Southern California CSU DNP Consortium
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POST FALL HUDDLE: A MULTICOMPONENT INTERVENTION TO PREVENT RECURRENT FALLS AMONG OLDER ADULTS RESIDING AT THE LONG TERM CARE UNIT: A RETROSPECTIVE CHART REVIEW

A DOCTORAL PROJECT
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DOCTOR OF NURSING PRACTICE

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ABSTRACT

Falls among Older Adults (OAs) are significant problems especially for those living in Long Term Care (LTC) units. The incidence of falls and its resulting injuries continue to rise in OAs, 65 years and older. The literature is rich in information regarding the risk factors of falls and methods for correcting them. Yet, OAs continue to fall and sustain injuries that can lead to mortality, increased morbidity, decreased functioning, and quality of life. As outlined by the Centers for Medicare and Medicaid Services (CMS), the Deficit Reduction Act of 2005 and the Prospective Payment System Final Rule in 2009, placed the financial burden of fall prevention on hospitals. CMS will no longer reimburse hospitals for injuries sustained secondary to falls that occurred within the hospital setting. According to CMS guidelines, these types of fall are preventable. Thus, without CMS reimbursement, the costs associated with secondary falls will cause an extreme financial burden to the healthcare system. The goal of this Doctor of Nursing project was to evaluate the effectiveness of the interdisciplinary, multicomponent interventions implemented for reducing recurrent falls with the Post Fall Huddle (PFH). The PFH is a brief gathering of an interdisciplinary (ID) team of individuals who are directly involved with the patient’s care. The ID team convenes to identify the cause and risk factors associated with the fall incident. This PFH occurs within 15 minutes of the fall. Based upon a retrospective chart review, it was determined that there was a 78% reduction in recurrent falls, a 65% reduction in the number of falls
and 100% compliance in the performance of the Post Fall Huddle after each fall incident. The active involvement of the patient with the ID team in creating an individualized and meaningful intervention plan resulted in a safer patient environment.
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BACKGROUND

Falls and resulting injuries remain one of the most common adverse events among Older Adults. About 1,800 patients living in nursing homes die each year from fall related injuries. Those who survive their fall often sustain secondary injuries that result in significant suffering, permanent disability, functional decline, and reduced quality of life. According to the Center for Disease Control (CDC, 2015), one in three OAs, who are 65 years of age or older, will fall. There are two million OAs treated in the emergency room each year for fall related injuries (CDC, 2015).

Falls are the result of the OAs’ interaction with the environment and the interrelated contributing factors such as age, chronic and acute diseases, medications, or other idiopathic phenomena (Veterans Affairs National Center for Patient Safety [VANCPS], 2014). According to the Center for Disease Control (CDC, 2015), falls occur more frequently among OAs living in nursing home. These OAs are generally frailer than OAs living in the community. OAs in nursing homes tend to have more chronic medical conditions, impaired memory function and an increased need for assistance with activities of daily living (ADLs). Each nursing home patient who is 65 years and older, typically falls more than once, averaging 2.6% falls per person, per year. Ten to 20% of these patients suffer from serious fall related injuries, with 2% to 6% of the falls causing fractures. Other complications of falls are functional decline, fear of falling, feelings of helplessness, depression, and isolation (CDC, 2015).

The World Health Organization (WHO) identified that 28% to 35% of adults, 65 and older fall each year compared to 32% to 40% of OAs 70 years and older (Ageing and life course, 2015). Common causes of nursing home falls include muscle weakness, gait
problems, environmental hazards, multiple medications, and inappropriate footwear (CDC, 2015; Oliver et al., 2010). Considering the prevalence, occurrence, and dangerous consequences of falls, evidence has shown that many falls and recurrent falls are preventable (American Geriatrics Society, 2011; Gillespie et al., 2003; Rowe, 2012).

Despite implementation of aggressive evidence based fall prevention guidelines, OAs continue to fall. The risk of falling increases with age and the consequences are more severe and more costly (VA NCPS, 2015). Although one OA dies every 35 minutes due to fall injuries, a fall is not an inevitable part of aging (CDC, 2015). To help OAs maintain their quality of life and live longer, it is the responsibility of individuals charged with their care to establish a well thought out fall prevention program.

**Problem Statement**

In the United States, fall related deaths continue to increase. According to Roudsari et al. (2005) in 2003, falls resulted in 12,837 fatalities among OAs. According to the Agency for Healthcare Research and Quality (AHRQ, 2015), 29% to 55% of patients fall during their stay in a long-term care unit, with injury rates reported at 20%. Askari et al. (2013), revealed that 873 out of 2258 or 39% of OAs had two or more falls within a one year period. Wallace et al. (2014) stated that 565,000 older Californians fall more than once and this accounts for 12.6% of the state’s senior population.

Over a three-year period, there were 2,400 admissions reported at the organization of study. There were falls with related injuries to the hip and intracranial area. There were 55.4% hip fractures and 10.1% intracranial injuries. The average cost per injury was $23,723 per hospital admission (Quigley et al., 2012). The cost of fall injuries rapidly increased with age. The cost was two to three times higher in women than in
men. Furthermore, traumatic brain injuries and lower extremity injuries account for three-fourths of the deaths and the costs resulting from falls (CDC, 2015). Fractures and non-fatal injuries are more prevalent and costly. These account for 61% of the costs accrued during a hospital stay (CDC, 2015). Adjusted to 2010 dollars, one fall without serious injury costs the hospital, an additional $3,500 annually, while patients with two or more falls without serious injury have an increased annual cost of $16,500. The projected cost of all fall related injuries among OAs will exceed $43 billion by 2020 (Quigley, et al., 2012). Considering the cost to healthcare, efforts should be directed toward mitigating fall related injuries and its consequences among OAs such as the immediate identification and modification of risk factors (Oliver et al., 2010; Rowe, 2012; Spoelstra et al., 2012; Tariq et al., 2013).

Chang et al. (2004) emphasized that the prompt identification of the fall risk factors and the development of an individualized care plan were the most effective interventions in preventing falls and injuries. Multiple studies have identified the use of multicomponent interventions that target fall risk factors for reducing the number of falls, fall rates and fall related injuries (Oliver et al., 2010; Rowe, 2012; Spoelstra et al., 2012). Studies specific to reducing recurrent falls among OAs are scarce. Gray-Mecile, Ratcliffe, & Johnson (2010) claimed that PFH reduced recurrent falls to 34% among OAs.

This project investigator noted that there were a significant number of recurrent falls in the facility of study. OAs identified as high risk for falls were those who scored 45 and above on the Morse Fall Scale (MFS) screening tool. These OAs received fall prevention interventions. However, despite the interventions, they continued to
experience falls. The Long Term Care (LTC) facility initially utilized a comprehensive post fall assessment as part of their comprehensive fall prevention protocol. However, one limitation in their program was the lack of inclusion of the PFH. This would have allowed the practitioners to identify the causes or risk factors associated with their patients’ falls.

According to VA National Center for Patient Safety (Quigley et al., 2012), the implementation of the PFH showed that there was a reduction in the number of recurrent falls with the use of the PFH. Time and immediate action are important factors when attempting to intervene to prevent falls. The timely identification of specific fall risk factors and the establishment of an individualized plan of care targeting the risk factors help to reduce the number of recurrent falls and the fall rate among the LTC patients. Because of the literature review conducted by the researcher, the LTC fall protocol in the study setting was modified to include the PFH, due to its effectiveness to help reduce the number of recurrent falls.

Purpose Statement

The purpose of the project was to determine the effectiveness of the PFH to decrease recurrent falls among OAs living in a Long Term Care facility run by a large organization in Southern California. A retrospective chart review was conducted to determine the effectiveness of the implementation of the PFH by the interdisciplinary (ID) team. To determine the effectiveness to reduce future falls, the number of recurrent falls and the use of the PFH were evaluated. The number of recurrent falls was compared before and after the implementation of the PFH. The data were used to determine the effectiveness of the PFH to reduce recurrent falls.
Supporting Framework

The conceptual framework that guided this project is the Model for Improvement (see Figure 1) and Kurt Lewin’s Theory (see Figure 2). The model provided the foundation for this quality improvement project (Institute for Healthcare Improvement, 2015). Healthcare organizations use this model, which has resulted in significant improvement in their practices and outcomes. The Kurt Lewin’s Theory was also used in conjunction with the Model for Improvement because it helped to create the behavior change needed among staff to implement the PFH. The Kurt Lewin’s Theory helped to explain the change process through empowerment and engagement among staff.

According to IHI (2015), the Model for Improvement consists of three fundamental concepts. First, it is necessary to clearly define and declare what the organization is trying to accomplish. Second, staff should be able to determine if there was an improvement in practice based upon clear measurable factors. Third, selection of the change process and outcomes needed to improve the organization. Once these concepts were identified, small test changes occurred with the use of the Plan-Do-Study-Act (PDSA) cycle.

The LTC Quality Improvement (QI) team established a clear aim for the implementation of the PFH. The aim was to engage the ID team in pilot testing the PFH to increase their compliance to using the PFH when a fall occurred at the LTC unit. Pilot testing occurred from October 1, 2015 to December 31, 2015. The data collected during this phase were used to compare against the same time period in 2014. Data were also collected for the entire year prior to implementation of the pilot.
The Plan-Do-Study-Act (PDSA) cycle to test changes was implemented once the aim for the PFH was established. The PDSA cycle is a continuous problem solving process that is used in real work settings which results in process improvement (IHI, 2015). The PDSA model is used in healthcare organizations to implement rapid small type change cycles. While PDSA is used for rapid small test changes, considerable preparation and time spent in each cycle stage is essential for a change to be successful (IHI, 2015). It is recommended to start with a small-scale test change in a work environment such as the PFH to ensure that the intervention is safe and effective. More importantly, starting the change with people who believe that the change can improve the processes and outcomes is critical for the success of the improvement project.

The PDSA cycle includes four cyclic stages: Plan, Do, Study and Act. The Plan stage is when the QI team plans the test and predicts the result of the change. The plan stage also includes the presentation of the blueprint to individuals who will be impacted by the change. The Do stage implements the test on a small scale. This stage documents the data, observation, findings and outcomes. Also, this stage allows for the review of the intervention strategies if the test is found to be ineffective. During the Study phase, the team studies the data and compares the outcome with the team’s initial prediction. The staff members involved in the change process make a determination at this phase if a change has improved or worsened the organization’s practices. Finally, the Act phase allows the QI team to evaluate the change and lessons learned. A decision is made whether to adopt the change and consider expanding to other areas in the organization. The team can modify the change and repeat the PDSA test, or abandon it, and develop a new intervention to restart the PDSA cycle again (IHI, 2015).
MacLaurin & McConnell (2011) utilized the Model for Improvement to enhance patients’ safety in Long Term Care (LTC) and prevent falls and injuries. The purpose of their study was to translate fall prevention evidence into practice. A PDSA model was used that resulted in a significant decrease in the number of falls and fall related injuries and an improvement in fall risk assessment. Cumbler, Simpson, Rosenthal, & Likosky (2013) presented a guide to implementing the PDSA Quality Improvement model to identify solutions for inpatient falls that resulted in the reduction in the number of falls. Thus, the literature shows that the use of the PDSA helped to support the change process needed when implementing a new process or procedure.

The Kurt Lewin’s Change Theory was incorporated along with the Model for Improvement framework to help empower, engage and promote staff buy-in of the PFH intervention. The Kurt Lewin’s Change Theory is commonly known as “Unfreezing, Change and Refreezing theory” (Burnes & Cooke, 2012). The “Unfreezing” stage is a phase where the stakeholders’ identified the driving and restraining forces and weighed the factors for the change. The Change or Transition stage occurs when stakeholders make the needed changes. Old behaviors are unfrozen and people are introduced to the new practices. The Freezing or Refreezing stage occurred when the staff adjusted and accepted the change. This stage allows individuals to be comfortable with their new routine and change becomes a new norm (Burnes & Cooke, 2012). The LTC QI team used the Model for Improvement and integrated the Kurt Lewin’s Change Model as its conceptual framework for their quality improvement project due to staff struggles with some quality improvement projects and the need to unfreeze the old behaviors.
Figure 1. Model for Improvement/PDSA.

Figure 2: Kurt Lewin’s Change Theory Model.
REVIEW OF LITERATURE

Studies were reviewed for supporting evidence on the use of the PFHs, assessment, and recurrent fall reduction. The findings indicated that the ID assessment and multifactorial interventions were effective in preventing recurrent falls. There were few studies on PFHs and recurrent falls. Nonetheless, several quality improvement projects in the LTC units and acute hospitals indicated that the ID post fall assessments reduced the risk of recurrent falls. The ID team helped to identify the risk factors associated with recurrent falls. This identification occurred in a timely manner, meaning that it was immediate and direct in order to ensure the patient was safe from future falls through the implementation of interventions targeting the risk factors.

A literature search was conducted using Cochrane Library, CINAHL, PubMed and Up to date Databases using the keyword “recurrent fallers,” “interdisciplinary approach,” “repeat falls prevention,” “post fall assessment,” “PFH,” “falls in older adults,” “nursing homes,” “long term care,” ”quality improvement ,” “fall injuries,” “geriatric” “multifactorial” and multicomponent fall interventions.” The literature search included full text, scholarly journals, published in English from 2005 to 2015. Identified studies with strong evidence focused on different multicomponent fall intervention bundles that reduce falls and fall related injuries. Two randomized control trial studies and two systematic reviews that were outside the date range were still included in this literature review because of the quality and importance of the study. The literature search was narrowed to focus on the effectiveness of PFH and interdisciplinary approach in reducing recurrent falls, fall rate and compliance of the ID teams in conducting the PFH and post fall assessment.
Fall Risk and Multicomponent Interventions

Cameron et al. (2012) performed a systematic review of 60 randomized controlled trials with a combined total of 60,345 participants. Forty-three trials (30,373 participants) were in nursing care facilities and 17 trials (29,972 participants) were conducted in acute hospitals. The implementation of the multifactorial interventions in care facilities including post fall assessment suggested possible benefits rather than single intervention programs. The multidisciplinary led multicomponent interventions in the geriatric ward significantly reduced the rate of the falls and risk of falling; however, the authors suggested that more trials are needed to confirm the effectiveness of the multifactorial interventions in acute and sub acute settings. Vitamin D supplementation was effective in reducing the rate of falls in the care facilities and exercise influenced fall rates in sub acute settings. This research study revealed that the use of interventions targeting multiple risk factors might be effective in reducing the number of falls. Despite the large number of trials, there was limited evidence to support any one intervention.

A meta analysis conducted by Kwan and Straus (2014) revealed that a person’s age, sex, cognitive, and visual impairment, multiple medications, functional limitations in activities of daily living (ADL), gait and balance impairment contributed to an increased risk of falling. Male patients, 65 years and older, with multiple medical condition, with ADL difficulties and multiple medications are high risk for falls. History of a fall in the past year is associated with subsequent falls. The authors suggested that there were multiple causes of falls and interventions should be tailored to the individual risk factors based on interdisciplinary assessment. At a minimum, older patients who have experienced a fall should be counseled about starting an exercise program to prevent

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further falls and associated fractures. The use of multicomponent interventions are linked with significant reduction in rate of falls, risk of falling and number of patients who fell in long term care facilities and mixed settings which includes community, institutions, and acute care hospitals. The authors also revealed that numerous risk factors for falls were found, however they did not find any evidence that identified an accurate, precise and easy to use fall risk assessment tool. Furthermore, it is unclear whether a single intervention is as effective as a multicomponent approach for preventing falls.

Oliver et al. (2010) conducted a systematic literature review of 13 multifactorial trials occurring between 1999 and 2009. Their findings suggested that multifactorial interventions reduced the number of falls up to 31%. As the evidence suggested, the best practice approach in preventing falls in hospitals includes “identification of modifiable risk factors and implementation of multifactorial interventions targeting the identified risk factors to prevent falls and reducing injuries to those patients who do fall” (Oliver et al, p. 685). The most common components of successful multifactorial interventions include post fall review, patient education, staff education, proper footwear, scheduled and supervised toileting and medication review. Evaluating patients understanding of their fall prevention education and plan was critical in reducing the rate of falls and recurrent falls.

An integrative review by Spoelstra, Given and Given (2012) provides nurse administrators with a basis of developing a successful evidence based fall intervention programs in the hospital setting. The studies that were successful in reducing fall rates included some or all of the elements such as:
• Developing a culture of safety (educating and engaging staff) to encourage administrative support, development of a comprehensive fall prevention plan and staff participation.

• Fall risk assessments (to predict patients who have factors that were known to increase falls).

• Multifactorial interventions (environmental, equipment, arm bands, room/door signs, system wide communication to staff about fall prevention measures, safety rounds, patient aids/sitters, staff assignment and medical referrals).

• Post fall follow up and quality improvement (including post fall safety huddle, reassessment, modification of risk level and plan of care).

Limitations of Spoelstra and colleagues research study included inconsistent reporting of falls per bed days of care resulting in inconsistent measurement and unclear interpretation of occurrences of falls.

These studies confirmed that accurate assessment of fall risk factors and multidisciplinary led interventions that address the identified risk factors significantly reduced the number of patient falls, risk of falls and rate of falls in the long term care unit and acute care unit (Cameron et al., 2014; Chang et al., 2014; Davison et al., 2005; Fonda et al., 2006; Haines et al., 2004; Kwan et al., 2014; Spoelstra et al., 2012; Tripanier & Hilsenback, 2014). However the timely introduction of fall prevention interventions is linked to a significant reduction in falls and fall related injuries (Oliver et al., 2010). Davison et al. (2005) further stressed that the multifactorial interventions are most
effective in reducing fall frequency and number of fallers, but require considerable input from a variety of skilled professionals.

Multicomponent interventions that resulted in significant decreases in fall reduction rates include Vitamin D supplement (Cameron et al., 2014; Vlaeyen et al., 2015), exercise programs (Cameron et al., 2014; Chang et al., 2004; Haines et al., 2004), fall education programs (Cameron et al., 2014; Chang et al., 2004; Haines, et al. 2014) physiotherapy and occupational therapy (Davison et al., 2005). There was no evidence that single interventions are effective in preventing falls (Oliver et al., 2010). Chang et al. (2004) stated that a multifactorial fall risk assessment and management program revealed a significant reduction in the risk of falling and monthly fall rate among OAs. The authors also identified assessing the fall risk and developing a fall management program as the most effective component of fall prevention. The authors claimed that the feasibility of implementing an effective, multifactorial fall risk program would be most successful by targeting a selected population, such as those with a history of falls to reduce their risk of future recurrent falls.

**Post Fall Assessment and Recurrent Falls**

The use of post fall assessment right after the fall incident is cited as the most effective strategy in reducing recurrent falls and fall related injuries (Coussement et al., 2008; Gray-Miceli et al., 2010; Spoelstra et al., 2012). However, Gray-Miceli et al. (2010) concluded that proper staff training in the use of post fall assessment has significant impact in fall reduction in the older population and the shortened version of the post fall assessment increases staff compliance in its use. Davison et al. (2005) reported that performing post fall assessment and multicomponent interventions resulted
in a 36% reduction in subsequent falls for cognitively preserved OAs with recurrent falls (relative risk 0.64, 95% confidence interval 0.46-0.90). The length of hospital stay of patients who received multifactorial assessment and interventions was significantly shorter (mean length of stay 0.8 (SD 3.4) days versus 4.5 (SD 22) in the control group; mean difference 3.6, 95% CI 0.1-7.6). The patients in the intervention group also experienced a reduction in “fear of falling,” which contributed to improvement in their functional activity. The mean Activities-specific Balance Confidence score at one year was 61% (SD 28) in the intervention group versus 53% (SD 29) in control group, mean difference 7.5(95% CI 0.72-14.2). Moreover, Oliver, Healey, and Haines (2010), stated that most falls in hospitals occur in people with a history of prior falls, thus, a post fall assessment is critical to examine the cause of a fall, modification of the risk factors and implementation of modified interventions after every fall occurrence. In a pretest-posttest design study there was a 29.4% reduction in fall rate, 27.6% in total falls and 34.0 % in recurrent falls. This reduction was attributed to the trained nurses rigorous and consistent use of an evidence based post fall assessment tool. The nurses in this study were trained and empowered to critically examine each fall incident, circumstances surrounding the fall, possible root causes, and the typology of falls in order to design appropriate interventions and a plan of care (Gray-Miceli et al., 2010).

**Care Plan**

A care plan is considered a roadmap of patient care. According to a randomized controlled study (RCT) conducted by Healey et al. (2004), a brief fall risk screen after a fall incident, multidisciplinary interventions, and care planning to account for fall risk factors and core interventions are associated with a significant reduction in the relative
risk of recorded falls. Care planning in long-term care facilities is essential to ensure consistent implementation of multidisciplinary interventions.

**Post Fall Huddle**

Quigley et al. (2009) tested a safety PFH as a part of a fall prevention bundle to prevent serious injuries from patient falls in two medical surgical units of a large organization. The fall intervention bundle also included turn and safety rounds, comfort care; teach back strategies, and high-risk identification of falls. The PFH was described as a brief huddle that occurs within 15 minutes after the fall incident to evaluate what happened and involve patient and family in developing specific interventions that will target the risk factors associated with the fall incident. The use of the intervention bundle resulted in a reduction in total fall rate and a lower incidence of moderate or serious fall injuries during the study period.

**Fall Prevention Program Evaluation and Quality Improvement**

The effectiveness of a fall prevention program can be evaluated by analyzing the data using statistical measures. Quigley et al. (2007) stated that fall data are essential in setting realistic goals for fall and fall related injuries. Calculating fall rates, recurrent fall rates, fall injury rates, and length of time between major injuries can indicate the effectiveness of the fall reduction program. The authors further stated that visual presentation of data such as run charts and control charts are effective methods for summarizing and presenting outcomes and trends over time. Visual displays of data are also helpful for staff to understand how data relate to the process and the outcome of the fall prevention program. McLaurin and McConnell (2011) stated that the use of small-scale test change is an essential component of the PDSA cycle. Further, understanding
the process and data are important components of the Quality Improvement process to determine the impact of the change test on the outcome, process and balancing measures.

**Lewin’s Framework for Evidence Based Practice**

Manchester et al. (2014) stated that incorporating Lewin’s theory with the conceptual framework of evidence-based practice (EBP) implementation resulted in increased stakeholders participation, shared decision making and partnership. The use of change theory and the conceptual framework has the viability to influence and sustain EBP or translation of knowledge to practice. The inclusion and collaboration of stakeholders and leadership is essential for the success of the fall prevention program (Oliver et al., 2010).

In summary, the literature is rich in information regarding falls but provides little information about individual components of effective fall prevention program. Evidence confirmed that prompt identification of the fall risk factors by the ID team through a huddle or assessment and implementing a multicomponent fall interventions that target the risk factors resulted in a reduction of recurrent falls and fall rate. Interventions that are specifically tailored to individual risk factors were more effective than the standard “one fits all” fall prevention interventions. Some studies used fall rate while others use number of falls expressed in number or ratios. It is difficult to determine whether the numbers of falls are unique falls or recurrent falls. It would be easier to determine the significance of the studies outcome if a clearer and more consistent data were reported.
METHODS

This retrospective chart review evaluated the effectiveness of the PFH quality improvement project in reducing recurrent falls in the Long Term Care unit of the facility of study. The LTC Quality Improvement (QI) team in collaboration with the Safety Manager and Fall Prevention Committee implemented this quality improvement project. The method section will introduce the definition of terms and include discussion of the setting, resources, barriers and organizational gap analysis.

Definition of Terms

The facility of study used the VA’s definition of a fall. A fall was a sudden, uncontrolled, unintentional, non-purposeful, downward displacement of the body to the floor/ground (VA National Center for Patient Safety [VANCPS], 2014). It also defined a fall as hitting another object like a chair or stair excluding falls resulting from violent blows or other purposeful actions. Recurrent falls occurred when a patient falls more than once in a twelve-month timeframe.

PFH is an immediate evaluation of each fall, by a team, preferably an interdisciplinary team, which includes the patient within the environment where the fell occurred. The PFH is not a comprehensive post fall assessment. It is not an incident report and is not recorded in the patient’s medical record. It is a quick determination of the cause of the fall to intervene with appropriate strategies in order to reduce recurrent falls promptly (see Appendix A). The Veteran’s Health Administration has defined several types of falls; they are as follows:

Accidental Falls. These falls occur due to extrinsic environmental risk factors or hazards such as spills on the floor, tripping on clutter, tubing, cords or errors in judgment
such as not paying attention or leaning against curtains or unlocked furniture (VANCPS, 2014).

**Anticipated Physiological Falls.** These falls are associated with known risks as indicated on the Morse Fall risk that are predictive of a fall occurring, loss of balance, impaired gait or mobility, impaired cognition, confusion, impaired vision. These falls occur due to patients preexisting physiological status, history of falls and decreased mobility upon assessment (VANCPS, 2014).

**Unanticipated Physiological Falls.** These include falls associated with an unknown fall risk that were not predicted on the fall risk scale such as unexpected orthostasis, extreme hypoglycemia, stroke, heart attack, seizures, and others (VANCPS, 2014).

**Setting**

The pilot testing of the PFH process was conducted in a LTC run by a large organization in Southern California. This facility offers extensive inpatient, outpatient, extended care and community based programs. It supports education, research and maintains a partnership with the Southern California Universities and Education Centers to train potential healthcare leaders. The LTC unit has 170 operating beds and is composed of three units. One of the three units became the project setting. This unit has 10 rehabilitation beds and 44 long term-care beds. Patients in this unit were mostly male, 65 years and older with multiple medication regimens and medical conditions, ranging in moderate to high fall risk with varying fall risk factors and different degrees of adherence to their care plan.
Institutional Review Board

The facility of study provided the DNP candidate an Institutional Review Board (IRB) waiver (see Appendix C). The present project was a pilot test of the PFH for quality improvement purposes using retrospective data, thus the project did not require IRB oversight at the facility. However, since the project involved the examination of past clinical records, IRB approval was obtained from California State University, Los Angeles to perform this portion of the project (see Appendix E).

The Associate Director and Nurse Executive of Patient Care also provided a letter of support for this project, stating in his letter that the evaluation of the PFH should yield useful insight in improving the quality of life of the OAs in the LTC unit (See Appendix D). There were no identified ethical or protection of subject issues related to this project. The writer complied with the Health Insurance Portability and Accountability Act (HIPAA) safeguards. Based on the guidelines, data was safeguarded under lock and key in a cabinet in the office of the Nurse Manager and the electronic spreadsheet of the data was kept on an encrypted computer, which required a passcode to open. Only the DNP student had access to this information, which was kept private and confidential.

Organizational Gap Analysis

The facility of study had established a hospital-wide fall prevention program. This program conformed to the Joint Commission Accreditation for Healthcare Organization (JCAHO) “Nursing Care Center’s National Patient Safety Goal 9,” which mandated the development and implementation of fall prevention, fall reduction, and injury reduction programs. This JCAHO standard further required education and active
participation of patients and family members in evaluating the effectiveness of patient’s safety plan of care (The Joint Commission [TJC], 2015).

The facility of study’s fall prevention program included assessment of patients fall risk upon admission, unit transfers, and changes in medical condition using the Morse Fall Scale (MFS) to predict the risk for falls (Morse, 2008). High-risk fall patients were identified as having an MFS score of 45 and above. These patients were placed in the fall prevention program. There are a number of strategies that are implemented when a patient is identified as high risk. Signage must be put in place to make others aware of the high-risk status of the patient. The signage was placed on the patient’s door, at the head of the bed and on all assistive devices. Patients were required to wear a yellow armband and yellow non-skid socks. The purpose of these interventions was to increase the healthcare workers’ awareness of patients who may potentially fall due to intrinsic and extrinsic risk factors.

Despite the multicomponent interventions of the fall prevention program in the facility of study, patients in the LTC Unit continued to fall and sustain fall related injuries. Although performing the post fall assessment was part of the fall prevention program, prior to this QI project the organization did not conduct a PFH to identify the cause of falls and develop targeted interventions to prevent recurrent falls. Furthermore, the subsequent integration of the post fall assessment into the fall prevention program did not reduce the number of recurrent falls and fall rate among the OAs residing in the LTC units.

Evidence indicated that the interdisciplinary approach and multicomponent fall interventions result in reduction of fall rates (Cameron et al., 2014; Chang et al., 2014;
Coussement et al., 2008; Davison et al., 2005; Hailey et al., 2004; Haines et al., 2004; Kwan et al., 2014). According to Gray-Miceli et al. (2010), the proper use of the Post Fall Assessment (PFA) tool by trained skilled professionals using the ID team approach was effective in reducing falls among OAs. Thus, the fall prevention committee and LTC QI team decided to perform a rapid cycle change to switch to an ID led PFH. The goal of the PFH was to determine if it was effective in reducing recurrent falls. The PFH also sought to identify in a timely manner, the fall risk factors, typology and trigger appropriate interventions of prevention (see Appendix B). Organizational leaders were supportive of the implementation of PFH intervention. They believed that the PFH is aligned with the facility’s mission to deliver the best possible care using evidence based fall prevention practices in a cost effective manner.

**Resources**

No additional resources were needed in the implementation of the PFH in the LTC involved in this project. Members of the ID team included rehabilitation personnel, nursing, pharmacy, and medical providers (Geriatrician or Nurse Practitioners). These personnel were available from 8:00 am to 4:30 pm. They were able to conduct the PFH within 15 minutes of a fall incident. The availability of the ID team to perform a PFH after 4:30 pm and on the weekends was not possible. In order to remediate this limitation, the LTC facility utilized after hours staff to perform the PFH. Afterhours staff included two to four staff members such as registered nurse, licensed vocational nurse or a certified nursing assistant. These individuals were directly assigned to care for the patients in the facility afterhours and on the weekends. They were able to perform a PFH within 15 minutes of a fall incident. The ID team reviewed the PFH findings of the
afterhours staff when they returned to work at 8:00 am the next day or that following Monday. This allowed for the review of new interventions within a 24-hour period. The ID team was able to determine the effectiveness of the strategies used by the afterhours team.

The costs of implementation were covered by the operational budget of the LTC unit. The consistent implementation of the PFH was embedded in the nursing practice dimension and part of the performance appraisal elements of the ID team members. No additional staffs were hired to implement the PFH. The medical media department provided the PFH forms and poster board used for staff education.

**Barriers/Constraints**

The main barrier to the implementation of the PFH is the process it takes to gather the ID team together. When someone has spotted a patient on the floor, that person then contacts the registered nurse in charge of that patient. The nurse then pages over the unit intercom, alerting the ID team that a patient has fallen. The nurse identifies the patient’s room number and directs the ID team to report to the patient’s room. This process can sometimes take more than 15 minutes since the ID team may be busy with other patients. There are occasions when the full ID team is not present for the PFH. In these situations, the ID team allows a designee of the ID team member to be a representative and the partial ID team proceeds to conduct the PFH without the other members. Once completed with the partial ID team, the results of the PFH were reviewed with the members who were not present.
IMPLEMENTATION

The QI team began the implementation phase with the gathering of data regarding fall history of the patients on the unit. Fall history provided the best indicator of the possibility of a recurrent fall. All previous falls were reviewed using the PFH to identify the potential reasons for a fall and to mitigate the contributing factors. The QI team, with the support of the chair of the fall prevention program and safety manager, implemented pilot testing of the PFH from October 1, 2015 to December 31, 2015. The QI team consists of quality improvement consultants whose sole job role is to guide and evaluate the quality improvement projects in place within the LTC unit.

The QI team developed a timeline with specific goals and objectives for implementing the pilot testing of the PFH. They encouraged increase participation of the ID team members. There were constant collaborative efforts and meetings with the LTC staff to brainstorm, map the implementation process, and identify the best option for introducing the PFH intervention to the ID team members. The ID team were educated, empowered, and supported by the QI team and organizational leaders.

The PFH process was adopted from a larger nationwide organization. The safety manager, LTC nurse educator, and fall prevention committee members educated the ID team members about the PFH purpose and procedures. The ID team also met every two weeks to discuss the progress of the quality improvement project. The QI team studied the data and compared the fall rate, number of recurrent fallers and nurses’ compliance for conducting the PFH. The 2014 fall and recurrent fall data were compared with the new data that was collected over a three-month period from October 1, 2015 to December 31, 2015. The QI team and the ID team summarized the lessons learned, overall and
unique findings, failures, and successes. The data were measured and both the QI team and ID team members determined if the implementation of PFH resulted in an improvement in the recurrent fall rate.

Initially, the ID team had difficulty adjusting to the change in procedures required to perform the PFH. This was a difficult stage because some of the ID team members were unsure or fearful of the change and the benefit of the PFH to their workload and patient outcome. The QI team allowed the ID team to transition by providing them with the support they needed to implement the strategies related to the PFH. For example, during initial implementation of the PFH, when there was fall incident, the nurse manager would cover the job duties of the RN who needed to tend to the fall incident. After providing the support and repeated practice to transition to the new interventions of the PFH, the RNs are now able to perform the PFH without assistance from the nurse manager. There is now a level of acceptance among the ID team that the PFH is part of the regular practices on the LTC unit. As a result, the ID team was trained, coached and empowered to perform the PFH. The organization’s leaders continued to role model and clearly communicated the vision for change and maintain the momentum for the change. The use of Lewin’s change theory assisted the LTC staff in adjusting and accepting the use of the PFH immediately after each fall incident. This allowed the ID team to be comfortable with their new routine and new norms.

The steps utilized by the ID Team in the implementation of the PFH (see Appendix F) included the following:

- When a patient falls the RN immediately gathers the ID Team members. An announcement of the location in which a patient has fallen is made over an
intercom. This announcement brings the ID team to the patient’s location. The PFH is performed at this time. If the patient has suffered a major injury, then it is considered to be an emergency and the patient is cared for before the PFH is performed. A major injury is a facture, traumatic brain injury, or change in the level of care. These patients are then transferred to a hospital setting. However, whenever possible, once the patient’s needs have been cared for, the ID team proceeds with conducting the PFH.

- The ID team is composed of 4-5 staff members, who gather at the location of a fall incident within 15 minutes. In addition to the ID team, key individuals who have knowledge of the fall are also included in the huddle to determine the root cause or the immediate cause of the fall.

- The ID team analyzes the cause and factors leading up to and including the fall. This will include a discussion with the patient and an examination of the environment where the fall occurred. The ID team determines the type of fall based on the identified factors (See Appendix B).

- The ID team is encouraged to collaborate with one another and discuss multiple interventions, which can prevent recurrent falls. The patient is included when developing new safety interventions to prevent further falls.

- The RN who is also the PFH team leader completes the PFH form and submits it to the Nurse Manager for review.

- The Nurse Manager along with the QI team analyzes the fall incident data and modifies the patient’s safety care plan based on the PFH information.
• The updated patient’s safety care plan is communicated to the unit staff during shift changes and is documented in the patient’s Electronic Medical Record (EMR).

• Within 24 hours of the PFH, the nurse manager follows up with the unit staff to ensure that new interventions are being implemented. The nurse manager will also check to make sure the interventions are actually in place. The patients were probed to ensure that they were aware and understood the new interventions in place to help them. The nurse manager checked for patient understanding of the new interventions by having the patient repeat back what was said to them. This follow-up process engaged the patient as a partner in the fall prevention strategies and provided the opportunity for the patient, family, and visitors to ask questions or clarify interventions.
DATA COLLECTION

Baseline data was collected then compared to the Inpatient Evaluation Center (IPEC) report, which detailed the number of falls and fall rate nationwide. It should be noted that IPEC does not have data regarding the number of recurrent falls nationwide. The QI team analyzed and identified the trends in the number of falls, fall rate and recurrent falls from October 1, 2014 to September 30, 2015 prior to the implementation of the PFH. Data regarding recurrent falls was gathered from the electronic incident report. The QI team validated the number of recurrent falls data with the LTC fall data collected by the unit’s fall prevention committee. The data collection for the pilot test started in October 1, 2015 and ended on December 31, 2015.

To evaluate PFH compliance, the QI team collected the PFH forms from the Nurse Manager. The QI team utilized the PFH audit form. An audit form was developed with a “yes” or “no” 6-item checkbox list of questions pertaining to conducting the PFH. The QI team determines if the PFH was conducted within 15 minutes and if the ID team members participated in the PFH. They also audit to check if the risk factors were identified and care plans were modified. The QI team also checked if the post fall assessment was completed, if the patient was educated on new interventions and if the Nurse Manager followed up with the patient and staff within 24 hours to ensure that the new interventions were communicated and implemented.

The PFH audit form and the completed PFH forms were locked and stored in the Nurse Manager’s office to safeguard and to protect patients’ personal information. The individual patient’s data from the retrospective chart review were coded for
confidentiality. An excel spreadsheet was used to gather the data and was encrypted in the organization’s approved computer.
RESULTS

The aim of the retrospective chart review was to determine if the PFH would reduce recurrent falls in the LTC unit. The QI team reviewed and analyzed the recurrent fall data for the fiscal year 2015 that was from October 1, 2014 to September 30, 2015. The pilot testing period from October 1, 2015 to December 31, 2015 was also examined and analyzed, with the results shown in Table 1. There were 25 recurrent falls in fiscal year 2015 prior to implementation of the pilot testing. There were nine recurrent falls from October 2014 to December 2014 compared to two recurrent falls during the PFH pilot-testing phase, from October 2015 to December 2015. This equated to a 78% reduction in recurrent falls during the implementation pilot of the PFH. The recurrent fall rate in October 2014 to December 2014 was 2.5 falls per 1000 Bed Days Of Care (BDOC) compared to 0.6 falls per 1000 BDOC in the same quarter of 2015. The number of recurrent falls per 1000 BDOC during the fiscal year 2015 fluctuated from 1.1 to 2.5. The recurrent fall rate for 1000 BDOC was calculated using the following equation:

\[
\frac{\text{Total # of actual falls}}{\text{BDOC}} \times 1000 = \text{Recurrence Fall Rate}
\]

The QI team investigated the PFH with regards to its impact on the fall rate and compliance of the ID team in implementing the PFH process. The following data represents findings related to future implications. There were 48 falls in the fiscal year 2015 prior to implementation of the pilot testing. There were 17 falls from October 2014 to December 2014 compared to six falls during the PFH pilot-testing phase, from October 2015 to December 2015. This equated to a 65% reduction in falls during the implementation of the PFH pilot. The fall rate in October 2014 to December 2014 was
4.8 falls per 1000 BDOC compared to 1.9 falls per 1000 BDOC in the same quarter of 2015.

The QI team documented the ID team’s compliance and attendance when performing the PFH. The goal was 100% compliance and 100% attendance. No falls were reported in October, thus no PFH took place. In November and December 2015 compliance and attendance was 100% for both months.

Table 1

*Implementation of the Post Fall Huddle Prior and Post Data Regarding Falls and Recurrent Falls*

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Prior to Implementation</th>
<th>Post Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>115</td>
<td>120</td>
</tr>
<tr>
<td>Bed Days of Care</td>
<td>3523</td>
<td>3617</td>
</tr>
<tr>
<td><strong>Recurrent Falls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total #</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>2.5</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Falls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total #</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>4.8</td>
<td>2.5</td>
</tr>
<tr>
<td>PFH Compliance, %</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
DISCUSSION

During the implementation of the PFH pilot testing, the QI team recognized that creating an inclusive culture for the ID team members was necessary. The QI team encouraged the active participation of ID team members and encouraged feedback in the implementation process. These strategies of inclusion resulted in a sense of personal responsibility and staff empowerment among the ID team members. This represents the importance of building a sense of teamwork and collaboration. Managers or other team members recognized interdisciplinary team members who consistently completed and attended the PFH. The recognition involved a written report of their active participation in the PFH to their superiors. Leadership recognized the report by providing a “treasure chest voucher” to the recipient. The recipient is given the opportunity to visit and select a gift from the treasure chest box such as jackets, fitness mugs, office supplies, gift certificates and etc. The organization’s leaders also recognized ID team members who participated in PFH 100% of the time as well as having zero falls with assigned patients over a three-month period. These ID team members received a “Kudos card” or a “special contribution award,” which included a monetary award. Interdisciplinary team members’ participation was also documented in their performance appraisal and proficiency evaluation.

The QI team attributed the reduction in the fall rate due to staff members increasing awareness and understanding their role in improving their patient’s safety. On the other hand, it could be argued that patient who were admitted to the LTC during the pilot phase were different from those prior to the implementation of the PFH. However, based upon the staffing methodology tool that captured the patient acuity information, the
case mix of the patient load was the same before and after the pilot. The PFH also increased patient awareness of own risk factors. They were included in developing their own care plans with the ID team. Patients became partners in their own care. It is worthy to note that patients understanding of safety and fall prevention interventions were taught using the “teach back” strategies. This strategy required the patient to repeat information in order to demonstrate understanding. The PFH created a safety conscious culture, wherein everyone in the LTC unit believed they were responsible and played a role in sustaining it.

The QI team recognized that due to increased staff awareness, and staff buy-in there was a desire to provide ongoing in-service training, which increased the self-efficacy of ID team members to perform the PFH. Other strategies were used to increase the use of the PFH such as incentives, partnerships with patients and organizational leaders who worked collaboratively to ensure that the PFH increased patient safety and improve practices. With the implementation of the PFH there was more accountability between and among ID team to not only support one another but also to empower one another. This created a sense of ownership of the new intervention.

The QI team attributed the 100% compliance in the PFH completion and attendance to the ID team members’ sense of ownership of the PFH intervention and the Nurse Manager’s ability to remove all possible barriers that impeded implementation of the PFH. For example, in cases where a fall incident occurred and the RN called for a PFH, the Nurse Manager or Assistant Nurse Manager relieved the RN so that the PFH could be performed. Another example to promote ownership was the presence of Nurse Managers during the shift report and the consistent follow up of the events that occurred.
the previous day including the PFH data. Likewise, the Assistant Nurse Manager who worked different shifts was consistent in reminding nursing staff about the importance of conducting the PFH immediately after the fall incident. They also participated in the ongoing collection of PFH data and shared this information with the ID team members. The use of multiple stakeholders has helped to keep the practices of the PFH in the routine of the activities performed in a workday. It has become a new norm.

Although the raw data comparing the two quarters, October 2014 to December 2014 vs. October 2015 to December 2015 revealed a reduction in the number of falls, fall rate, number of recurrent falls and recurrent fall rate, there is insufficient data available to document that the PFH significantly reduced both the fall rate and the recurrent fall rate. However, data collection is still ongoing with the intention of making a statistical comparison. There are several reasons for the reduction seen in the last quarter of 2015. The reduction may have been the result of several factors; (a) the monitoring by leadership, (b) the ID team members prompt identification of the fall risk factors, (c) the development of care plans which targeted the risk factors, (d) the timely implementation and communication of the plan of care. A factor, which was believed to have had a major impact on the PFH, was the patient involvement. Patient were partners in their own care, they were included in every aspect of implementation of the care plan. This helped to prevent recurrent falls.

**Case Review of Post Fall Huddle on the Two Recurrent Falls**

An in depth record review of the EMR for the two patients who suffered recurrent falls was conducted. Patient A was a 60-year-old OA male. He was alert, oriented, and lived independently prior to admission to the LTC unit for multiple myeloma. He
struggled to maintain his independence and was self-directed in his own care. The initial fall occurred within seven days of admission due to his knees buckling when he was arranging his groceries after shopping at the facility’s store. As a result of the PFH, a plan of care was established in which the patient was directed to call for assistance to help him arrange his groceries. The furniture in his room was also rearranged to allow extra space to movement. The recurrent fall occurred when he was trying to reach the laundry door and he experienced “sudden dizziness.” The plan of care for this fall was to check him medically for the medical causes. It was determined that he was suffering from orthostatic hypotension (a drop in blood pressure), which caused the dizziness. In both the initial and recurrent fall the PFH was effective in remediating the cause. The mere fact that the recurrent fall was the result of different risk factors indicates that the PFH was effective in correcting risk factors. The patient did not fall for the same reason both times. It should be noted that the patient did not suffer minor or major injuries for either fall. Research shows that in the cases where there is no identification of risk factors and proper plan of care, the recurrent fall tends to result in injury due to lack of intervention.

Patient B was a 72-year-old OA male who was admitted for respite care due to a diagnosis of Dementia and Traumatic Brain Injury. He had an initial and recurrent fall three days apart in December 2015. The initial fall occurred due to his attempts to get out of his wheelchair unassisted. The plan of care included hourly rounding, change in room location to increase monitoring by nurses. The recurrent fall was related to his aggressive behavior due poor impulse control and impaired judgment. He swung at the nursing assistant who was helping him and this caused him to fall backwards with his wheelchair.
The plan of care in this situation was to place a wheelchair anti-tipper. This would prevent future backward falls. A psychology consult was placed for the implementation of behavior modification techniques. He had been monitored frequently but because of this fall he was assigned a one-to-one care provider. Again, the cause of the recurrent fall of patient B was different from the initial fall. As with patient A, patient B did not sustain minor or major injuries from the initial and recurrent fall.

Multiple compelling articles have revealed that a brief huddle right after the fall incident and the identification of the intrinsic and extrinsic factors that contributed to the fall incident are critical to reduce recurrent falls. In these two cases, although Patient A and B fell again, the cause and risk factors of the initial fall were unrelated with the recurrent fall. Both Patient A and Patient B had their PFH conducted by the interdisciplinary team within 15 minutes of the fall incident and interventions established that directly triggered the risk factors identified with the initial falls. It is a known fact that although most falls can be prevented, every fall cannot be completely eradicated. Due to the presence of multiple risk factors, these patients will probably continue to fall. Nevertheless, if the ID team members continue their proactive intervention and critical investigation of the cause/risk factors of every fall, it is projected that recurrent falls and resulting injuries could be minimized.

**Limitations**

There were some noted limitations in the PFH quality improvement project. The method for educating OAs regarding the new fall prevention intervention was inconsistent. Untrained personnel educated the OA since they required an interpreter. A more structured and consistent method of educating the OAs needs to be developed. An
example would be to use a Spanish speaking member of ID team to educate a Spanish speaking patient. Identifying each patient learning needs and learning style may result in a greater retention of safety teachings by the patient. Redesigning patient education program in a manner that fully engages OAs, as a full partner in their care will help to decrease the rate of recurrent falls. The ID team members in the facility of study were culturally and generationally diverse. Therefore, it is also important to provide the learners with specific and appropriate educational training strategies for teaching the OA. This would require specific training of the ID team, which was missing in the present project. Another limitation was the lack of a formal evaluation of the teaching strategy, as well as the integration of more interactive teaching strategies for safety and fall prevention in-service trainings.

Although the Nurse Practitioners did participate in the PFH, it was difficult for them to come to the patients’ bedside in a timely fashion. There were instances when the RN had to page them several times to attend the PFH. This was a limitation in the implementation of the PFH. Thus, the development of a strategy to address the prompt attendance of the RN in the PFH is a critical element for RNs in LTC units. Finally, another limitation was the limited data collected on falls and recurrent falls due to short implementation period of the PFH. However, to mitigate this limitation, the LTC unit continues to collect the fall and recurrent fall data, with the intention of collecting several years of data, in order to validate the practice.
IMPLICATIONS FOR PRACTICE

There is no single intervention which is proven to be effective in the prevention of falls. The literature does identify fall risk as multi-faceted resulting for many reasons. Since falls have multi-faceted causes, the approach to prevent them should be multi-faceted. The PFH provides that approach. There is no empirical data that identifies a single intervention strategy to prevent falls and its subsequent injury. What is consistent in the literature is that timely multidisciplinary, multicomponent interventions have shown significant reduction in patient recurrent falls. The present project is showing promise in the use of the PFH to reduce recurrent falls.

The proper utilization of the PFH, during this short pilot-testing phase showed a reduction of fall rate and recurrent falls among the vulnerable elderly population. The varying perspectives of the different members of the ID team and the patient resulted in “group thinking and group decision making” in identifying the most creative and individualized interventions that would benefit the patient. The use of the “teach back” strategies and active involvement of patients in the establishment of the care plan directly triggered the assessment of risk factors. ID team members engaged and empowered the patient to be true safety partner. This partnership led to increased collaboration between staff members and patients in determining the most appropriate fall prevention interventions. The ongoing collaboration between the staff and organizational leaders has positively affected the result of this rapid change cycle.

Leaderships full commitment to safety and creating a culture of safety engaged staff members in this project. The ID team members of the LTC unit celebrated successes each time their goals were met. The dissemination of the positive practices of
the unit resulted in the fall champions being invited to share their practices with other units and become members of the hospital wide safety committees, which, in turn empowered the ID team further.

Having only pilot tested the PFH intervention for three months, the challenge is for the ID team to maintain the momentum to sustain the change and refreeze the behavior of patient safety. Because many worthwhile ideas were expressed during bimonthly fall meetings, a consistent review of the all incidences, sharing and visually displaying the fall data and including the champions in the agenda for the monthly staff meeting may have kept the passion for implementation of the PFH. It illuminated and sustained the positive perception and outcomes of the intervention.
CONCLUSION

As discussed in the literature, falls and related injuries are multifactorial, thus multicomponent interventions are needed to decrease their occurrence. Can the recurrent falls and fall rate be reduced? The PFH pilot testing has supported that the integration of creative interventions, patients partnership and ID team members willingness to critically examine the risk factors and develop plan of care to address these factors did reduce recurrent falls and possible injuries. The interaction of these variables led to an improvement in quality of life of this vulnerable population.

The focus now should be directed towards maintenance of the momentum to sustain the PFH intervention. To develop a sustained culture of safety, organization leaders should commit to a “zero fall” and a “zero harm” environment. Staff members should be accountable for advancing their practice and patients should strive to accept their responsibility of driving their care and contributing to an environment of safety.

The present project was done on a small scale and data was sparse, the findings did demonstrate the positive benefits to overall patient safety. There were only 6 falls and 2 recurrent falls the three months the PFH was implemented. This demonstrated that falls are an area where healthcare agencies can effectively decrease costs while increasing patient safety and staff morale. The project also resulted in the ability of the patients involved to perform activities of daily independently and maintain their quality of life. This was accomplished along with a reduction in falls and recurrent falls. If the PFH intervention has prevented subsequent falls and injuries to someone’s parents or significant others, it is worthy of exploring, researching and adopting as part of the safety practice.
Falls are not an inevitable part of aging. The organizational leaders should fully commit to an environment and culture of safety to maintain OAs safety. A good practice such as performing a PFH after every fall to identify risk factors should be supported and standardized. The organizational leaders must also support quality improvement projects and more research to identify the best practices to fall prevention interventions. Lastly, the leaders focus should be directed in engaging and empowering staff and patients to sustain an environment of “collective mindfulness” of safety at all times.
REFERENCES


doi:10.1177/1941874412470666


doi:10.1093/ageing/afi053


APPENDIX A

POST FALL HUDDLE

Nurse Reviewer: ____________ Date: ______________
Patient Name/ID: _________________

**Instructions:**
1. Hold PFH as soon as possible after the patient fall occurred.
2. Keep the PFH meetings brief; 15 minutes.
3. Involve the patient if possible.
4. Forward completed review to Nurse Manager, then to Patient Safety Manager

<table>
<thead>
<tr>
<th>Questions</th>
<th>Lessons learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why did this patient fall? (Ask 3 times)</td>
<td></td>
</tr>
<tr>
<td>Was patient at correct fall/injury risk level? Were the appropriate interventions in place?</td>
<td></td>
</tr>
<tr>
<td>What accounted for the difference?</td>
<td></td>
</tr>
<tr>
<td>How could the same outcome be avoided the next time?</td>
<td></td>
</tr>
<tr>
<td>What is the follow up plan?</td>
<td></td>
</tr>
<tr>
<td>Patient’s account (if able to share)</td>
<td></td>
</tr>
<tr>
<td>Agreement with the patient for safety (Promise to use call bell; return demo how to use call bell)</td>
<td></td>
</tr>
</tbody>
</table>

Type of Fall: ______________________________

Nurse Manager Review: ____________ Signature
Date ______________________

“These documents or records, or information contained herein which resulted from QM activities, are confidential and privileged under the provisions of 38 U.S.C. 5705 and its implementing regulations. This material shall not be disclosed to anyone without authorization as provided for by that law or its regulations. up to $20,000 for unauthorized disclosures.”
APPENDIX B
TYPOLOGY OF FALLS

Decision Tree for Types of Falls
Tuesday, April 22, 2014

Fall

Post Fall Huddle

Determine Immediate Cause

What was different this time?

Immediate Causes

E.g., Spill on floor
Trip over tubing
Broken equipment or furniture

E.g., Postural hypotension
Weak or impaired gait
Loss of balance
Confusion
Centrally acting medication

E.g., Heart Attack
Seizure
Drop Attack

Unknown Sudden condition that cannot be predicted before the first occurrence

Environmental

Known Intrinsic/Extrinsic Risk Factors

Types of Falls

Accidental Fall

Anticipated Physiological Fall

Unanticipated Physiological Fall

Unpreventable Falls

Determine Preventability
APPENDIX C

IRB WAIVER

Memorandum

Date: May 20, 2015

From: Associate Chief of Staff, Research and Development

RE: Post Fall Huddles Project

To: Missi Castanesa, MSN, RN, and NB-BC

Dear Ms. Castanesa,

As I understand, you are planning to conduct a project to determine if an interdisciplinary process for identifying risk factors and establishing care plans can result in reduction of repeat falls. This proposal, per your description, is a facility Quality Improvement Project. As such it is not considered research and does not need IRB approval.

Sincerely,

Chris Reis, MD, MBA
APPENDIX D

LETTER OF SUPPORT

September 1, 2015

Fong Ping S. Lee PhD, RN
DNP Project Chair
California State University
5151 University Drive
Los Angeles, CA 90032

Dear Professor Lee,

As the Associate Director for Patient Care Services and Nurse Executive of [Hospital Name], I am very pleased that Ms. Mira Castaneda has elected to conduct her doctoral project at our facility. Ms. Castaneda's proposed project to evaluate the use of post-fall huddles as a part of a multidisciplinary intervention in preventing recurrent falls of older adult Veterans living in our Long Term Care Unit should yield useful insight in enhancing the safety of our patients.

The executive leadership team and I are fully prepared to support Ms. Castaneda and her project. We are certain her project will serve to elevate the quality of care and lives of our [residents] residing in our Long Term Care Unit. Please feel free to contact me at [email] with any questions.

Thank You,

[Signature]

Associate Director for Patient Care Services
APPENDIX E

CSULA IRB

Office Memorandum

DATE: February 18, 2016
TO: Feng Ping Lee and Mira Castaneda
    Nursing, HHS
FROM: Elia Amaro, Institutional Review Board – Human Subjects
COPIES TO: S. Ulanoff, Chair, J. Shiotzugu, Executive Secretary; N. Weathers, Member
SUBJECT: Review of Project Involving Human Subjects

Applicant: Feng Ping Lee and Mira Castaneda
Title: Prevention of Falls: A Retrospective Chart Review
Application #: IRB 15-32
Date of Review: December 28, 2015

Action: [ ] Approved (valid for one year)
       [X] Convened committee
       [X] Expedited (reviewed and approved by IRB chair or designee)
       [ ] Pending modification to secure approval (see below)
       [X] Administrative Action-Expedited Category # 5

Approval Period: 02/19/2016 - 02/17/2017

*YOU MAY NOT CONTINUE BEYOND THE APPROVAL PERIOD WITHOUT SUBMITTING A CONTINUATION APPLICATION ONE MONTH BEFORE EXPIRATION DATE.

Office of Research and Development
APPENDIX F

STEPS OF POST FALL HUDDLE

RN makes an announcement of the PFH

IDT members at the fall environment within 15 minutes

Risk factors and fall type identified

Findings reviewed “Group think” of interventions

RN completes PFH

CP updated. New intervention initiated.

Patient education using teach back strategies

Place patient in COC log and new intervention communicated to staff

Nurse Manager to follow up within 24 hours