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# Implementing Post-Fall Staff Huddles

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IMPLEMENTING POST-FALL STAFF HUDDLES

A Capstone Scholarly Project Presented  
By

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## IMPLEMENTING POST-FALL STAFF HUDDLES

### BACKGROUND OF PROBLEM:

Falls, can be a devastating source of morbidity and mortality for the older adult. According to a recent CDC Report, "Falls Among the Older Adult", more than one third of adults aged 65 and older fall each year in the United States and falls are the leading cause of injury deaths. Falls are also the most common cause of nonfatal injuries and hospital admissions for trauma in the older adult population (CDC Report). Unfortunately, the rate of fall-related deaths is increasing over the last decade despite aggressive interventions. Finding the right intervention to prevent falls has been difficult, if not impossible. Because older adults living in long term care institutions continue to fall despite the implementation of evidence-based guidelines to prevent falls, identifying the causes of each fall is critical to preventing future falls. Implementing post-fall huddles (PFH) shows promise for reducing falls in individuals in long term care facilities.

### OBJECTIVE:

To implement PFHs and assess the impact of PFHs on the number of patients with repeat falls, the number of falls for each patient with a fall history, and the fall rate at Tewksbury Hospital.

### METHODS:

Post-fall Huddles were implemented on all Department of Public Health Units at Tewksbury Hospital for a three month period of time. The primary outcome measure was staff compliance rates for the PFH intervention, measured as a percent of huddle forms completed for each fall. Secondary indicators measured the overall fall rate per 1000 patient days, and a reduction in the number of patients who fell recurrently. Data was compared to rates from the same quarter last year, and for the quarter immediately preceding the intervention.

### RESULTS:

Descriptive analysis was used to examine the PFH compliance, fall rates pre and post-intervention, and the number of recurrent fallers. Mean PFH compliance rates were 40% for the entire intervention period. The mean fall rate was 7.62 post-intervention, compared to 7.91 for the same quarter last year. The mean number of patients with repeat falls was 9 compared to 11 for the same quarter last year. Although improvements were small, they may indicate that the implementation of PFHs by a multidisciplinary team may impact patient fall rates in sub-acute long term care facilities.

### Implementing Post-fall Assessment Huddles

Falls, can be a devastating source of morbidity and mortality for the older adult. According to a recent CDC Report, “Falls Among the Older Adult”, more than one third of adults aged 65 and older fall each year in the United States and falls are the leading cause of injury deaths. Falls are also the most common cause of nonfatal injuries and hospital admissions for trauma in the older adult population (CDC Report). Unfortunately, the rate of fall-related deaths is increasing over the last decade despite aggressive interventions. Finding the right intervention to prevent falls has been difficult, if not impossible. Because older adults living in long term care institutions continue to fall despite the implementation of evidence-based guidelines to prevent falls, identifying the causes of each fall is critical to preventing future falls. Implementing post-fall huddles (immediate bedside assessment) shows promise for reducing falls in individuals in long term care facilities. The United States Department of Veterans Affairs (2010) explains a huddle as a brief staff gathering that immediately follow a safety incident. This allows staff time to debrief, explore what happened, the causes of the incident, and plans for future prevention. The aim of this Capstone Project is to conduct a quality improvement study to implement post-fall huddles in a sub-acute, long term care facility, to determine the underlying cause of each fall, prevent future falls, and support this institution’s patient safety goals.

According to Gray-Miceli and colleagues, (2005) the etiology and cause of falls is related to many factors. Falls are a “multidimensional phenomenon, attributable to medications, chronic and acute disease, age-related reasons, environmental causes, prodromal causes, or other etiology or idiopathic phenomena” (p. 16). Rubenstein (2006) reviewed the epidemiology, risk factors and prevention strategies for falls. He points out that falls are often the result of identifiable risk factors, both intrinsic and extrinsic that can be modified to reduce falls. Therefore, once a fall is

diagnosed in a patient, the etiology and/or cause of the fall must be investigated to prevent future occurrences. Many studies point out that a major determinant of a future fall is the history of a previous fall (Gates, 2008; Oliver, Daly, Martin, & McMurdo, 2004). Despite the plethora of risk assessment tools and interventions for fall prevention, there is little in the literature in the way of validated post-fall assessments (Gates, 2008; Oliver, Daly, Martin, & McMurdo, 2004), and few studies that address the phenomena of recurrent fallers. For the adult that falls, loss of mobility, increased morbidity, or even death can result. In addition, once an individual falls, many develop a fear of falling that may lead to decreased mobility secondary to that fear of falling again (Boyd & Stevens, 2009). Accordingly, this fear may result in the ambulatory adult decreasing his or her mobility to avoid falls, and ultimately, can lead to depression and further increase their risk for falls.

Economically, the Center for Medicare and Medicare Services (CMS), has placed patient falls in the “never event” category indicating that all falls can be prevented with the employment of evidence-based guidelines (“CMS-Overview hospital-acquired conditions”). A study by Dijcks and colleagues (2005) found that there were two falls per patient per bed, per year, and 1.3 of those falls resulted in fracture for nursing home residents. In response, the Joint Commission’s (JCAHO) “National Patient Safety Goal 9” was developed to mandate organizations to implement a fall reduction program and evaluate its effectiveness in order to attain accreditation (“Is your falls prevention program getting results?”, 2005). Implementing a cost effective, evidence-based fall program, besides being a safety measure, is necessary for a health care system that requires cost effectiveness. Theoretically, preventing falls would save health care dollars, but, few studies have included the cost effectiveness of their programs. In a systematic review by Heinrich, Rapp, Rissmann, Becker and Konig (2010), 32 studies were

explored to determine the economic burden of falls. It was determined that falls can cost up to \$42,840 per person, per fall, depending the severity of injury. In consideration of the health-related and economic burden of elder falls, policy to support research and prevention was enacted. In April of 2008, the “Safety of Seniors Act” was signed into Public Law, to direct the Secretary of Health and Human Services to expand and intensify programs with respect to research and related activities concerning falls (“Safety of Seniors Act of 2007”). This bill provides funding and support for education, research and the dissemination of findings to protect the older adult from falls. As the elderly population increases, efforts need to be directed toward prevention of this widespread problem for our older citizens.

### **Evidence Supporting the Implementation of Post-fall Huddles**

The current state of the literature is rich with data implying that falls can best be prevented through the employment of multi-disciplinary/multi-dimensional interventions. Most of these interventions fall under the category of risk assessment. Patients are screened for their fall risk, and are placed on a “Fall Protocol” based on that risk rating. Most facilities have instituted such a fall protocol. When a patient is determined to be “at risk,” interventions such as environmental modification, physical therapy and/or exercise and risk factor reduction are instituted. There is usually a “one size fits all” approach to falls, and modification of the patients’ plan of care is limited, and non-individualized. Given the fact that facilities already have fall prevention policies in effect to meet JACHO requirements, the issue of what to do when a patient falls despite the protocol, is the problem addressed in this proposal. Woven throughout the literature is the recommendation that post-fall assessments and or staff huddles, be used to design a more individualized prevention program that would benefit each patient who falls. Post assessment fall reviews could also lead to strengthening the evidence base for the cause of many falls and result in the prevention of a future fall. According to Moreland, et al., (2003), using

evidence-based guidelines for secondary prevention results in “25% fewer hospitalizations, 52% reduction in hospital days, 9% fewer falls and 17% fewer deaths” (p. 112) than standard fall prevention screening. By instituting a post-fall review, medication, risk factors, underlying illness or disease processes, and use of assistive devices data can be reviewed and modified for that individual patient in an attempt to prevent future falls.

As a practice issue, providers are urged to review fall risk data, make assessments post-fall, and conduct medication reviews. However, the persons at the bedside of these patients are the nurses and attendants who have little input in making recommendations for interventions. Articles are beginning to appear in the literature regarding the use of post-fall huddles (PFH), and inclusion of all staff in this process (Bonner, 2006; Dykes, Carrol, Hurley, Bennoit & Middleton, 2009; Hook & Winchel, 2006). Staff present at the fall, are the persons who have the most information regarding the etiology of the fall, and this of course includes the patient. Since most repeat falls occur under similar circumstances as the first fall, elimination of those circumstances is instrumental in preventing further falls (Hook, 2006). Hook points out that there are no established guidelines for secondary fall prevention, and instead, recommends an individualized plan once a fall has occurred. According to the article, there should be an evidence-based post-fall policy in every institution, and all stakeholders should be involved in the implementation. Dykes, (2009), surveyed nurses and attendants, regarding their feelings on fall prevention, and the effectiveness of programs. Although this article advocates for post-fall assessment (PFA), it also points out that caregivers felt that information collected is useless unless it is “easily and immediately accessible to all stakeholders” (p. 29), including the entire health care team, patient, and family. This has also been an educational approach utilized by

Bonner, (2006), who saw each fall as a “teachable moment” for staff as they search for the cause of each fall.

Barriers to providing post-fall assessment exist. Scott (2003) determined that the success of intervention strategies is dependent on multi-disciplinary collaboration and looking at the patients’ individual risk. She points out that the key stakeholders must be involved in the process and support post-fall assessment for successful implementation. Involving staff and stake holders was also looked at using geriatric nurse practitioners by Capezuti and colleagues (2007). Their observational study utilized geriatric nurse practitioners in four nursing homes to implement a falls intervention program, and to determine if staff motivation had an impact on program results. The goal was to increase staff receptivity through the integration of highly motivated nurse practitioners into the nursing home environment. Although the program was seen as successful in increasing staff motivation, many barriers emerged during this study. Barriers encountered included inadequate time to fully implement all components of the project, lack of computer proficiency and access, lack of rehabilitative reimbursement, lack of staff with adequate clinical skills, less than optimal administrative support and poor quality improvement skills. The project was also difficult to sustain once the nurse practitioners were removed from the facility.

Despite barriers, there are many benefits to be gained from a comprehensive post-fall assessment. This assessment should include a search of intrinsic factors found by history and physical exam, for confounding factors such as underlying disease, medication issues, new onset illness, and of course injury. Extrinsic evidence found in the environment should also be sought, and, immediate feedback from the staff present at the fall should be elicited through the use of a PFH. Information needs to be clearly documented, and available to staff, patients and families, in an attempt to avoid a future fall. Using current resources of staff, and documentation, most PFAs



could be implemented with little to no additional cost to agencies with fall prevention programs in place. Post-fall assessment poses no risk to the patient, and many benefits to be gained by finding the cause of inpatient falls. The economic burden of falls has been previously discussed. Post-fall assessment would not increase this burden and can be added to an existing fall assessment protocol. Since research is negligible on the topic, more studies need to be conducted to explore the utility and benefits of PFA, and more specifically, staff huddles and their role in impacting institutional and individual fall rates.

### **Statement of the Problem**

Recurrent falls among adults in long term care as indicated in the overall fall rate, the rate of recurrent falls, and the individual recurrent rate for each faller, is related to lack of adequate post-fall assessment. These fallers were previously on the Fall Prevention Protocol, indicating that their fall was influenced by individual factors not captured by the Fall Prevention Protocol. Instituting a post-fall huddle after each fall influences the recurrent fall rate, the individuals' fall rate, and the overall hospital fall rate.

### **Evidence of the problem at Tewksbury Hospital/Gap analysis**

Tewksbury Hospital was first established in 1952 as an alms house, and has undergone many changes over the past years. Today, the facility is classified as a sub- acute, long term care facility accredited by the Joint Commission. The hospital is divided into two "houses" with both the Department of Public Health (DPH) and the Department of Mental Health (DMH) holding beds within the facility. Four units with approximately 120 beds belong to the DMH and are not included in this assessment or paper. The remaining seven units are comprised of Public Health patients and are the subject of this assessment. These seven units collectively house approximately 230 residents. The face of the population varies to include unit-specific patients

from acute rehabilitation settings, head injury patients, HIV and acute infection, behavior unit, Huntington's unit, chronic care, and sub-acute care residents. Whereas historically the hospital was noted for long term care of the chronically ill, it now houses patients in need of rehabilitative services provided over long term, with the ultimate goal of community discharge. The ages of these patients range from 18-102 years old with a mix of races and religions. The list of medical diagnoses is vast and the needs of each unit vary, but all units exceed the National Database of Nursing Quality Indicators benchmarks for the same type organization.

The Quality Management and Performance Improvement Departments (QMPID) monitor quality indicators for the hospital. QMPID is administratively supported by all other departments. When monitoring falls and planning interventions for falls, the hospital employs a multi-disciplinary approach. The Fall Policy is comprehensive and includes a post-fall assessment. The nursing department primarily oversees unit falls, and utilizes data from the NDNQI (<https://www.nursingquality.org/>). Quarterly data indicates that Tewksbury Hospital ranks between the 25-75 percentiles for total patient falls per 1000 patient days. The national benchmark according to NDNQI for all sub-acute care hospitals for total falls per 1,000 patient days is 5.08. The hospital's fiscal year begins in July marking the beginning of the first quarter. For Tewksbury Hospital's quarterly reports, all quarters were well above the 5.08 benchmark (See Table 1).

Table 1

## Tewksbury Hospital Fall Data

<b>INDICATORS</b>	<i>Quarter 3 Jan-March 10'</i>	<i>Quarter 4 April-June 10'</i>	<i>Quarter 1 July-Sept 10'</i>	<i>Quarter 2 Oct-Dec '10</i>
Census	218	217	217	232
Patient Days	6532	6585	6625	7116
Total # of Falls	155	151	152	176
# Of Pts. With Falls	74	86	80	76
Pts. With Repeat Falls	11	9	10	12
# Pts. At Risk	140	138	137	147
"At Risk" Pts with Falls	23	27	27	26
Percent of falls for "At Risk" Pts	17%	19%	19%	18%
Mean Fall Rate	7.91	7.64	7.65	8.24

Adapted from "Tewksbury Hospital Fall Data," by the American Nurses Association, 2011, National Database of Nursing Quality Indicators. Retrieved from NDQI website: <https://www.nursingquality.org/>

Hospital indicators support a change in practice. All stakeholders, including administration are in support of expanding the current post-fall assessment to include staff huddles. There is a current trend for patients to fall more than once. As this number increases, the need to offer a more individual approach becomes more urgent. Despite the current post-fall assessment included in the hospital policy, the fall rates for patients falling once and patients falling multiple times continue to increase.

Although the current Fall Policy is comprehensive and includes all criteria for assessing risk and includes a post-fall assessment, staff huddles have not been utilized at Tewksbury Hospital. The long term goals and objectives of initiating PFHs include:

- Reduction in the number of patients with repeat falls
- Reduction in the number of falls for each patient with a fall history
- Reduction in the total number of falls for all patients
- Compliance with JCAHO's Patient Safety Goal 9

- Improvement in patient safety
- Increased staff participation and satisfaction

### **Literature Review**

Studies with varying levels of evidence were reviewed for supporting evidence for the use of post-fall assessment and huddles. The statistics surrounding falls indicate the problem requires further research. The findings indicated that multi-factorial interventions can be effective when delivered by a multi-disciplinary team, but the literature was scarce regarding post-fall assessment. Pilot and quality improvement studies addressing this issue advocate for the use of post-fall assessment for the patient who has a fall history as part of a multi-factorial intervention strategy.

#### **Studies with the Highest Levels of Evidence**

Moreland and colleagues, (2003) reviewed current guidelines to determine what interventions proved effective for secondary prevention of falls, but, offered no specific guideline to be used for this intervention. Secondary prevention interventions are the interventions that would take place once a fall occurs, and are meant to prevent a future fall. This review used meta-analysis to compare various interventions, and found that physical exam, lab assessment, balance gait and strength assessment, and an assessment of medications in use were the interventions that produced statistically significant results. Moreland and colleagues point out “the need for a comprehensive assessment of older adults who fall” (p. 102) and advocates for “management directed at preventing further falls” (p. 102).

The 2010 systematic review by Cameron, Murray, Gillespie, Robertson, and Hill, “Interventions for preventing falls in older people in nursing care facilities and hospitals”,

provided a broad review of interventions to prevent falls, and, also contained information related to post-fall assessment. Forty-one randomized controlled trials (RCT) involving over 25,000 participants were included in this systematic review. Multiple interventions were analyzed for fall prevention benefit. The major findings of this work were that although multiple risk factors were not always associated with preventing falls, but when delivered by a health care team, these interventions may be effective. For patients in LTC, multiple risk factor interventions were effective.

The best evidence to support a change in practice to include post-fall assessments is a systematic review by Cameron, et al. (2010). This review presented the highest level of evidence and produced consistent results. Five specific hypotheses were addressed and tested throughout the review. Only RCTs were used. The review included 41 trials, (25,422 participants), three quarters of the sample were women, with a mean age of 83. Specific interventions and combinations of interventions were statistically analyzed for significance. Results were presented according to category for facility, whether the subject was at risk for falling, or had fallen. Also, interventions were evaluated separately for each group, and then as multi-interventional for reporting of results.

The main result found by Cameron and colleagues was that some interventions were statistically significant in some populations, some were not, and others were equivocal. For multi-factorial interventions, there was evidence that these decreased both the risk and rate of falling. Evidence supported the use of vitamin D as an intervention that may reduce the rate of falling, but not the risk. Data was equivocal when exercise was employed as a fall prevention modality. Although there were a very large number of studies, looking at multiple interventions, in groups of fallers versus non-fallers, the number of subjects in some categories was small and

reduced the studies' power. Since most of the subjects were "fallers," statistical power was greater for this group.

Study findings concluded that in general, multi-dimensional fall programs are more effective for inpatient populations, than single intervention programs. This effectiveness can be increased by using multi-disciplinary teams. Medication reviews by a pharmacist may be effective in preventing falls. Exercise may or may not have any effect on falls depending on the patient, and the exercise modality being employed. Interventions tailored to individual risk and existing impairments present in the older adult, are more effective than standard interventions. One of the issues with this, and many other systematic reviews of falls data, is difficult comparison of studies since end points vary.

Some RCTs use rate of falls while others use number who fell or number of falls expressed as ratios. It is difficult to determine if the number of falls includes repeat fallers with high rates of falls, or a unique fall. Without clarification of all these factors, it is difficult to determine the actual significance of the studies' outcomes. Nonetheless, across multiple RCTs, it was shown that multi-factorial interventions, when delivered by a multi-disciplinary team, are more effective than any single intervention (Cameron, et al., 2010; Cusimano, & Spadafora, 2008). When teasing out data for post-fall assessment, again, it is difficult to determine which studies employed this intervention. For repeat fallers, assessment after a fall, indicates post-fall assessment, but may not be categorized as such.

Rubenstein, Robbins, Josephson, Schulman and Osterweil, (1990), designed a RCT to measure the effects of post-fall assessment interventions. All patients who fell were subjected to the intervention including a physical exam, environmental assessment, and root cause analysis of the fall. The authors found many remedial problems that could easily be addressed and corrected.

Although results did not achieve statistical significance, by the end of their two year study, the intervention group had 9% fewer falls, and 17% fewer fall related deaths than the control group. The conclusion was that the underlying reason for a fall must be determined, to prevent future falls in this population.

A systematic literature review by Oliver, Daly, Martin, and McMurdo, (2004), examined fall risk assessment tools and criteria and found that only a small number of significant risk factors showed consistency for predicting falls. The article calls for validation of tools because subjects have variable risk for falls. The difference with this study is that the study examined fallers versus non-fallers and found that gait instability, previous fall history, mental state, and medications, consistently raised fall risk regardless of the fall prevention modalities in use. The relationship of risk predicting fall is questionable because reversal of risk must occur. More simply stated; if the risk is identified, then why do they continue to fall? To this end, the article purports that risk factor modification is the key for those who have not fallen, but, for those who “do fall in hospital receive a proper post-fall assessment” (p. 128) and an individualized plan of care. The review advises against “wholesale” assessments and interventions based on “insubstantial evidence,” as shown by the lack of standardization and validation of interventions and tools created to predict fall risk.

Post-fall assessment, as described in the literature, is for the most part, a review of fall risk assessment, and multi-factorial interventions aimed to prevent a future fall. But recurrent fallers continue to fall. Recommendations to conduct post-fall assessment have also given no concrete method to conduct this assessment. Because of this research gap, pilot studies were reviewed to find quality improvement studies that were employing this intervention.

## **Pilot Studies and Quality Improvement Programs**

As the literature either directly or indirectly continues to show the benefit of post-fall assessment for individuals who fall, many pilot studies and quality improvement initiatives have attempted to implement this intervention. These studies are considered pilot studies either because they are quality improvement studies in one organization, or, because the intervention was implemented on a small scale before being applied to the larger organization. Many programs use post-fall assessments, or “huddles” to determine the cause of the fall, and intervene appropriately (AHRQ, 2006; Anderson, Mokracek, & Lindy, 2009; Hofman, Bankes, Javed, & Selat, 2003; Iowa Health System, 2010). The definition of huddle varies from study to study, but, a huddle is an immediate bedside evaluation of each fall, with staff present during the fall, and an interdisciplinary team. Although most of these studies are considered lower level evidence, they do show promise for using post-fall assessments, and/or staff huddles as part of the post-fall assessment. All studies show a reduction in fall rate, and/or, reduction in repeat falls. But even with a decrease in fall rate, questions regarding the reliability and validity of data collection instruments, and documentation of PFH and assessment data not being recorded, or recorded in a manner that does not allow mining of data for research purposes, limits the generalizability of findings.

### **Post-fall Assessment Tools**

Using a convenience sample of 379 care facilities, surveys collecting post-fall assessment (PFA) tools were administered (Gray-Miceli, Strumpf, Reinhard, Zanna & Fritz, 2004). The findings were that comprehensive PFA tools are not available for routine use, and collected patient data is often incomplete. Methods to increase the capture of this information were tested using the standard incident report versus a flow chart system (Montero-Odasso, Levinson, Gore,



Tremblay, and Bergman, 2007). An audit concluded that characteristics of fall reporting improved significantly when using a standardized flow chart instead of the incident report.

In a quality improvement study, Wagner and colleagues (2008), collected data on six nursing homes. Three nursing homes used computer documentation using the menu-driven incident reporting system (MDIRS), and three used traditional paper charting. Results showed that documentation of post-fall assessment improved using MDIRS, more so than for those nursing homes using traditional medical records. This is significant because methods to collect post-fall data have been difficult to document, and using computerized documentation can aid in the collection of this information.

In summary, current evidence-based practices regarding fall prevention, and, specifically, post-fall assessment was explored. Although the literature is rich in information regarding falls, there is little information regarding individual components of fall prevention programs. What is known is that multi-factorial interventions work best, and are more effective if delivered by a multi-disciplinary team. Yet, patients continue to fall at alarming rates. Data is emerging that indicates that the “one plan for all” strategy might not be effective; especially for the recurrent faller. Recent data is accumulating supporting the concept that a more individualized approach might be most effective for recurrent fallers. Utilization of post-fall assessments, and/or huddles to find the cause of each and every fall may be the best way to prevent the next fall for a particular patient according to recent studies. Additionally, recommendations to collect data in a systematic, organized, standardized manner is advocated so that this information is accessible for future fall prevention interventions.

## **Project Development**

Tewksbury Hospital's "Fall Prevention Policy" utilizes the interventions discussed in the literature review and includes a PFA. However, PFHs are not used. Post-fall assessment currently captures information discussed in the literature including intrinsic and extrinsic factors and includes the physical attributes of the patient, and extrinsic environmental factors. In a cyclic process, patients are assessed for fall risk. If a patient is found at risk, he/she is placed on the hospital's "Fall Prevention Protocol". Any change in status triggers the need for a reassessment of fall risk. Once a patient is determined to be at risk for falls and is placed on the "Fall Prevention Protocol", a plan of care is developed to minimize intrinsic and extrinsic patient fall risk. This is reviewed with any change in patient status, a fall, and/or quarterly. Patients, depending on screening, might receive services from physical therapy (PT), occupational therapy (OT), nutritional services, bed/chair alarms, floor mats, medication adjustment, and change in room to closer to the nurses' station, or other services. All risk patients are easily identifiable by notation on wrist band, room and equipment signage, in the electronic medical record, and on any paper records. Yet the fall rate of patients at Tewksbury Hospital continues to be well above the benchmark. The intervention not utilized at this hospital, that does show promise in the literature, is the post-fall huddle. For this reason, it was proposed that this intervention be implemented to reduce the rate of recurrent falls, favorably impact each patient's fall rate, and ultimately, the overall fall rate at Tewksbury Hospital.

### **Theoretical Model/Focus PDSA**

Because Tewksbury Hospital has an existing fall prevention program, the goal of this project was to modify the program to include interventions not being utilized, specifically, post-fall huddles. The model chosen to implement this project was the FOCUS Plan-Do-Study-Act

(PDSA). Langley and colleagues (2009) advocate the use of this method when an organizational change will be tested in a cyclic manner. This cyclic model is comprised of a planning stage where the problem is delineated prior to the intervention introduction. Once the intervention is introduced, data can be analyzed and changes made as necessary. According to the Institute for Healthcare Improvement (IHI), organizational goals focus on studying what needs to be accomplished, setting a time frame, implementing the plan, and measuring outcomes (<http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/>). More specifically, once an intervention is decided upon and measurement methods are firm, the intervention will be tested in the PSDA model. The intervention needs to be planned, piloted with a small group, studied, and acted upon. If successful, changes should be made to the larger organization. If success is less than optimal, modifications should be made and the cycle is repeated. Using this model, the current “Fall Prevention Protocol” was evaluated. The FOCUS segment of this project included:

- **F**inding a process to improve (Fall Prevention Protocol)
- **O**rganizing the team and its resources
- **C**larifying current knowledge about the process (analyze baseline fall data)
- **U**nderstanding sources of variation and clarifying steps in the process
- **S**electing an improvement or intervention (PFHs)

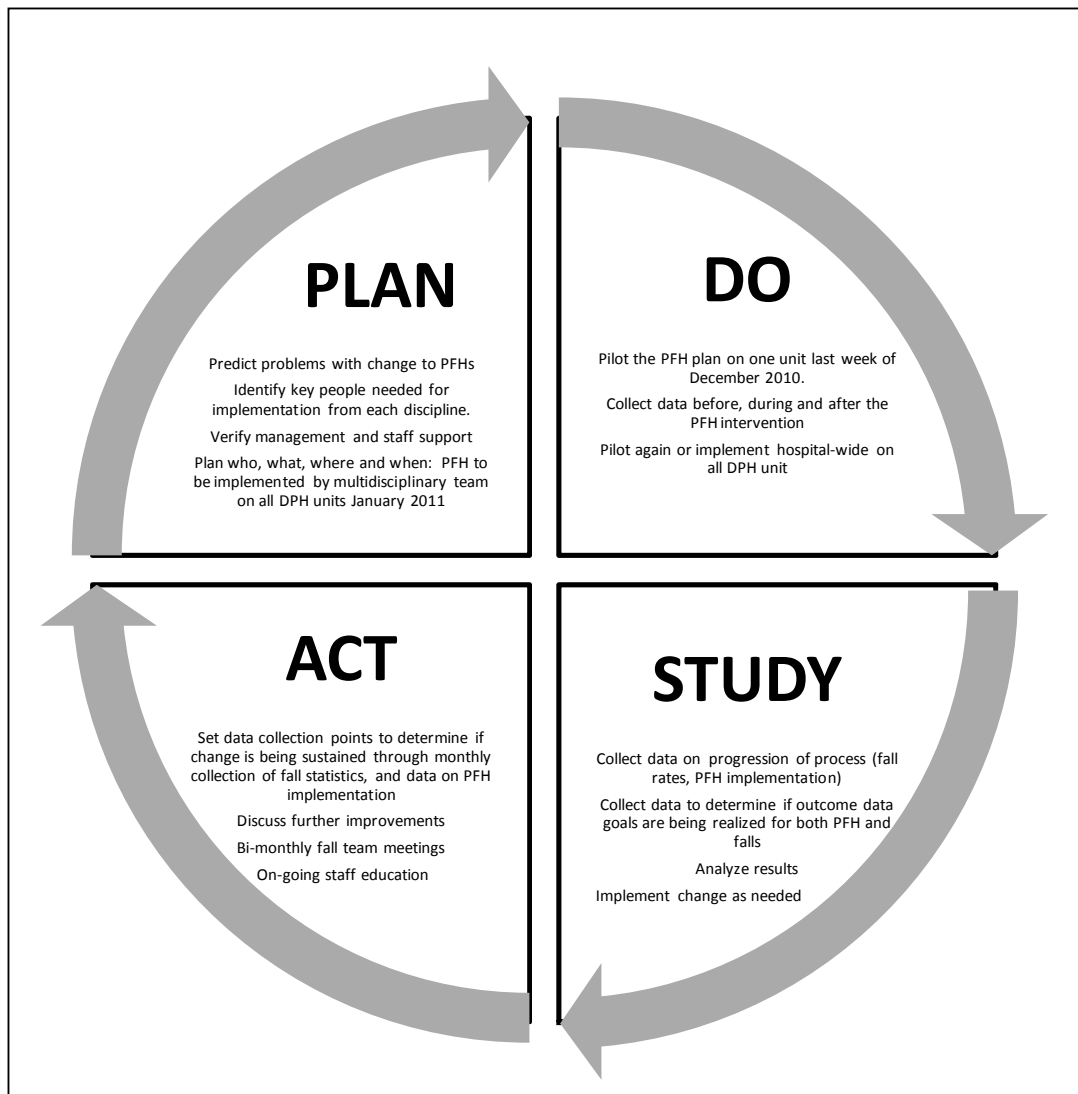
Key players in this process include nursing, pharmacy, quality management (QM), medicine, physical therapy, occupational therapy, nutritional services, informatics and administration. Leaders were identified from each discipline and were recruited for one hour, bi-

monthly team meetings. Additionally, “Fall Prevention Nurses” were appointed for each unit to insure dissemination of, and application of findings, to each individual unit. These nurses also attend bi-monthly fall meetings with the fall team. Current baseline falls data was examined and unit variation was explored. There is variation in type of patient on each unit and this was taken into consideration in planning the intervention. Time of day variation was also studied and it was noted that most falls took place on the day shift. It was decided that results could be maximized and costs curtailed through enhancement of the current “Fall Prevention Protocol” by integrating post-fall staff huddles into the existing post-fall assessment. This intervention is supported in the literature and not implemented at Tewksbury Hospital. Other aspects of the “Fall Prevention Protocol” could be held constant while the huddle intervention was added. Therefore, PFHs were chosen as the quality improvement intervention for this project.

The PDSA Cycle was utilized for the implementation of PFHs. All disciplines represented in the team were supportive of the intervention, offered support, and worked to decrease resistance to change. Because the literature states that falls interventions are best delivered by a multi-disciplinary team, team support was instrumental in the success of this intervention. Because of the cyclic nature of the PDSA model, ongoing monitoring continued throughout the entire period the intervention was applied, and changes implemented as needed. A pilot began in December on two units, with full implement of staff huddles hospital wide January 1, 2011. The data collection period was from January first through March. A summary of the process is depicted in Figure 1.

Figure 1

The cyclic PDSA portion of the implementation



Adapted from The Institute of Healthcare Improvement. Retrieved from IHI website: <http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/>

**Organizational Analysis**

Organizationally, Tewksbury Hospital has no barriers to implementation of PFHs. The joint Chiefs of Medicine and Nursing were both involved with the implementation of this intervention, and, the Chief Nursing Officer was a member of the Fall Team. Department

supervisors were also invited to be team members. Because all departments were involved in this multi-disciplinary intervention, interdisciplinary support was expected. The Joint Commission's (JCAHO) "National Patient Safety Goal 9" mandates the implementation of a fall reduction program and the evaluation of its effectiveness in order to attain accreditation ("Is your falls prevention program getting results?", 2005). This project is in alignment with the goal to implement a cost effective, evidence-based fall program that besides being a safety measure is cost effective. The addition of PFHs builds on an existing program, and has no additional staff requirement above what is already being utilized in the current fall program. Although patients are major stakeholders, and were not interviewed for their support of PFHs, it is common sense that goals to achieve increased patient safety would be acceptable.

### **Resources and Constraints**

All resources needed for the successful implementation of PFHs were in place for falls that occurred during the day shift. Unit staffs, as well as members of the multi-disciplinary team are available during this time. However, off shift falls did not have the benefit of an immediate full team assessment and, received PFHs from unit staff available at the time of the fall. To insure intervention fidelity, data collected on shifts other than day shift, were reviewed by the team on the next business day. PT, OT, Pharmacy, etc., were not available at night so were expected to review data within 24 hours post-fall to assure their continued input. In this manner, all disciplines continued ongoing input into interventions and plans for every patient who falls.

Although incidents reports have been shown to be less effective than electronic systems for data collection, we continued to collect data on these forms in addition to the electronic medical record (EMR) documentation. The EMR already contained the PFA completed by nursing (See Appendix E). The informatics nurse was to add a checkbox for nursing to record

that a PFH was completed, and a “yes” or “no” checkbox for whether or not a change was made in the patient’s care plan. The EMR was to be primarily used for data collection on the occurrence of staff huddles; specifically, that a huddle took place, and if the huddle findings necessitated a change in the patient care plan. A worksheet was developed to record information collected during the huddle and is called the Post-Fall Huddle form (See Appendix B). When a fall occurred, the unit nursing team leader recorded information in the post-fall assessment section of the EMR. The team leader was also responsible for filling out the Post-Fall Huddle form, and attaching it to the incident report for review by the Fall Team. The form continued to undergo revision as each cycle was completed and reviewed at bi-monthly fall meetings.

The major process barrier to implementation was expected to be the time burden placed on staff. However, staff huddles take very little time. The United States Department of Veterans Affairs (2010) has extensive experience utilizing huddles and states that safety huddles should take no more than fifteen minutes ([www.visn8.va.gov/PatientSafetyCenter/safePtHandling](http://www.visn8.va.gov/PatientSafetyCenter/safePtHandling)). Safety huddles should basically answer the questions of what happened, and how can this be improved upon or prevented in the future. This information was then disseminated to the team, and used to update the patient’s care plan. Fifteen minutes to an overburdened staff would prove a barrier without preliminary education. This education was accomplished in co-operation with Staff Development, and the ongoing facilitation and support of the units’ fall prevention nurses.

### **Project Protocol & Implementation**

A fall was defined as any unassisted, unplanned descent to the floor whether or not injury occurred. Injury is not an indicator/measure for this project. The implementation consisted of a “Huddle” composed of nursing/unit staff, medicine, multi-disciplinary therapies/services, and any person including, but not limited to, patient and/or visitors present at the time of the fall. The

huddle protocol, in addition to the existing post-fall assessment includes the steps outlined in Figure 2.

#### Staff Huddle Protocol Steps

### **Figure 2 - Huddle Steps**

1. Announcement of an immediate huddle when a patient experiences a fall
2. Staff critical discussion of the fall including all staff present, the provider, ancillary services, the patient, and any visitors present at the time of the fall
3. Analysis of scenario and factors leading to the fall
4. Synthesis of information gleaned from PFH and plan for prevention of future recurrence
5. Completion of the Post-Fall Huddle Form and attachment of this form to the incident report
6. Implementation of the new plan and resource attainment for plan
7. Update of the patients' care plan in the EMR
8. Fall documentation and documentation of huddle with recommendations in EMR by patient's team nurse

Data continued to be collected by Quality Management and the Performance Improvement Nurse. Supplemental data, especially data mined from the EMR on completion of PFH and documentation, was handled in cooperation with the hospital's IT Nurse and was coded for patient confidentiality. This data was entered into the NDNQI database and was handled by the statistical software provided by NDNQI.



### **Specific Outcome Indicators**

Outcome indicators were both agency and patient specific. For the agency, an overall improvement in the fall rate and improved documentation of falls in the EMR by the end of this project with the implementation of PFHs. Specifically:

- 100% PFH documentation for each patient fall

Secondary indicators included:

- Overall fall rate at, or below benchmark of 5.08 per 1,000 patient days
- Fall rate at, or below benchmark of 5.08 per 1,000 patient days for recurrent fallers
- A reduction in the number of patients with repeat falls.

### **Implementation Budget**

Costs were absorbed by the hospital operating budget. The largest cost to be considered was staff time and salary. No outside consultants were needed, and staff was utilized during normal operating hours. All assignments fall within each individual's job description. One additional training seminar was authorized for two employees, off-site, and was covered by a Nursing Department Education Budget. Supplies such as printing, paper, brochures, etc, were also covered in departmental budgets for the Performance Improvement Department, and Nursing. A breakdown of these costs is shown in Table 2. Cost benefits are difficult to project because this is a preventive intervention and it is not possible to determine when a fall was prevented that might have resulted in injury. However, preventing one injurious fall that might have resulted in fracture saves substantial healthcare dollars.

Table 2

Budget for Implementation of Post-fall Huddles

YEAR	2010-2011	From Dates	Summer 2010	to	May 1 <sup>st</sup> 2011
PROGRAM COSTS			COST OF INJURY		
<i>Pre-Intervention: September through November</i>					
Description	Amount	Description	Amount		
Staff salary for 8 hours of Team Meetings (12 members)	\$ 3,840	Cost of average fall injury (CDC. <a href="http://www.cdc.gov">http://www.cdc.gov</a> )	\$17,500		
Paper & Printing	\$ 10	Average cost of one hip fracture (CDC. <a href="http://www.cdc.gov">http://www.cdc.gov</a> )	\$18,000		
Data Collection and preparation	\$ 100	One injurious fall can cost up to (Heinrich, et al, 2010)	\$42,840		
Fall Prevention Conference for Staff Attendees	\$ 500				
IT Staff Cost	\$ 100				
Staff Development Personnel & Supplies	\$ 200				
<b>Total</b>	<b>\$ 4750</b>	<b>Total</b>			
<i>Pilot: December</i>					
Staff salary for 2 hours of Team Meetings (12 members)	\$ 960				
Paper & Printing	\$ 10				
Data Collection and preparation	\$ 50				
IT Staff Cost	\$ 50				
Staff Development Personnel & Supplies	\$ 400				
<b>Total</b>	<b>\$ 1470</b>	<b>Total</b>			
<i>Intervention: January through March</i>					
Staff salary for 6 hours of Team Meetings (12 members)	\$ 2,280				
Paper & Printing	\$ 10				
Data Collection and preparation	\$ 100				
IT Staff Cost	\$ 300				
Staff Development Personnel & Supplies	\$ 400				
<b>Total</b>	<b>\$ 3,090</b>	<b>Total</b>			
<i>Post Intervention: April</i>					
Staff salary for 4 hours of Team Meetings (12 members)	\$ 1,920				
<b>Total</b>	<b>\$ 1,920</b>	<b>Total</b>			
<b>COSTS</b>	<b>\$11,230</b>	<b>DEPENDANT ON PROJECTED PREVENTED INJURIES</b>	<b>\$18,000 + For one hip fracture</b>		

Post-fall Assessment is currently a multi-disciplinary mandate. Adding ten minutes for the inclusion of a PFH does not financially impact staffing, and is supported by “Patient Safety Goal 9”. Additional services that may be required by medicine, or, complementary therapies such as PT, OT, Nutrition, etc, may be billable, depending on the level of service needed and additional equipment that may be required. Although it was estimated that the initiation of this project may incur costs of approximately \$11,000, ongoing costs will be less because if successful, PFHs will be incorporated into the current Fall Prevention Policy. Regardless, according to the CDC (<http://www.cdc.gov/homeandrecreationalsafety/falls/fallcost.html>), the average cost of just one hip fracture is \$18,000 and preventing this occurrence justifies this project implementation. For Massachusetts hospitals, it was reported that “total charges for acute care hospital events associated with unintentional falls were over \$471 million in fiscal year 2006” (PatientCareLink, 2011).

### **Institutional Review Board**

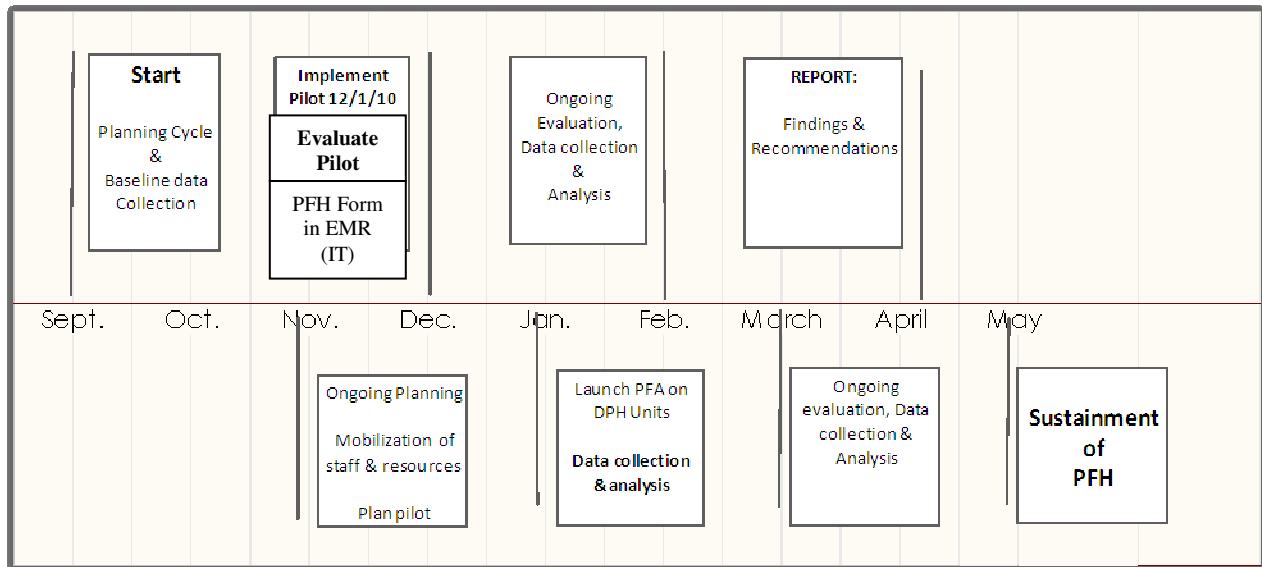
Institutional Review Board (IRB) approval was sought from Joseph L. Cohen, MD, Chair of the State of Massachusetts Internal Review board at Shattuck Hospital. In an email, he stated that this project qualifies for waiver of IRB oversight (See Appendix B). There are no ethical or protection of subjects issues to address because institution of the post-fall huddle will be an adjunct to, and not reduce the benefit of Tewksbury Hospital’s Fall Prevention Program (See Appendix C). Safeguards regarding HIPPA regulations were integral to this effort. In collecting data on individual fall rates, and verification of PFH data in the patients’ medical records, Quality Management, the Performance Improvement Nurse, and the hospital’s IT Nurse collected and tabulated data. For the purposes of this study, individual patients and/or records were coded for confidentiality.

### Implementation Timeline

The planning cycle of this project began during the summer of 2010 when the argument to utilize post-fall huddles to lower the current fall rate and improve staff engagement with the process was presented. Over the summer, the FOCUS portion of the cycle was completed and PFHs were chosen as the quality improvement intervention to implement. The current Fall Program and Policy includes a Post-fall Assessment that is comprehensive, and mirrors risk assessments found in the literature. Post-fall Assessment is also comprehensive but, does not include the use of post-fall huddles. Use of post-fall huddles to augment the current program was proposed, along with a review of supporting literature, and a timeline was then developed and presented in Figure 3.

Figure 3

Post-fall Huddle Timeline



Baseline data collection began in September and the team was assembled. Bi-monthly Fall Team Meetings were used as a forum for ongoing team planning between September and the

end of December. The fall team was comprised of one unit fall prevention nurse from each unit, representatives from each therapy (PT, OT, Speech, Recreational Therapy and Pharmacy), Quality Management, Performance Improvement Nurse, Nursing Chief Officer, Medicine, Researcher (this writer) and Staff Development. It was decided that the Huddle Form be retained to cue staff present at the huddle to examine all aspects of the patient's current fall plan, with emphasis on exploring interventions not in place, and individualizing the current care plan. Additionally, each fall prevention nurse and a representative from each therapy were trained on the use of the form. Because this was planned as a PDSA Quality Improvement Project with no change in the current policy at present, staff education was unit and department-based with each unit fall prevention nurse disseminating, and overseeing staff huddles. The Performance Improvement Nurse, Staff Development and this investigator, delivered education and were available at initial huddles on each unit. The Huddle Form was initially attached to the Incident Report for that patient fall but was later kept on each unit for ease of review by all staff.

The EMR, per policy, contains the current post-fall assessment (See Appendix C) and continued to be completed by the Nurse Team Leader. The IT Nurse was to add a check box for whether or not a post-fall huddle was completed, space for narrative findings, and any changes to the patient's care plan. This did not occur until the last month of project implementation so that this data was collected by hand and entered into the NDNQI database.

A test of the Huddle Form was planned on two units at the end of December. Full implementation of the project began hospital wide January 1, 2011. In keeping with the PDSA cycle, the form was used on an actual fall, and staffs were queried for input. Because of the cyclic nature of PDSA cycles, changes with the process and the form have been ongoing as problems are identified.

There were three months of program intervention from the beginning of January through the end of March with continuous data collection over that period of time using the EMR and incident reports for compliance with the use of post-fall huddles for each fall, and for documentation of care plan changes. DASHBOARD is utilized by Quality Management to display quality indicators in an Excel format to track trends and progress (Tewksbury Hospital Fall Data, 2011). Fall rates were added to the currently used hospital DASHBOARD to display ongoing progress for all units, and were prominently displayed on the unit information board so that each unit could view their progress and that of other units. Bi-monthly fall team meetings continued throughout this time period and provided ongoing education and support to staff. To provide positive support, incentives in the form of gift cards and awards were given to units that employed inventive care plan changes regardless of the unit's fall rate.

Data collection stopped at the end of March, followed by analysis of data. It was hoped that this intervention would prove successful, and in keeping with the PDSA Cycle, post-fall huddles were expected to be integrated into the "Fall Prevention Program" and, ultimately, into the "Tewksbury Hospital Fall Prevention Policy."

### **Project Outcomes and Evaluation**

The PFH intervention was implemented as a PDSA Quality Improvement Project using a time series design. Lewin's Change Theory provided a framework to help explain the less than expected change in staff behavior from simply filling out the PFA in the EMR, to include a PFH (Connolly, 2010). Baseline falls data had not been stable over the previous 12 months. Trends indicated a persistent rise in fall rates for each quarter compared to last year. The huddle intervention was implemented from January through March 2011. Data from this period was compared to same quarter data from last year, and to the quarter prior to the intervention.

Evaluation was consistent with the objectives of this project. Fall data is currently collected by the Performance Improvement Nurse through analysis of the the Incident Report and continued. It was expected that there would be Huddle Forms attached to 100% of all Incident Reports involving falls. Data was entered into The Tewksbury Hospital NDNQI Data Base and was then used to obtain fall data, and to calculate the monthly patient fall rate per 1,000 hospital days. The overall fall rate and the rate of recurrent fallers were also calculated using this database. Additionally, note was taken for each recurrent faller to determine if there were repeat falls after a PFH. A Post-fall Huddle Survey (Appendix E) was used for those who took part in post-fall huddles to determine if staff felt PFHs were useful, and whether they should formally be added to the Fall Policy.

### **Results and Analysis of Data**

There were three specific outcome indicators measured during the implementation of PFHs. These were:

- 100% PFH documentation for each patient fall
- Overall fall rate at, or below benchmark of 5.08 per 1,000 patient days
- A reduction in the number of patients with repeat falls

The first outcome indicator examined was 100% PFH documentation for each patient fall. This was the primary indicator for this study and was ultimately a measure of staff behavior change. Mean compliance rates were 40% for the entire intervention period. For the first month, January, there was a documentation compliance of 29%. This increased to 50% in February, but then fell to 40% in March, and coincides with the loss of administrative support that resulted with the resignation of the Nursing CEO.

The second outcome indicator was overall fall rate at, or below benchmark of 5.08 per 1,000 patient days. Data was extracted and manipulated within NDNQI Database. The calculation method used by this database is for fall rate is:

$$\frac{\text{Total number of actual falls} \times 1000 \text{ days}}{\text{Total inpatient days}}$$

There was a minimal decrease in the fall rate as compared to the same quarter last year, but as can be seen from the graph in Figure 4, none of the intervention months approached benchmark. It is worthwhile to note that in December, staff was being trained on the huddle protocol. In January, the fall rate was the lowest for the three month intervention period, and compliance with implementing huddles was just beginning. However, in February there was a peak in the fall rate for the three month intervention period despite huddle compliance being at the highest during the study. This may be a true increase in fall rate, or an increase in the rate of reporting falls secondary to the intervention itself.

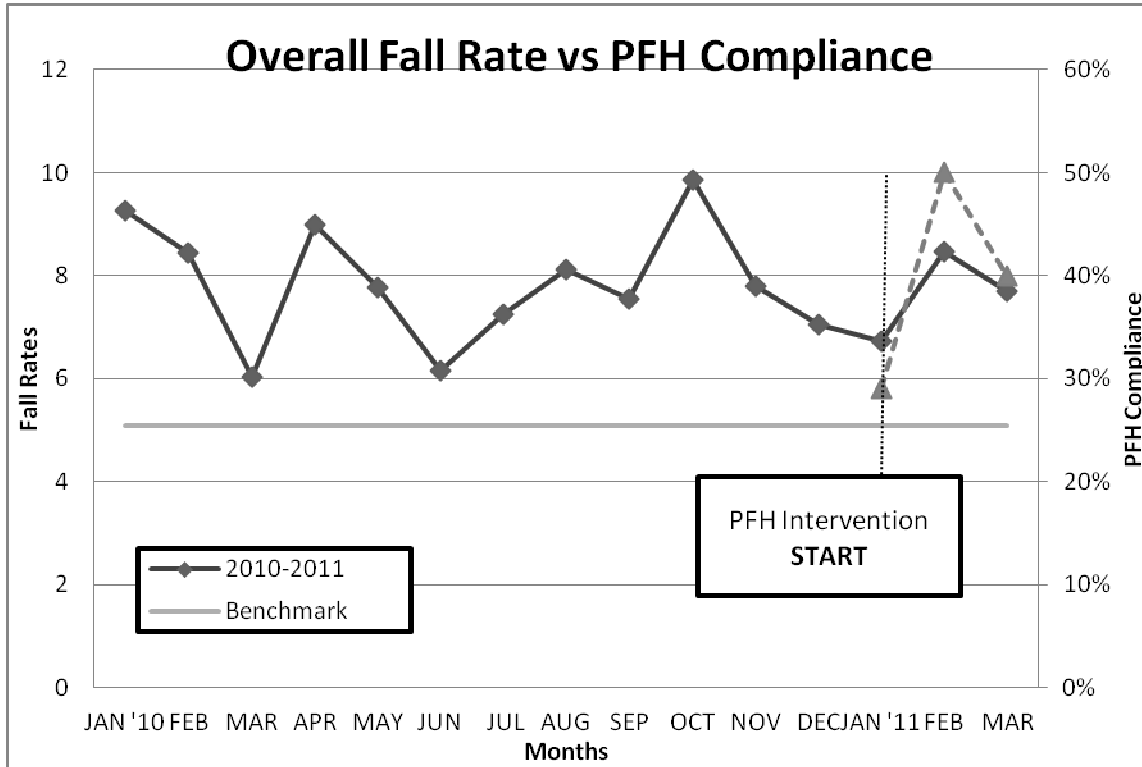
The third outcome indicator was a reduction in the number of patients with repeat falls. Quarterly data shows that for the same quarter last year, there are two fewer patients on the “Repeat Fallers” list (Table 3). When specific months are examined, there has either been a reduction in the number of patients on the list from the same period last year, or from the prior quarter. Although this is a small number, it does indicate some success. When those patients’ records are scrutinized, the patients who fell off the list did have significant changes in their care plans as a result of PFHs. Also, there have been patients on the list who have continued to fall, but the cause of the fall has been different each time. For example, on one unit with a high compliance rate for PFH implementation, a specific patient has been a recurrent faller from the bed. As a result of discussion at a PFH, a new, low bed has solved this issue. When this same patient fell again the next month, it was determined that there was an elevated dilantin level and



that was corrected. There have been no further falls from the bed. These indicators are illustrated graphically in Figure 4 and Table 3.

Figure 4

Overall fall rate comparisons and PFH compliance



Adapted from “Tewksbury Hospital Fall Data,” by the American Nurses Association, 2011, National Database of Nursing Quality Indicators. Retrieved from NDNQI website: <https://www.nursingquality.org/>

Table 3

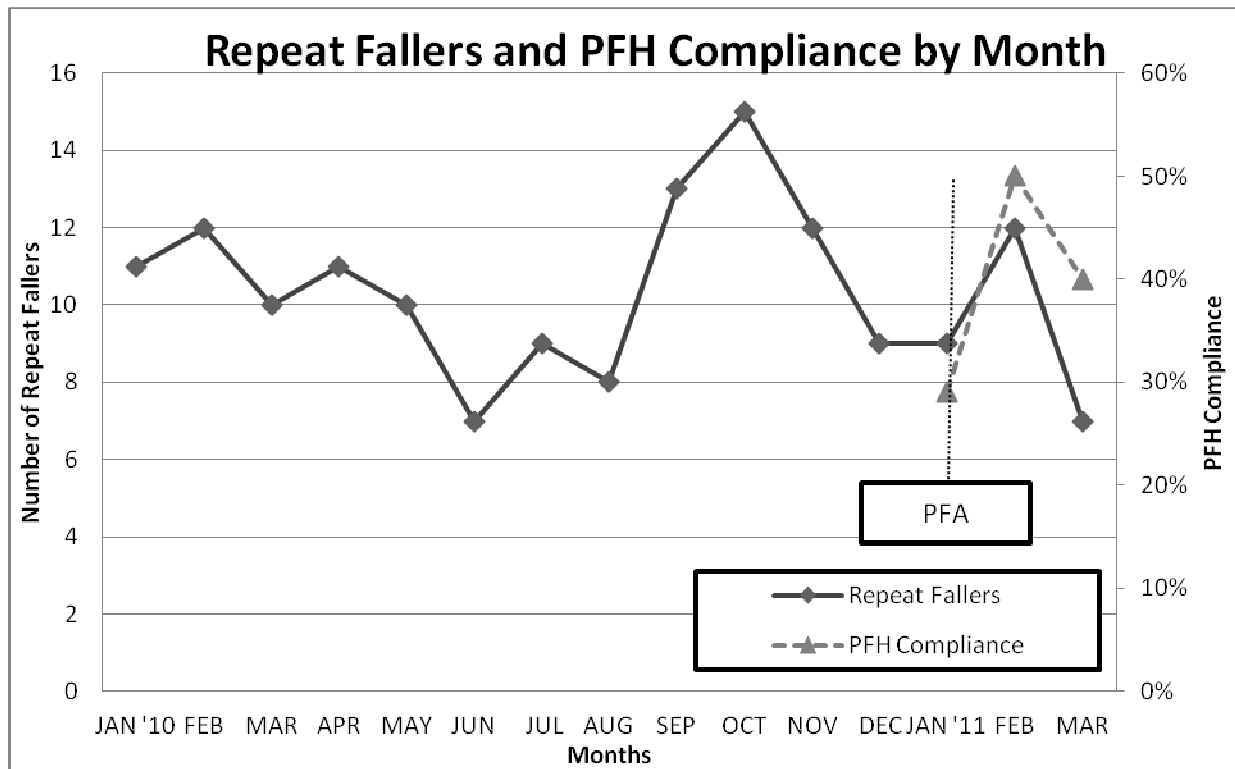
## Fall Data by Month and Quarter

<b>INDICATORS</b>	<i>Jan-March 2010</i>	<i>Jan 2011</i>	<i>Feb 2011</i>	<i>March 2011</i>	<i>Jan-March 2011</i>
Census	227	230	228	222	227
Patient Days	6798	7127	6381	6885	6798
Total # of Falls	155	48	54	58	155
# Of Pts. With Falls	74	32	31	34	97
Pts. With Repeat Falls	11	9	12	7	9
PFH Compliance by Percent		29	50	40	40
<b>Fall Rate</b>		6.73	8.46	7.69	
<b>Quarterly Fall Rate (Mean Fall Rate/Quarter)</b>	7.91				7.62

Adapted from “Tewksbury Hospital Fall Data,” by the American Nurses Association, 2011, National Database of Nursing Quality Indicators. Retrieved from NDQI website: <https://www.nursingquality.org/>

The three month intervention period may not have been long enough to realize actual changes in the number of repeat fallers who fall, and a longer intervention period may be necessary. This group of patients that continues to fall is instrumental in decreasing the fall rate. It was noted that all falls for the entire three month period under study were accounted for by this group so that the actual fall rate is equal to the fall rate of the recurrent fallers. The March rate for repeat fallers is lower than all previous months over the twelve month period and may indicate that PFHs have had an impact on falls. Further months of study are needed to determine the full effect of this intervention.

Figure 5 Repeat Fallers and PFH Compliance by Month



Adapted from “Tewksbury Hospital Fall Data,” by the American Nurses Association, 2011, National Database of Nursing Quality Indicators. Retrieved from NDQI website: <https://www.nursingquality.org/>

### Discussion of Findings

Although this project did not meet the proposed goals, there has been movement toward success in using PFHs. Educational, mock huddles performed during Fall Team Meetings have shown that staff are beginning to problem solve and think more critically about fall prevention. Changing staff behavior was much more difficult than originally perceived. Initially, it was thought that the biggest barrier to implementation would be staff time. However, while reviewing staff input from completed PFH surveys, this did not prove correct. Other barriers identified were that multiple disciplines and providers did not attend announced huddles, loss of

administrative support, IT not integrating the PFH into the EMR in a timely manner, and poor communication.

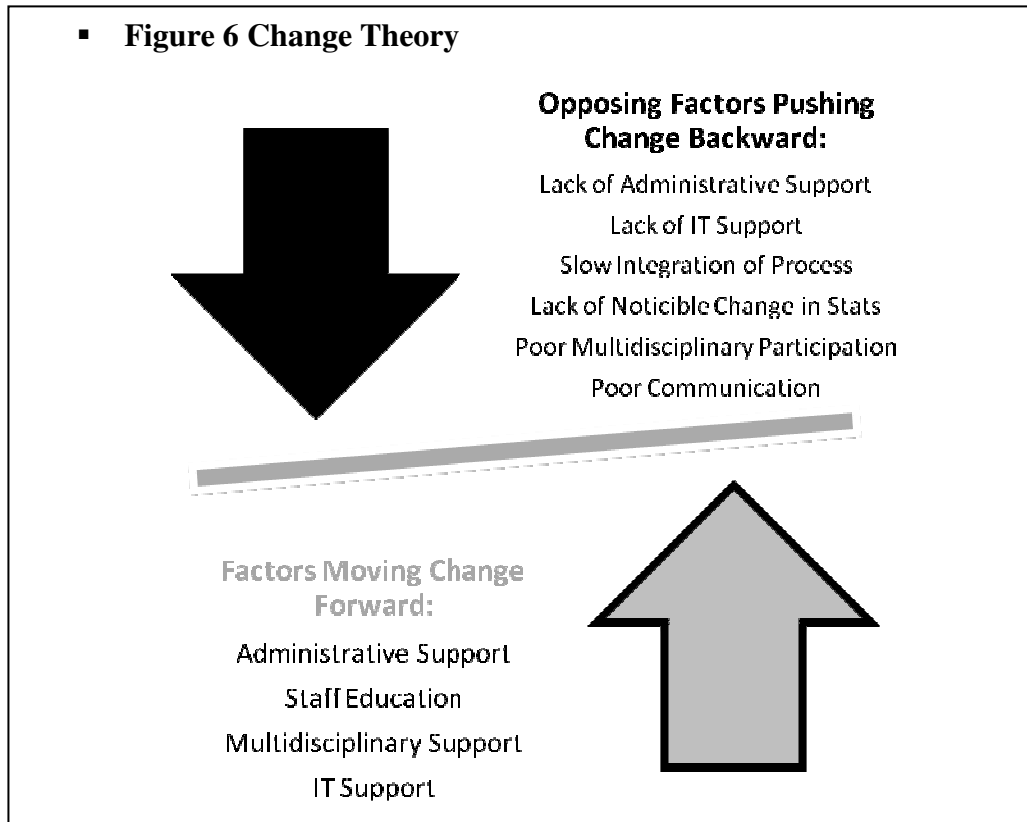
Fall Team Meetings are multi-disciplinary. During meetings, reviewing completed PFH forms has been invaluable but this only occurred during the last few weeks of data collection. Therefore, effects cannot be realized from this team approach at this point. The input from a multi-disciplinary team during the mock PFHs has been identified as valuable to staff on survey forms since staff saw ideas generated that would not have been possible with just one discipline participating. This multi-disciplinary approach modeled at Fall Team Meetings is the heart of the PFH and shows what should be happening on individual units. Units continue to identify lack of Nurse Practitioner/Physician and other disciplines' participation as the biggest barrier to implementation. Nursing alone has implemented most huddles that were completed and information was not shared with other disciplines and/or the unit provider. Without this sharing of information, ideas gleaned from the PFH Form were not implemented into the patients' care plan. One example of this is when staff identified the need for a psych consult, or, for specific equipment, but then did not notify the provider; no order was generated so no change occurred.

Explaining the resistance to implementation of PFHs is best explained by Kurt Lewin's Change Theory (Connolly, 2010). According to this theory, change is dependent on both the characteristics of individuals, and the social situation present. These characteristics either move change forward, or, serve as an inhibiting force pushing the change backward. Old behavior must be changed, or unfrozen, behavior changed/moved forward, and then refrozen to maintain the change.

In terms of this PFH implementation, planning, team meetings, unit meetings, dissemination of past fall data, education regarding PFHs, and unit incentives were used to

unfreeze old behavior. Administrative support for this proposed intervention was initially strong and pushed toward a change in behavior. During the actual implementation, administrative support became a problem when the Nursing CEO abruptly resigned from the facility. IT was also unable to place implementation documentation into the EMR in a timely manner rendering the EMR useless for most data collection. PFH documentation and data collection were completed by hand. The IT issue also made it difficult to communicate PFH findings to providers and ancillary services who failed to attend PFHs because PFH findings were only included on the paper tool, and not in the EMR. The paper tool was collected by Quality Management and was not available on the units. These same forces, which should have pushed PFHs forward eventually, became barriers difficult to overcome.

Utilizing Lewin's Model, the concept of Force Field Change (Connolly, 2010) helps explain how this intervention that initially was moving forward was halted during implementation. The unfreezing portion of this behavior change was initially successful with education and administrative support pushing the intervention forward. But once factors that were planned to move this project forward became actual obstacles to implementation, the resisting forces pushed back against the change and impeded forward motion. The process of moving from unfreezing to refreezing can take time, and according to the IHI Improvement Map, implementing a successful intervention in fall prevention may take 1-2 years (<http://www.ihl.org/imap/tool/#Process=3c061d92-9c22-42bb-af04-26ae02ed191c>). Considering the three month intervention period, it would not be uncommon for this intervention to have not been successful at this point. Regaining administrative support and changing the factors impeding success is needed to propel huddles forward toward sustained change. This is graphically depicted in Figure 6.



Adapted from Connelly, M. (2010). Kurt Lewin's change management model. Retrieved from [http://www.change-management-coach.com/kurt\\_lewin.html](http://www.change-management-coach.com/kurt_lewin.html)

### Implications for Practice

In keeping with the PDSA Model, PFHs will continue and become part of Tewksbury Hospital's Fall Policy as more cycles are completed. Staff ideas generated from PFHs have proven useful but most have these ideas need to be integrated into patient care plans and implemented. For future PDSA Cycles, utilizing a change theory such as Lewin's might be used to anticipate and balance resisting forces. This theory would have been more beneficial if used in the planning stage of the intervention and not after the intervention. However, using the PDSA Model allows for continuous modification during the cycles and these modifications impact

intervention progression. In future cycles, provider participation must be stressed in order for changes to be made in the patient care plan. Communication and dissemination of huddle findings is difficult when the team, including the provider, is absent at huddles. All team members must be part of quality improvement initiatives for successful implementation.

Implications for future practice utilizing PFHs include solidifying those factors that would push change forward including:

- a mandated full educational module presented by Staff Development for all staff and disciplines involved in PFHs, implemented with staff competency evaluation
- IT's completion of the Post-Fall Assessment and Huddle Form in the EMR
- a notification system within the EMR to notify all disciplines that a fall has taken place, and, the results of the PFH to insure all disciplines are aware of falls that occurred on off-shifts
- seamless transition to the Patient Care Plan in the EMR from the Post-Fall Assessment module to encourage update of the care plan to reflect PFH recommendations
- mandated attendance of all disciplines, including providers, at PFHs
- flyers for dissemination to patients and families for educational purposes and engagement in this patient safety initiative
- integration of PFHs into the existing Fall Prevention Policy

The above changes would correct impeding forces impacting the PFH intervention and are expected to cause the intervention to again move forward. Once in place, these forces will be instrumental in refreezing and sustaining the expected behavior.

Data collection on falls and recurrent fallers will continue to be collected by Quality Management and the Performance Improvement Nurse. There were no budgetary restraints and

this project was implemented within the planned budget rendering this a cost effective intervention. The cost effectiveness of enhancing the Fall Prevention Policy becomes evident when injury rate is examined. Although injury rates were not collected as indicators for this project, there were three fractures during the intervention period in patients on the Repeat Fallers list. This supports the idea that once PFHs are fully implemented on the DPH side of Tewksbury Hospital, and mandated by policy, data should again be collected to determine if there has been a change in staff behavior reflecting an increase in PFHs, and a resultant decrease in fall rates. The intervention period may not have been long enough to motivate staff to comply with huddles, or to practice critical problem solving for enough time.

If this project were repeated, it would be beneficial to have all IT support and EMR updates completed before the actual implementation. At the end of this project, the documentation and notification modules were put into place. This automatically notifies each provider and all ancillary services that a patient has experienced a fall and generates a request for services. This requires individual team members to act upon the request. The most important aspect of PFHs is the involvement of a multi-disciplinary team. The EMR would make that happen on a regular basis.

Review of falls during bi-monthly fall team meetings should continue. Although not immediate or on the unit, these brainstorming sessions have unveiled many new worthwhile ideas that can be shared and brought back to the units. This behavior modeling that works well during meetings is the same initiative that needs to transfer to the individual units.

Implementation of PFHs is a new skill. One suggestion is to have monthly “mock huddles” on each unit to practice this skill. Additionally, mandating huddles by policy is instrumental in assuring that everyone shows up on the unit when a huddle is announced. Staff often stated they



were just too busy to leave their work area to attend a unit huddle despite the fact that a huddle is a multi-disciplinary intervention. The literature indicates that falls can best be prevented through the employment of multi-disciplinary/multi-dimensional interventions. Without the multi-disciplinary team intervening during huddles, little change can be expected from this intervention that has shown promise during this short project implementation.

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# Appendix A

Attach Form To Incident Report

## TEWKSBURY HOSPITAL

### Post Fall Huddle Form

**To be implemented by Team Leader with available staff immediately following fall.**  
 (i.e. Team Leader, Care Provider, Nursing Assistant, Physical Therapy, Occupational Therapy, Pharmacy)  
 This is **NOT** part of the permanent Medical Record.

**Contributing factors to this fall:**

Floor wet	Reaching for items	Incontinent	Disease process (HD, COPD, Dementia)
Poor lighting	Call light malfunction	Eliminations needs not met	Hyper/Hypoglycemia
Clutter/obstacles on floor (wires, cords)	Possessions out of reach	Agitation/behavior	Seizure activity
Improper bed height	Side rails not up	Confusion/memory deficit	Change in mental status
Wheelchair/bed unlocked	Alarm malfunction	Altered gait/balance/tripped	Recent change in medical condition
Tripped over equipment/obstacles	Improper/lack of footwear	Faint/dizzy/weak/fatigue	Change in BP
Improper use of assistive device	Assistive device not in reach	Sensory impairment	New/change in BP meds
Clothing interfere d	Fall interventions not in place	Impaired communication	New/change in psychotropic meds
Independent transfer	Change in mobility status	Language barrier	New/change in pain meds
*** OTHER			PRN laxative within 8 hours

**Possible interventions to prevent future falls and injuries related to falls:**

Remove clutter from room	OT request for services	Fall Prevention Education for family/patient
Place items within reach	PT request for services	Develop toileting schedule/plan
Call light accessible	Psych consult	Institute hourly rounding
Move patient closer to Nurse Station	Pharmacy review	Assess for alarm needs
Provide appropriate protective equipment (hip protectors, helmet)	Re-assess method of transfer	Assess wheelchair safety
Floor pads	Environmental safety review	
Low-bed	Provide appropriate footwear	

**How might fall have been prevented?**

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**What is the follow-up plan and/or recommendations?**

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## Appendix B

**From:** Cohen, Joseph (DPH)  
**Sent:** Wednesday, November 03, 2010 10:47 AM  
**To:** Courtney, Kathleen (DPH)  
**Subject:** RE: Expediated Review

Dear Ms. Courtney,

Thank you for submitting the request for IRB assessment of the two "fall prevention" projects. These projects, as you describe them, should carry little or no risks, data will be collected without identifiers, and results will be applied toward hospital program improvement. As such, these projects qualify for waiver of IRB oversight. Should future modification of these projects alter the risk considerations, they should be re-submitted.

Joseph L. Cohen, MD  
Chair, MDPH HRRC  
Shattuck IRB



## Appendix C

### TEWKSBURY HOSPITAL FALL PREVENTION PROGRAM

Patients identified as being at high risk for falls through the assessment protocol will be placed on the hospital Interdisciplinary Fall Prevention Program and the appropriate guidelines will be adhered to.

#### **Guidelines:**

All DPH patients on admission, re-admission, and change of status will be assessed for high risk factors, as indicated by the Schmid Assessment Tool. Thereafter, all patients are to be re-assessed quarterly prior to their PCC and following any reported fall.

All DMH patients determined to be at high risk following an admission screening by a qualified Mental Health Professional will be referred to physical therapy by the Mental Health Team for a Fall Risk Assessment.

Once placed on the program, the standards set for the intervention plans and monitoring will be followed until such time that the patient is no longer assessed as being a high risk for falls.

Placing a patient on this program may be initiated or discontinued at any time during the hospital stay based on the interdisciplinary assessment of risk factors. However if a patient experiences a fall and is on the FPP, he/she will remain on the FPP for a period of one year. At that time the patient may be re-assessed for their risk status. The reason for either will be documented in the Interdisciplinary Progress Note and noted on the Fall Prevention Assessment form. The reason for either will be documented in the Interdisciplinary Progress Note and noted on the Fall Prevention Assessment form.

For all patients who experience multiple falls, a reporting mechanism is implemented to track falls for a period of one year.

When a patient experiences 2 or more falls in two consecutive months their name will be submitted to the Fall Prevention Nursing Member on the unit. A copy is

sent to the Assistant Director of Nursing covering their unit for review. Follow up or corrective action will be monitored by the Fall Prevention Committee. The patients' names will remain on that report until he/she has remained fall free for a period of 2 consecutive months.

### Appendix C (continued)

All patients and family members must be educated on TH's Fall Prevention Program upon admission (regardless of whether they are on the FPP or not). A

Fall Prevention Educational Brochure should be included in the Patient's admission packet. This should be documented in the medical record and the accompanying literature should be presented and explained to the patient and/or family member.

### **ASSESSMENT OF THE HIGH RISK PATIENT**

#### I.

Assess the Patient:

The Schmid Assessment Tool will be used by TH to determine whether or not a patient is at "high risk" for falls. This assessment will be completed by Nursing and documented in the interdisciplinary notes. It will be completed upon admission, re-admission, quarterly, following any change of status, and after each reported fall. The assessment sheet if on paper is to remain in the medical record in the Assessment section for a period of 1 year, then placed in the open medical record file.

#### II.

A score of 3 or more points identifies that a patient is at "high risk" for falls. At this time the patient may be placed on the Fall Prevention Program. The patient may also be deemed at "high risk" if their score is below a score of 3 due to extenuating circumstances identified by Nursing, Physical Therapy, and/or the Interdisciplinary Team. Conversely, if a person has a score of 3 or above, the team may decide not to identify the patient as "high risk". Both these circumstances must be agreed upon by the team and reviewed at PCC. The results should be documented in the interdisciplinary notes following PCC.

The following procedures should be instituted:

1. Place the patient on Fall Prevention Program.
2. Initiate the Standard Care Plan for High Risk for Injury due to Fall. Each patient's plan of care should then be individualized to meet their specific needs.
3. Document on the ADL flowsheet by nursing every shift.

4. Document on fall and Assessment form and in the interdisciplinary progress notes.

### III.

When at anytime the assessment score falls below 3 points, the patient is removed from the program and the above steps are discontinued, unless the unit  
**Appendix C (continued)**

team deems otherwise. The teams' decision is documented on the Fall Prevention

Assessment form and in the interdisciplinary progress notes. However once a pt. is on the program and experiences a fall, he/she must remain on the FPP for a period of (1) year, at which time they can be re-assessed and removed by the team if deemed appropriate.

### IV.

Based on the assessment of the Unit Committee Member in conjunction with the unit based Physical Therapist, if after 1 year on the program, the patient's score remains 3 or above, but the patient has not exhibited any risk potential or experienced any falls, he/she may be removed from the program. If on admission the patient scores 3 or more, but based on diagnosis, is not at risk for falls, i.e. paraplegia, it is not necessary to initiate program. Document change in status in Interdisciplinary Progress note.

### V.

Also, in conjunction with the Schmid Tool, a Post-Fall Assessment must be completed in the Meditech worklist following any patient fall. This intervention is found under the TKH Schmid and Post-fall Assessment. It must be added as an intervention and documented in Meditech after each and every patient fall.

## **FALL PREVENTION PROGRAM INTERVENTIONS**

Ambulatory patients only:

1. Assist with ambulation-(use gait belt)
2. Ambulate before and after meals.
3. Proper footwear when walking.

Elimination:

1. Check needs every 2 hours.
2. Attend while on commode/toilet.
3. Commode at bedside if needed.

Educate:

1. Instruct patient on use of Call System.
2. All staff and family members to be aware of status.

## Communicate:

1. Address status daily each shift.
2. Evaluate assessment every 30 days.
3. \*Institute Visual Identification.

## Environment:

## Appendix C (continued)

1. Bed in lowest position at all times.
2. Rails up/down - check appropriate
3. Call system within reach
4. Night light on during dark.
5. Do not leave in unsafe environment.
6. Area around unit uncluttered.

## \*Visual Identification:

1. Green Dot affixed to:
  - a. Wristband
  - b. Call system Room and Bed # Alongside of the Call system at the nurses' station and should include the Room# and Bed #
  - c. The outside binder of Medical Record
  
2. Green label affixed to:
  - a. Wall over bed
  - b. Wall outside patient's room
  - c. Mode of transportation  
(W/C, G/C, L/C, Walker, Cane)

## Neurochecks:

Any patient that experiences an unwitnessed fall or who suffers an apparent head injury related to a fall will be subjected to routine neurochecks performed by Nursing according to the following schedule:

- \*Neurochecks: Q 15 minutes x 4, then  
 Q 30 min x 2, then  
 Q 2 hr x 2, then  
 Q 4 hr x 2, then  
 Q shift x 3, then  
 Q 24 hr x 1,

Discontinue neurochecks if patient stable.

\*Neurchecks should be documented in the neurological assessment intervention in Meditech.

Call MD if:

1. Systolic BP is below 90 mmHg or there is a drop of 20 mmHg from baseline.
2. Pulse is less than 50.
3. RR is less than 12.
4. Pupils are unequal or non-reactive.
5. Reports of nausea/vomiting.
6. Any change in gait or ability to stand or transfer.

## Appendix C (continued)

### **BED CHECK AND CHAIR ALARMS PROTOCOL**

Patients enrolled in the Fall Prevention Program may be assessed for a Bed and/or chair alarm in addition to and after all other interventions are in place.

The alarm will remain in place until the patient presents a change in status, or it is deemed inappropriate by the unit interdisciplinary team.

Patients with multiple falls will continue to be reported and monitored by the Units Administrative Supervisors and unit interdisciplinary team.

### **Schmid Fall Risk Assessment Tool**

#### **Mobility**

Ambulates without gait disturbance (0pts.)

Ambulates or transfers with assistive devices or assistance/unsteady gait (1pt.)

Ambulates with unsteady gait and no assistance (1pt.)

Unable to ambulate or transfer (0pt.)

#### **Mentation**

Alert, oriented x 3 (0pt.)

Periodic confusion (1pt.)

Confusion at all times (1pts.)

Comatose/unresponsive (0pt.)

#### **Medication**

Anticonvulsives, tranquilizers, psychotropics hypnotics (1pt.)

No Anticonvulsives, tranquilizers, psychotropics hypnotics (0pt.)

#### **Elimination**

Independent in elimination (0pt.)

Independent with frequency or diarrhea (1pt.)

Needs assistance with toileting (1pts.)

Incontinent (1pt.)

#### **Prior Fall History**

No prior history (0pt.)

Unknown (1pt.)

Yes, before admission (home or previous admission (1pt.)

Yes, during this admission (2pts.)

Date of Last Fall

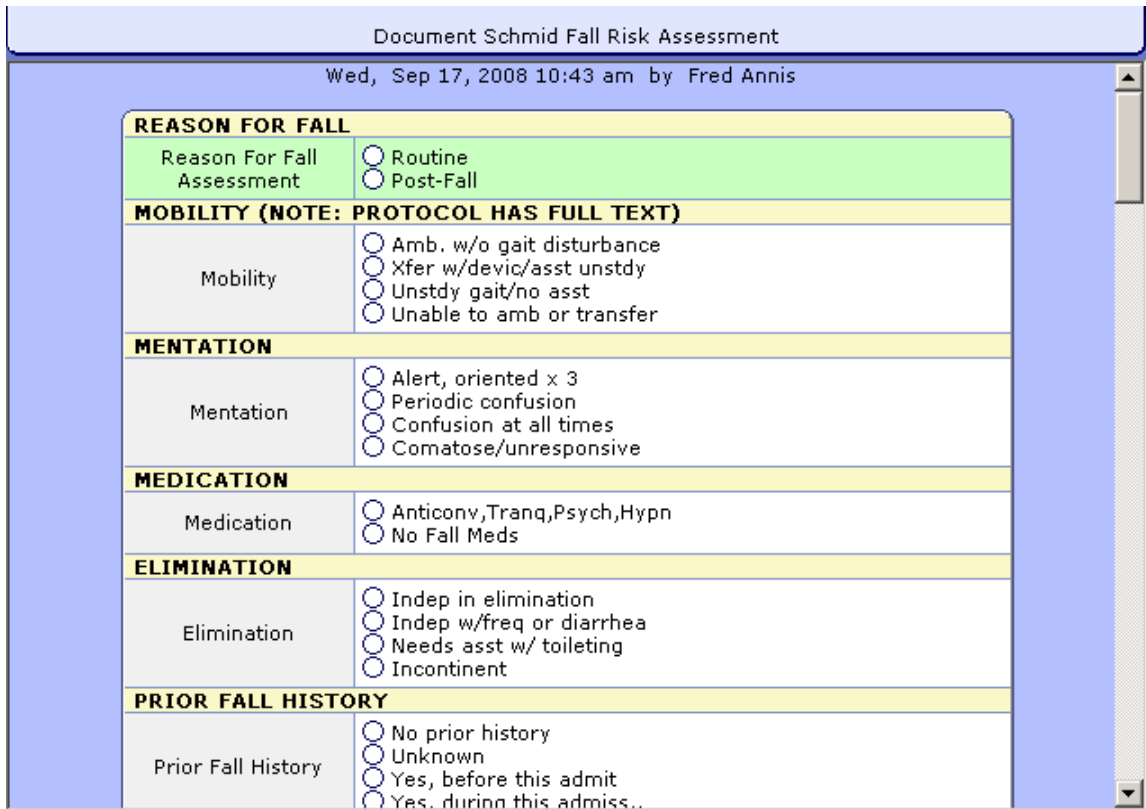
Date: \_\_\_\_\_

(3or greater=Fall Risk) (add all points)

Schmid Fall Risk Score Total: \_\_\_\_\_

### Appendix D

### EMR Screen Shots



Document Schmid Fall Risk Assessment

Wed, Sep 17, 2008 10:43 am by Fred Annis

<b>REASON FOR FALL</b>	
Reason For Fall Assessment	<input type="radio"/> Routine <input type="radio"/> Post-Fall
<b>MOBILITY (NOTE: PROTOCOL HAS FULL TEXT)</b>	
Mobility	<input type="radio"/> Amb. w/o gait disturbance <input type="radio"/> Xfer w/devic/asst unstdy <input type="radio"/> Unstdy gait/no asst <input type="radio"/> Unable to amb or transfer
<b>MENTATION</b>	
Mentation	<input type="radio"/> Alert, oriented x 3 <input type="radio"/> Periodic confusion <input type="radio"/> Confusion at all times <input type="radio"/> Comatose/unresponsive
<b>MEDICATION</b>	
Medication	<input type="radio"/> Anticonv, Tranq, Psych, Hypn <input type="radio"/> No Fall Meds
<b>ELIMINATION</b>	
Elimination	<input type="radio"/> Indep in elimination <input type="radio"/> Indep w/freq or diarrhea <input type="radio"/> Needs asst w/ toileting <input type="radio"/> Incontinent
<b>PRIOR FALL HISTORY</b>	
Prior Fall History	<input type="radio"/> No prior history <input type="radio"/> Unknown <input type="radio"/> Yes, before this admit <input type="radio"/> Yes. during this admiss...

Date of Last Fall	<input type="text"/>
<b>SCHMID FALL RISK SCORE</b>	
Schmid Fall Risk Score Total (3 or greater = Fall Risk)	<input type="text"/>
	Schmid Fall Risk Score Total (add all points)
High Risk for Falls?	<input type="radio"/> Yes <input type="radio"/> No Comment <input type="text"/>
<b>PRIOR TO FALL</b>	
Date	<input type="text"/>
Time	<input type="text"/>
Ambulatory Status	<input type="radio"/> Independent <input type="radio"/> Occ. Assist <input type="radio"/> Freq. Assist <input type="radio"/> Non-amb.
Fall History	<input type="radio"/> 4+ in 12mo. <input type="radio"/> 2-3 in 12mo. <input type="radio"/> 1 in 12mo.
Activity	<input type="radio"/> Walking <input type="radio"/> Standing <input type="radio"/> Sitting <input type="radio"/> Running <input type="radio"/> Transferring <input type="radio"/> Toileting

Appendix D (continued)

	<input type="radio"/> Lower/Assist <input type="radio"/> Unknown <input type="radio"/> Other <input type="text"/>
Activity	<input type="radio"/> Walking <input type="radio"/> Standing <input type="radio"/> Sitting <input type="radio"/> Running <input type="radio"/> Transfer <input type="radio"/> Unknown <input type="radio"/> Other <input type="text"/>
Environmental Conditions	<input type="checkbox"/> Floor Wet <input type="checkbox"/> Floor Dry <input type="checkbox"/> Cluttered <input type="checkbox"/> Unobstructed
Witnessed	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Heard Fall
Restraint in Use	<input type="radio"/> Response 1 (See Below) <input type="radio"/> Response 2 <input type="radio"/> Response 3 Response 1: Restraint Response 2: Seat belt / postural support Response 3: N/A
<b>HUNTINGTON'S DISEASE DIAGNOSIS</b>	
Huntington's Disease	<input type="radio"/> Yes <input type="radio"/> No
	<input type="radio"/> In bed <input type="radio"/> Unknown
Identified as High Risk for Falls	<input type="radio"/> Yes <input type="radio"/> No
Fall Protocol In Place	<input type="radio"/> Yes <input type="radio"/> No
Interventions in Place	<input type="checkbox"/> Bed alarm <input type="checkbox"/> Chair Alarm <input type="checkbox"/> Side Rails <input type="checkbox"/> Call Light <input type="checkbox"/> 15 min. Checks <input type="checkbox"/> 1:1 Observation
Other Interventions In Place	<input type="text"/>
<b>CURRENT FALL</b>	
Location	<input type="radio"/> Bedroom <input type="radio"/> Solarium <input type="radio"/> Corridor <input type="radio"/> Bathroom <input type="radio"/> Dining Room <input type="radio"/> Other <input type="text"/>
Fall From	<input type="radio"/> Bed <input type="radio"/> Chair <input type="radio"/> Lift <input type="radio"/> Toilet <input type="radio"/> Trolley/Stretcher

Appendix D (continued)



	<input type="radio"/> Middle Back <input type="radio"/> Lower Back <input type="radio"/> Hip <input type="radio"/> Thigh <input type="radio"/> Knee <input type="radio"/> Lower Leg <input type="radio"/> Foot <input type="radio"/> Ankle <input type="radio"/> Toe
Injury Status	<input type="radio"/> No Apparent Injury <input type="radio"/> Abrasion / contusion <input type="radio"/> Bruise <input type="radio"/> Concussion <input type="radio"/> Death <input type="radio"/> Dislocation <input type="radio"/> Fracture <input type="radio"/> Hematoma <input type="radio"/> Hemorrhage <input type="radio"/> Laceration <input type="radio"/> Loss of Consciousness <input type="radio"/> Sprain/Strain <input type="radio"/> Skin Tear <input type="radio"/> Other <input type="text"/>
<b>MEDS RECEIVED 6 HRS PRIOR TO FALL</b>	
Recent Meds	<input type="checkbox"/> Antihypertensives <input type="checkbox"/> Psychotropics <input type="checkbox"/> Laxatives <input type="checkbox"/> Diuretics
<b>POSITION FOUND</b>	
Position Found	<input type="radio"/> Right Side <input type="radio"/> Left Side <input type="radio"/> Face Up <input type="radio"/> Face Down <input type="radio"/> Sitting <input type="radio"/> N/A
<b>LOCATION OF INJURY - Occurrence #1</b>	
→ Modifier	<input type="radio"/> Right <input type="radio"/> Left <input type="radio"/> Anterior <input type="radio"/> Posterior <input type="radio"/> Lateral <input type="radio"/> Medial
→ Body Part	<input type="radio"/> Head <input type="radio"/> Face <input type="radio"/> Shoulder <input type="radio"/> Neck <input type="radio"/> Breast <input type="radio"/> Chest <input type="radio"/> Abdomen <input type="radio"/> Buttocks <input type="radio"/> Pelvis <input type="radio"/> Upper Arm <input type="radio"/> Forearm <input type="radio"/> Hand <input type="radio"/> Finger <input type="radio"/> Upper Back

	<input type="checkbox"/> Sedatives <input type="checkbox"/> Pain Medications <input type="checkbox"/> Sleep Medications
<b>MEDS RECEIVED 24 HRS PRIOR TO FALL</b>	
New Meds	<input type="radio"/> Yes <input type="radio"/> No
List of New Meds	
PRN Meds	<input type="radio"/> Yes <input type="radio"/> No
List of PRN Meds	

Recall Values   Clear Assessment   Insert Occurrence   Discontinue Occurrence   View Protocol   Associated Data   Go to

*Appendix E****Post-Fall Huddle Survey*****Instructions**

We need your help in evaluating the process of Post-fall Huddles.

If you have participated in a huddle, please fill out this survey and return it to your team leader or supervisor.

Thanks!

- 1) \_\_\_\_\_ **I have participated in a Post-fall Huddle (PFH).**
  - a. True
  - b. False
  
- 2) \_\_\_\_\_ **Participation in PFHs has increased my awareness of the hospital's Fall Prevention Policy.**
  - a. True
  - b. False
  
- {3} \_\_\_\_\_ **PFHs increased my participation in patient safety.**
  - a. True
  - b. False
  
- 4) \_\_\_\_\_ **PFHs are a useful addition to the Fall Prevention program.**
  - a. True
  - b. False
  
- 5) \_\_\_\_\_ **PFHs have caused me to change how I provide care to my patients.**
  - a. True
  - b. False

***Post-Fall Huddle Survey  
(Continued)***

- 5) \_\_\_\_\_ **PFHs increase my job satisfaction by allowing more input into patient care.**
  - a. True
  - b. False

**Comments:**

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