Preventing in-patient falls:

The nurse's pivotal role

By Ruby Z. Chu, PhD, RN, CCRN

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FALLS, A MAJOR safety concern for hospitalized patients, increase length of stay, reduce quality of life, and are costly to patients and hospitals alike. Fall prevention requires a multidisciplinary approach to create a safe patient environment and reduce injuries related to falling.

Nurses' education and a fall prevention program are both crucial to preventing falls. This article discusses practical, evidence-based interventions that nurses can implement for fall prevention.

Impact of falls

Patient falls not only increase patient length of stay and healthcare costs but may also trigger lawsuits resulting in settlements of millions of dollars due to patient injury.[1] As of 2008, the Centers for Medicare and Medicaid Services no longer reimburse any hospital-acquired conditions that lengthen hospital stay.[2] Hospitals now absorb the extra medical costs of patient injuries sustained in falls, which are considered preventable or "never" events.[3]

Since 2009, The Joint Commission (TJC) sentinel event database received 465 fall-related reports of injuries that happened mostly in hospitals.[4] Falls associated with serious injuries are among the top 10 reported sentinel events in the TJC sentinel event database. Because the stakes are so high, hospitals, nurses, and other healthcare professionals are challenged to ensure that an effective fall prevention program is in place to prevent hospital falls.[5]

Who's at risk, and when?

Abreu's 3-year study found that the mean age range for patients who fell was 64 to 75 years.[6] Increased comorbidities and other medical

conditions, such as orthostatic hypotension or muscle weakness due to physiologic changes, predispose patients to falling.[6]

The incidence of falls was highest in the morning, followed by the night shift (2400 to 0800 hours), and was lowest during the evening shift (1600 to 2400 hours). The occurrence of falls in the evening and night shifts increased from 39% in 2007 to 57% in 2008 and 64% in 2009.[6]

The low rate of falls in the evening could be due to increased visitors, who prevent the patient from trying to ambulate or go to the bathroom.[7] In the morning, patients are busy with self-care activities and may not call the nurse for assistance. Examples of such activities include going to the bathroom or sitting in a chair while trying to reach for belongings, resulting in a fall out of the chair.[8]

In Abreu's study, most falls occurred in patient rooms, corridors, and bathrooms.[6] Most falls in 2007 were due to environmental factors, whereas in 2009 most were due to intrinsic physiologic factors.[6] Furthermore, in 2008 and 2009 the major cause of falls was the patient attempting to get up in the patient room.[6]

A study of older adults by Tsai et al. found that the patient's bedside was the hotspot for fall injuries: 83% of falls in their study occurred there.[9] Men's fall rate was higher (55%) than women's (45%). Falls in men may be due to their engaging in risky behaviors. For example, men may be more likely to refrain from asking or calling for assistance when getting up to use the bathroom even after being instructed to do so by the nurse.[10]

Fall prevention requires a multidisciplinary approach to create a safe patient environment.

In a quantitative study of 577 hospitals, 77% of falls weren't witnessed and 85% of falls weren't associated with injury.[8] Additional analysis of qualitative data in 40 incidents showed that falls increased during patient transfers to or from the bed.[8] Significant factors associated with falls involved physical conditions such as generalized weakness, unsteady gait, lower extremity weakness, and impaired limb movement; and behavioral factors, such as high-risk patients who refuse assistance. Medications contributing to falls included antihyperglycemic and antihypertensive agents. Personal factors included the family's lack of awareness of fall management.[8]

According to Tsai et al., an increase in the population of older patients with comorbidities contributes to fall risk. Older adults often require close attention and assistance.[9] They also experience debilitating changes in physical and psychological function, visual and hearing impairment, and musculoskeletal weakness, and they typically use multiple medications. These are all risk factors for falls.[9]

Healthcare factors related to falls

These hospital- and staff-related factors can affect the risk of falls.

• ***Call lights.*** Sometimes patients are hesitant to call or "bother" nurses who seem busy. Patients with dementia may not understand the purpose of the call light.[11] Quick responses to call lights are associated with a lower fall rate and fewer injuries. More patients using call lights are associated with a decreased incidence of falls.[12]

• ***Bed and chair alarms.*** These alarms alert nurses when patients attempt to get out of bed or a chair without help. Alarms distract patients so they stop and wait for help, and they prompt nurses to assist the patient. Many hospital beds are equipped with built-in alarms. Chair alarm sensor pads are another alternative.[13] Alarms should be used judiciously in patients with paranoia and psychotic disorders, and in those using medications that can alter their memory functions.[13] A study by Shorr et al. concluded that the use of bed alarms failed to provide valid evidence to support the efficacy of the monitoring device in fall prevention.[14]

• ***Nurse-to-patient ratio.*** Studies have produced conflicting results about the relationship of falls to short staffing and nurse workload.[15,16] One study in a large pediatric population found a significant relationship between

nurse staffing and pediatric falls in the hospital.[17] Analysis was stratified by shift: The night shift had low staffing levels and significantly high fall rates compared with the day shift. Many families weren't present to watch the children at night and fewer nurses were working, possibly contributing to a high fall rate during the night shift. Advising high-risk units of the need for adequate staffing could reduce fall incidents.[17]

Another study of 160 patients in medical-surgical units supports the critical presence of RNs in fall reduction.[7] Communicating effectively with ancillary staff and exercising critical decision making in patient care are essential in fall prevention management.[7]

• ***Environmental factors.*** Clutter, an unfamiliar environment, insufficient light, and slippery floors may increase a patient's fall risk.[18] Research revealed that environmental factors commonly causing falls are related to tripping hazards and poor lighting, especially for those with poor balance.[18] Adequate lighting and avoiding clutter are helpful for older patients.[9,18]

Patient-related risk factors

In a study by Johnson et al., most falls (77%) weren't witnessed because patients didn't seek assistance when moving in bed or walking to the bathroom, even when instructed to do so.[8]

According to the study by Cox et al., three intrinsic risk factors associated with falls in medical-surgical patients were age, use of opioid-sedative medications, and high fall-risk assessment level.[7] Extrinsic factors such as an unsafe environment accounted for 25% of falls.[7]

Polypharmacy, or using multiple medications, can affect balance and cognition, increasing the risk of falling.

A history of falling was a significant predictor of multiple falls.[9] Those in the high fall-risk group had a greater chance of injury.

• ***Sensory impairment.*** Eyesight deteriorates with age, and fall risk increases when visual impairment is severe. According to a study by Skalska et al., certain age-groups (55 to 59 years and over age 64) have a high incidence of falls related to impaired vision.[19] Similarly, more older adults who fell had moderate-to-severe hearing loss compared with those who didn't fall. Hearing impairment can distract patients, and vision deficiencies can impact their ability to assess their surroundings for obstacles. In this study, adults age 65 or older fell twice as often as those age 55 to 59 years.[19]

• ***Medications.*** Many patients don't understand that polypharmacy increases their risk of falling. Using multiple medications can affect balance and cognition.[20]

Costa-Dias et al. found that 53% of patients using psychotropic drugs had a higher fall prevalence.[21] The first-generation antipsychotic haloperidol and the opioid analgesic tramadol contribute to fall risk.[21] Cardiovascular medications such as diuretics and antihypertensives can cause hypotension and have been associated with eight times the recurrence of falls.[20]

• ***Gait and balance disorders.*** Normal physiologic changes associated with aging result in decreased muscle strength, impaired balance, and decreased joint range of motion. Other patient-related factors associated with falls include a history of falls, frailty, loss of muscle strength, and decreased walking speed. Lack of assistance for high-risk patients and being in a hotspot (an area with a high risk for falls) also increase the likelihood of falling.[22]

• ***Aging.*** A study of adults age 65 and older (N = 12,923) and 85 and older (N = 12,684) showed that of people 85 and older, 21.3% had a fall in the last 3 months and 7.2% suffered fall injuries necessitating medical attention and limiting activities for a certain period of time. Those 65 and older had one or more falls in previous 3 months (16.3%) with 5.1% suffering injuries.[22] The study of older adults by Tsai et al. reported 368 patient falls by older adults, with 269 (71.2%) resulting in injuries. Most injuries were minor (56.3%) and 30 were head injuries (7.9%).[9]

Although cognitively intact patients may call for assistance, patients with dementia may not call for help due to cognitive impairment.[13]

Keeping an eye on patients with centralized video monitoring

This innovative strategy was implemented by the Denver Health (DH) system. In 2009, DH system's fall rate was above the national benchmark despite its fall prevention program, which included hourly rounding, yellow armbands, fall alert signs, fall assessment tools and risk scores, and one-to-one sitters. When the incidence of patient falls continued to rise, DH explored other innovative approaches including a systematic implementation of the centralized video monitoring (CVM) program, which requires a collaborative and multidisciplinary team approach to fall prevention. In 2010, DH piloted the CVM program in one acute care unit, monitoring 8 to 10 patients. The pilot program then expanded to other acute care units. Before the CVM program, one-to-one sitters were in high demand, with as many as 30 sitters needed per patient. During the initial 3 months of implementation, the CVM program prevented 57 fall incidents. Use of one-to-one sitters was replaced with CVM. The first-quarter staff savings was $392,200 above the cost of the investment technology. A tracking log, "Great Saves," was developed to document informal feedback that evidenced the use of CVM instead of sitters and fast transfer of patients to other skilled units reduced patient falls. Falls were prevented, for example, when patients were getting out of bed and the staff responded right away to the monitor alert. The monitor alert is activated when the patient is trying to stand at the edge of the bed. Staff will be at the bedside within 5 minutes to assist the patient. The patient units' percentage of National Database of Nursing Quality Indicators fall compliance increased since the fall prevention program was started.[27]

In another institution that also implemented a video surveillance program, audio-video surveillance cameras were installed in patient rooms to visualize and communicate with the patient. Patients and families were educated. Staff had specific roles such as monitoring techs, primary nurses providing direct patient care, and staff members who are nearby. All staff members were educated about their specific roles and responsibilities. Video surveillance signs alerted families, visitors, and staff of the room surveillance. In June 2012, the project began with 4 monitored beds; it expanded to 14 beds in 6 months. A total of 2,500 patients were monitored over 2 years, with only two fall incidents. The overall expense of installing the equipment was $82,000. In return, the institution saved $250,000 yearly due to decreased use of unlicensed assistive personnel, and patient safety was enhanced.[28]

Fall prevention measures

Nurses on the healthcare team can play a significant role in providing evidence-based interventions for fall prevention with these interventions. (See *Keeping an eye on patients with centralized video monitoring.*)

• ***Hourly rounding.*** Hospitalized patients rely on nurses' availability. Assessing patients every hour helps to make patients feel safer and less apprehensive.[23] Hourly rounding to address patient needs using the "four Ps" (pain, potty, position, and possessions) engages patients in care.[23] The goals of four Ps are to prevent patient falls and pressure injuries, ensure the patient is assisted to the toilet, doesn't get up unsupervised, is helped when changing position in bed, has pain level assessed, and has easy access to possessions such as call bell, water, and tissues.[23] Asking about patients' needs gives patients an opportunity to express their concerns without thinking that they're disrupting the nurse's work.

Saleh et al. performed a study of hourly rounding in a rehabilitation unit.[24] Nurses assessed patients' need to use the toilet and their need for pain medications during a regular hourly check. Findings included significant reductions in call light use, a decrease in the incidence of falls, a 50% reduction in pressure injuries, and a 7.5% increase in patient satisfaction scores.[24]

• ***Communication.*** Providing written information to patients and families, explaining the need to call for assistance, placing the call light within reach, and changing patient position are critical for fall reduction. Using a whiteboard in the nursing station alerts nurses of patients at high risk for falls.[5] A huddle after a fall is a communication tool used to inform the staff of falls that happened in the last 24 hours.[5] By disclosing unit fall rates throughout the hospital, each unit can learn from other units and be proactive in fall prevention.

A fall prevention toolkit is another method of communicating with the staff about a patient at risk for falls. A fall toolkit (yellow wristband, yellow socks, and a yellow magnet at the door) aids communication. Other communication tools are color-coded wristbands and fall alert signs posted at patient doors.[8] Staff in the hospital should be educated about and be alert to these cues to prevent falls.[25]

• ***Medication review.*** The problems commonly caused by polypharmacy include frequent urination, confusion, dizziness, and impaired balance that

would increase patient risk of falling. Reviewing and modifying the use of different medications is crucial. Pharmacists are integral in educating clinicians and patients alike.[5] Pharmacists should collaborate with the healthcare team about medication reactions that increase the risk of falls. The Beers Criteria is an important source of information about inappropriately prescribed medications in older adults.[26]

The American Geriatrics Society revised and increased the scope of the criteria to avoid medication reactions in older adults. The revised criteria identified risky medications that have limited benefit for those age 65 and older.[26]

• ***Education.*** In many hospitals, a fall prevention awareness week is used to promote fall prevention.[5] The event, which may include poster presentations and lectures, can inform clinicians about the dangers of polypharmacy and other fall-related risk factors.[5]

Hospital newsletters can also be used to disseminate information. Safety education can be provided via internal TV channels in patient rooms to help educate patients and families about fall prevention during hospital stays.[5]

Educational initiatives should support the following interventions:

• Post a fall risk alert sign at the patient door.

• Use bed alarms, and keep the bed in a low position.

• Institute the use of fall alert color-coded bracelets to clearly communicate with the staff patients' fall risk status and identify fall risk patients.

• Round hourly.

• Educate patients and families about fall prevention.[8]

• Frequently remind older adult patients with an altered mental state to use the call bell and ask for assistance.

Postfall interventions

Before any falls occur, a baseline fall assessment should be performed so it can be compared to postfall assessment. Postfall interventions involve complete physical assessments and hospital system incident reporting.[1] Before moving a patient after a fall, assess the patient's level of consciousness, ABCs, vital signs, presence of pain, and apparent injuries, according to facility policy and procedure. Nurses must be aware of the patient's health history, lab results, and prescribed medications that could increase the risk of injury from a fall (for example, warfarin). After the assessment, healthcare providers need to be notified of the incident, any injuries, and other pertinent data.[1]

Healthcare providers need to use caution when prescribing opioid analgesics for patients following a fall until neurologic status has been assessed.[1]

For patients with cardiovascular disorders, additional interventions include obtaining an ECG, blood glucose level (important in patients with diabetes), and Spo_2. Anticoagulation or antiplatelet medications are risky, particularly for patients who sustained a head injury from the fall because of the risk for cerebral hemorrhage and other internal or occult bleeding.[11] Report to the healthcare provider abnormal hematologic or coagulation results, bleeding disorders, and medications that may cause bleeding.[11]

Immediate communication with the healthcare provider after a patient fall allows a prompt diagnostic workup, such as X-rays to rule out fractures or head computed tomography to identify intracranial bleeding needing further intervention.[1]

A step in time

Fall prevention is a major issue in healthcare organizations. Falls can drastically change patients' level of functioning and quality of life.

As patient educators, nurses play a significant role in fall prevention. Involving the multidisciplinary team in care planning is also essential to promote patient safety. Implement the evidence-based fall-prevention interventions described in this article to improve patient safety in your facility. ■

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Ruby Z. Chu is a clinical nurse educator at Michael E. DeBakey VA Medical Center in Houston, Tex.

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