A Hospital Fall Assessment and Intervention Project

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Abstract

- *Objective:* To describe the design and implementation of an inpatient fall prevention protocol.
- *Methods:* A multidisciplinary falls task force developed a fall assessment and intervention tool that evaluates for 7 risk factors, with points assigned according to whether the risk factor is present. Patients with a score > 30 (or patients admitted because of a fall) are considered at high risk for falling. All at-risk patients receive a wrist band and door magnet, a fall prevention guide, are offered hip protectors, and are assessed for orthostatic hypotension. Other interventions (eg, low bed, bed alarm, prompted toileting, medication review) are assigned based on risk factors present. All patients admitted to the hospital are assessed for fall risk regardless of age or condition and reassessed every 12 hours during their stay. The tool was pilot tested on a medical/neurology unit with a high fall incidence rate for 5 months and then rolled out hospital-wide.
- *Results:* Since introducing the fall prevention protocol, total fall rate has dropped from 0.45 per 100 patient-days in 2003 to 0.32 per 100 patient-days in 2005, surpassing the benchmark target of 0.35 per 100 patient-days. Severity of fall-related injuries has also declined.
- *Conclusion:* A fall risk assessment and prevention tool can change staff behavior and increase patient safety.

Falls are common among hospitalized patients, with 2.3 to 7 falls occurring per 1000 patient-days [1]. Approximately 30% of inpatient falls result in injury, with up to 6% resulting in serious injury [1]. Franklin Square Hospital Center recognized that fall prevention was an important patient safety issue and undertook an intervention to decrease patient falls at their institution. This article describes the processes involved in implementing a fall prevention protocol.

Setting

Franklin Square Hospital Center is a 357-bed acute care hospital located in Baltimore, MD. It is the third largest hospital in the state and has more than 2800 employees. Franklin Square Hospital Center is part of the MedStar Health System, a community-based network of 7 hospitals in the Baltimore-Washington area.

Problem Identification and First Steps

Franklin Square Hospital Center had been monitoring its fall rate through online occurrence reporting to the quality performance department. At the end of 2003, the median fall rate at the hospital was 0.45 per 100 patient-days, higher than the Maryland Hospital Association's Quality Indicator Project median of 0.35 per 100 patient-days.

A fall prevention team was appointed to perform a root cause analysis of fall events. A clinical nurse specialist developed a post-fall assessment tool for gathering data on each fall and collected data for 1 year. The data collected profiled our patient fall population. Toileting played a major role in falls, but most patients were continent. The majority of people who fell were taking a psychotropic or blood pressure agent or were on more than 6 medications. About 50% were orthostatic. Prior to the analysis, we had assumed that confused, disoriented patients were more likely to fall. Our data showed, however, that 57% of patients were calm at the time of the fall, 42% were alert and oriented, and only 30% were confused. Although the hospital had a fall risk assessment tool, it was not identifying those at high risk for falling.

To address the problem, the hospital quality council chartered a multidisciplinary falls prevention task force. The team included nurses, nursing management, a physician/geriatrician, nursing educators, a psychiatric clinical specialist, risk management staff, performance improvement/measurement staff, and representatives from physical therapy and pharmacy. The first step taken by the team was a literature search looking at best practices and reviewing existing fall risk assessment tools. Based on its findings, the team decided to continue with a "homegrown" tool but to modify it to include evidence-based assessment and intervention methods.

FALL RISK ASSESSMENT AND PREVENTION TOOL (To be completed on admission, transfer, and once every shift) Patients will remain on the Fall Prevention Protocol for the duration of their hospitalization should any of the following apply: • Admitted as the result of a fall • Fell while hospitalized • Has a fall risk score of 30 or greater on any assessment of fall risk during hospitalization		Date: _____ Shift: _____
FALL RISK FACTORS: Check (❏) all that are positive, record score, and total score below	**POINTS**	**SCORE**
❏ **Unsteady gait**: Timed "Up and Go" test more than 20 seconds (see **Table 1** on back for performance of this test)	20	
❏ **Disoriented**: Patient is not oriented to self, hospital, month/year (all must be correct) *Score a 10 if patient is aphasic unless able to write the answers on paper.	10	
❏ **At-risk behaviors:** (See **Table 2** on back for list of behaviors—if any are present score 20)	20	
❏ **Requires assistance with toileting or has a Foley catheter in place**	10	
❏ **High risk medications:** (See **Table 3** on back for medications—if taking any of these score 10)	10	
❏ **Patient taking more than (4) medications**	10	
❏ **Two falls or more in the past twelve months**	20	
<u>TOTAL SCORE</u>: Anyone with a score of 30 or more points is at significant risk for falling and fall prevention intervention(s) should be initiated (match interventions to the risk factors scored above)		

FALL PREVENTION INTERVENTIONS Circle all interventions taken to prevent falls	D = Done	R = Refused	NA = Not Applicable
IMPORTANT Do for all patients with score of 30 or more ***IMPORTANT***			
❏ Place orange wrist band on patient and "falling star" magnet outside door	D	R	NA
❏ Review "Focus on Patient Safety: A Guide to Preventing Falls" with patient and family	D	R	NA
❏ Apply **hip protector** for women over 65 and men over 75	D	R	NA
❏ Assess for **orthostatic hypotension** (Assess BP in 2 positions: lying/sitting/standing) 20 mm drop in SBP is positive; lying _____ /sitting _____ /standing _____ Notify physician and record VS *Done once in a 24-hour period and reevaluated if patient is hypotensive*	D	R	NA
If patient has unsteady gait (Timed "Up and Go" test more than 20 seconds):			
❏ Place patient in a **low bed** and/or **attach bed/chair alarm**	D	R	NA
❏ Obtain order for PT/OT consult and place in SMS	D	R	NA
❏ Use chair alarm if up in chair	D	R	NA
If patient has disorientation or at risk behaviors:			
❏ Place patient in a **low bed and attach bed/chair alarm**	D	R	NA
❏ Use a **self release belt** – If unable to demonstrate self release, patient needs restraint order	D	R	NA
❏ Order psych liaison nurse consult in SMS	D	R	NA
❏ Ask physician to obtain a geriatric consult if patient is 65 or older	D	R	NA
❏ Ask physician to evaluate patient for reversible causes of cognitive impairment/delirium	D	R	NA
❏ Ask physician to consider using medications to treat delirium	D	R	NA
If patient requires assistance with toileting:			
❏ Assess bowel/bladder function and document on flow sheet	D	R	NA
❏ Monitor Intake and Output and consider bedside commode	D	R	NA
❏ Initiate **prompted toileting** every 2 hours **while awake**	D	R	NA
If patient is on high-risk medications:			
❏ Ask physician to consider changing or reducing number of medications based on pharmacy review	D	R	NA
❏ Attach a **bed/chair alarm** to patient	D	R	NA
Comments: _____ Nurse Signature			

Figure 1. Fall risk assessment and prevention tool.

Table 1. How to perform the timed "Up and Go" test to assess for unsteady gait
1. Use a watch with a second hand and time how long it takes the patient to perform these simple tasks
2. Ask the patient to:
   - Rise from a chair
   - Walk approximately 10 feet
   - Turn and walk back to the chair
   - Sit down
3. Record how long it takes for the patient to do ALL of these tasks
4. Patients who take more than 20 seconds to complete these tasks are at moderate to high risk of future falls
5. You can stop the test at any time after the patient has exceeded 20 seconds

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Table 2. At-Risk Behaviors
- Noncompliance with treatment plan/impulsive/low frustration tolerance
- Pulling at tubes/restraints, etc.
- Poor attention span/distractibility
- Hallucinations: auditory, visual, tactile, somatic
- Paranoid/suspicious
- Restlessness/pacing/excessive movement in or out of bed
- Verbal threats/aggression
- Physical threats/aggression
- Repetitive behaviors-picking at linens, etc.
- Sudden/variable moods
- Excessive/loud speech
- Continued complaints of pain despite pain-directed medications

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Table 3. High-Risk Medications

Class	Example Medications
Diuretics	Furosemide (Lasix), hydrochlorothiazide (HCTZ), bumetanide (Bumex)
Sedatives	Lorazepam (Ativan), alprazolam (Xanax), zolpidem (Ambien), diazepam (Valium), chlordiazepoxide (Librium), promethazine (Phenergan), diphenhydramine (Benadryl), hydroxyzine (Atarax/Vistaril)
Antihypertensives	Atenolol (Tenormin), terazosin (Hytrin), amlopidine (Norvasc), metoprolol (Toprol), verapamil (Calan), clonidine (Catapres)
Opiates	Morphine, fentanyl (Sublimaze), hydromorphone (Dilaudid), oxycodone (Oxycontin/Percocet), hydrocodone (Lortab/Vicodin)
Anticonvulsants	Phenytoin (Dilantin), carbamezepine (Tegretol), gabapentin (Neurontin)

NOTE: Reduce dosage and/or number of medications as appropriate. Particular attention should be paid to drugs written that have been indicated for disorientation, hypertension, seizure control, diuresis, and depression. Table does not include drugs that may be implicated for additional risk through drug interactions. Please consider consulting the pharmacist for comprehensive medication review for falls risk if the patient had more that 4 medications regardless of indication.

Figure 1. Fall risk assessment and prevention tool. (*continued*)

Assessment and Intervention Tool

A new fall risk assessment tool was developed that evaluates for 7 risk factors (**Figure 1**). Points are assigned according to whether the risk factor is present. The first risk factor, unsteady gait, is evaluated by the timed "Up and Go" test [2]. If the patient fails to stand independently and walk 10 feet and back in 20 seconds, they receive 20 points. Disorientation (not oriented to person, place, or time) receives 10 points, and presence of any at-risk behavior (eg, restlessness, hallucinations, threatening speech [Figure 1]) receives 20 points. A major risk factor for falls involves toileting; a significant number of patients are attempting to ambulate to the bathroom when falls occur. Patients who require assistance with toileting or who have a Foley catheter in place receive 10 points. A patient receives 10 points if they are taking high-risk medication (eg, sedatives, antihypertensives, opiates [Figure 1]) and 10 additional points if they are taking more than 4 medications. Patients who have had 2 or more falls in the past 12 months receive 20 points. A total score of 30 or greater (or admission because of a fall) designates the patient as at significant risk for falling.

All patients judged to be at significant risk automatically receive 5 interventions: an orange wrist band; a "Falling Star" magnet placed on the outside of their door to alert caregivers of fall potential; a written guide to preventing falls, which is reviewed with the patient and his family; hip protectors (offered to women older than 65 and men older than 75); and assessment for orthostatic hypotension. If the
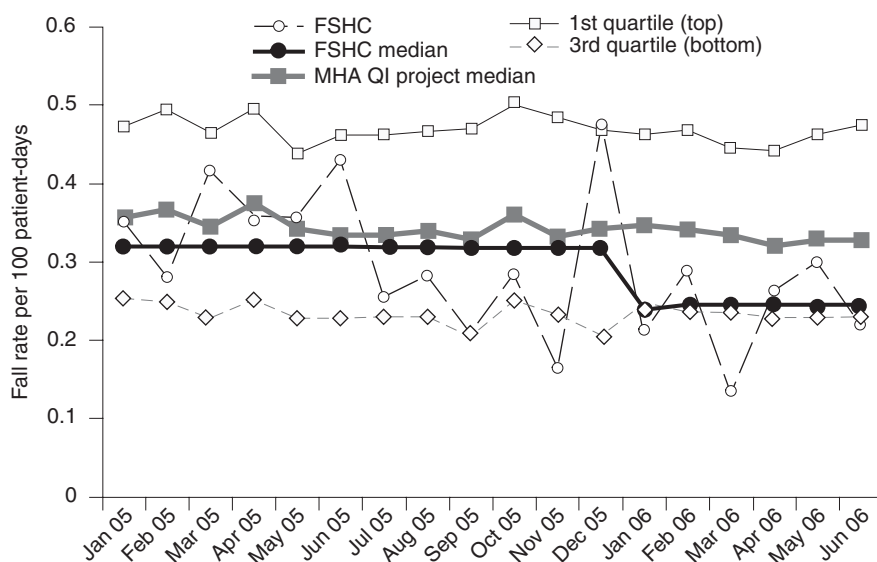
Figure 2. Fall rate per 100 patient-days at Franklin Square Hospital Center (FSHC) 2005–2006. MHA QI = Maryland Hospital Association Quality Indicator.

assessment is positive for orthostatic hypotension (a 20-mm Hg drop in systolic blood pressure), the physician is notified and the patient is reevaluated. Otherwise, the patient is reassessed every 24 hours.

In addition to the automatic interventions, patients also receive fall prevention interventions based on the specific risk factors that are present (Figure 1). Patients with unsteady gait are provided with a low bed or bed/chair alarm and a physical therapy/occupational therapy consult. Patients with disorientation or at-risk behaviors receive a psychiatric nurse consultation, and the physician is asked to obtain a geriatric consult if the patient is aged 65 years or older and to evaluate for delirium. As with unsteady gait patients, the patient is placed in a low bed with bed alarm. Interventions for patients with toileting issues include the initiation of prompted toileting every 2 hours while awake, documentation of bladder/bowel function, and the use of a bedside commode. For patients with medication issues, a bed/chair alarm is indicated, and the physician is asked to consider changing or reducing the number of medications based on pharmacy review.

Every patient admitted to the hospital is now assessed for fall risk regardless of age or condition and reassessed every 12 hours during the hospital stay. Once the patient is designated as a high fall risk, they retain their high-risk status for the duration of their hospital stay.

In addition to the fall risk assessment tool, another valuable component to our fall prevention program is our care coordination rounds, conducted daily on the medical-surgical units. An interdisciplinary team consisting of a nurse, physician assistant, case manager, nurse manager, pharmacist (2–3 days/wk), and dietician (1 day/wk) meet to discuss the total plan of care for all patients on the unit.

This is an opportune time for the nurse and case manager to consult with the pharmacist about at-risk medications. It is also during this time that the fall risk assessment and interventions are discussed to ensure that an accurate assessment was made and that interventions are being followed. Patient fall risk and interventions are also part of the RN-to-RN and RN-to-Care Associate communication at change of shift report. Each shift reports if the patient is at high risk for falls and what interventions are being utilized.

Pilot Test

The falls prevention task force selected a medical/neurology unit with a high fall incidence rate for pilot testing of the new tool. In 2004, the unit documented 70 falls, with several months having as many as 12 documented falls. The pilot unit staff were approached and indicated a readiness for change to improve patient safety. They agreed that decreasing falls and fall-related injury was a priority and that they needed assistance in developing interventions.

We first involved staff in equipment selection, including testing different brands of low beds and bed alarm systems. The alarm system ultimately selected can be programmed so that a message in a family member's or staff member's voice tells the patient not to get out of bed. At first, the staff was skeptical that alarms would work or even that patients would allow alarms to be used. In turn, we introduced a contest that awarded gift cards to the first 25 staff members who provided documentation that a fall had been prevented by their response to the alarm.

We next educated the staff about falls and the importance of fall prevention. We provided an overview of falls, including epidemiology, risk factors, and impact on quality of life, introduced the fall assessment and prevention tool and
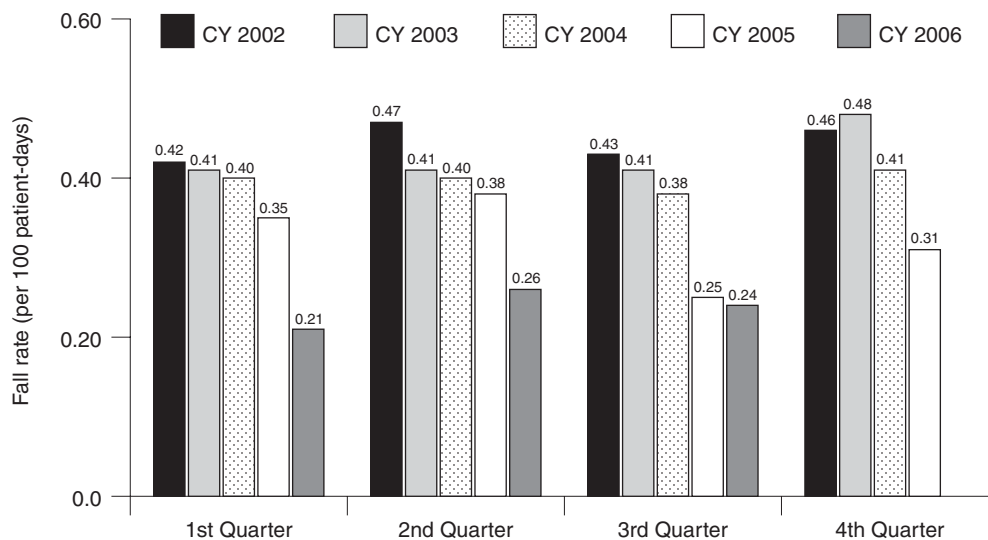
Figure 3. Total hospital patient fall rate. CY = calendar year.

explained how it should be used, and reviewed interventions to reduce fall risk as delineated in the tool. We emphasized that assessment needed to be completed upon admission, on transfer, and every 12 hours. Staff were educated by the nurse educator at our staff meeting as well as through small classes to include all shifts and all caregivers.

The last step was to select a unit champion who would act as a staff resource, promote patient safety, and be the unit fall performance improvement representative. We selected someone who was respected as a mentor and passionate about patient safety. The unit champion analyzed each fall that occurred using the post-fall assessment tool and reported at monthly staff meetings on the number of falls that had occurred and details surrounding each fall (eg, time of fall, activity at time of fall, medications the patient was on), including severity level and whether the assessment and prevention tool had been used properly. This included a discussion of what could have been done differently in cases where the tool was not followed. This information was also posted on a bulletin board for review.

During the pilot, we found that nurses were utilizing the tool only partially. That is, a patient would receive an assessment score of 30 or more, indicating they should be classified as high risk, but if the patient was alert and oriented, nurses were reluctant to impose the interventions. However, through the unit champion's analysis of each fall, they came to recognize the importance of each step in the process and value in using the assessment and interventions to full capacity. As the staff began using the interventions noted on the tool, falls began to decline. The staff saw a fall rate of 1.17 per 100 patient-days in the second quarter of 2004

drop to 0.45 per 100 patient-days in the second quarter of 2005. The number of falls decreased from 70 in 2004 to 37 in 2005 with no serious fall-related injury sustained in the first 6 months of 2005.

Expansion

Our plan following the pilot was to roll out the tool and interventions to the hospital 1 unit at a time. However, the success of the pilot program and an increase in falls and fall-related injury outside the pilot unit led the falls team to embark on an immediate hospital-wide implementation. The necessary equipment was obtained (eg, low beds, alarms), and the education department began training all staff members on use of the assessment tool and interventions. The training material was formatted into a self-directed learning module complete with case studies and posttest. The nurse educators did a massive house-wide in-servicing at staff meetings and scheduled classes on individual units and in central locations during days, evenings, nights, and weekends. All staff members were educated, including nurses, care associates, and secretaries, as well as all those from other departments who would be caring for patients on the unit. The self-directed learning module is still available for new employees as well as for a review on units that may have an increase in falls. Ninety-five percent of staff completed the education prior to the implementation of the tool. Physicians were made aware of the project through grand rounds and medical executive council. Falls prevention assessment was incorporated into the daily care coordination rounds and shift-to-shift communication through education and by adding the information to the interdisciplinary plan of care form.

Results

Since we began using our fall prevention protocol, our total fall rate has dropped from 0.45 per 100 patient-days to 0.32 per 100 patient-days, surpassing our benchmark target of 0.35 per 100 patient-days (**Figure 2**). Severity of fall-related injuries has also declined. Since 2005, level 1 falls (no injury) have decreased by 50%, level 2 falls (minor injury) by 52%, and level 3 falls (severe injury) by 86%.

Further, we have continued to hold and surpass our gains. For the third quarter of 2006, our fall rate was 0.24 per 100 patient-days (**Figure 3**). We have cut our fall rate in half over 2 years. We continue to challenge our team and staff and have reduced our target goal to 0.20 falls per 100 patient-days over the next year.

Summary

We designed and implemented a fall risk assessment and prevention tool that has significantly changed our behavior with regard to fall prevention and patient safety. The key to continued success will be maintaining staff enthusiasm and preventing staff from reverting to old practice patterns. We will need to constantly monitor our progress and have developed an action plan for going forward:

- Nurse managers and the patient safety officer are required to review each fall occurrence reported

- Each nursing unit has a unit champion who reviews the monthly analysis of falls on the unit with staff

- The falls reduction task force meets monthly and reviews fall statistics, severity level of falls, and monitors performance of the assessment and intervention tool

- Continue to focus on fall prevention in daily care coordination rounds

- Education on fall prevention every 6 months via in-service or road show

We recognize that falls cannot be completely eliminated in the hospital. However, prevention efforts can be implemented with minimal extra work, and patient risk can be reduced.

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References

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