

# Bed enclosures: Suitable safety net?

*Healthcare personnel with the authority to set patient safety initiatives should consider this technology as a strategy to enhance clinical outcomes.*

By Tonya Haynes, ANP-C, MSN, and Elizabeth S. Pratt, ACNS-BC, MSN

**P**atient falls are a leading cause of adverse events and injury in hospitals. Approximately 42% of falls result in some form of injury, and 8% result in serious injury.<sup>1</sup> Falls can result in increased length of hospital stay, discharge to a long-term care facility, hospital litigation, and increased healthcare costs.<sup>1</sup> By 2020, the cost of fall injuries is expected to reach \$43.8 billion.<sup>2</sup> While falls are most prevalent in patients age 65 or older, it's imperative that fall assessment and prevention strategies account for all populations serviced by the hospital.

### Setting strategies

The Agency for Healthcare Research and Quality and the Institute for Healthcare Improvement (IHI) recommend the assessment of patients' fall risk as an initial fall prevention strategy in the hospital setting. Specifically, patients should be screened for falls on admission using a standardized assessment instrument followed by a repeat assessment at regular intervals and with change in clinical status.<sup>3</sup> The IHI recommends the following fall prevention strategies:

1. Assess risk of falling and risk for a serious or major injury from a fall.
2. Communicate and educate about patients' fall risk.

3. Standardize interventions for patients at risk for falling.

4. Customize interventions for patients at highest risk for a serious or major fall-related injury.<sup>3</sup>

Due to the complex nature of patients in the hospital setting, nursing leaders should determine how nurses will meet the aforementioned fall prevention strategies and consider what interventions best meet their patients' needs.

Patient safety specialists and nurse managers are finding that environmental hazards in the hospital setting have significant impact on patient safety. Environmental considerations include lighting; pathways; floor surfaces; placement and stability of room furnishings, location of patient's call light, telephone, and personal belongings; and position and functionality of hospital equipment. The equipment device most commonly used by hospitalized patients is the hospital bed. Believed by many healthcare providers to protect patients from falls and injury, bedside rails are used extensively throughout hospitals and residential care environments as a safety device. However, numerous adverse incidents involving body entrapment have been linked to the use of bedrails, which have resulted in serious injury to

the bed occupants and, in more extreme cases, fatalities.<sup>4</sup> In response to continued reports of patient entrapment, the U.S. Department of Health and Human Services, the FDA, and the Center for Devices and Radiological Health issued recommendations related to hospital beds and hospital bed accessories. The published report identifies body parts at risk for entrapment and locations of hospital bed openings that are potential entrapment areas, and recommends dimensional criteria for these devices.<sup>5</sup>

### Considerations

Thorough patient assessment and identification of fall risk factors are critical elements of fall prevention. Patients identified as a fall risk benefit from patient- and condition-specific initiatives. Careful consideration must be given to the selection of safety measures for patients with altered self-awareness due to medication or illnesses, impaired alertness or balance, and visual or peripheral neuropathies. Common fall prevention strategies include environmental modifications, height-adjustable beds, alarm devices, medication adjustments, increased monitoring, and restraint alternatives such as jackets and belts.



## Falls/wandering

A safe alternative for patients with altered self-awareness and/or neurologic impairments is bed enclosure technology. Bed enclosure involves the use of a canopy attached to a height-adjustable bed to promote patient safety. The canopy has zippered panels for patient access and ports for I.V. lines, drainage lines, and the nurse call button. Though classified as a restraint, bed enclosure is less restrictive than other restraint options.

Benefits of the use of bed enclosure include freedom of movement, fall risk reduction, and elimination of the need for side rails when the patient is unattended, which avoids the risk of the patient being trapped in side rails, or between the mattress and side rails. As with all

restraints, use of bed enclosure technology requires a physician's order and assessment of the patient and equipment at regular intervals.

Indications for bed enclosure technology include cognitive impairment and severe risk of falls due to clinical conditions. Contraindications include violent or self-destructive behaviors and claustrophobia. Review the warnings and precautions listed by the manufacturer.

The decision to utilize bed enclosure as a patient safety initiative should be based on thorough patient assessment and consideration of indications and contraindications. Though not appropriate for every patient at high risk for falls, bed enclosure offers a safe solution to specific patient populations in

the hospital setting. Healthcare personnel who have the authority to select patient safety initiatives should consider bed enclosure technology as a strategy to enhance clinical outcomes.

### Patient-centered care

The Institute of Medicine has set six aims for improvement in healthcare: safe, effective, patient-centered, timely, efficient, and equitable.<sup>6</sup> In the acute care setting, the focus should be to ensure patient safety and to respect the patient and family's needs. Patient-centered care emphasizes that systems work if care encompasses compassion, empathy toward needs, and recognition of patient's preference. Staff must provide evidence-based nursing, including the best clinical expertise and circumstance, research, patient preferences, and healthcare resources.<sup>7</sup>

In our case study, the bed enclosure device meets the qualifications for evidence-based practice. Direct physical restraints are more restrictive and may limit the patient's physical ability. The patient is at high risk for injury to himself and others. To support the best practice of using the least restrictive device, the interdisciplinary team felt that the bed enclosure device was the best choice for Mr. Jones. Because of his restless and impulsive behavior, the bed alarm could be an alert that's too late to prevent injury. The nursing staff frequently found the patient far from the bed by the time they reached his room. The bed enclosure device provided a safe place for the patient to rest and could be opened for meals and physical and occupational therapy.

Use of the bed enclosure device at this hospital has resulted in positive

### Case study

Walter Jones\* was admitted to an acute medicine nursing division for metabolic encephalopathy and diabetic ketoacidosis. He had a history of labile blood glucose levels with insulin resistance and poor nutrition in addition to heart failure and renal insufficiency. Mr. Jones had fallen at home. He presented with a loss of cognitive function, personality changes per family report, inability to concentrate, and impulsive behavior. Mr. Jones' family reported that prior to admission, he was running into furniture in the house and couldn't follow directions. Upon arrival to the medicine division, Mr. Jones' BP was 160/90. His blood glucose was elevated at 345, and the insulin protocol was initiated with basal, bolus, and correction doses. Positive ketones indicated that the patient was in ketoacidosis. Normal saline was initiated in the ED and continued on the medicine division. Haldol by mouth was administered for the treatment of acute delirium and metoprolol and amlodipine for his hypertension and heart failure. Mr. Jones's head was wrapped with gauze from several skin tears on his scalp from falling. His head computed tomography was negative for an acute bleed.

The nursing staff initiated the Fall Protocol, placing the patient on a low bed and bed alarm and a room close to the nurses' station due to the patient's history of falls and climbing out of bed even after direction. Communication among the caregivers included that all staff should respond immediately to the bed alarm to prevent injury to the patient. The nursing staff had difficulty managing the patient who was consistently climbing out of bed around the room with the I.V. pole. Fluids were discontinued after 2 L. The patient was agitated and had impulsive behavior, which was difficult for the nursing staff to redirect. The patient had severe cognitive impairment and was found wandering into another patient's room on the nursing division. After the initial day, an interdisciplinary meeting was held with nursing staff, the physician, social worker, and the clinical nurse specialist. It was determined that a bed enclosure device would be safest for the patient. The physician spoke with the family about the patient's safety and the decision to use a bed enclosure.

*\*patient's name and other details changed for confidentiality.*






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outcomes, specifically, the prevention of falls and injury in patients who meet the qualifications for the device. The bed enclosure device is available by an outside vendor, which arrives within 4 hours of the order. The bed provides a calm environment, reducing light and



**Use of bed enclosure technology requires a physician's order and assessment of the patient and equipment at regular intervals.**

external stimuli. Patients may have a more restful sleep when the device is employed.

Interdisciplinary care ensures communication among caregivers and transparency of the care plan with the family. Coordination of care is particularly important for patients, such as Mr. Jones, due to the complex nature of the case and the physical and emotional support needed for the patient and family. After learning of the clinical-safety issues and functionality of the bed enclosure device, the family supported the decision to utilize the bed. Mr. Jones' family members were included in his transfer to the enclosed bed that evening.

Mr. Jones had an extended length of stay in the hospital due to the complex nature of metabolic encephalopathy and insulin resistance. The patient was placed in a chair at the nurses' station for each meal and worked with physical therapy routinely for exercise. While the patient was in his room, the bed enclosure device was employed. Mr. Jones never fell or experienced a physical injury during his admission. He was discharged safely to a skilled nursing facility. The interdisciplinary team celebrated the prevention of harm with this patient and shared the success of the enclosure device with the hospital leaders and the manufacturer. Using the bed enclosure for the appropriate patient who meets the criteria can be a life-saving measure. **NM**

#### REFERENCES

1. Krauss MJ, Nguyen SL, Dunagan WC, et al.. Circumstances of patient falls and injuries in 9 hospitals in a midwestern healthcare system. *Infect Control Hosp Epidemiol.* 2007; 28(7):544-550.
2. Institute for Healthcare Improvement. Transforming care at the bedside how-to guide: Reducing patient injuries from falls. <http://www.ihim.org/ihim/Topics/PatientSafety/ReducingHarmfromFalls/Tools/TCABHowToGuideReducingPatientInjuriesfromFalls.htm>.

3. Currie L. Fall and injury prevention. In: R. Hughes, ed. *Patient safety and quality: An Evidence-Based Handbook for Nurses*. Rockville, MD: Agency for Healthcare Research and Quality; 2008.
4. Boocock MG, Weyman AK, McIlroy R. Bedside safety rails: assessment of strength requirements and the appropriateness of current designs. *Ergonomics.* 2006;49(7):631-650.
5. United States Department of Health and Human Services, Food and Drug Administration, & Center for Devices and Radiological Health. Hospital bed system dimensional and assessment guidance to reduce entrapment. <http://www.fda.gov/cdrh/beds>.
6. Institute of Medicine. Crossing the quality chasm: A new health system for the 21<sup>st</sup> century. <http://www.iom.edu/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.ashx>
7. DiCenso A, Guyatt G, & Ciliska D. *Evidence-Based Nursing: A Guide to Clinical Practice*. St. Louis, MO: Mosby; 2005.

At Barnes-Jewish Hospital, St. Louis, Mo., Tonya Haynes is a nurse practitioner and Elizabeth S. Pratt is a clinical nurse specialist.

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