Falls are the leading cause of accidental death and non-fatal injuries in older adults. Nearly a third of community-dwelling individuals over the age of 65 fall each year, but the incidence is considerably higher in health care settings, with the highest rates (50% to 75%) occurring in long-term-care facilities. The annual death rate from falls averages 41 per 100,000 people and has been increasing in the past decade. In addition to increased morbidity and mortality, falls are associated with an increased length of stay in hospitals and significant costs. The estimated total annual costs are $16 to $19 billion for nonfatal fall-related injuries and approximately $170 million for fall-related deaths; the average cost of each fall-related injury is $24,962.

Seventy percent of falls occur in underutilization of the alarms. Several recommendations have been made to lessen the incidence of falls due to their preventable nature. There are several risk assessment scales available, such as the Morse and Hendrich scales, and the Institute for Healthcare Improvement (IHI) has created a tool to enable individual institutions to identify patients who are at risk for injury from falls and implement interventions to prevent or lessen these injuries. In addition, the Joint Commission on Accreditation of Healthcare Organizations has listed several risk reduction strategies for fall prevention, and the Agency for Healthcare Research and Quality (AHRQ) has developed an evidence-based program for fall and injury prevention. Because more than half of all falls in the health care setting occur at or near the bedside, many intervention strategies include the use of bed-exit alarms, along with a low-rise bed that includes siderails.

Adventist Hinsdale Hospital is a 354-bed teaching hospital in Hinsdale, Illinois. In the hospital's Neurological Step Down Unit, the fall rate was 9.1 per 1000 patient days in the 2nd quarter of 2009 (9 falls/982 patient days). The fall rate for the Neurological Step Down Unit was substantially higher than the national benchmark rate. A survey performed to determine the reasons for this higher fall rate revealed that there were multiple different types of beds and bed-exit alarms in use in the hospital, with each type of alarm having its own specific instructions. The wide variety of instructions led to staff confusion, resulting in underutilization of the alarms.

The purpose of the QI initiative was to improve patient safety by reducing the number of falls; to decrease the clinical costs associated with patient falls and related injuries, as well as legal settlement costs; and to improve staff morale and efficiency.

During the test period, the QI initiative reduced the patient fall rate by 55%, from 9.1 per 2nd quarter 2009 to 4.08 per 4th quarter 2009 per 1000 patient bed days. The fall rate continued to improve over time, decreasing to 3.08 by the 2nd quarter 2010, for a total relative reduction of 66% (Figure 1). This reduction in falls is estimated to have resulted in savings of ~ $125,000 from 2nd Q 2009 to 2nd Q 2010 (Figure 2). In addition, the nursing surveys revealed a 100% staff competency rate, as well as a 100% rate of satisfaction with the standardization program (Figure 3).

The QI project was initiated in the 22-bed Neurological Step Down Unit in September 2009 (Figure 1). A Unit Champion and Super Users were selected to receive in-depth training and act as resources for all nursing staff on the unit at all times. All beds on the unit were replaced with fall-prevention beds that were low in height and contained a multi-zone bed-exit system, a retractable frame, and extensive sidereal coverage; these beds were tagged as “Neurological Step Down Beds Only” so that they remained on the unit. All nursing staff received in-depth training on appropriate use of the beds and the bed-exit alarm system. In addition, all nursing staff received comprehensive fall-prevention education.

The period from October 1, 2009, to December 31, 2009, was chosen as the test period. During the test period, falls were tracked on the unit as usual, with the addition of bed-exit alarm usage tracking at the time of a fall. At the end of the test period, the unit fall rate was compared with those for previous quarters and with national benchmarks. Staff members were surveyed to measure competency and satisfaction with equipment standardization at 30, 60, and 90 days after the start of the quality improvement initiative.

REFERENCES
Work group convened in July

August 2009

Staff questioned on the perceived reasons for why the number of falls was not reduced. It was determined that the nurses felt the bed exit alarms were often not used because it was difficult to remember all of the specific instructions for each of the different bed alarms. Nurses felt the confusion related to the alarms led to an underutilization of the bed exit alarms.

September 2009

The 22-bed Neuro Step Down Unit was chosen to pilot a program to standardize the beds/bed exit alarms on the unit.

Super Users identified for retraining in mid Sept. 2009—these Super Users were the first people retrained on the use of the beds and alarms.

Staff received training during the last 2 weeks of Sept. 2009.

Beds were relocated during the last week of Sept. 2009 so that the 22-bed Neuro Step Down Unit had the same type of bed throughout the unit. Housekeeping assisted in moving beds as patients were discharged and beds became available. The beds were tagged with the Neuro Step Down name and staff on the unit were informed to ensure these beds remained on the unit.

October 2009


November 2009

Nurses were surveyed at the 30-day mark—first week of Nov. 2009.

100% of the nurses responding felt the standardization of the bed equipment made their job easier.

100% of the nurses responding felt the bed exit alarms were a useful fall reduction tool.

December 2009

Nurses were surveyed again at the 60-day mark—first week of Dec. 2009.

100% of the nurses responding felt the standardization of the bed exit alarms made their job easier.

100% of the nurses responding felt the bed exit alarms were a useful fall reduction tool.

Figure 3. Staff Competency and Satisfaction at 30, 60, and 90 Days

Data points measured at 30, 60, and 90 days

- Staff Competency
  - Staff indicated the proper way to zero the bed before a patient is admitted
  - Staff indicated the use of bed exit zone 2 if patient’s fall score is 51+

- Staff Satisfaction
  - Staff felt the education gave them a thorough understanding of the bed and its fall prevention technology
  - Staff felt the bed exit technology was easy to use
  - Staff felt the bed was a useful fall reduction tool
  - Staff felt having the bed standardized in NSD made doing their jobs easier