed to focus on a standard handoff process. The intervention chosen by members of the UBC was the development of a standard handoff tool. The members of the UBC agreed to use the first version(s) of the handoff tool until a version ready for universal use was developed.

The first version of the tool was created by the MSN student. This first version was used by members of the UBC beginning March 2017. The initial pilot group revised the tool three times until a fourth version was created. Early changes included the sizing of certain boxes, re-arrangement of the assessment boxes, and the removal of items to circle. The fourth version of the tool was discussed at the March 2017 UBC meeting. Initial feedback from members of the UBC was positive. Nurses were surprised that they now felt more organized giving report. During this meeting, a consensus was reached to have all nurses use the tool with a go-live date of March 21, 2017. Education about the project, the potential outcomes, and how to use the tool was presented at the March staff meetings, one week before the go-live date.

Do

March 21, 2017, was a soft go-live of the fourth version of the handoff tool. After discussions with nursing leadership on the unit, it was decided that at the time of go-live we would not hold nurses accountable to use the tool. Rather, this "soft" go-live would produce more robust feedback that would them help develop a final version of the handoff tool. This turned out to be true. Enough feedback was obtained to develop a fifth version, which was subsequently approved by UBC members in April 2017, followed by a six and final version in May 2017.

Study

The initial feedback was solicited from four members of the UBC and one early adopter of the process. After each version had been used for one to two weeks, the feedback from the nurses was used to develop the newer version. This process occurred three times before a fourth version was created and feedback from a larger sample of nurses was obtained. Initial feedback occurred individualy with the MSN student and again during UBC meetings. After the fourth version of the tool and the soft go-live, feedback continued one on one with the MSN student but was also sought via the use of an easel in the main workroom. After collecting feedback, further changes to the handoff tool were discussed during the UBC meetings. When the April 2017 UBC meeting was canceled, the MSN student met with each member individually for approval of the fifth version of the tool.

Act

The sixth and final version of the handoff tool went live May 28, 2017. This version of the tool has more space to tell the patient's story. In addition, in the final version the nurses desired the removal of certain items to circle. The assessment section was rearranged to group

the patient care items that are typically delegated to patient care associates (PCAs) near each other. Furthermore, a single page tool and a four-patient-per-page tool (two patients on each side) were created as some nurses stated they preferred using a single page per patient, and other nurses wanted one sheet for four patients (Figures 3 & 4). Master copies of the tool are located on the unit so that copies of the tool can be made as needed. An electronic version of the tool is kept by the AAPC unit's Clinical Nurse Leader.

In June 2017, the nurse leadership emphasized the importance of the use of the handoff tool with the nurses with the goal of increasing the use of the tool. In June 2017 half of the night shift nurses were using the tool and approximately half of day shift nurses were using the tool. In July 2017, the use of the tool increased to sixty percent after discussions with late-adopters by the MSN student and nursing leadership. Nurses were re-surveyed with the nursing handoff satisfaction survey from July 5 to July 12. Eighteen surveys were returned for a return rate of thrity-five percent. The results from these surveys, along with the results of monthly incidental overtime will be shared in the August 2017 staff meetings.

Outcomes of the Project

Outcomes of the project include comparisons pre-and post-implementation of the nursing handoff survey results and incidental overtime.

Nursing Handoff Survey Results

The nursing handoff survey was filled out by nurses on the unit pre- and post-implementation of the standard handoff tool. The participation from nurses was voluntary. Pre-implementation the tool was completed January 2017, with the post-implementation survey completed in July 2017. Nurses were asked to rate their satisfaction with handoffs overall, how often they received unnecessary information, and how often information was missing using a 10-

point Likert scale. The nurses were asked to explain what information was either missing or unnecessary. Additionally, nurses were asked to describe what they liked about handoffs, and what about handoffs they would like to see improved. There were slight increases with overall nursing satisfaction, and completeness of handoff. Furthermore, there were slight decreases with nurse interruptions. There was slight increase in unnecessary information received about patients. Overall, the outcomes desired with the quality improvement intervention were achieved (Figure 5).

Incidental Overtime

Incidental overtime since implementation of the handoff tool has decreased (Figure 6). The median monthly incidental overtime pre-implementation was 23.1 hours. After implementation, the median monthly incidental overtime is 15.3 hours. This is a drastic reduction in incidental overtime. There is also a cost savings associated with decreasing incidental overtime. Per the organization's finance department, the average nursing hourly wage on the AAPC unit is $27.13 per hour. So far, the standard handoff sheet is associated with a cost savings of $600 over a three-month time. Incidental overtime alone will produce a $2000/year cost savings if the current use of the standard handoff tool is sustained. Furthermore, if the handoff tool is used by more nurses the cost savings may increase.

Implications for Practice

Successes and Difficulties

The successes of this project include the use of PDSA cycles to create standard work, nurse involvement, and the creation of a standard handoff tool. To begin, the use of PDSA cycles to create standard work is a systematic approach to quality improvement (Nelson, Batalden, & Godfrey, 2011). The handoff tool went through five cycles of PDSA until the handoff tool was

optimized. By using the key stakeholders on the unit to develop the tool, the use of PDSA cycles helps to optimize changes that in a quick fashion that also produces staff enthusiasm (Nelson, et al., 2011). Next, the early excitement and support from nursing leadership supported with the success of the handoff tool. When this project was introduced at the first UBC meeting in January 2017, there was a lot of excitement by the nurses. The early leaders of this handoff tool were also early champions for its use and influenced their peers into adopting the use of the tool. The project would not have been as successful if the nursing leadership on the unit had not supported it in the way that they did. The nurse manager on the unit, the nursing director over the unit, the Clinical Nurse Specialist (CNS), as well as the Clinical Nurse Leader (CNL) all supported the project and assisted with rounding, collecting feedback, and were general cheerleaders for the tool. Lastly, the creation of the handoff tool was optimized by the nurse involvement in the project. The handoff tool was created by the nurses on the unit who need to use this tool to improve their work. By having the nurses on the unit be involved in editing the tool, the use of the tool is more likely to be successful (Nelson et al., 2011).

The difficulties encountered in this project include Internal Review Board (IRB determination, nursing informatics, and the use of the tool by nurses. The most difficult piece of the project was gaining IRB determination (Figure 7). At the beginning of the project, the organization did not require quality improvement projects to be vetted by the IRB. Alas, this project was already implemented when a new policy was enacted that required IRB determination. However, the IRB easily determined that the project was not research. Much angst and indecision would be avoided in the future by gaining IRB approval before implementing the project. Another difficulty involved nursing informatics. Because the hospital is considered a community hospital that is part of a larger organization, any changes to the EHR

are unlikely to occur. At the time of the project, leadership verbalized that there were to be no changes to the EHR until the EHR is ungraded in 2018. Unfortunately for this project, there was no support for an EHR-generated handoff tool. The last difficulty was engaging the experienced day shift nurses that were reluctant to use the tool. Even though this is an evidence-based tool that was created by their peers, experienced nurses did not feel the need to change their process. Many conversations were had with these nurses by the MSN student as well as the nursing leadership on the AAPC unit. Some of these nurses did end up switching to the handoff tool, but at the end of this project, about forty percent of day shift nurses were still not using the handoff tool.

Project Strengths and Weaknesses

This evidence-based practice protocol is a strong project. The use of a handoff tool that is in the form of a mnemonic is supported in the literature (Anderson et al., 2014; Gopwani et al., 2015; Johnson et al., 2016; and Thomas & Donahue-Porter, 2012). The handoff tool that was created supports the organization's nursing handoff policy in that it uses the SBAR mnemonic in the organization of the tool. Because of the use of SBAR, this tool would easily be implemented on other medical and surgical nursing areas in the organization. The early adopters on the night shift have persuaded their peers, and the use of the handoff tool has increased for the night shift nurses in August 2017. Even the experienced night shift nurses are using the tool, and feel that they are more organized in their handoff processes. Weaknesses of the project include the informatics environment in the hospital, and the reluctance of the day shift nurses to use the tool.

Sustainability

This evidence-based practice protocol is highly likely to be sustained on the AAPC unit. First, the early adopters of the tool were excited for its use on the unit, and there is potential for

the tool to be spread to other units. The UBC members hope to bring the data from this project and introduce the tool along with the data at the central UBC meeting for potential adoption of the tool on other units. In addition, the new-grad nurses, who are required to enact an evidence-based practice project, chose to develop and enact a plan to sustain the use of the new handoff tool. Lastly, the handoff tool is cost neutral as it only requires the use of a copy machine and paper. This equipment is already located on the unit and paper is always stocked fully on the unit. Finally, the handoff tool is associated with a decrease in incidental overtime and a slightly increased nursing satisfaction. The use of the standard handoff tool on the AAPC unit is highly likely to continue.

Enactment of the MSN Essentials

The MSN student has demonstrated competency for several of the MSN Essentials. First, the MSN student has shown competency surrounding Essential III (Clinical Scholarship and Analytical Methods for Evidence-Based Practice). Essential III describes evaluated handoffs and transitions of care to improve outcomes. This project was an in-depth assessment, intervention, and evaluation of outcomes regarding handoffs, and was successful in achieving the outcomes it set out to accomplish. Additionally, Essential III describes using a microsystem assessment to identify problems, create actions, all in a continuous quality improvement manner. Competency was achieved by the MSN student by having a thorough assessment of the AAPC unit and using the quality improvement framework of PDSA to achieve a standard handoff process.

Second, the MSN student has demonstrated competency in Essential II (Organizational and Systems Leadership for Quality Improvement and Systems Thinking). A cost-benefit analysis showed a low financial risk and a potential for high financial reward for this project. The standardization of handoffs using a standard handoff tool has saved $600 over three months, and

has the potential to save $2000/year. Also, the MSN student exhibited that a standard handoff tool is evidence-based and that using the tool has proven to increase nurse satisfaction, and decrease incidental overtime. These outcomes have been presented to the staff nurses on the unit.

Essential IV (Translating and Integrating Scholarship into Practice) was accomplished by the extensive literature review performed by the MSN student. The best available evidence was used to develop the handoff tool. Furthermore, even though the organization nursing handoff policy included using an SBAR format, the multiple handoff tools on the unit were not organized in this manner. The MSN student aligned the actual work performed on the AAPC unit with the nursing handoff policy. The MSN student gathering a team of key stakeholders who brainstormed and selected a solution. The MSN student created the handoff tool, tested the tool in a pilot group using the PDSA quality improvement framework. The pilot group added nurses until a version of the tool was widely adopted and used.

Essential V (Informatics and Healthcare Technologies) was met by investigating an informatics solution to the handoff process. However, because of the organization's current EHR "freeze," no informatics solution could be developed.

Conclusion

The microsystem assessment of the AAPC unit showed a potential area for improvement surrounded nurse to nurse handoffs. After an exhaustive literature review, and the use of information gathered from the voluntary pre-implementation nursing handoff survey the MSN student proposed a practice change. Key stakeholders on the AAPC unit brainstormed and agreed to pilot a standardized handoff tool. By using an accepted quality improvement framework, rapid cycle PDSA, the standard handoff tool was optimized for use on the AAPC

unit. The use of a standard handoff tool has produced a decrease in incidental overtime on the AAPC unit in addition to a slight increase with nursing satisfaction with the handoff process. The use of the standard handoff tool is likely to be sustained on the unit, and has potential for spread in the organization. The evidence-based practice protocol designed by the MSN student exhibits the MSN Essentials required for successful completion of the MSN Program.

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Tables

Table 1

Literature Review Table

Citation	Design/Method	Sample/Setting	Major Variables and their definitions IV & DV	Data Analysis	Study Findings
Anderson, Malone, Shanahan, & Manning, 2014	Integrated literature review of bedside handoffs and standard tools	45 articles examining mnemonics	IV: mnemonic tool used DV: structured process, addressing confidentiality, involvement of patient	Systematic Review	Use of a structured tool is strongly supported, but not one tool was considered suitable for all areas, or proved better than another
Cairns, Dudjak, Hoffmann, & Lorenz, 2013	Quality improvement project: survey for nursing satisfaction and end of shift overtime in minutes	23-bed, inpatient trauma unit in a large tertiary academic hospital	IV: standard handoff DV: nursing satisfaction	% comparison	Standardized bedside report resulted in a 15% decrease in end-of-shift overtime, 33% decreased in call light usage, increased patient satisfaction, and increased nursing satisfaction with the process. Largest jump for nurses were "report is concise and contained only pertinent information" (from 38% to 78%)
Chapman, Schweickert, Swango-Wilson, Abdoul-Enein, & Heyman, 2016	Survey, 4-point Likert Scale	Convenience sample of 81 RNs on 2 medical and surgical units in a 430-bed, acute care hospital	IV: SBAR IT tool to support bedside handoff DV: nurse satisfaction overall, comfort level with IT tool, communication of patient care, and patient information received when using the tool	Descriptive analysis of groups. Non-parametric chi-square tests	Each variable was statistically significant: 2-tailed asymptotic significance of 0.000
Drach-Zahavy & Hadid, 2015	Mixed method prospective approach/observations, surveys, and pooling data from patient charts	200 randomly selected handoffs in 5 internal wards in an acute care hospital	IV: HRO strategies DV: late/non-executed orders, missing documentation, dosage discrepancy	Descriptive statistics, chi-square tests, negative binomial regression model	Face-to-face communication with questions, update from staff other than outgoing, topics initiated by both outgoing and incoming teams, outgoing teams opinion on plan

					of care were linked to significantly less errors
Evans, Grunawalt, McClish, Wood, & Friese, 2012	Observed times for handoffs and nursing survey	Observed handoffs before and 6 months after implementation. Convenience sample of nurses for nursing survey	IV: standard bedside nurse to nurse report with standard tool DV: average report time and nurse satisfaction with report process	% comparison	Average report time went from 45 minutes to 29 minutes. Nurse satisfaction with report process went from 37% to 78% satisfied
Gopwani, Brown, Quinn, Dorosz & Chamberlain, 2015	Prospective, observational study	638 handoffs/team huddle (attending and resident physicians, extended providers, and nurses) in a pediatric emergency department	IV: use of the SOUND tool DV: completeness of handoff	Chi-square tests, SPC graphs	Use of the SOUND tool significantly increased amounts of complete handoffs
Johnson et al., 2014	Descriptive study	162 handoffs, verbal and written in medical and surgical wards in 2 hospitals	IV: verbal vs written handoffs DV: content	Content Analysis	Verbal and written handoffs contain similar information, with verbal handoffs containing slightly more critical information
Johnson, Sanchez, & Zheng, 2016	Pre/Post-test evaluative design	97 pre-and 112 post-implementation handoffs on 4 medical and surgical wards	IV: ICCCO mnemonic, bedside handoff, and use of the EHR DV: quality of handoff, fall rate, medication error rate, time of handoff, nursing clinical management error rate	Content analysis, Wilcoxon rank su test. Error rates #/1,000 occupied bed days	No significant change in falls or medication errors were found. Decrease in nursing clinical management error rate, and increase in quality of handoff
Kerr, Klim, Kelly, & McCann, 2016	Pre-and post-implementation study. Nursing survey and audit charts/direct observation of care. Nursing survey: 7-point Likert scale. Audit: 9 routine nursing activities. Observation: ID and allergy bands	Emergency department. Nursing survey: 126 audits, 368 direct observations	IV: traditional vs standard, bedside, patient involved handoff DV: nursing perceptions of completeness, organization and documentation/presence of ID bands	Survey: chi-square and t-test. Audits: chi-square and Fisher's exact test	Nurses perceived handoff as more organized, more likely to contain critical vital signs, occurred with patient involvement. Audits of charts revealed items that were charted more often: IV cannula, ID bracelet, Allergy bracelet, valuables, and IV fluids on I&O chart
Klee, Latta, Davis-Kirsch, & Pecchia, 2012	Two phases of continuous process improvement. Nursing surveys, patient satisfaction and safety, decrease end of shift overtime	Inpatient children's hospital	IV: standard sequence of content and process of bedside handoff DV: patient safety, patient/family involvement, and end of shift overtime	Survey of nurses for perception of patient safety and % comparison of end of shift overtime	20% reduction in end of shift overtime and an increase in nursing perception of safety which remained 1 year post-implementation
Lee, Cumin, Devcich, & Boyd, 2015	Randomized, single-blind controlled experiment. Nursing	157 participants/PACU and surgical ward RNs	IV: control, concern, written, and concern & written	2x2 ANOVA subgroup analysis with	No significant differences found between study

	survey using a visual analog scale		DV: level of confidence in the information	Kruskal-Wallis test	groups. However, experience nurses (5 years or more) had more confidence in the information when an expression of concern was present
Meliones, Mericle, & Norman, 2011	Pre- and post-implementation of a standard handoff tool	151 handoffs between OR and PICU	IV: traditional vs standardized handoff DV: turnaround time, lab draw time, % CXR performed, % bedside monitoring performed	Not mentioned, but $p<0.001$ in all cases	Decreases in turnaround time, lab draw times. Increased % CXR performed and % bedside monitoring performed
O'Brien, Flanagan, Bergman, Ebright, & Frankel, 2016	Qualitative thematic analysis	27 RN dyads and 18 physician/extended provider dyads at one VA medical center	IV: outgoing vs incoming DV: function of questions	Review of transcripts, consensus of coding achieved	No differences in types of questions asked. Incoming providers asked more questions than outgoing providers 10:1
Payne, Stein, Leong, & Dressler, 2012	Controlled trial/surveys using a Likert scale	Baseline 80 residents Surveys of perceived harm 184 Surveys of handoff content 92	IV: traditional vs standard handoff DV: perceptions of perceived events (harm or near misses), handoff content and process	Chi-square tests	Perceptions of perceived events (harm or near misses) decreased after implementation of a web-based electronic handoff tool. Handoff content and process was improved
Rosenbluth et al., 2015	Needs assessment using structured group interviews	Pediatric hospital services at 9 organizations in North America	n/a	Consensus of items considered essential and recommended was reached	Standardizing printed handoff documents has the potential to decrease omissions of key data
Rush University, 2014	Pre- and post-implementation of a standard definition of incidental overtime and standard tools to streamline handoffs	650 bed medical center-incidental overtime incidents and % of direct care hours	IV: standard handoff tools DV: incidental overtime incidents	% comparison	Standard handoff tools decreased both the amount of incidental incidents, but also the length of incidental overtime
Staggers, Clark, Blaz, & Kapsanoy, 2012	Qualitative, interpretive descriptive study	93 handoffs on medical and surgical units with EHR and computerized provider order entry	IV: paper vs electronic handoff tool DV: information management and use of electronic tools	% comparison, transcription of handoffs	65% of nurses use a personal paper tool, 35% use the electronic tool and add information that is "missing"
Thomas, & Donohue-Porter, 2012	Survey using a Likert scale	7 hospitals, multi-site system	IV: standard IPASStheBATON handoff DV: nursing satisfaction	% comparison	Nurses perceived they had adequate time for inter-shift report, appropriate information, and relationships between shifts improved

Zou, & Zhang, 2016	Prospective intervention study using 1 group pretest, posttest quasi-experimental design	1983 admissions pre-implementation and 1970 admissions post-implementation. Inpatient medical unit in China	IV: use of a standard nursing handoff form DV: nursing error rates	Chi-square tests and Wilcoxon rank sums test	Implementation of the nursing handoff form was associated with a significant reduction in nursing error rates

Figures

Figure 1. Nursing Role Effectiveness Model: Handoffs

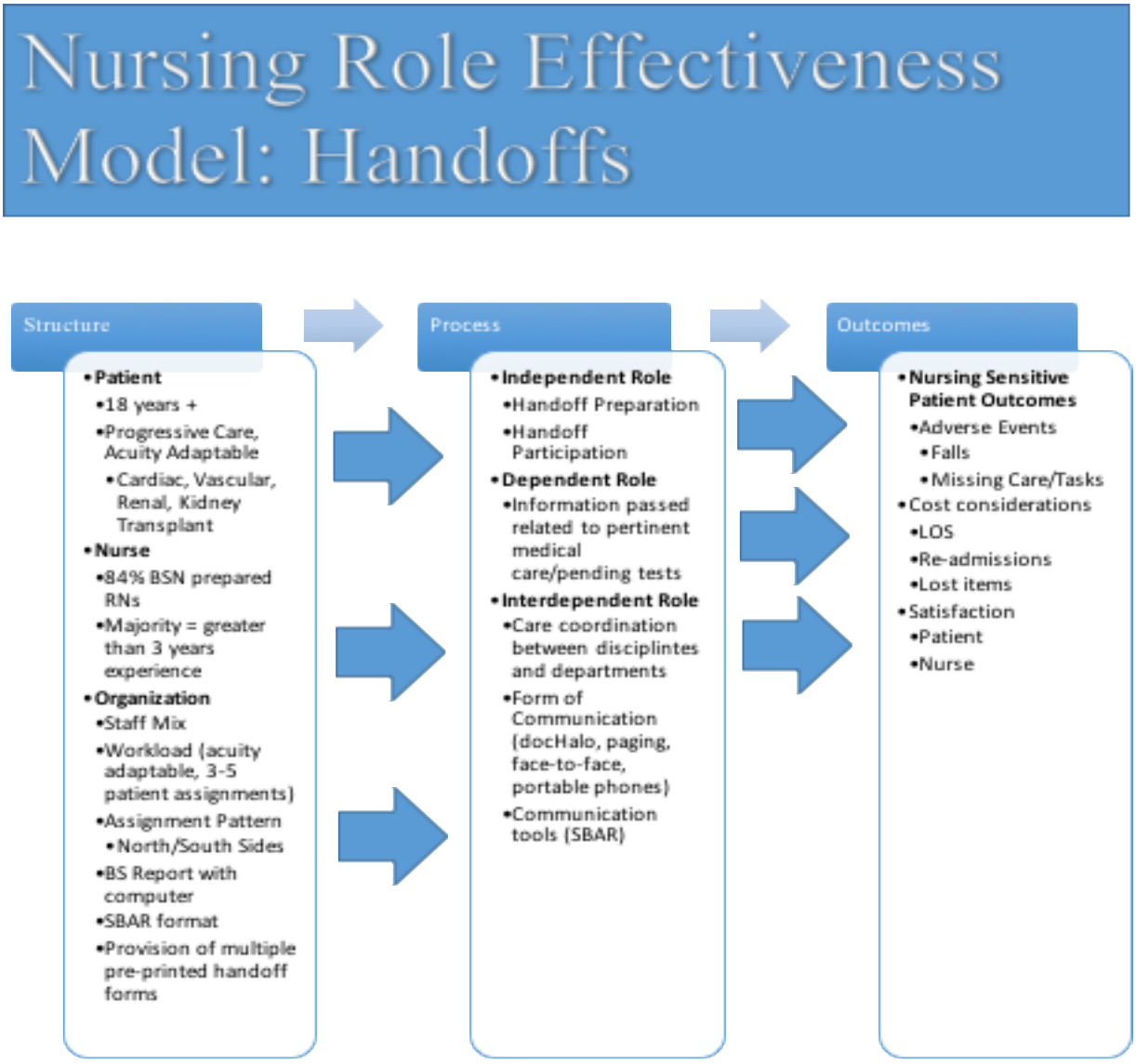


Figure 1. The Nursing Role Effectiveness Model specific to an acuity-adaptable, progressive care unit. Adapted from "Linking Outcomes to Nurses' Roles in Health Care," by D. Irvine, S. Sidani, and L. M. Hall, 1998, *Nursing Economic$, 16,* p. 59. Copyright 1998 by Jannetti Publications, Inc.

Figure 2. Timeline of Handoff Project

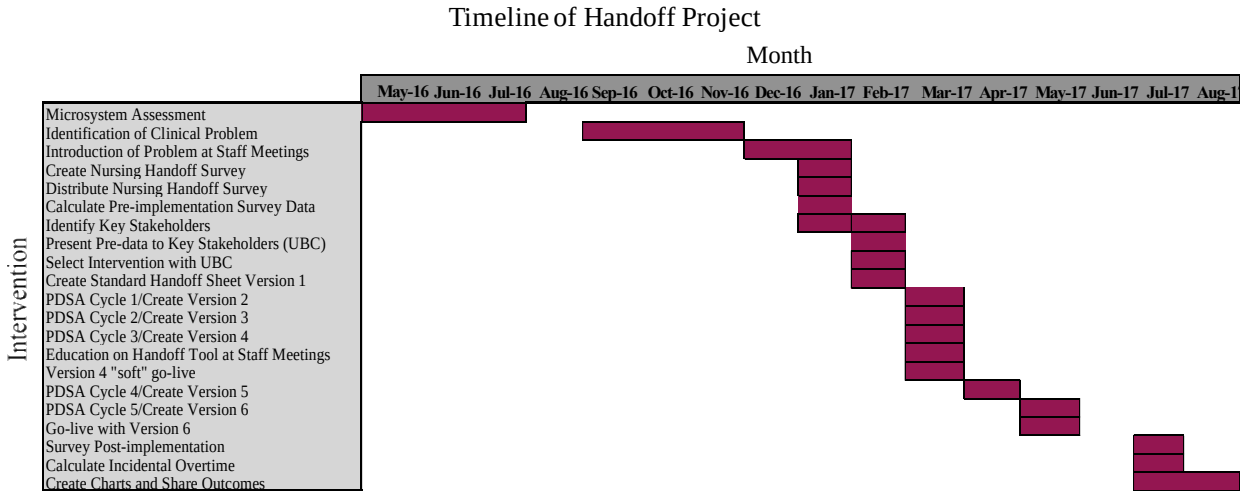
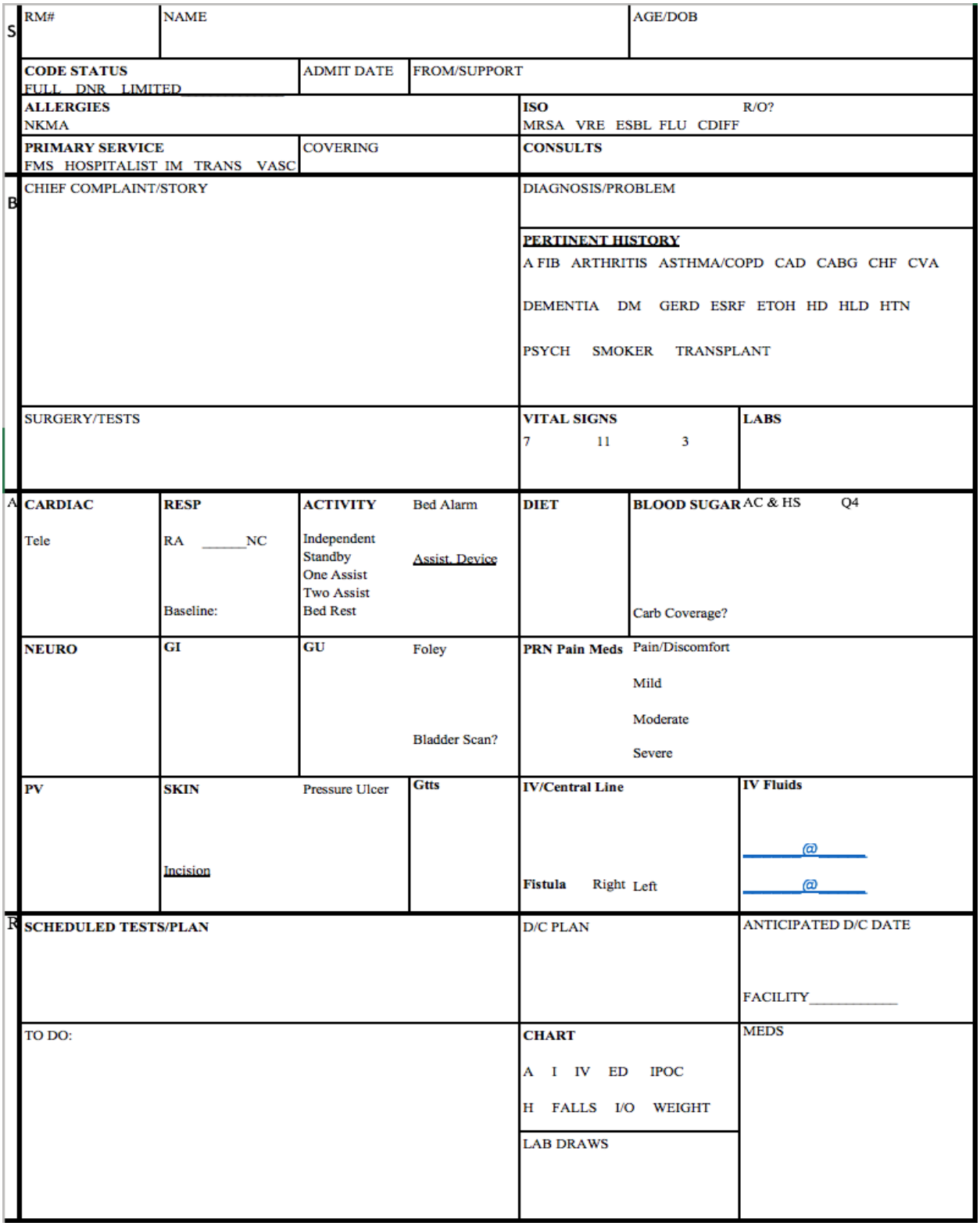


Figure 2. Timeline of Evidence-Based Protocol: Standardizing Handoffs to Improve Outcomes.

Figure 3. Standard Handoff Tool Version 6.



S	RM#	NAME			AGE/DOB	
	CODE STATUS FULL DNR LIMITED_____	ADMIT DATE	FROM/SUPPORT			
	ALLERGIES NKMA			**ISO** R/O? MRSA VRE ESBL FLU CDIFF		
	PRIMARY SERVICE FMS HOSPITALIST IM TRANS VASC	COVERING		**CONSULTS**		
B	CHIEF COMPLAINT/STORY			DIAGNOSIS/PROBLEM		
				PERTINENT HISTORY A FIB ARTHRITIS ASTHMA/COPD CAD CABG CHF CVA DEMENTIA DM GERD ESRF ETOH HD HLD HTN PSYCH SMOKER TRANSPLANT		
	SURGERY/TESTS			**VITAL SIGNS** 7 11 3	**LABS**	
A	**CARDIAC** Tele	**RESP** RA _____NC Baseline:	**ACTIVITY** Independent Standby One Assist Two Assist Bed Rest	Bed Alarm Assist. Device	**DIET**	**BLOOD SUGAR** AC & HS Q4 Carb Coverage?
	NEURO	**GI**	**GU**	Foley Bladder Scan?	**PRN Pain Meds**	Pain/Discomfort Mild Moderate Severe
	PV	**SKIN** Pressure Ulcer Incision	**Gtts**		**IV/Central Line** **Fistula** Right Left	**IV Fluids** _____@_____ _____@_____
R	**SCHEDULED TESTS/PLAN**				D/C PLAN	ANTICIPATED D/C DATE FACILITY_____
	TO DO:				**CHART** A I IV ED IPOC H FALLS I/O WEIGHT LAB DRAWS	MEDS

Figure 3. Standard Handoff Tool Version 6, Single Page.

Figure 4. Standard Handoff Tool Version 6, Two-per-Page.

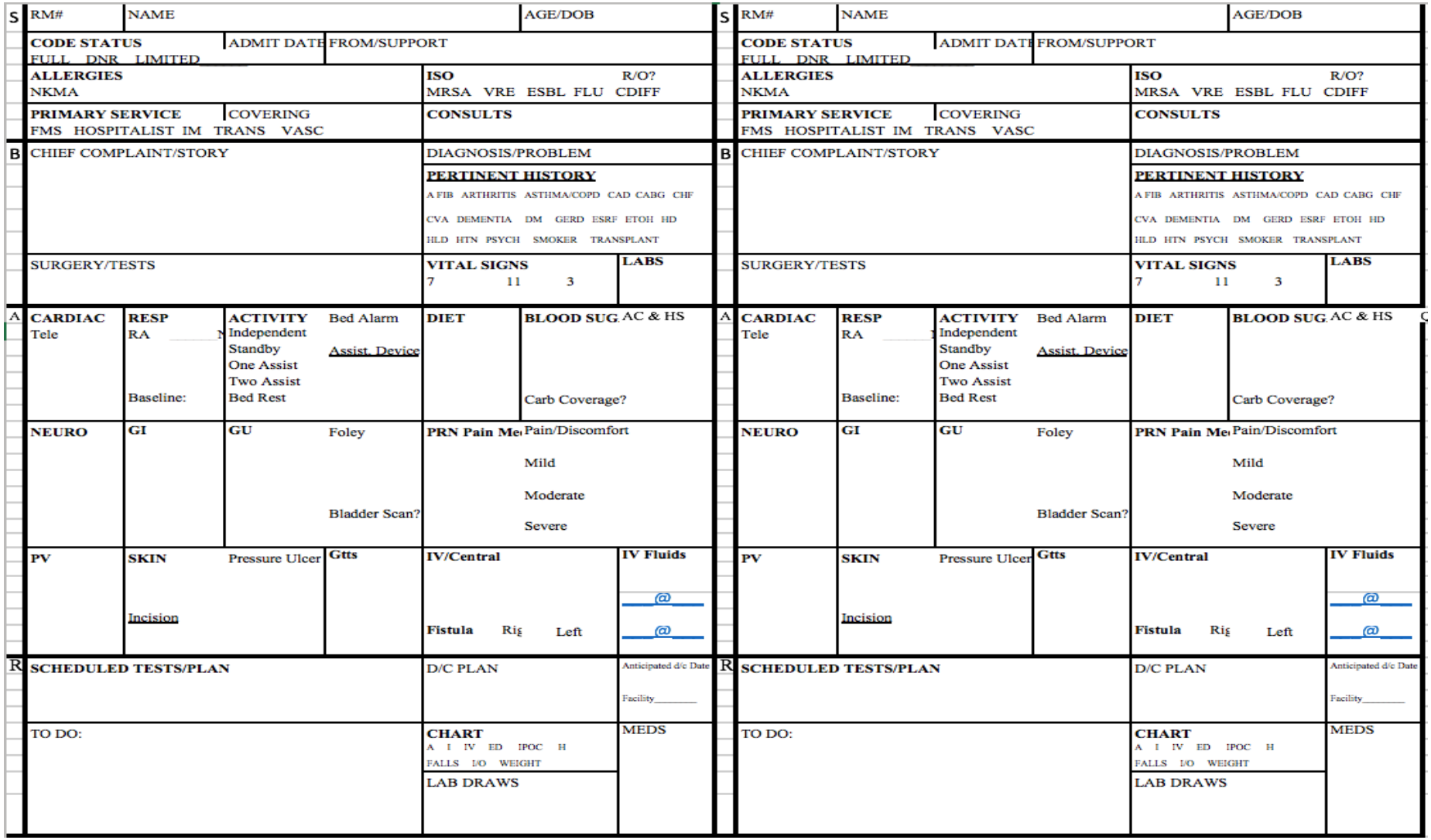


Figure 4. Standard Handoff Tool Version 6, Two-per-Page.

Figure 5. Nursing Handoff Survey Results

Figure 5. Nursing Handoff Survey Results

Figure 6. Incidental Overtime Pre-and Post-Implementation of the Handoff Tool

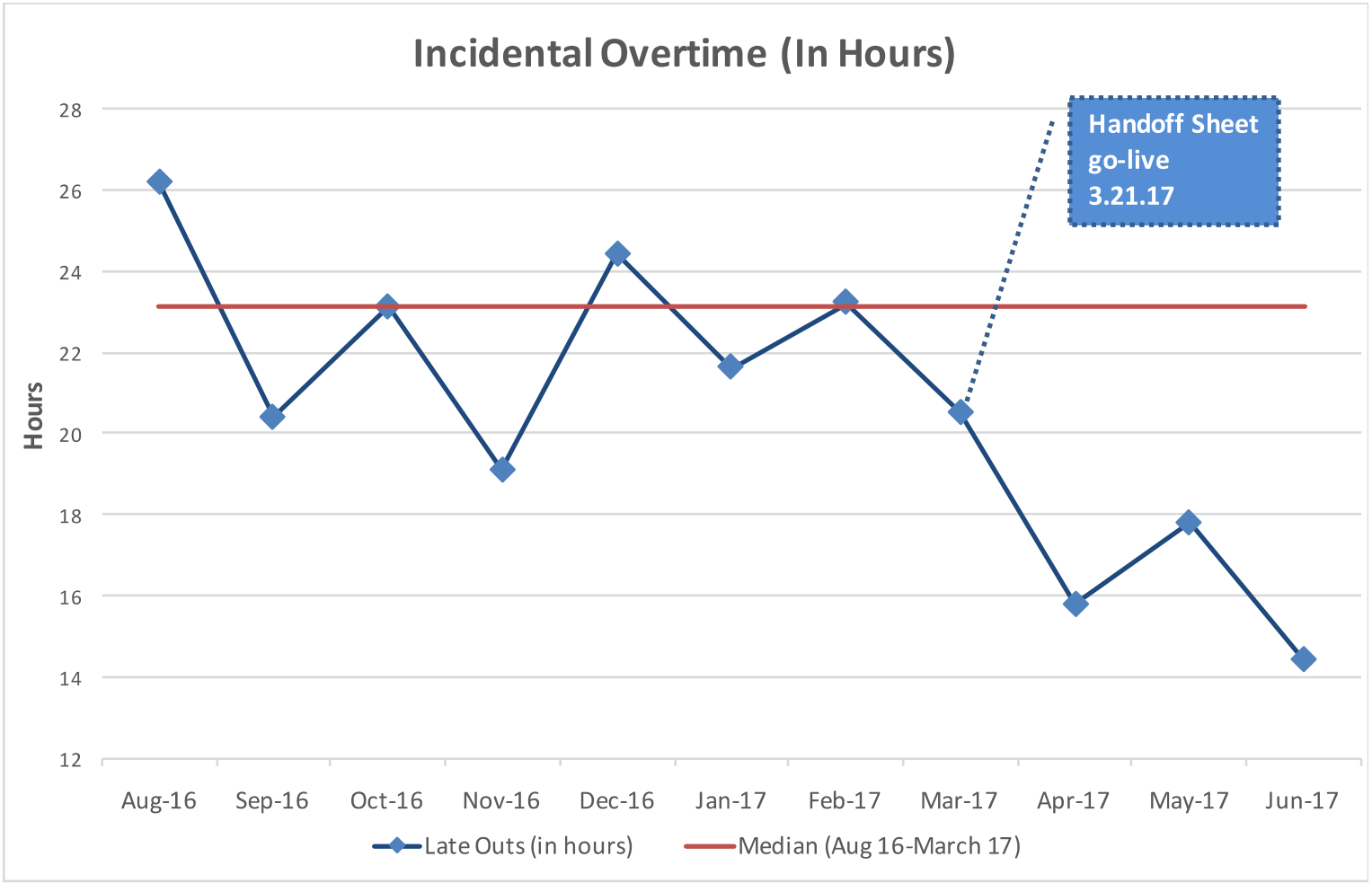


Figure 6. Incidental Overtime from August 2016 to June 2017.

Figure 7. Internal Review Board Determination

NOTICE OF CLINICAL QUALITY IMPROVEMENT MEASUREMENT DESIGNATION

To: [redacted]

[redacted]

Re: IRB# 17-0605-1 Standardizing Handoffs: An Evidence-Based Practice Protocol

Date: 06/12/2017

This is to inform you that the [redacted] Regional Institutional Review Board (IRB) has reviewed your proposed research project entitled *"Standardizing Handoffs: An Evidence- Based Practice Protocol.* The IRB has determined that your proposed project is not considered human subjects research. The purpose and objective of the proposed project meets the definition of a clinical quality improvement measurement. All publications referring to the proposed project should include the following statement:

"This project was undertaken as a Clinical Quality Improvement Initiative at [redacted] *and, as such, was not formally supervised by the* [redacted] *Regional Institutional Review Board per their policies."*

The IRB requests careful consideration of all future activities using the data that has been proposed to be collected and used "in order to standardize nursing handoffs between shifts in a hospital medical unit."

The IRB requests resubmission of the proposed project if there is a change in the current clinical quality improvement measurement design that includes testing hypothesis, asking a research question, following a research design or involves overriding standard clinical decision making and care.

Please feel free to contact me if you have any questions regarding this matter.

[redacted], CIM IRB Chairperson

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Figure 7. Internal Review Board Determination of Quality Improvement Project.