

Background and Rationale

Accidental falls are the primary cause of injury in patients ≥ 65 years of age.¹ Falls in the hospital setting are a serious safety concern.² Inpatient falls are a leading cause of death in those ≥ 65 years of age and are the most commonly reported adverse event during hospitalization.² Falls in nursing care facilities and hospitals often result in serious injuries and are associated with decreased quality of life (loss of independence owing to disability and fear of falling)³ and considerable morbidity.⁴

In the United States, hospital falls among the elderly pose a substantial economic burden, with fall-related costs approaching \$20.2 billion in 1994 and projected to reach \$43.8 billion by 2020.⁵ Although the Healthy People 2010 fall-prevention goal, which aimed to decrease the number of fall-related deaths among the older population to no more than 34 per 100,000, was not met,^{6,7} Healthy People 2020 objectives continue to focus on fall prevention.⁸

Pre-existing Fall Prevention Efforts

Abbeville General Hospital, a 60-bed, acute-care, community-based hospital, recently undertook a successful quality improvement (QI) project, but has actively undertaken fall prevention efforts for more than 10 years as follows:

Risk Assessment

Our fall prevention policy requires active participation of the Abbeville General Hospital staff through ongoing fall prevention education. Early identification of fall risk is a routine component of each patient's initial and regular assessments. The initial assessment reviews psychologic status, need for assistive devices, cultural factors, ability to perform activities of daily living, and safety needs and also performs functional screening and assesses general physical status (ie, incontinence, signs of hypoxemia, pain). A Patient Safety Needs Assessment, which was customized by the hospital, is performed each shift as part of each patient's head-to-toe assessment to identify potential for falling and changing needs in relation to safety (Figure 1). (Note: The risk-specific, bed-related fall interventions shown in Figure 1 were not added until implementation of the QI project, which is summarized in this case history.)

Green Dot Protocol

The Green Dot Protocol was initiated in a limited capacity in 2001. A green dot was placed at the time of admission on the armband of each patient considered at high risk of falling (risk level 2 or greater). This strategy made staff aware of patients who were at risk for falls, but additional efforts were required to prevent falls when patients were unattended.

Fall Team Formation

The hospital formed an interdisciplinary Fall Team in 2003, which consisted of direct patient caregivers and nurses from multiple units. The Fall Team determined that the Green Dot Protocol should be implemented hospital wide, regardless of patient point of entry (e.g., emergency room vs. direct admission to a unit), and that every patient should be assessed for fall risk during the initial head-to-toe assessment phase.

Failure Mode and Effects Analysis (FMEA)

Joint Commission Standard LD.5.28 requires each member hospital to select at least 1 high-risk process for proactive risk assessment each year. This requirement is satisfied with an FMEA, which is a systematic analytic method for identifying potential failures in patient safety and implementing prevention measures. The hospital decided to conduct an FMEA on the fall prevention program, which was reviewed by a nursing team, Performance Improvement, and the Executive Committee.

A thorough analysis of all falls on Telemetry and Medical/Surgical units during the period January 2009 through December 2009 revealed that the majority of falls occurred during patient attempts to go to the restroom alone to avoid bothering caregivers. During this period, there were 4 major injuries as a result of falls (hip fracture, rib fracture, and hematoma to the head).

Figure 1. Patient Safety Needs Assessment

Risk Factors	Risk Points	Risk Factor Key	Risk-Specific Interventions																							
Confusion/disorientation	+3	LEVEL 1 = Normal/low risk (0-2)	N/A																							
Sedation/altered mental status	+4																									
Altered elimination (incontinence, nocturia, frequency)	+3	LEVEL 2 = High risk (3-6)	Green dot + activate bed exit alarm Alert and oriented x 3 = set bed exit alarm to zone 1																							
Recent history of fall (not slipping/tripping)	+7																									
Non-adaptive mobility (generalized weakness)	+2	LEVEL 3 = Extremely high risk (>6)	Green dot + activate bed exit alarm Alert and oriented x 2 = set bed exit alarm to zone 2																							
Dizziness/vertigo	+3																									
Other:	+3	LEVEL 4 = When alternatives have failed / patient is at clear risk for injuring self or others	Green dot + activate bed exit alarm Alert and oriented x 1 = set bed exit alarm to zone 3																							
DATE:	Risk Score =	Risk Score =	Risk Score =																							
LEVEL 1 Normal/low risk (final risk score 2 or less)	Time Performed																									
	11 PM	12 MN	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 N	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM		
Call light within reach - ensure patient is able to use																										
Bed in low position - brakes locked																										
Commode at bedside (if needed)																										
Non-slip footwear/assess gait - assist if necessary																										
Assistance with elimination (if assessment indicated)																										
Other nursing interventions																										
LEVEL 2 High risk (final risk score 3 - 6). Implement in addition to previous Interventions.	NA <input type="checkbox"/>							NA <input type="checkbox"/>							NA <input type="checkbox"/>											
Identify patient with green dot on Kardex, apply green dot to armband																										
Night light left on (evening/night shift)																										
Elimination needs assessed Q2 hours																										
Siderail position half, document changes																										
Risk-specific interventions																										
LEVEL 3 Extremely high risk (final risk score >6). Implement in addition to all previous level interventions.	NA <input type="checkbox"/>							NA <input type="checkbox"/>							NA <input type="checkbox"/>											
Commode at bedside (if needed)																										
Bedpan, urinal within easy reach if desired																										
Re-orient patient to environment/TPP as indicated																										
Fall-prevention education																										
Family/sitter present																										
Risk-specific interventions																										
LEVEL 4 When all alternatives have failed/patient is at clear risk of injuring self or others.	NA <input type="checkbox"/>							NA <input type="checkbox"/>							NA <input type="checkbox"/>											
Refer to restraint flowsheet																										
Risk-specific interventions																										
	INIT							SIGNATURE							INIT						SIGNATURE					

Quality Improvement (QI) Intervention

Clinical Setting

Two nursing units (Telemetry [15 beds] and Medical/Surgical [26 beds]) were involved in a QI initiative at Abbeville General Hospital. These units were “closed” (nurses’ stations were enclosed, and each room was a private room with a door that could be shut).

The QI Approach

The QI initiative was a multidisciplinary, evidence-based approach to reducing patient falls and fall-related injuries. The project was implemented in several distinct phases.

Data Collection

“All falls” data were collected and reported quarterly beginning January 2009 (baseline year) and compared with all falls data in 2010 (QI intervention year). Fall-related injuries in 2009 were compared with the fall-related injuries in 2010.

Integration of Bed Technology

Owing to the closed nature of the units, it was important to update bed technology and to ensure that bed alarms could be connected to the nurse call system. On the basis of nursing evaluation and satisfaction surveys, the bed technology in the Telemetry and Medical/Surgical units was updated with the purchase of 41 new beds in June 2009. Beds* were selected with bed exit alarms that were able to be connected directly to the nurse call system and sensitivity zones to detect patient movement, which could be adjusted according to patient fall risk. The decision to purchase the new beds was made according to the following criteria: beds were easy to push, streamlined, comfortable, scale was easy to use, the bed exit alarms had multiple zones of patient improvement sensitivity and they could be connected to the nurse call system.

Improvements to Call Light System

As part of the QI initiative, all beds were connected to the existing call light system.

Comprehensive Education

Bed technology education: Initial Bed in-servicing was provided by the Account Manager, with a demonstration bed delivered in November 2008, followed by mandatory hands-on nurse in-servicing in June 2009, which included a competency checklist. “Super-user” training was provided to the nurse manager and nursing supervisors. Quarterly unit meetings were held throughout 2009 to discuss patient safety and performance improvement, and individual employee meetings were scheduled as deemed appropriate.

Electronic Medical Record Documentation System and Patient Safety Needs Assessment

As part of continuous QI efforts, an electronic medical records (EMR) documentation system was implemented in March 2011. The Patient Safety Needs Assessment – which 1) scores patient risk for falls, 2) must be recalculated every shift, and 3) is part of the hospital’s head-to-toe assessment and documentation – is integrated into the EMR.

Compliance with Fall Prevention

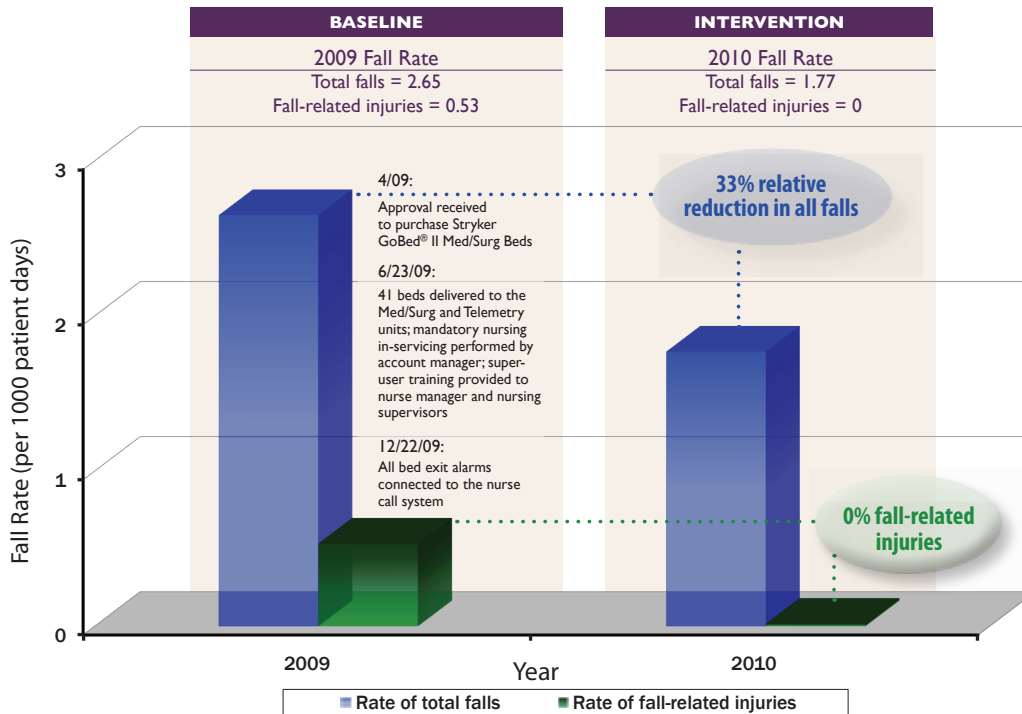
The EMR allows the hospital to audit nursing documentation and assists nurses with adherence to fall prevention efforts. The EMR prompts the nurse to complete the Patient Safety Needs Assessment at every shift, and if a patient’s fall risk is level 2 or greater, the nurse is prompted to set the patient’s bed exit alarm and document that it is turned on.

† Stryker GoBed® II Med/Surg Bed configured with Chaperone® Bed Exit System and 3-Zone Control®, Stryker Corporation, Kalamazoo, MI

Results

In 2009, there were 7521 patient-days, with a fall rate of 2.65 per 1000 patient-days and 4 falls resulting in patient injuries (Figure 2). In 2010, there were 7317 patient-days, with a fall rate of 1.77 per 1000 patient-days and no falls resulting in patient injuries. By the end of 2010, there was a 33% reduction in total patient falls and a 100% reduction in fall-related injuries compared to 2009 (Figure 2). These results indicate that our fall-prevention efforts helped to reduce fall-related injuries.

Figure 2. Total Falls and Fall-Related Injuries: 2009-2010



Clinical Implications

- Evidence-based, multifaceted QI efforts can be successful in decreasing patient falls and fall-related injuries.
- Bed technology and equipment should be updated on a regular basis.
- Connecting bed-exit alarms to nurse call lights can help the nursing team with rapid response efforts.
- Comprehensive, ongoing caregiver product and process education – that includes in-servicing on bed exit system utilization, as well as competency and compliance monitoring – is essential for preventing patient falls and fall-related injuries.

References

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