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Evidence-Based Protocol: Decreasing Falls and Falls with Injury in a NSDU

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Evidence-Based Protocol: Decreasing Falls and Falls with Injury in a NSDU

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Abstract

Patient falls in acute care tend to be the most common adverse events reported. The Centers for Medicare and Medicaid Services report that fall-related injuries are classified as hospital-acquired conditions and no longer reimburses for the diagnosis and treatment of injuries incurred from falls during hospitalization. Falls are decreasing at too slow a rate even with a variety of fall prevention guidelines being available. Falls are a complex problem within hospitals and the prevention of falls is challenging. Literature supports the individualization of fall prevention interventions based on the risk factors exhibited by a patient. Tailoring interventions to specific fall risk factors will most likely reduce falls compared to the implementation of general interventions. The Joint Commission Center for Transforming Healthcare Targeted Solutions Tool (TST) for falls will be implemented. The TST provides a systematic approach to decreasing falls and falls with injury by measuring the current state, analyzing and discovering causes for falls, and the implementation of targeted solutions. The TST utilizes define, measure, analyze, improve, and control methodology to guide an organization step by step in fall prevention. This approach helps an organization identify factors contributing to falls and then provides targeted solutions to prevent falls for hospitalized adult patients. The nature of this project is to determine if the use of fall prevention interventions that target patient-specific fall risk factors will reduce the number of patient falls and falls with injury in the microsystem of a Neuro Stepdown Unit compared to the universal fall risk prevention practice.

Keywords: falls with injury, falls in hospitals, preventing falls, preventing falls with injury in hospitals
Chapter 1: Introduction and Microsystem Assessment

Hospitals strive to provide patients with high quality and safe care. In 2008, the Centers for Medicare and Medicaid Services (CMS) announced that hospitals will not be reimbursed for conditions that are considered hospital-acquired (U.S. Department of Health and Human Services). As a result, hospitals work to prevent adverse events from occurring to their patients (Graham, 2012). Hester, Tsai, Rettiganti, and Mitchell (2016) reported that “fall-related injuries were classified as hospital-acquired conditions by the CMS” (p. 24). The CMS listed injury falls as one of eight “never events” which are defined as “reasonably preventable safety breaches that should never occur during hospital care” (Staggs, Mion, & Shorr, 2015, p. 983). Thus, CMS no longer reimburses providers or hospitals for the diagnosis and treatment of injuries incurred from falls during hospitalization. Even with the change in reimbursement and the availability of a variety of fall prevention guidelines, rates of falls within the hospital have been decreasing at too slow a rate (Staggs et al., 2015). The purpose of this chapter is to describe the microsystem, reviewing salient findings, present the practice problem and evidence from the microsystem, briefly introduce literature supporting the practice problem, and briefly describe the nature of the project of reducing falls and falls with injury in the acute care setting.

Microsystem Assessment

A thorough assessment of a microsystem allows one to gain a deeper knowledge and understanding of the way it functions. Information was gathered through informal interviews, observation, and reviewing unit scorecards. The microsystem assessed is found within a 665 bed acute care hospital in mid-Michigan. The microsystem is a 16-bed Neuro Stepdown Unit (NSDU) with an average daily census of 15.7 patients per day. The patients are 18 years of age
and older with the majority of patients being over 65. The average length of stay is 4.2 days with occasional outliers. On a typical day, three to four patients are discharged or transferred out and three to four new patients are transferred in, admitted from the emergency department, or from the post anesthesia care unit. The main medical diagnoses cared for in the NSDU are stroke, traumatic brain injury (TBI), and post-surgical patients with procedures such as laminectomies, craniotomies, or brain tumors.

Currently there are 29 registered nurses (RNs) employed in the NSDU, with one vacancy. The experience mix of RNs varies from days to nights as 58% of the RNs on the day shift have greater than 5 years experience whereas 47% of the RNs on the night shift have less than 1 year experience. Fifty-five percent of the RNs are bachelors prepared. Currently none of the RNs hold a national board nursing certification.

The staffing mix on the unit is three to four patients per RN and 12 patients for each patient care technician (PCT). One caregiver, whether RN or PCT, must be present at the central telemetry monitor at all times. Being a staff that is highly engaged in shared governance through the unit-based council, unit leadership discussed that a 30 minute rotational system was developed to ensure that the monitor is always being watched as a required safety measure of the health system.

Formal leadership includes a nursing director, department manager, and an assistant department manager. A clinical nurse specialist and nurse educator are shared throughout the critical care service line. The medical teams who frequently interact within the microsystem include the stroke team, trauma team, neurologists, neurosurgeons, and hospitalists. Frequent interactions within the microsystem occur with the stroke team, the trauma team, discharge
planning/case management, and rehabilitation services. In personal communications, staff reported feeling valued and respected as members of the healthcare team through interactions with the various teams.

The most frequent diagnoses cared for on the unit are stroke and TBI. The literature supports that fall prevention is of concern to caregivers of patients with neurologic illness and trauma (Bergman & Papendick, 2014, Rheaume & Fruh, 2015). Comorbidities of the NSDU patients would be important to assess as Bergman and Papendick (2014) report that “the difficulty lies in the ability to accurately detect true fall risk among the many comorbidities present in the aging and often more ill population” (p. 182). Thus, the patient population on the NSDU is at high risk for falls.

**Practice Problem and Stakeholders**

A fall can be defined “as an event that results in the patient coming to rest inadvertently on the ground or other surface lower than the body” (Graham, 2012, p. 267). Staggs et al. (2015) report that fall rates range from 1.3 to 8.9 per 1000 bed days in acute care hospital units. Hester et al. (2016) report that the American Nurses Credentialing Center Magnet Recognition Program has included falls with injuries as a nursing sensitive indicator. Falls are also monitored as a nursing sensitive indicator by the National Database of Nursing Quality Indicators (NDNQI), the National Quality Forum, and the Collaborative Alliance for Nursing Outcome (Trepanier & Hilsenbeck, 2014). Even with the implementation of fall prevention interventions, falls continue to be one of the most common adverse events reported (Rheaume & Fruh, 2015). Nurses play an important role in providing safe care to patients, which includes the prevention of falls.

Unit leaders have identified falls as a problem within the microsystem of the NSDU. Quarterly, a nurse sensitive indicator scorecard is released by the NDNQI for the unit. The
leaders report that in five out of the last eight quarters, the unit is above the national average of patient falls per one thousand patient days. For falls with injury, the unit is above the national average in four of the last eight quarters per one thousand patient days. Thus, patient falls are an identified clinical problem of the microsystem.

During a patient’s hospital stay, fall risk must be regularly reassessed (Graham, 2012). Changes may occur to a patient that may require a different level of fall prevention intervention. Falls may result from a combination of factors that are individual and environmental (Rheaume & Fruh, 2015). The individual risk factors include age, a history of falls, impaired mobility, medications, poor vision, and acute illness (Rheaume & Fruh, 2015). Rheaume and Fruh (2015) report environmental risk factors to include poor lighting, objects that may be a trip hazard, poor footwear, and inadequate staff availability. Prevention of falls in the hospital setting requires an in depth approach by nurses to assess and implement fall prevention strategies.

Currently, the microsystem utilizes the Morse Fall Scale (MFS) to assess fall risk upon admission, transfer, a change in the patient’s condition, and every 12 hours. If a patient scores less than 45 on the MFS, the patient is deemed a low fall risk and standard interventions that apply to all patients are implemented. This includes orientation to the room, instruction on how to utilize the call light, routine comfort rounds, providing non slip footwear and ambulatory aides, assuring brakes are locked on the bed, keeping room clutter free, and allowing patient time to sit before rising from a supine to a standing position.

If a patient scores 45 or greater on the MFS, a patient is considered a high fall risk, and receives the aforementioned interventions, plus high fall risk signage outside the patient room as well as at the patient’s bedside and in the bathroom, red socks, yellow fall risk armband, stay with patient while toileting, communicate high fall risk to other caregivers, use of a gait belt, bed
or chair alarm, and consider physical therapy evaluation, medication review by pharmacy, or additional safety equipment such as a floor mat.

After a patient falls, the post-fall incident review must be completed. This is a complex process that includes assessing the patient, documenting the fall in four places, notifying the physician of the fall, completion of the post fall order set, obtaining scans, x-rays, or any other additional testing ordered by the physician, notifying the family, completing a post-fall huddle, and notifying the department manager of the fall. The nurses report that often the physician whom is called does not know what protocol to follow in terms of caring for the patient post-fall. The nurse also completes an incident report that is electronically sent to risk management. A root cause analysis is completed if an injury is incurred from the fall. Falls without injury are reviewed by the hospital’s falls committee leader and unit leadership.

**Introduction to the Literature**

Hester et al. (2016), report that “inpatient falls constitute the largest category of reported adverse events in hospitals” (p. 24). It is estimated that greater than one million patient falls occur in hospitals each year. Falls occur in 2% to 20% of inpatient hospitalizations, with 10% to 30% of falls resulting in injury (Spetz, Brown, & Aydin, 2015). Spetz, Brown, and Aydin (2015) reported that the costs of non-injury falls ranged from $1,130 to $2,033; injury falls from $7,136 to $15,444; and serious injury falls from $17,567 to $30,931. By the year 2020, costs related to falls is expected to exceed $47 billion (Hester et al. 2016). Trepanier and Hilsenbeck (2014) report that the number of falls resulting in injury is estimated to be over 17 million by the year 2020.

It has been reported that inpatient falls account for at least 40% of accidents that occur in the hospital (Graham, 2012). Of the falls that occur, 42% result in some sort of injury and 8% in
serious injury (Graham, 2012). Rheaume and Fruh (2015) reported greater fall rates for older patients and those with neurology diagnoses. Eighty percent of falls within the hospital occur to patients over the age of 65 (Rheaume & Fruh, 2015). Annually in the United States, nearly 11,000 patients die from a fall that was sustained during hospitalization (Staggs et al., 2015).

Patient falls are of concern to hospitals as patients may experience mortality and morbidity (Spetz et al., 2015). A variety of injuries may occur from patient falls, including fractures, brain injury, internal injury, lacerations, and bruising (Bergman & Papendick, 2014). Injuries related to falls can incur pain, disability, functional impairment, and may ultimately lead to death (Spetz et al., 2015). Graham (2012) discussed that the severity of injury incurred from falls can cause different levels of disability, which ultimately can be life-altering to a patient. Bergman and Papendick (2014) report that patients who fall have an increased length of stay of approximately six days. Fall-related injuries often are not reimbursed by insurance providers, leaving the hospital with the costs incurred (Bergman & Papendick, 2014).

**Nature of the Project**

Falls are a complex problem within hospitals. The prevention of falls is challenging for all health care professionals. Graham (2012) described nurses as having a “unique ability to affect patient care and prevent falls” (p. 267). To reduce falls, tailoring of interventions to specific fall risk factors is needed (Wilson et al., 2016). By individualizing fall prevention interventions according to the risk factors exhibited by a patient, falls most likely would be reduced in comparison to using general interventions (Wilson et al., 2016). The goal is to recognize the patients at risk for falls and to implement fall prevention interventions according to the risks (Bergman & Papendick, 2014). The quality improvement immersion project will be the implementation of the Joint Commission Center for Transforming Healthcare Targeted Solutions
Tool (TST) (Health Research & Educational Trust, 2016). The TST provides a systematic approach to decreasing falls and falls with injury through measurement of the current state, analyzing and discovering causes for falls, and implementing targeted solutions. Data collection to establish the gap between current practice and the TST recommendations will also occur. Evidence-based recommendations from the TST will be shared with the stakeholders to determine the interventions to be implemented. The nature of this project is to determine if the use of fall prevention interventions that target patient-specific fall risk factors will reduce the number of patient falls and falls with injury in the microsystem of the NSDU, compared to the universal fall risk prevention practice, by year end 2017.
Chapter 2: A Review of the Literature

Hospitals strive to provide patients with high quality and safe care. In 2008, the Centers for Medicare and Medicaid Services (CMS) announced that hospitals will not be reimbursed for conditions that are considered hospital-acquired (U.S. Department of Health and Human Services, 2008). As a result, hospitals work to prevent adverse events from occurring. (Graham, 2012). Hester et al. (2016) reported that “fall-related injuries were classified as hospital-acquired conditions by the CMS” (p. 24). The CMS listed injury falls as one of eight “never events” which are defined as “reasonably preventable safety breaches that should ever occur during hospital care” (Staggs et al., 2015, p. 983). Thus, CMS no longer reimburses providers or hospitals for the diagnosis and treatment of injuries incurred from falls during hospitalization. Even with the implementation of fall prevention interventions, falls continue to be one of the most common adverse events reported (Rheaume & Fruh, 2015). Nurses play an important role in providing safe care to their patients, which includes the prevention of falls.

A review of the literature was conducted searching for the most current evidence in decreasing falls and falls with injuries in acute care hospitals using CINAHL, PubMed, Cochrane, and the National Guideline Clearinghouse databases. Key words for the search included “falls with injury”, “falls in hospitals”, “preventing falls”, and “preventing falls with injury in hospitals”. Abstracts for research studies that involved adults and published in English for 2006-2017 were reviewed. Thirty-five articles were appraised and nine were selected for review. This literature review will address the current evidence-based practice regarding fall prevention and the themes of risk factors, interventions, and implementation.

The level of evidence of each study is reviewed as this provides guidance about the type of research studies that are more likely to provide reliable answers to a specific clinical question
(O’Mathuna & Fineout-Overholt, 2015). In the studies reviewed, there were three level one, two level two, five level three, and one level four for the hierarchy of evidence. O’Mathuna and Fineout-Overholt (2015) describe the higher the method of study ranks in the hierarchy, the more likely the intervention will produce the same outcomes in similar patient populations.

**Risk factors**

Completion of a formalized fall risk assessment using validated tools provides a fall risk score, however, it is not indicative of the type of fall a patient may be at risk for, which makes targeting fall prevention strategies based on the patient’s fall risk difficult (Cox et al., 2015). The retrospective study completed by Cox et al. (2015), found that increasing age, narcotic/sedative use, high fall risk assessment, and the nighttime were found to significantly predict the likelihood of a patient falling. Cox et al. (2015) further discussed without accurate fall risk determination, implementation of appropriate fall prevention interventions cannot take place. Even though fall prevention is the responsibility of all caregivers, nurses play an important role in risk determination of patients.

Hester et al. (2016) found a gap in the research noting research focused on predicting and preventing falls and not on injurious falls. Hester et al. (2016) completed a retrospective study to look at what patient risk factors contribute to injurious falls in hospitals. Hester et al. (2016) found a significant association between a primary diagnosis of symptoms, signs, and “ill-defined conditions” and falls with injury. The authors suggest clinicians pay closer attention to patients admitted for presenting signs or symptoms of conditions without further evaluation, which include nausea, vomiting, alterations in consciousness, seizures, or signs of electrolyte imbalances (Hester et al., 2012). It is imperative that nurses be aware of these factors that place patients at risk for injurious falls so appropriate interventions can be implemented.
Interventions

A search completed on the Cochrane Database revealed a review of randomized control trials of interventions to reduce falls in hospitalized older adults. The review found that overall, multifactorial interventions in hospitals reduced the rate of falls (Cameron et al., 2012). Cameron et al. (2012) noted that the systematic review summarizes the evidence on fall prevention in hospitals since falls are common and lead to increased morbidity and mortality. The authors suggest further trials of multifactorial fall prevention interventions to confirm the effectiveness (Cameron et al., 2012).

Choi, Lawler, Boenecke, Ponatoski, and Zimring (2011) discussed a fall prevention model that was developed from an assessment of the effectiveness and characteristics of fall prevention interventions implemented in hospitals. Choi et al. (2011) identified three characteristics of fall prevention interventions from the review: (1) the physical environment, (2) the care process and culture, which included the fall risk assessment, medication review/modifications, visual signs/bracelets, patient/family education, and prompted/regular toileting, and (3) technology, which includes the call light, bed alarms, footwear, low beds, and hip protectors. Choi et al. (2011) suggest a multi-faceted approach to fall prevention that includes the environmental risk factors as well as patient specific risks.

Ang, Mordiffi, and Wong (2011) completed a randomized control trial of high fall risk hospitalized patients to examine the effectiveness of a multiple intervention fall prevention strategy. The targeted multiple intervention approach allowed for an individualized approach to risks for falls (Ang, Mordiffi, & Wong, 2011). The intervention group received the standard fall prevention measures as well as targeted multiple interventions that was based on individual risk factors (Ang et al. 2011). The study found that the number of high-risk participants who fell was
significantly lower in the intervention group compared to the control group (Ang et al. 2011). Limitations to this study include that it was completed at a single center and results may not be generalizable. Ang et al. (2011) also pointed out that in reality, it may not be possible to implement the individualized approach of targeted multiple interventions to the extent that was given during the research study as research nurses had adequate time to devote to individualizing the interventions implemented. The study demonstrated that using a standardized approach to preventing patient falls in an acute care setting is insufficient. Healthcare institutions are challenged to implement effective fall prevention interventions that target the specific risk factors that may contribute to falls occurring.

Goodwin et al. (2014) completed a systematic review and meta-analysis of randomized control trials that compared multiple component interventions with no interventions targeting those aged 60 years and older. The authors noted little attention had been paid to multiple components of fall interventions comprised of two or more fall prevention interventions. They also identified interventions were not individually tailored following a valid fall risk assessment (Goodwin et al., 2014). Evidence was found that multiple component interventions were effective at reducing the number of patients aged 60 years and older from falling, even if the interventions were not tailored to the individual risk factors for falls (Goodwin et al., 2014). This approach may be considered as fall prevention interventions.

A clinical practice guideline (CPG) was found regarding the prevention of falls in the acute care setting. Degelau et al. (2012) provide a guideline to prevent falls in the acute care setting with the appraisal of the classification of research next to the suggested interventions. The CPG lists the best practice in fall reduction to include a fall risk assessment, visual identification of individuals at high risk for falls, interventions that are directed at specific risk
factors, education that is standardized and multifactorial for staff, patients, and families as well as using a teach back method of patient education (Degelau et al., 2012).

Within the CPG, universal fall interventions were listed that should be present for patients regardless of the risk for falling. In addition, Delegau et al. (2012) discussed the success of an electronic falls prevention toolkit in acute care hospitals that assists in assessing fall risk, providing alerts to all key stakeholders, education on fall interventions and prevention, and documenting fall prevention in the plan of care. The CPG also lists other fall precautions to be incorporated with the toolkit. Delegau et al. (2012) state that multifactorial interventions that involve increased observation and surveillance of fall risk patients have been found to be effective with falls.

Dykes et al. (2010) studied the fall prevention toolkit (FPTK) referred to in the CPG in a randomized control trial. Dykes et al. (2010) saw that health information technology (HIT) was underutilized in fall prevention efforts and thus investigated whether integrating a FPTK using HIT would decrease patient falls in hospitals. Once the patient’s nurse completed a valid fall risk assessment scale, the FPTK software then tailored fall prevention interventions that addressed the patient’s specific fall risks (Dykes et al., 2010). The FPTK produced posters to hang at the bedside, patient education handouts, and plan of care that all contained patient-specific alerts to key stakeholders involved in the patient’s care (Dykes et al., 2010).

The 6 month study showed a decrease in falls in the intervention group and was found to be most effective with patients 65 and older (Dykes et al., 2010). Thus, the FPTK intervention proved effective with older adults as the tailored interventions to address the patient specific risk were implemented in an acute care hospital with positive results of decreasing patient falls. Dykes et al. (2010) explained that the FPTK intervention was not effective with younger
patients. Further studies are needed to determine specific fall prevention interventions based on patient specific risks. The HIT proved beneficial in programming logic into the system that offered decision support based on the risk factors of the patient (Dykes et al. 2010).

Valid fall risk assessment scales are implemented at hospitals to identify patients at risk for falls. If a patient is identified as a high fall risk patient, general fall prevention interventions are implemented, such as placing a sign on the door of a high fall risk patient (Titler et al., 2016). As discussed by Cameron et al. (2012), fall prevention interventions should be customized to the patient’s identified risk factors. However, hospitals have not promoted the use of fall prevention interventions that target patient specific risks (Coussement et al., 2008). Falls are complex and risks for falls tend to be multifactorial, benefits may be seen if interventions to reduce falls target patient specific risk factors (Cameron et al., 2012; Coussement et al., 2008). Dykes et al. (2010) noted that few studies have looked at the effect of implementing evidence-based fall prevention interventions based on patient specific risks to lessen falls in hospitalized adults. Coussement et al. (2008) suggested that more studies are needed to confirm the tendency that targeting a patient’s specific risk factors for falls helps to reduce the number of falls.

Titler et al. (2016) evaluated the implementation of evidence-based fall prevention interventions to target patient specific risk factors. The study period was 3 months post-implementation of the intervention and showed that fall rates declined, but not significantly (Titler et al., 2016). Titler et al. (2016) found that fall injury rates did not decline, but types of injuries with falls changed from major and moderate to minor injuries. As in the Dykes et al. (2010) study, a decrease number of patient falls was noted with targeting interventions for fall reduction with hospitalized adults. Further studies are needed utilizing randomized control trials that target fall prevention interventions that are specific to patient specific fall risk factors.
Implementation

Once the best evidence-based practice is determined for fall prevention, implementation must then occur. Stephenson et al. (2016) studied the use of audit criteria to compare current clinical practice against best evidence-based practice of fall prevention in multiple acute hospitals. The authors also looked to assess barriers in the compliance of implementation of best practice in fall prevention (Stephenson et al., 2016). The baseline audit identified a need for improvement of staff and patient education and project teams were developed that included staff education sessions and development of resources to assist with patient education (Stephenson et al., 2016). This demonstrated the importance of audits and staff education when implementing new best practice standards for fall interventions.

Tzeng and Yin (2013) completed a study in an adult acute care setting that found the perceptions of the nursing staff regarding the most frequently adopted intervention and the most effective intervention were inconsistent. The aim of the study was to determine the most and least helpful aspects of staff education in the prevention of patient falls. Even though this study is limited by the number of nurse participants, 19 common themes were noted as most helpful approaches, which included applying fall risk identifiers and bathroom safety, 15 common themes for the least helpful approaches, which included asking family member to stay with the patient, and 16 common themes for improving fall prevention education, such as continued staff education on fall prevention (Tzeng & Yin, 2013). This reminds nursing administration to evaluate the effectiveness as well as nurse acceptance of fall prevention interventions periodically. Tzeng and Yin (2013) recommend future research to explore optimal staff education to maximize fall prevention initiatives.
Conclusion

Evidence shows that multifactorial interventions decrease patient falls in the acute care setting. In utilizing a multifactorial approach, it is unknown which interventions may actually decrease fall rates. Titler et al. (2016) sought to apply fall prevention interventions based on patient specific risk factors. Further randomized control trials are needed to determine if this approach is valid to decrease patient falls and falls with injury. Perhaps HIT could be used as found by Dykes et al. (2010) to assist with fall prevention interventions that are specific to a patient’s risk factors once further studies are completed.

The literature review also reminded nurse administrators involved in decreasing falls and falls with injury to pay particular attention to how the current evidence-based practice of fall prevention is introduced and staff is educated on the practice. Periodic audits are encouraged. Frequent review of the literature is also suggested to ensure the best practice is being utilized for patient safety. Knowing the risk factors that are typically seen in patients with higher risk for falls or falls with injury will assist caregivers in the recognition of higher risk patients and implementation of multifactorial fall prevention interventions.
Chapter 3: Conceptual Model

As stated by Irvine, Sidani, and Hall (1998), “fiscal constraints and expectations among consumers, policymakers, and regulators for accountability in health care spending have resulted in an emphasis on costs and patient outcomes as measures of system effectiveness” (p. 58). Irvine et al. (1998) developed a conceptual model to guide the assessment of the contribution of nurses within the complex environment of health care, known as the Nursing Role Effectiveness Model (NREM). In this chapter, the NREM will be described and related to the clinical problem of falls as well as utilized to address and describe the important areas in the clinical area of the NSDU.

Structure

The NREM is based on the structure-process-outcome model of quality care (Irvine et al, 2002). The structure component of the NREM includes the patient, nurse, and organizational variables that may influence processes and the outcomes of care (Appendix A).

Patient Variables

In examining falls using NREM, variables related to patients will be discussed. One patient factor related to falls is age. As Rheaume and Fruh (2015) stated older adults have higher fall rates than do younger adults. Guillaume, Crawford, and Quigley (2016) found that even though inpatients age 65 years and older are at greater risk for falls and falls with injury, “middle-age adults (45-64 years of age) have been noted recently to have higher fall rates” (p. 65). The average age of patients cared for in the NSDU is over 65 years old. Another patient factor related to falls is gender, with females more prone to falls than males (Anderson, Dolansky, Damato, & Jones, 2015).
The most frequent diagnoses cared for on the unit are stroke and traumatic brain injury (TBI). The literature supports that fall prevention is of concern to caregivers of patients with neurologic illness and trauma (Bergman & Papendick, 2014; Rheume and Fruh, 2015). Comorbidities of the NSDU patients would be important to assess as Bergman and Papendick (2014) report that “the difficulty lies in the ability to accurately detect true fall risk among the many comorbidities present in the aging and often more ill population” (p. 182). Thus, the patient population on the NSDU is at high risk for falls.

**Nursing Variables**

Nurse variables in the NREM include professional characteristics such as experience, knowledge, and skill levels, which may influence the quality of care delivered (Doran & Pringle, 2011). Anderson et al. (2015) discuss that nurses “play a critical role in keeping patients safe from preventable harm” (p. 271). White, Hall, and Lalonde (2011), reported that the use of inexperienced nursing staff revealed an increase of the number of falls. Aydin, Donaldson, Aronow, Fridman, and Brown (2015) showed that registered nurse education and expertise did not reduce falls or falls with injury. Using the NREM to guide the quality improvement project related to falls, the microsystem informs the nurse variables.

**Organizational Variables**

Organizational variables of the NREM include staffing, workload, and work environment which have an effect on the delivery of nursing care (Doran & Pringle, 2011). White et al. (2011) demonstrated that step-down units with higher nurse staffing showed a decrease in the number of falls. Aydin et al. (2015) discussed that increased unlicensed hours of care reduced falls with injury. Unit leaders noted that the staff worked through the union to improve the nurse to patient ratios and to increase the number of unlicensed caregivers that worked dependent on
the number of patients. It would be interesting to retrospectively look at the number of falls before and after the staffing grid changed on the NSDU, to determine if staffing ratios of licensed and unlicensed personnel impacted fall rates.

**Process**

The process component of the NREM considered the contribution of nursing in the prevention of falls through the independent, medical care-related, and interdependent roles (Appendix A). As stated by Anderson et al., (2015), “perhaps no health care professionals are affected more by falls than nurses as responsibility for preventing falls and associated injuries in the hospital rests largely with the bedside nurse” (p. 271). The quality improvement project will assist the process component by analyzing the reasons why falls and falls with injury are occurring and providing interventions to be implemented based on the factors that cause falls to occur.

**Nursing Processes**

The independent role of the nurses includes “autonomous actions initiated by the nurse in response to the patients’ problems” and do not require the order of a physician (Doran & Pringle, 2011, p. 15). Unit leadership reports the NSDU nurses independently complete the Morse Fall Scale, once per shift, upon transfer, and for changes in patient condition. If the patient is deemed a fall risk, there are a variety of interventions that may be utilized per the hospital fall prevention policy, which include educating the patient and family on fall prevention in the hospital, instruction on call light usage, hourly rounds, non-skid footwear, clutter free area, fall risk signs posted, yellow fall risk arm band, and gait belt. These interventions are generalized and may be applied to any patient determined to be a fall risk per the hospital policy.
The most recent literature in fall prevention looks at using fall prevention interventions that are targeted to specific patient risks (Titler et al., 2016). Titler et al. (2016) grouped fall prevention interventions by category of risk. The common risk factor categories that Titler et al. (2016) formulated were previous falls, mobility limitations, elimination, medications, factors that increase risk for serious injury from a fall, and cognitive and mental status. Titler et al. (2016), found that fall rates decreased with the fall prevention interventions being specific to the patient’s risk factors. As an example, for the risk factor of mobility, interventions would include ambulating 3 to 4 times per day with assistance as needed, physical therapy referral for assessment and gait and strength training as needed, active range of motion 3 times per day, minimizing the use of immobilizing equipment such as indwelling urinary catheter, and to assure proper assist equipment is readily available and in working condition (Titler et al., 2016). For a patient post-stroke with hemiparesis these may be an individualized interventions implemented to combat the risk factor of mobility experienced.

**Interdependent Processes**

The interdependent role of nurses in NREM involves activities that the nurse shares with the other members of the health care team including interdisciplinary team communication and coordination of care (Doran, 2011). Aspects of fall prevention interventions require an interdisciplinary approach (Titler et al., 2016). The interdisciplinary role of the nurse could request review of medications that may increase the patient’s risk of falling. The medications include sedatives, antidepressants, anticonvulsants, benzodiazepines, and polypharmacy. Patients could benefit from a pharmacist reviewing the medications and making appropriate recommendations to help reduce falls. (Titler et al. 2016). Currently, no process exists for medication review. Another example of the interdisciplinary role of a nurse would be to note
that the patient is on a diuretic and collaborate with the physician and pharmacist on the best
time to take the medication so the patient does not need to get up during the night for frequently
urinate, which increases the risk of falling.

**Medical Care-Related Processes**

The role of nursing also includes the medical care-related role in the NREM model. In
this role, the nurse would implement physician orders and communicate with the physician when
orders are needed. For example, the need to order a physical therapy consult, which has been
noted to be an intervention for mobility risk factors such as gait instability or problems getting
out of bed (Titler et al., 2016). If a patient is confused or disoriented, the physician may order
laboratory tests to determine if there are electrolyte imbalances, known to increase fall risk. The
nurse assures the test is ordered and completed, analyzing whether additional interventions might
be indicated dependent on results.

**Outcomes**

The outcome component of the NREM consists of patient outcomes that are nursing-
sensitive (Doran & Pringle, 2011). Irvine et al. (1998) identified 6 categories of nurse-sensitive
patient outcomes which include freedom from complications, clinical outcomes, functional
health outcomes, knowledge outcomes, satisfaction, and cost outcomes. If patient falls are not
prevented in the acute care setting, numerous aforementioned nurse-sensitive patient outcomes
may be effected including complications secondary to the fall, increased costs due to additional
treatment and evaluation, an increased length of stay, and declines in functional outcomes post
fall.

Patient falls are of concern to hospitals as patients experience mortality and morbidity
(Spetz et al., 2015). If there are issues with the structure or process regarding fall prevention,
outcomes will be negatively affected. Rheaume and Fruh (2015) report that one-third to one-half of all patients who fall in the hospital are injured. A variety of injuries may occur from patient falls including fractures, brain injury, internal injury, lacerations, and bruising (Bergman & Papendick, 2014). Injuries related to falls can incur pain, disability, functional impairment, and may ultimately lead to death (Spetz et al., 2015). Bergman and Papendick (2014) report patients who fall have an increased length of stay of approximately 6 days. Guillaume et al. (2016) states that “the hospital care provided as a result of an inpatient fall has been reported at an estimated cost of $3,500 for a non-injury to $27,000 for a single serious injury” (p. 65). Fall-related injuries often are not reimbursed by insurance providers, leaving the hospital with the costs incurred (Bergman & Papendick, 2014).

Per Graham (2012), falls may also incur financial and emotional issues for the involved patient. The patient may suffer financial hardship from lost workdays and wages (Graham, 2012). Non-injury falls may cause psychological distress including fear of falling, depression, anxiety, and decrease in activity (Rheaume & Fruh, 2015). This may ultimately result in a loss of function as the patient may lose confidence in the ability to safely ambulate (Graham, 2012). Graham (2012) also noted that inpatient falls have an association with a higher discharge rate to extended care facilities versus home.

**Conclusion**

The NREM provides a model to take a closer look at the structure and process of fall prevention that may affect outcomes. Reviewing the current literature helps to determine where gaps exist. Initially reviewing the problem of falls in the NSDU, gaps are seen in the process component. The literature reveals success with individualizing interventions based on the patient-specific risks and suggests an interdisciplinary approach to medication review, which is
not currently practiced. Utilizing the NREM conceptual model for assessment of the structure and process related to patient falls provides guidance to establish critical elements for sustainable fall prevention strategies for improved outcomes on the NSDU.
Chapter 4: Clinical Protocol

Patient falls and injuries endured by falls may be devastating to patients, caregivers, and health care systems. A fall may cause a patient to have a fear of falling, which may lead to decreased mobility, loss of function and an even greater risk of falls (Dykes et al., 2010). Currently the microsystem does not have a process that includes feedback to the frontline caregivers after falls occur or to analyze patient falls to look for patterns to determine root causes of why patient falls are occurring. The post-fall huddle completed by the nurse caring for the patient who fell is reviewed by the unit manager and the falls champion leader and the occurrence report is reviewed by the risk management department, the falls champion leader, and the unit manager. The risk management department offers to assist the department managers with root cause analysis post falls if desired.

A clinical protocol to improve the approach to prevention of falls and falls with injury will be implemented on a NSDU. This approach will enhance the current fall prevention protocol utilized through the identification and analysis of risk factors for falling and providing interventions that are targeted to the risk factors that are leading to patients falling. The analysis of the data collected will be shared with the unit staff along with the evidence-based targeted solutions suggested to be implemented.

Description of Protocol

The Joint Commission Center for Transforming Healthcare has a mission to transform health care into a high-reliability industry by developing effective solutions to safety and quality problems with the collaboration of health care organizations and to share the solutions that are found throughout the industry (The Joint Commission, 2017). The Preventing Falls TST is a
complimentary online tool that guides an organization step by step through a falls project utilizing define, measure, analyze, improve, and control (DMAIC) methodology (The Joint Commission, 2017). This approach helps an organization determine what factors are contributing to falls and then creates targeted solutions to prevent falls for hospitalized adult inpatients.

**Plans for Implementation**

The Joint Commission has a specific timeline that is expected to be followed to implement the TST (The Joint Commission, 2017). During the first month, the program is initiated and the problem of falls is defined. During months two through five, data collection is initiated and analysis of contributing factors to falls occurs. Months six through eight involves the improvement phase in which solutions targeted to the cause of falls are implemented. Months nine and forward are the control phase in which plans for sustainability and spread of success to other units with similar patient populations that could benefit from the solutions implemented are shared as well as continued monitoring of falls.

**Define**

In the define phase, the groundwork is laid to lead to a successful project. The units in which the TST will be implemented will be determined. In this case the NSDU and neurological medical-surgical unit will be included in the project. Support for the project has been obtained from the hospital’s vice president of nursing, who will serve as the executive leader, as well as the unit leadership of both units. Due to challenging patient populations, the staff of both units are engaged in measures to be implemented to improve the safety of care provided. The fall prevention team is established during this time and will consist of the Executive Sponsor, a
Clinical Champion, who will be the current falls champion leader, the Process Owners will be the unit leaders, the Project Leader will be the author, Subject Matter experts such as representatives from Pharmacy and Rehabilitation, and the unit falls champions.

**Measure**

During this phase, the goal will be to obtain information regarding the current process to better understand how it works as well as how well it works. Data will be collected on falls which includes the factors that contribute to falls on the units. Every fall occurrence will be entered into the online tool. Data will be collected for at least three months with a minimum of 20 to 30 patient falls captured to determine the top contributing factors that lead to falls.

**Analyze**

The data collected will be interpreted and contributing factors to falls and falls with injury occurring will be identified specific to the project units. Data will continue to be collected about falls that occur throughout this phase. Factors will be identified that contribute to falls and falls with injury. Contributing factors to falls will be displayed to share with staff. Contributing factors may include patient fell while toileting, patient did not know, forgot, or chose not to use the call light, or inconsistency in ratings of fall risk assessment by different caregivers. The interpretation of the contributing factors will be highlighted and shared with the core team and unit staff. The team will work to understand and interpret the data to help choose the solutions to implement.
**Improve**

During this phase, targeted solutions will be implemented to the key contributing factors of patient falls. Data will continue to be collected to determine if the solutions that were implemented helped to decrease falls and falls with injury. As solutions are implemented fall rates will closely be monitored.

**Control**

To enter this phase, targeted solutions must be implemented and three months of improvement phase fall events must be entered. Once the control phase is reached, the team will work to sustain and spread the improvement. Data will continue to be collected to monitor the process. The core team will continue to meet to determine adjustments that need to be made, including implementing solutions for additional contributing factors that were not previously included in the project work.

**Plan-Do-Study-Act**

The Model for Improvement and the Plan-Do-Study-Act (PDSA) cycle will be utilized in the implementation of this protocol. Langley et al. (2009) notes the Model for Improvement asks three questions: “What are we trying to accomplish?; How will we know change is an improvement?; What change can we make that will result in an improvement?” (p. 24). Asking these questions and using the PDSA cycle will assist in using the knowledge that is generated by the TST and lead the tests for change, and implementation of the change (Langley, 2009).

The PDSA cycle will be utilized when testing the suggested interventions to implement based on the analysis completed by the TST database. The core team will select which
intervention to implement. The PDSA cycle will guide if an improvement occurred secondary to the change. Several cycles of PDSA may be needed until desired results are achieved (Langley et al., 2009).
### Timeline for Protocol Implementation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Microsystem Assessment</td>
<td>• August 2016</td>
</tr>
<tr>
<td>• Attend NSDU Unit-based Council meeting to discuss why patient falls</td>
<td>• February 2017</td>
</tr>
<tr>
<td>are occurring; introduce TST</td>
<td></td>
</tr>
<tr>
<td>• Define the Clinical Problem</td>
<td>• March 2017</td>
</tr>
<tr>
<td>• Project approval by Research Council</td>
<td>• March 2017</td>
</tr>
<tr>
<td>• Complete gap analysis between Fall Prevention Policy and current</td>
<td>• April 2017</td>
</tr>
<tr>
<td>practice</td>
<td></td>
</tr>
<tr>
<td>• Approval for TST implementation on pilot units by hospital Safety</td>
<td>• April 2017</td>
</tr>
<tr>
<td>Officer</td>
<td></td>
</tr>
<tr>
<td>• Establish Project Team</td>
<td>• April 2017</td>
</tr>
<tr>
<td>• Meet with Project Team</td>
<td>• May 2017</td>
</tr>
<tr>
<td>• Train data collectors on pilot units</td>
<td>• June-July 2017</td>
</tr>
<tr>
<td>• Meet with directors of pilot units to discuss TST</td>
<td>• June 2017</td>
</tr>
<tr>
<td>• Meet with NSDU Unit-based Council to discuss project timeline</td>
<td>• June 2017</td>
</tr>
<tr>
<td>• Obtain distinction of Quality Improvement project versus Research</td>
<td>• June 2017</td>
</tr>
<tr>
<td>with the Internal Review Board</td>
<td></td>
</tr>
<tr>
<td>• Enter historical falls for pilot units</td>
<td>• July 2017</td>
</tr>
<tr>
<td>• Sustainability Plan implemented</td>
<td>• August 2017</td>
</tr>
<tr>
<td>• Measure/Analyze</td>
<td>• August-October 2017</td>
</tr>
</tbody>
</table>
| • Implementation Phase                                                 | • Projected November 2017-
|                                                                          |  January 2018            |
| • Control Phase                                                        | • Projected January 2018- |
|                                                                          | Ongoing                  |
Barriers and Solutions to Implementation

In presenting this project to the Research Council at the hospital for approval, the author learned that implementation of the TST is to be part of the 2017 Hospital Strategic Plan, led by the Safety Officer. The Patient Safety Specialist requested a meeting with the Safety Officer and the author to discuss the key stakeholders, the implementation timeline, and if the tool would be followed as intended by The Joint Commission Center for Transforming Healthcare. Thus, this is a barrier until approval is obtained.

Another barrier is educating staff nurses on the data collection tool. Currently the hospital is limiting educational sessions and meetings outside of work hours. The tool recommends that the nurse caring for the patient who falls be required to complete the data collection tool. Training for the tool requires a 10 minute video be viewed and a test containing case scenarios with a completion rate of 90 percent. A potential solution to this barrier is training the department managers and assistant department managers of the project units as data collectors. Per the hospital policy, one has to be notified if a patient falls. Another thought is to also train the charge nurses of the unit in how to complete the data collector form. Further discussions will need to occur with unit leadership to obtain the best solution for training while being good stewards of the unit budget.

Conclusion

The TST is a tool that provides evidence-based interventions to decrease harm caused by falls. In the initial study utilizing the TST, in which interventions were tailored based on the reasons why patients were falling, showed a decrease in falls with injuries by 62% and total falls
by 35% (The Joint Commission, 2017). The evidence suggests that the TST may have a positive effect on patient safety, which in turn provides cost savings to the hospitals involved.
Chapter 5: Clinical Evaluation of the Protocol Implementation

Once the problem of patient falls and patient falls with injury was identified, an evidence-based protocol was sought to address the multifactorial problem of patient falls. The TST provides analysis of patient falls as well as evidence-based interventions to implement based on the contributing factors of patient falls. The process of implementing the protocol occurred slower than anticipated.

At the end of May 2017, the clinical nurse leader (CNL) student serving as the Project Leader organized a meeting with the Clinical Champion, the Process Owners, and a Subject Matter Expert to discuss the kick-off of the project, including the introduction and background of the TST, the project timeline, and the training of the data collectors. The team discussed barriers and opportunities to training the data collectors. The team watched the 10 minute training video and successfully completed the written exam.

Barriers identified included lack of computers with sound on the unit and the need to determine if the education would be deemed mandatory. It was decided this would need to be determined by the directors of the pilot units. Opportunities identified to train staff included adding the training onto mandatory stroke education if possible, presentations at the unit staff and unit-based council meetings, and training the assistant department managers to administer the training video and exam. Another option discussed was to train the department managers, the assistant department managers, and the nursing supervisors to assist the completion of the data collection form post-fall since one of them needed to be notified when a patient fell per hospital policy. Due to the strong recommendation of the TST that all data collectors be trained, as a team, it was determined not to pursue this option.
Currently data collectors are being trained. Nursing supervisors will be trained as data collectors to assist in completing the form if needed. A binder is being made for each unit that includes the data collection tool, the data collection form completion guide, and an updated post-fall huddle form that includes the steps to be completed after a patient falls. The measure phase will begin after the data collectors are trained.

**Summary of Important Successes and Difficulties**

Being unfamiliar with the process to follow when pursuing a quality improvement project proved challenging. Meetings with numerous stakeholders occurred in order to obtain approval of the project. Successes were found in meeting the patient safety specialist who coordinated a meeting with the chief safety officer. Considering implementation of the TST for preventing falls was part of the safety strategic plan for the hospital, this was an important stakeholder to achieve buy-in for the CNL student to implement the tool on pilot units. Navigating the system to meet key stakeholders allowed the CNL student to learn the structure of the organization better and allowed frequent presentations of the CNL role as well as the project.

The project was presented at the hospital’s Nursing Research Council (NRC) to share what the CNL student was working on as well as determining if the project was quality improvement or research. After the presentation, it was determined the hospital’s internal review board (IRB) needed to review the project materials. A delay existed between the presentation of the project at the NRC and the letter to submit materials to the IRB. The IRB determination came within a few days and the project was able to move forward as a quality improvement project.
During the course of planning the project implementation, the pilot unit’s leadership team changed. The department manager was promoted to director of critical care and an interim department manager was named. The assistant department manager was on maternity leave and a newly named assistant department manager was on leave several weeks prior to joining team. Buy-in and support for the TST needed to be sought, which delayed the implementation of the project.

Changes to the Implementation

The only change to the implementation occurred with the timeline. The hospital’s chief safety officer would only back the CNL student project on the pilot units if the TST was implemented as intended by the Joint Commission Center for Transforming Healthcare. The Joint Commission Center for Transforming Healthcare strongly recommends that all nursing staff be trained as data collectors using the provided training video and preventing falls training module test. Due to unforeseen circumstances, all nursing staff were not trained within the first month of the project. The assistant department managers named as process owners for the pilot units, namely leaders at the project’s patient care areas, will be instructed in how to train their nursing staff as data collectors. This will assist the project leader in assuring all nursing staff are trained. The hospital’s nursing supervisors will also be trained as data collectors to assist nursing staff completing the data collection form as needed.

Project Strengths and Weaknesses

Strengths of this project include support of key stakeholders, analysis of why patient falls occur with minimal time required to enter post-fall data collection forms, evidence-based interventions will be provided to implement based on why falls occur, and the use of the TST
data collection form is a small change to the post-fall process currently in place. The project team leader met with 10 different key stakeholders to seek approval for the implementation of the TST for falls prevention. This was an intense process as the key stakeholders reviewed and scrutinized the TST prior to approving the implementation of the tool.

A weakness of the project is training all nursing staff as data collectors. Only one computer located on the unit has sound available that could be utilized to watch the training video. At this time, the directors of critical care and medical-surgical do not want to make the training of all data collectors mandatory. Currently, staff education must be completed during work hours as off-shift education is not budgeted.

**Sustainability**

Hospital-wide, patient falls and patient falls with injury have been recognized as a problem. The chief safety officer has acknowledged responsibility for reducing patient falls with injury and is planning to implement the TST in the fourth quarter of 2017. Likewise, the director of medical-surgical units at the mid-Michigan hospital has been given falls as a goal to decrease over the next year. The clinical nurse specialist (CNS) who leads the unit falls champions is vested in improving patient safety and is prepared to assume the role of project leader. The safety specialist, as the clinical champion of the project, is prepared to lead the improvement initiative and spread the success of the project to other patient care units in the organization. A succession plan is being prepared to assure the sustainability of the project utilizing the fall champion lead and the leadership team of the pilot units.
Evaluation of the Outcomes

Currently, the hospital does not have means to analyze patient falls to determine why patients fall. Post-fall information that is gathered by the nurse is reviewed in the post-fall huddle, by the unit’s leadership team, the risk management department, and the falls champion leader. Each patient fall is looked at individually and the clinical problem of falls is not identified nor are contributing factors identified. By implementing the TST, an in-depth analysis of each fall entered occurs and potential root causes to why the fall occurred are identified and solutions that may prevent future falls are presented.

Since the implementation of the TST is still within the define phase, approval was sought from the IRB to create a historical project utilizing patient falls that occurred the previous year to establish the gap between current practice and the TST recommendations. Twenty to thirty patient falls will be entered for analysis to determine why patient falls are occurring. At this time, 24 patient fall events have been entered.

The TST analyzed the falls and produced results that identified potential contributing factors to falls as well as targeted solutions that may be implemented to decrease falls. The results are presented in pie charts to be displayed for caregivers. As displayed in Appendix C, 12 contributing factor categories and 151 contributing factors to falls have been identified.

The top four categories listed were medication issues, call light issues, assistive device issues, and no patient assistance. Looking at the current practice in Appendix B, medication review was never completed and medication issues ranked by the TST as the number one contributing factor to falls at 27.2%. The TST provides solutions that specifically address contributing factors that have been identified to why patients fall.
The solution guide lists potential problems, contributing factors, potential solutions, and action plans. For example, the guide explains one potential problem of medication issues is that patients on medications often do not understand and are not educated on the side effects of medications and their increased risks for falls. A contributing factor is patients are not educated on medication side effects specific to increased risk of fall. A potential solution is to educate the patient on increased fall risks while taking medications including when medications are changed. The action plan includes educating staff on medication side effects, providing hands-on training for nursing staff to practice the new process prior to implementation, to implement the standardized patient education process, to implement just-in-time coaching on the nursing unit when non-compliance to the standardized patient education process occurs and to utilize change management principles.

The core team will meet to discuss which category to address and which interventions to implement and will be guided by the Model for Improvement and the Plan-Do-Study-Act (PDSA) cycle. The PDSA cycle will be utilized when testing the suggested interventions to implement based on the analysis completed by the TST database. The PDSA cycle will guide if an improvement occurred secondary to the implemented change.

The project will include on-going monitoring of falls. To enter the control phase, targeted solutions must be implemented and three months of improvement phase fall events must be entered. Once the control phase is reached, the team will work to sustain and spread the improvement. Data will continue to be collected to monitor the process. The core team will continue to meet to determine adjustments need to be made including implementing solutions for additional contributing factors that were not previously included in the project work.
Healthcare Trends

In 2008, the CMS announced that hospitals will not be reimbursed for conditions that are considered hospital-acquired (U.S. Department of Health and Human Services). The CMS listed injury falls as one of eight “never events” which are defined as “reasonably preventable safety breaches that should never occur during hospital care” (Staggs, Mion, & Shorr, 2015, p. 983). Thus, CMS no longer reimburses providers or hospitals for the diagnosis and treatment of injuries incurred from falls during hospitalization. By the year 2020, costs related to falls is expected to exceed $47 billion (Hester et al., 2016). Trepanier and Hilsenbeck (2014) that the number of falls resulting in injury is estimated to be over 17 million by the year 2020. As discussed in Chapter 2, evidence shows that multifactorial interventions decrease patient falls in the acute care setting. The TST follows a systematic approach to identifying why patients fall and offers multiple targeted solutions to prevent patient falls and falls with injury.

Enactment of Master of Science (MSN) Essentials

In the planning and implementation of the protocol, essentials IV, VI, and VII were primarily used as a guide to the MSN student. Essential IV directed the search for evidence-based literature regarding the identified problem, the communication of the nurse sensitive indicators to key stakeholders, and the application of the improvement science theory in the quality improvement process. Essential VI guided the process of advocacy by partnering with The Joint Commission in quality improvement and by articulating the contributions of the CNL to key stakeholders of the project. Interprofessional collaboration for the improvement of patient outcomes was exhibited in Essential VII throughout the process improvement project. Several of the MSN Essentials guided the MSN student throughout the project.
Conclusion

Through implementation of the TST, patient falls will be analyzed to discover contributing factors to why patient falls are occurring. This free online tool provides interventions based on the contributing factors of patient falls. By targeting solutions based on the specific contributing factors to patient falls, the right problems related to falls may be addressed. This will help to avoid using money and resources implementing solutions that are not contributing factors to the patient falls occurring. The TST for preventing falls has been validated as a tool to reduce falls and falls with injury in the acute care setting.
References


### Appendix A

<table>
<thead>
<tr>
<th>STRUCTURE</th>
<th>PROCESS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient</strong>&lt;br&gt;Age: older adults&lt;br&gt;Gender: female&lt;br&gt;Illness: Stroke and TBI&lt;br&gt;Comorbid</td>
<td><strong>Independent role</strong>&lt;br&gt;Nursing Interventions:&lt;br&gt;General Fall Precautions (ie fall risk signs, red socks, yellow wrist band, gait belt)&lt;br&gt;Targeted Risk Factor Bundle (ie ambulation, purposeful rounding)&lt;br&gt;Patient and family education&lt;br&gt;Morse Fall scale assessment</td>
<td><strong>Nurse-sensitive patient outcomes</strong>&lt;br&gt;Injury or death&lt;br&gt;Increased LOS&lt;br&gt;Increased costs&lt;br&gt;Psychological distress (fear of falling, decreased activity)</td>
</tr>
<tr>
<td><strong>Nurse</strong>&lt;br&gt;Experience:&lt;br&gt;Day shift: 58%&lt;br&gt;Night shift: 47%&lt;br&gt;Education: 54%&lt;br&gt;BSN prepared</td>
<td><strong>Medical care-related role</strong>&lt;br&gt;Medically directed care, expanded scope of nursing practice&lt;br&gt;Order physical therapy assessment&lt;br&gt;Electrolytes</td>
<td></td>
</tr>
<tr>
<td><strong>Organization</strong>&lt;br&gt;Staffing:&lt;br&gt;5 nurses/2 PCTs&lt;br&gt;(staffing grid based on number of patients)&lt;br&gt;1 caregiver pulled to watch telemetry at all times&lt;br&gt;Workload (nurse to patient ratio)&lt;br&gt;3:4:1&lt;br&gt;Large unit, spread out&lt;br&gt;Rooms large, cluttered</td>
<td><strong>Interdependent role</strong>&lt;br&gt;Team communication (call with concerns, no interdisciplinary rounds with bedside nurse; coordination of care; Medication review</td>
<td></td>
</tr>
</tbody>
</table>

Appendix B

Current Fall Prevention Practice
n = 30

% Completed

<table>
<thead>
<tr>
<th>Intervention</th>
<th>% Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRR Sign Outside...</td>
<td>120</td>
</tr>
<tr>
<td>Non-skid Footwear</td>
<td>120</td>
</tr>
<tr>
<td>HRR Sign n Bathroom</td>
<td>120</td>
</tr>
<tr>
<td>HRR Sign at Bedside</td>
<td>120</td>
</tr>
<tr>
<td>Fall arm band</td>
<td>120</td>
</tr>
<tr>
<td>HRR on White Board</td>
<td>120</td>
</tr>
<tr>
<td>HRF Verbal Handoffs</td>
<td>120</td>
</tr>
<tr>
<td>MPS Charted</td>
<td>120</td>
</tr>
<tr>
<td>Unit Safety Huddle</td>
<td>120</td>
</tr>
<tr>
<td>Stay with Patient...</td>
<td>120</td>
</tr>
<tr>
<td>Use Gait Belt</td>
<td>120</td>
</tr>
<tr>
<td>Bed/Chair Alarm</td>
<td>120</td>
</tr>
<tr>
<td>Environment Cluster...</td>
<td>120</td>
</tr>
<tr>
<td>Hourly Rounding</td>
<td>120</td>
</tr>
<tr>
<td>Patient Education</td>
<td>120</td>
</tr>
<tr>
<td>Medication Review</td>
<td>120</td>
</tr>
</tbody>
</table>

Intervention
Appendix C

Contributing Factors That Led to Patient Falls

<table>
<thead>
<tr>
<th>Contributing Factor</th>
<th>Sym</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication Issues</td>
<td>41</td>
<td>27.2%</td>
<td></td>
</tr>
<tr>
<td>Call Light Issues</td>
<td>22</td>
<td>14.6%</td>
<td></td>
</tr>
<tr>
<td>Assistive Device Issues</td>
<td>18</td>
<td>11.9%</td>
<td></td>
</tr>
<tr>
<td>No Patient Assistance</td>
<td>17</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>Education Issues</td>
<td>16</td>
<td>10.6%</td>
<td></td>
</tr>
<tr>
<td>Overestimated Patient Ability</td>
<td>16</td>
<td>10.6%</td>
<td></td>
</tr>
<tr>
<td>Bathroom Assistance</td>
<td>10</td>
<td>6.6%</td>
<td></td>
</tr>
<tr>
<td>Commode Availability</td>
<td>6</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Environment Issues</td>
<td>2</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>Alarm Issues</td>
<td>1</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Fall Risk Identification</td>
<td>1</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Assessment Issues</td>
<td>1</td>
<td>0.7%</td>
<td></td>
</tr>
</tbody>
</table>

Total Number of Falls = 24
Total Number of Contributing Factors = 151