Transforming Care at the Bedside

How-to Guide:

Reducing Patient Injuries from Falls

Transforming Care at the Bedside (TCAB) is a national effort of the Robert Wood Johnson Foundation and Institute for Healthcare Improvement designed to improve the quality and safety of patient care on medical and surgical units, to increase the vitality and retention of nurses, and to improve the effectiveness of the entire care team. For more information, go to http://www.ihi.org/ or http://www.rwjf.org/goto/tcabtoolkit.

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The Robert Wood Johnson Foundation (RWJF) focuses on the pressing health and health care issues facing our country. As the nation's largest philanthropy devoted exclusively to improving the health and health care of all Americans, the Foundation works with a diverse group of organizations and individuals to identify solutions and achieve comprehensive, meaningful, and timely change. For more than 30 years the Foundation has brought experience, commitment, and a rigorous, balanced approach to the problems that affect the health and health care of those it serves. When it comes to helping Americans lead healthier lives and get the care they need, the Foundation expects to make a difference in your lifetime.

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Introduction

Launched in 2003, Transforming Care at the Bedside (TCAB) is a national program of the Robert Wood Johnson Foundation (RWJF) and the Institute for Healthcare Improvement (IHI) that engages leaders at all levels of the health care organization to:

- Improve the quality and safety of patient care on medical and surgical units
- Increase the vitality and retention of nurses
- Engage and improve the patient's and family members' experience of care
- Improve the effectiveness of the entire care team

The ten hospitals in phase III of TCAB received technical assistance from IHI faculty, which included individuals skilled in quality improvement, innovation, change management, transformational learning, and change strategies to dramatically improve performance in the five TCAB themes (see Figure 1):

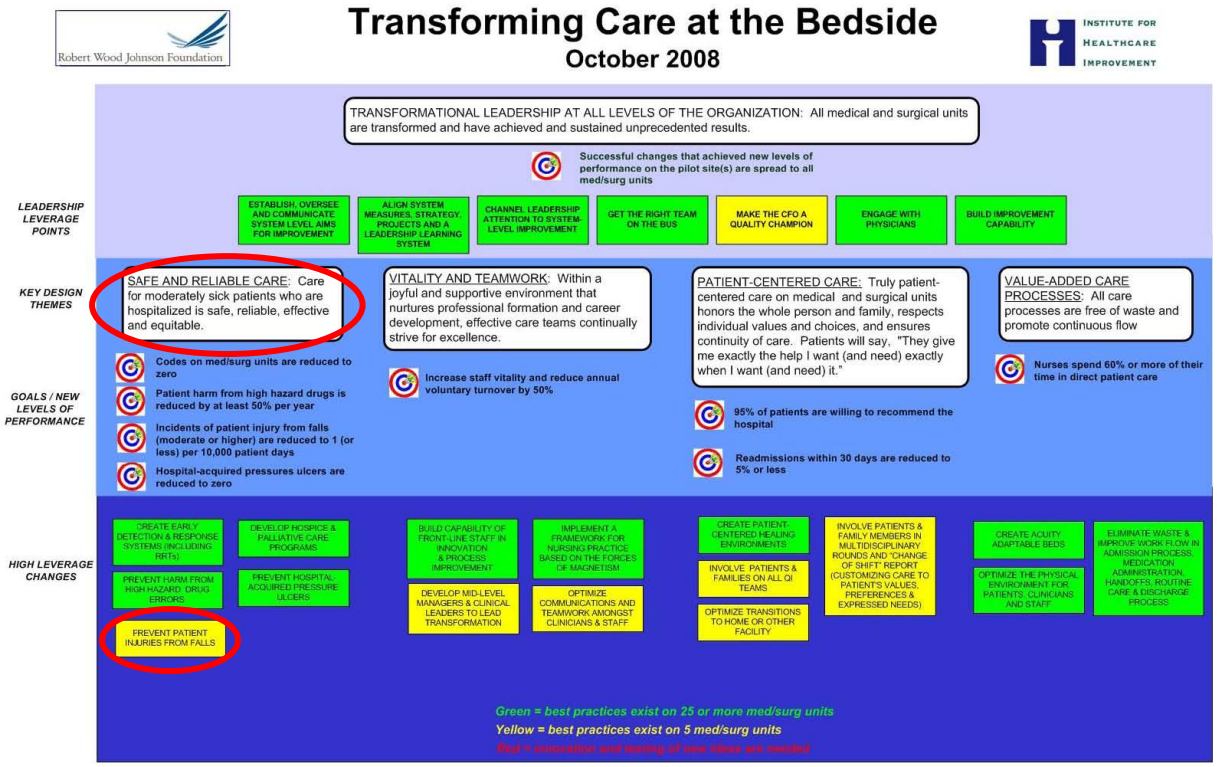
- Transformational Leadership
- Safe and Reliable Care
- Vitality and Teamwork
- Patient-Centered Care
- Value-Added Care Processes

At completion of phase III of the TCAB program, ten hospitals had participated in phase III of the TCAB program by creating and testing new concepts, developing exemplary care models on medical and surgical units, demonstrating institutional commitment to the program, and pledging resources to support and sustain these innovations. A number of hospital teams across the United States joined these ten initial participants in applying TCAB principles and processes to dramatically improve the quality of patient care on medical and surgical units (these units, as well as those at the original sites, are referred to as "TCAB units" throughout the guide). Newer participants include more than 70 hospitals in IHI's IMPACT Network Learning and Innovation Community on Transforming Care at the Bedside, and 67 hospitals in the American Organization of

Nurse Executives (AONE) TCAB program. For more information on the various TCAB programs and participating sites, please see the following websites:

- IHI TCAB initiative website (background, team stories, examples, and tools) http://www.ihi.org/IHI/Programs/StrategicInitiatives/TransformingCareAtTheBedside/
- RWJF TCAB brochure http://www.rwjf.org/files/publications/other/TCABBrochure041007.pdf?gsa=1
- RWJF TCAB Virtual Resource Center http://www.rwjf.org/qualityequality/product.jsp?id=30051
- AONE TCAB program website http://www.aone.org/aone_app/aonetcab/index.jsp

Figure 1: The Transforming Care at the Bedside Framework



Reducing Patient Injuries from Falls is a promising new approach developed within TCAB. In 2006, eight hospitals with strong leadership commitment to a culture of innovation and a special interest in reducing injury from falls received RWJF grants to

test, and measure comprehensive changes aimed at reducing patient injury from falls on medical and surgical units.

While built upon the best known strategies and standard of care for reducing falls among hospitalized patients, this How-to Guide adds a specific approach to the current thinking on fall prevention: the creation of customized interventions to prevent falls and subsequent injuries for the patients who are at most risk for serious injuries from a fall.

Other useful resources and toolkits on fall prevention include:

- ECRI Falls Prevention Resources
  http://www.ecri.org/falls
- VA National Patient Safety Center Falls Prevention Toolkit
  http://www.patientsafety.gov/SafetyTopics/fallstoolkit/index.html
- Massachusetts Hospitals
  http://www.patientsfirstma.org/index.cfm
- Joint Commission Resources, Good Practices in Preventing Patient Falls
  http://www.jcrinc.com/patientfalls

The Case for Reducing Patient Injuries from Falls

Much is known about how to reduce the incidence of falls and the prevalence of falls among the elderly, and about the individual and social costs of falls. The literature reports that 60 percent of falls happen in homes, 30 percent in the community, and only 10 percent in institutions. In hospitals, patient falls are a leading cause of death in people ages 65 or older; falls are among the most common adverse events reported. The evidence is strong to support the benefit of multi-factorial fall prevention programs for *injurious falls* in acute care.

Recent estimates of fall incidence during acute care admissions range from an average rate for first falls of 2.2 per 1,000 patient days to a fall rate on high performing medical-surgical units (as described by Lancaster and colleagues) of 3.6 falls per 1,000 patient days. The total fall injury costs for those who are age 65 or older in 1994 was $27.3 billion

(in 1994 dollars). By 2020, the cost of fall injuries is expected to reach $43.8 billion (in current US dollars). Litigation for hospital falls is growing in frequency and settlement size. A considerable body of literature exists on falls prevention and reduction. Successful prevention strategies include risk assessment (estimating danger of falling based on physiological factors), interventions (preventive actions), and systematic reporting of falls incidents and their consequences. Lancaster and colleagues expanded successful interventions to fall risk factor assessment, visual identification of patients deemed to be at high fall risk, communication of fall risk status, and fall prevention education for patients, their families, and staff.

Brainsky GA, Lydick E, Epstein R, et al. The economic cost of hip fractures in community dwelling older adults: A prospective study, *Journal of the American Geriatrics Society.* 1997;45:281-287.

Buckwalter KC, Cutillo-Schmitter TA. Fall prevention for older women. *Women's Health in Primary Care*. 2004;7:363-369.

Centers for Disease Control and Prevention. *Hip fractures among older adults*. Available at: http://www.cdc.gov/ncipc/factsheets/adulthipfx.htm.

Donaldson N, Brown, DS, Aydin CE, Bolton MI, Rutledge DN. Leveraging nurse-related dashboard benchmarks to expedite performance improvement and document excellence. *Journal of Nursing Administration.* 2005; 35(4):163-172.

Englander F, Hodson TJ, Terregrossa RA. Economic dimensions of slip and fall injuries. *Journal of Forensic Sciences.* 1996; 41(45).

Fife D, Barancik JI. Northeastern Ohio Trauma Study III: Incidence of fractures. *Annals of Emergency Medicine.* 1985 Mar;14(3):244-248.

Fonda D, Cook J, Sandler V, Bailey M. Sustained reduction in serious fall-related injuries in older people in hospital. *The Medical Journal of Australlia.* 2006;184:379-382.

Hamerlynck JV, Middeldorp S, Scholten RJ. [From the Cochrane Library: Effective measures are available to prevent falls in the elderly.] *Ned Tijdschr Geneeskd.* 2006;150(7):374-376.

Hoyert DL, Kochanek KD, Murphy SL. Deaths: Final data for 1997. *National Vital Statistics Reports.* Hyattsville, Maryland: National Center for Health Statistics; 1999:47(19).

Jacoby SF, Ackerson TH, Richmond TS. Outcome from serious injury in older adults. *Journal of Nursing Scholarship.* 2006;38(2):133-140.

Lancaster AD, Ayers A, Belbot B, et al. Preventing falls and eliminating injury at Ascension Health. *Joint Commission Journal on Quality and Patient Safety.* 2007 Jul;33(7):367-375.

Magaziner J, Hawkes W, Hebel JR, Zimmerman SI, Fox KM, Dolan M, Felsenthal G, Kenzora J. Recovery from hip fracture in eight areas of function. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences.* 2000 Sep; 55(9):M498-M507.

McClure R, Turner C, Peel N, Spinks A, Eakin E, Hughes K. Population-based interventions for the prevention of fall related injuries in older people. *Cochrane Database of Systematic Reviews.* 2005 Jan 25;(1):CD004441.
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Rivara FP, Grossman DC, Cummings P. Medical progress: Injury prevention (second of two parts). *New England Journal of Medicine.* 1997;337:613-618.

Schwendimann R. Prevention of falls in acute hospital care: Review of the literature. *Pflege.* 2000;13:169-179.

Tinetti ME, Williams CS. Falls: Injuries due to falls and the risk of admission to a nursing home. *New England Journal of Medicine.* 1997; 337:1279-1284.

Can We Eliminate Serious Injury from Falls for Hospitalized Patients?

Despite the growing body of literature that supports the effectiveness of falls reduction programs, there is a relative paucity of information on identifying patients at highest risk for sustaining serious injury from a fall and on interventions to prevent such injuries. At present, no tool exists to guide nurses and other care team members in assessing risk for injury from a fall. However, the literature does identify patient populations at greatest risk for injury from falls, including individuals 85 years of age or older, patients with osteoporosis, and patients taking anticoagulants. This How-to Guide can help staff learn to identify the patients at the highest risk for sustaining a serious injury from a fall and implement interventions to prevent or mitigate these injuries. Both physical injury (such as hip fracture) and emotional harm (such as subsequent fear of falling) can occur as a result of a fall. While acknowledging the emotional harm that may result from repeated falls or from falls with no apparent injury, this guide focuses on approaches to reduce physical injury associated with patient falls that occur on inpatient units.

This is How-to Guide is divided into four sections:

- **Section One** highlights four promising changes designed to reduce serious injuries from falls for hospitalized patients. It also includes references and links to helpful resources.
- **Section Two** outlines practical step-by-step activities for testing, adapting, and implementing the proposed changes described in Section One.
- **Section Three** includes case studies with practical, “real-world” examples of medical and surgical units where many of the changes described in this How-to Guide were implemented.
- **Section Four** includes resources and tools from hospitals engaged in fall prevention work.

Section One

This section highlights four promising changes designed to reduce serious injuries from falls for hospitalized patients (see Table 1). Key references and links to helpful resources are also included, where available.

Table 1: Recommended Changes to Reduce Serious Injury from Falls

1. Assess Risk of Falling and Risk for a Serious or Major Injury from a Fall a. Perform standardized fall risk assessment for all patients on admission and whenever patients' clinical status changes. b. Identify at every shift the patients most at risk of moderate to serious injury from a fall.
2. Communicate and Educate About Patients' Fall Risk a. Communicate to all staff information regarding patients who are at risk of falling and at risk of sustaining a fall-related injury. b. Educate the patient and family members about risk of injury from a fall on admission and throughout the hospital stay, and about what they can do to help prevent a fall.
3. Standardize Interventions for Patients at Risk for Falling a. Implement both hospital-wide and patient-level improvements to the patient care environment to prevent falls and reduce severity of injury from falls. b. Perform hourly (or every 2 hours) comfort rounds to assess and address patient needs for pain relief, toileting, and positioning.
4. Customize Interventions for Patients at Highest Risk of a Serious or Major Fall-Related Injury a. Increase the intensity and frequency of observation. b. Make environmental adaptations and provide personal devices to reduce risk of fall-related injury. c. Target interventions to reduce the side effects of medications.

1. Assess Risk of Falling and Risk for Serious or Major Injury from a Fall

Accurate and insightful assessment of all patients' fall *and* injury risks on admission and throughout the hospital stay is a critical step in developing and implementing customized and timely interventions to prevent falls and reduce the severity of fall-related injuries.

Typical failures associated with patient assessment include the following:

- Lack of a standardized or reliable process for fall risk assessment
- Lack of identification of patients at increased risk for a fall-related injury
- Lack of expertise in administering the assessment
- Late administration of assessment
- Lack of procedure for or time to consistently reassess change in patient condition
- Lack of clarity in expectations regarding patient assessment
- Failure to intervene quickly based on assessment findings
- Failure to recognize the limitations of the falls risk screening tools
- Failure to reassess risk during patients' entire hospital stay

1a. Perform a standardized fall risk assessment for all patients on admission and whenever patients' clinical status changes.

Ideally, nurses assess fall risk at critical times during a patient's hospital stay, not only on admission. When nurses switch at shift change, when patients transfer between departments, and when a patient's status or treatment changes, it is important to consider whether the patient's condition has changed and review fall risk. Recommendations include the following:

- Assess the patient's risk of falling using one of the standardized and reliable fall risk scales. Commonly used scales include Conley, Hendrich II, and Morse.

Conley D, Schultz A, Selrin R. The challenge of predicting patients at risk for falling: Development of the Conley Scale. *MEDSURG Nursing*. 1999;8(6):348-354.

Hendrich A, Bender P, Nyhuis A. Validation of the Hendrich II Fall Risk Model: A large concurrent case/control study of hospitalized patients. *Applied Nursing Research*. 2003 Feb;16(1):9-21.

Morse JM, Morse R, Tylko S. Development of a scale to identify the fall-prone patient. *Canadian Journal on Aging.* 1989;8:366-377.

- Ensure that staff completely understand the correct administration and interpretation of the scales, routinely administer the scales upon admission, and quickly implement appropriate interventions based on assessment results.

Use nursing judgment and critical thinking skills to occasionally override the results of the assessment scales. If a nurse believes that a patient is at risk for falling, appropriate interventions should be implemented regardless of the assessment results. A few hospitals use an adapted assessment scale that captures the nurse's critical thinking. A 2008 *Neurology* article provides an evidenced-based review of fall risk assessments.

Thurman DJ, Stevens JA, Rao JK. Quality Standards Subcommittee of the American Academy of Neurology. Practice parameter: Assessing patients in a neurology practice for risk of falls (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2008;70(6):473-479. Available at: http://www.neurology.org/cgi/content/full/70/6/473.

- Assess patients for fall risk and risk of injury from a fall. Hospitals have approached assessment in different ways:
  - A few teams integrated information from the patient's family into the fall risk assessment process by asking family members about the actions they take at home to keep the patient safe from falling.
  - Some hospitals added the injury risk assessment to their traditional fall risk assessment form. The combined assessment increases process reliability and helps staff remember to evaluate the patient for both types of risk throughout the hospital stay.
  - Some hospitals partnered with the nursing homes, home care agencies, and rehabilitation centers from which their patients are admitted to identify effective protective devices and techniques for each patient referred.

1b. Identify at every shift the patients most at risk of moderate to serious injury from a fall.

The literature and hospital-based exploration of fall-related injury suggest that the following groups of patients are most at risk for injury if they sustain a fall:

- Individuals who are ≥85 years old or frail due to a clinical condition
- Patients with bone conditions, including osteoporosis, a previous fracture, prolonged steroid use, or metastatic bone cancer

- Patients with bleeding disorders, either through use of anticoagulants or underlying clinical conditions
- Post-surgical patients, especially patients who have had a recent lower limb amputation or recent, major abdominal or thoracic surgery

Simple reminders, such as these listed below, can help identify patients who may be at risk for injury from a fall. Staff can use the **ABCs** at the beginning of each shift to identify the three to five patients on the medical and surgical unit who are most at risk of fall-related injury. Once these at-risk patients are identified, staff can implement interventions to reduce risk of fall-related injury and address specific patient needs in the care plan.

A = Age or frailty
B = Bones
C = Coagulation
s = recent surgery

2. Communicate and Educate About Patients' Fall Risk

Dependable and consistent communication with patients and family members and among the entire care team is critical to preventing falls and reducing the fall-related injuries. Tools for patient education, such as the "Teach Back" method, and strategies for improving staff communication, such as visual indicators and use of change of shift reports or rounds, are essential for any fall and injury prevention plan.

Making Health Care Safer: A Critical Analysis of Patient Safety Practices. Evidence Report/Technology Assessment, No. 43. Agency for Healthcare Research and Quality; 2001. (AHRQ Publication No. 01-EO58). Available at: http://www.ahrq.gov/CLINIC/PTSAFETY.

Abrams MA, Hung LL, Kashuba AB, Schwartzberg JG, Sokol PE, Vergara KC. *Reducing the Risk by Designing a Safer, Shame-Free Health Care Environment*. Chicago: American Medical Association; 2007.

Schillinger D, Piette J, Grumbach K, et al. Closing the loop: Physician communication with diabetic patients who have low health literacy. *Archives of Internal Medicine*. 2003 Jan 13;163(1):83-90.

Nielsen-Bohlman L, Panzer AM, Kindig DA (editors). Committee on Health Literacy. *Health Literacy: A Prescription to End Confusion*. Washington, DC: National Academies Press; 2004. Available at: http://www.nap.edu/catalog/10883.html.

American Medical Association, http://www.ama-assn.org.

The Joint Commission, http://www.jointcommission.org.

Typical failures associated with staff communication and patient and family education:

- Failure to quickly communicate results of a new or changed risk assessment and associated interventions
- Failure to incorporate and document prevention interventions in the patient care plan
- Unclear or incomplete handoffs between departments and among staff within a department or unit
- Insufficient or unclear safety instructions
- Patient or family confusion about nurse teaching on safety instructions and precautions
- Incorrect assumption that the patient is the key or sole learner
- Delivery of safety education that fails to fit individual patient and family needs

2a. Communicate to all staff information regarding patients who are at risk of falling or at risk for sustaining a fall-related injury.

Teams found that poor communication was a hazard and cause of patient harm in health care settings. When nurses on medical-surgical units understand a patient's potential for falling or injury from a fall, they will provide an appropriate level of care and targeted interventions. Studies in health literacy indicate that patients and family members who do not understand instructions do not tell the nurse about their confusion. Staff can use simple techniques to communicate level of risk to other staff members and to discern and address areas of patients and family misunderstanding.

Parikh NS, Parker RM, Nurss JR, Baker DW, Williams MW. Shame and health literacy: The unspoken connection. *Patient Education and Counseling.* 1996;27:33-39.

Focus on five: Strategies to improve hand-off communication. *Joint Commission Perspectives*. 2005:5(7):11. Available at: http://www.jcrinc.com/fpdf/pubs/pdfs/PSL/2007/PSL-0807-Article-3-Strategies-to-improve-handoff.pdf.

- Use visual indicators to quickly communicate with the care team about patients at risk of fall or injury. For example, use colorful socks, colored wrist bands and/or

blankets, or signage outside and inside the room to indicate fall and/or injury risk. Be careful to maintain patients' dignity and respect their wishes about the use of visual identification of risk.

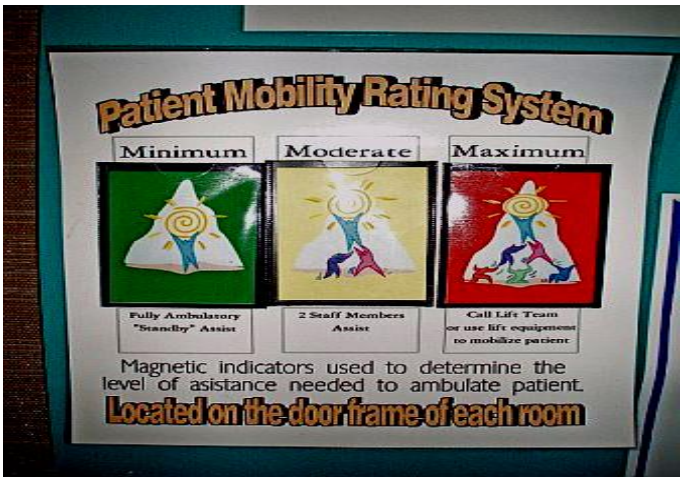
- At St. Luke's Hospital in Cedar Rapids, Iowa, magnetic, fall precautions signs, which resemble street signs, protrude into the hallway to help nurses quickly identify the patients at greatest risk of fall or injury.
- At Trinity Regional Health System in Rock Island, Illinois, a yellow leaf posted outside the patient's door indicates the patient's risk for falling; a red leaf indicates the patient also is at risk for injury from a fall.
- At Sentara Healthcare in Virginia, patients at risk for falling and injury are given a small fleece lap blanket, color-coded to match the system-wide alert method that indicates patients at highest risk. When the patient is in a chair or wheelchair, the lap blanket is kept across the patient's legs. When in bed, the lap blanket is placed on top of the bedding (see Figure 2).

Figure 2: Color-Coded Fleece Blanket at Sentara Healthcare

- At Kaiser Permanente Roseville Medical Center in California, a visual card (see Figure 3) is displayed at the doorway of patients who need assistance

ambulating. The card clearly depicts the number of staff needed to support and protect both patients and staff, using color-coding to indicate the needed level of support.

Figure 3: Visual Cards Used at Kaiser Permanente Roseville



- For patients at risk for injury but not identified as being at risk for falling: Identify and communicate any changes in patient condition that may result in a risk for falling (e.g., patient on anticoagulation who is placed on sedatives).

- Ensure safe, standardized handoffs between nurses (e.g., at shift change) and communication with all unit staff and members of other departments.
  - Many teams added shift safety huddles, early on each shift, to identify and discuss the three to five patients believed to be at greatest risk for a fall-related injury. Team members found the intervention especially helpful when a high proportion of patients on the unit were at risk for falling. Teams collected data on these patients to ascertain whether they sustained falls despite an escalation of interventions. Teams also tested new ideas for preventing these "breakthrough" falls. (Refer to Section Four for the Safety Huddle Form used at Trinity Health System in Illinois.)
  - At Sentara Health System in Virginia, nurses integrated information on patients' risk for falling and injury into the shift handoff checklist. They

discuss the patient's current condition, the effectiveness of previous interventions to prevent falls and fall-related injuries, and any currently interventions. (See Section Four for the Nursing Handoff Checklist and Worksheet, a sample shift report tool.)

2b. Educate the patient and family members about risk of injury from a fall on admission and throughout the hospital stay, and about what they can do to help prevent a fall.

Many teams found the "Teach Back" method helpful for assessing patient and family caregiver understanding of fall and injury risk and associated safety precautions. Teach Back is a patient education technique in which a patient or family caregiver recalls and restates, in their own words, the information they heard during education or other instructions. According to the patient safety literature, the Teach Back technique is one of the 11 most effective patient safety practices.

Making Health Care Safer: A Critical Analysis of Patient Safety Practices. Evidence Report/Technology Assessment, No. 43. Agency for Healthcare Research and Quality; 2001. (AHRQ Publication No. 01-EO58). Available at: http://www.ahrq.gov/CLINIC/PTSAFETY/.

Abrams MA, Hung LL, Kashuba AB, Schwartzberg JG, Sokol PE, Vergara KC. *Reducing the Risk by Designing a Safer, Shame-Free Health Care Environment*. Chicago: American Medical Association; 2007.

Schillinger D, Piette J, Grumbach K, et al. Closing the loop: Physician communication with diabetic patients who have low health literacy. *Archives of Internal Medicine*. 2003 Jan 13;163(1):83-90.

Teach Back use by Transitions Home innovation units.
Institute for Healthcare Improvement. *Good Heart Failure Care Follows Patients Home*. Available at: http://www.ihi.org/IHI/Topics/ChronicConditions/AllConditions/ImprovementStories/GoodHeartFailureCareFollowsPatientsHome.htm.

- Use Teach Back to close understanding gaps between health care providers and the patient and family members and to highlight the fall prevention and injury reduction strategies. Teams found that including family members in the Teach Back process uncovered gaps in understanding about how to keep the patient safe in the hospital and at home. (Please see the PDSA Cycle Using Teach Back in Section Four.)

- Use Teach Back with patients to improve understanding of:

  - The reasons that the patient is at risk for falling and/or injury
  - The reasons fall prevention is important
  - Actions the patient can take to stay safe
  - The importance of patients asking for help when accessing the bathroom
  - The location and use of the call light
  - The importance of using non-slip footwear

- When using Teach Back, the nurse should explain needed information to the patient or family caregiver and then ask in a non-shaming way for the individual to explain what he or she understood.
  - For example, "I want to be sure that I did a good job of teaching you about staying safe from falling in the hospital. Can you please tell me in your own words how you can prevent falling?"

- If the staff member identifies a gap in understanding, he or she should offer additional teaching or explanation, followed by a second request for Teach Back.

- "Return demonstration" or "show back" is another method for "closing the information loop." When using this technique, the nurse asks the patient to demonstrate how he or she will perform an action that was just explained. Many teams successfully used the technique to improve patient understanding and use of the call light.
  - One medical and surgical unit reported that 20 percent of patients who initially demonstrated successful use of the call light could no longer use the light 30 to 60 minutes later. The team instituted more aggressive interventions to protect these patients.

- Incorporate "Ask Me 3," another useful patient communication and education tool, to assist staff in patient education. Ask Me 3 promotes three simple but essential questions that patients should ask their providers in every health care interaction: 1) What is my main problem? 2) What do I need to do (for that

problem)? 3) Why is that important? Ask Me 3 also advises patients to ensure that they always receive information about their care using these questions.

> Ask Me 3 materials (available in English and four other languages). Available at: http://www.npsf.org/askme3/.

3. Standardize Interventions for Patients at Risk for Falling

By assessing all patients for risk of falling and fall-related injuries, staff can identify a subset of patients at high risk of falling and sustaining a fall-related injury. Staff can then focus on providing a safe environment for these patients by implementing standardized processes that create and maintain a safe care environment.

Typical failures associated with standardizing interventions to create a safe care environment for patients at risk for falling include the following:

- An older physical plant (e.g., trip hazards at room transitions)
- Lack of support of senior leadership for environmental improvements
- Barriers between silos of service lines and departments
- Insufficient staff accountability for maintaining a safe environment
- Failure to specify protective interventions based on individual patient needs
- Assumption that the presence of the family in the patient's room constitutes a falls prevention intervention
- Lack of reliability in performing comfort or toileting rounds as scheduled (e.g., some tasks associated with rounding not completed)
- Problems related to bed alarms, including failure of alarms to sound, lack of timely response to a bed alarm, overreliance of staff on bed alarms to prevent falls, failure of staff to reset alarms, and failure of the management team to respond to nurses' reports about faulty alarms
- Missing or inconvenient placement of intervention supplies (e.g., visual alert markers, bed alarms, or chair alarms not immediately available)

3a. Implement both hospital-wide and patient-level improvements to the patient care environment to prevent falls and reduce severity of injury from falls.

Improvements at both the hospital- and patient-level are essential to preventing falls and reducing fall-related injuries. Such improvements include:

- Creating a safe hospital environment by eliminating hazards (e.g., sharp edges, cluttered walkways, or raised thresholds)
- Providing safety aids (e.g., adequate lighting and non-slip flooring)
- Ensuring that every nurse takes responsibility for maintaining the safe hospital environment for every patient
- Establishing a standard process for specifying interventions based on individual patient needs

Recommendations for planning and implementing these improvements include:

- Ensure that the unit champion for fall prevention performs an initial walk-through (and then quarterly walk-throughs) with hospital leaders to identify needed equipment, identify and eliminate environmental hazards, and identify needed renovations to the physical plant.
    - Use the walk-through technique to improve the safety of the physical plant. The hospital walk-through is most effective when conducted collaboratively with administration (e.g., associate directors and chiefs of services), support staff (e.g., environmental management and risk management), and clinical staff (e.g., nursing managers and staff nurses). Collaborative rounds are most effective because each member of the group provides a different perspective and ideas to improve safety. For example, facilities staff may notice a high threshold to the shower. Risk management personnel may suggest that grab-bars are affixed between the patient bed and the bathroom. Working together, staff can identify opportunities to create a safer environment and ensure that relevant improvements are made and maintained.

  - Use a "punch list" or inventory for walk-throughs with facilities and risk prevention staff, paying special attention to toilet heights and weight limits, gradations in flooring, potentials sources of laceration (e.g., sharp edges on furniture or fixtures, and the presence or absence of grab bars). (See Sentara Healthcare's Environmental Fall Risk Assessment tool in Section Four.)

- Ensure that every nurse (and other hospital personnel who enter the patient room) assesses environment safety at every patient encounter. For example, nurses and other hospital staff should make it a habit to ensure that:
  - The call bell is within reach and visible
  - Personal care items are within easy reach
  - The bed is in the lowest position with wheels locked
  - The floor is free of clutter and trip hazards
  - Auditory alerts such as bed, chair, and personal alarms are turned to the "On" position
  - The wheels of bedside tables and cabinets are locked to prevent rolling

- Arrange the patient room to favor the patient's stronger or unaffected side or to create the shortest path to the bathroom. Room arrangements may involve moving the bed against a wall to allow egress from the side favoring the patient's stronger or unaffected side, or orienting the bed to minimize the distance to the bathroom or maximize the accessibility of hand-rails.

- Check that all patient assistive equipment (e.g., walkers, wheelchairs, canes, and anti-tipping devices on wheelchairs) meets safety standards and is properly maintained. Reliably implementing this step may require collaboration with the physical or occupational therapy department, central purchasing and distribution, or the management team.

  - Follow-up on staff concerns about malfunctioning alarms. Contact manufacturers or vendors promptly if equipment adjustments are required.
  - A number of teams discovered that nurses' reports of malfunctioning bed alarms ultimately required a call to the manufacturer for service, repairs, or calibration.

- Standardize processes for specifying fall-prevention interventions based on individual patient needs.
  - Improve the reliability with which staff use standard processes for transfer and mobility aids (e.g., gait belts, sliding boards, and patient handling lifts) for those patients requiring assisted transfer or ambulation.
  - Standardize fall-prevention interventions by clearly defining prevention steps and techniques, specifying associated roles and activities, and ensuring that the interventions are implemented for every at-risk patient. (For more information about a process for increasing the reliability of fall-prevention interventions, see Section Four.)
  - At Iowa Health System, hospital teams found it helpful to take the system's standardized approach to prevention techniques and use tests of change to adapt it to each individual unit's population and culture. Customizing the system-wide approach allowed for more creative interventions and fostered unit ownership of the prevention efforts.

3b. Perform hourly (or every 2 hours) comfort rounds to assess and address patient needs for pain relief, toileting, and positioning.

Inpatient falls are often associated with ambulation to the bathroom and toileting. Furthermore, toileting is considered a risk factor for falling in standardized assessments of fall risk.

Morse J. *Preventing patient falls*. Thousand Oaks, CA: Sage; 1997:27.

Hendrich A, Bender P, Nyhuis A. Validation of the Hendrich II Fall Risk Model: A large concurrent case/control study of hospitalized patients. *Applied Nursing Research*. 2003 Feb;16(1):9-21.

Hendrich A. Inpatient falls: Lessons from the field. *Patient Safety and Quality Health Care*. 2006:26-30. Available at: http://www.ahincorp.com/falls/Hendrich.pdf.

The scientific literature on preventing falls and staff at hospitals engaged in this work have identified routine and frequent rounding as an intervention that effectively addresses falls prevention. Frequent rounding also has been shown to be effective in preventing decubiti and improving pain management. Medical and surgical units in which staff use routine rounding have demonstrated a marked decrease in call-light usage by patients.

Lancaster AD, Ayers A, Belbot B, et al. Preventing falls and eliminating injury at Ascension Health. *The Joint Commission Journal on Quality and Patient Safety.* 2007;33(7):367-375.

Meade CM, Bursell AL, Ketelsen L. Effects of nursing rounds: On patients' call light use, satisfaction, and safety. *American Journal of Nursing.* 2006;106(9):58-70.

Recommendations for implementing routine rounding include:

- Combine frequent and regular toileting rounds with existing patient care tasks, such as patient turning, environmental safety assessments, and pain assessment. Address all patient needs (e.g., pain, position, toileting, and environment) in one effective encounter.
- Assign a specific staff member(s) to routine rounding to ensure that responsibility for the task is clear.
    - A few of the more successful teams engaged managers and chief nursing executives to coach and clarify expectations for reliable application of rounding and other interventions.
- Measure the reliability of rounding, including data on every selected patient at every indicated time period. Focus on improving reliability, with a goal of 100 percent. For example, if rounding is completed 70 percent rather than 100 percent of the time, clarify that the expectation is 100 percent and involve staff in testing ideas to improve reliability. (For a description of reliability tools, see Section Two, Step 7.)
    - A number of teams have found that manager expectation and review of rounding documentation combined with coaching staff members improved the reliability of rounding. (For an example of documentation,

see the Hourly Rounding Form from Iowa Health–Des Moines in Section Four.)

- The staff at Iowa Health–Des Moines developed a poster as a visual reminder of the new rounding process. Staff store the documentation forms inside the patients' rooms and near the unit's communication whiteboard.

4. Customize Interventions for Patients at Highest Risk of a Serious or Major Fall-Related Injury

Through specific assessment of risk factors, staff can identify a subset of patients at highest risk for a fall-related injury. These patients may or may not have been previously identified as being at risk for falling.

Typical failures associated with customizing interventions for patients at the highest risk of fall-related injury include the following:

- Lack of nurse observation of patients (including patients who have been placed closer to the nurses' station)
- Failure to identify in a patient at greater risk for fall-related injury that a change in status represents a new risk for falling
- Failure to individualize the plan of care based on patient needs
- Lack of reliable implementation of interventions to prevent fall-related injuries
- Lack of staff knowledge about interventions for more challenging patient populations (e.g., patients who are confused or impulsive, tend to wander, or have fallen previously)

The following recommendations may help reduce fall-related injuries in this distinct subset of patients.

4a. Increase the intensity and frequency of observation.

Teams have used increased intensity and frequency of patient observations as a preventive intervention for patients at risk for falling and at risk of injury from a fall.

Recommendations for patient observation include:

- Create a direct line of sight and improve surveillance of at-risk patients by transferring these patients to a location closer to the nurses' station, or create decentralized workstations for nursing staff.
    - Many teams have found it helpful to transfer patients who tend to wander or are at risk for falling to locations close to the nurses' stations. However, other teams have found that the busy environment of the nurses' station worsens agitation in some patients.
- Consider use of bed, chair, and tab alarms. Although these alarms do not prevent falls, they do alert staff to patient movement and the possible need for quick attendance. In addition, the alarms allow for early rescue of patients who have fallen.
- Consider one-to-one observation in patient's room by trained hospital staff.
- Ensure the reliability of all protective observation processes.

4b. Make environmental adaptations and provide personal devices to reduce risk of fall-related injury.

Recommendations for environmental adaptations and personal devices include:

- Reduce the impact of potential trauma through judicious use of protective equipment (e.g., hip protectors and helmets).
    - When using helmets and hip protectors, watch for unintended adverse consequences, such as skin breakdown with hip protectors or increased confusion in the cognitively impaired with helmets. Although research findings to date question the efficacy of hip protectors, further studies are underway.

Kiel D, Magaziner J, Zimmerman S, Ball L, Barton B. Efficacy of a hip protector to prevent hip fracture in nursing home residents. *Journal of the American Medical Association.* 2007;298:413-422.

- Add a high-impact, beveled-edge floor mat to the bedside when the patient is in bed and stow it safely when patient is standing and ambulating.
    - Use careful observation and proactive testing to ensure that floor mats do not become trip and fall hazards for staff and patients.
    - Staff at the VA system have used floor mats quite successfully, although experts there caution that mats must adhere to the floor, have beveled edges, and be placed carefully for maximum effect. (Please refer to the Biomechanics of Falls from Bed and Bedside Floor Mats guidelines in Section Four.)
- Use height-adjustable beds, maintaining them in the low position with brakes locked when the patient is resting.
- Use gait belts for ambulating patients with mobility concerns. Some teams found that nurse's use of a gait belt improved patient stability when walking and reduced injuries among patients and staff. (See Section Four for Gait Belt FAQs.)
- Consider use of wheelchairs with anti-tipping devices.

4c. Target interventions to reduce the side effects of medications.

Recommendations for reducing medication side effects include:

- Review all patients' current medication lists in collaboration with prescribing providers and/or pharmacy staff with the goal of eliminating or replacing any unnecessary drugs contraindicated in the elderly, and drugs that increase the risk of falls or the severity of fall-related injury.
- When initiating drugs that increase the risk of falling (e.g., sedatives and antihypertensives) or the risk of a fall-related injury (e.g., anticoagulants), use caution and increase the frequency and intensity of patient observation.
- Consider the use of protocols to decrease use of sleep-promoting medications. The Madison Patient Safety Collaborative provides a number of non-pharmacologic interventions to promote sleep.

Agostini JV, Zhang Y, Inouye SK. Use of a computer-based reminder to improve sedative-hypnotic prescribing in older hospitalized patients. *Journal of the American Geriatrics Society*. 2007;55:43-48.

Fick DM, Cooper JW, Wade WE, Waller JL, Maclean JR, Beers MH. Updating the Beers criteria for potentially inappropriate medication use in older adults: Results of a US consensus panel of experts. *Archives of Internal Medicine.* 2003;163:2716-2724.

Madison Patient Safety Collaborative, http://www.madisonpatientsafety.org/projects/fallmedication.htm.

McDowell JA, Mion LC, Lydon TJ, Inouye SK. A nonpharmacologic sleep protocol for hospitalized older patients. *Journal of the American Geriatrics Society*. 1998;46:700-705.

Section Two

This section outlines practical step-by-step activities to test, adapt, and implement the proposed changes described in Section One.

Step 1. Form a Team

Form a core team of five to seven people to oversee the preventing falls and reducing fall-related injuries initiative. Include key stakeholders, especially members of the front-line care team. Members of the core team might include:

- Staff or Primary Nurse
- Nurse Manager
- Physician (Hospitalist, Primary Care Physician, Geriatrician)
- Patient or Family Caregiver
- Pharmacist
- Nursing Clinical Coordinator or Educator
- Long-Term Care Representative
- Rehabilitation Medicine/Service Clinician (Physical Therapist, Occupational Therapist)
- Quality Improvement Representative
- Patient Safety Officer

Create sub-teams to work on specific improvements. Working simultaneously, sub-teams can accelerate the pace of improvement. For example, one sub-team could work on reliably instituting comfort and toileting rounds while another works on improving handoff communication. Other sub-teams might test protective devices such as floor mats, helmets and hip protectors, while another group tests the inclusion of a fall injury assessment into existing nursing evaluations. For best results, a manager should oversee the entire project, coordinate the work of sub-teams, and collect and share results. Finally, engage senior executives to overcome barriers to improvement efforts. The Institute for Healthcare Improvement has developed several resources for engaging senior leaders in quality and safety initiatives.

Bisognano M. Leadership's role in execution: Change must happen organization-wide to be successful. *Healthcare Executive.* 2008 Mar/Apr;23(2):66-70. Available at: http://www.ihi.org/NR/rdonlyres/163519D3-BB7A-496B-9C10-C345B81462FB/0/BisognanoLeadershipsRoleinExecutionACHEMar08.pdf.

Botwinick L, Bisognano M, Haraden C. *Leadership Guide to Patient Safety.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. Available at: http://www.ihi.org/IHI/Results/WhitePapers/LeadershipGuidetoPatientSafetyWhitePaper.htm.

Reinertsen JL, Pugh MD, Bisognano M. *Seven Leadership Leverage Points for Organization-Level Improvement in Health Care (Second Edition).* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2008. Available at: http://www.ihi.org/IHI/Results/WhitePapers/SevenLeadershipLeveragePointsWhitePaper.htm.

Reinertsen JL, Pugh MD, and Nolan T. *Executive Review of Improvement Projects: A Primer for CEOs and other Senior Leaders*. Available at: http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Tools/ExecutiveReviewofProjectsIHI+Tool.htm.

5 Million Lives Campaign. *Getting Started Kit: Governance Leadership "Boards on Board" How-to Guide*. Cambridge, MA: Institute for Healthcare Improvement; 2008. Available at: http://www.ihi.org/IHI/Programs/Campaign/BoardsonBoard.htm.

Step 2. Identify Opportunities for Improvement

2a. Review and analyze the last 20 falls associated with injury. The diagnostic tool will assist in analyzing data.

To identify failures in the current process, review and analyze data from the last 20 falls associated with injury that occurred on the unit. Use the diagnostic tool to assist in data analysis.

Institute for Healthcare Improvement. *Injurious Fall Data Collection Tool*. Available at: http://www.ihi.org/IHI/Topics/PatientSafety/ReducingHarmfromFalls/Tools/InjuriousFallDataCollectionTool.htm.

Strive to understand what happened, why, when, and where by asking the following questions:

- Were there any commonalities or trends among the patients (e.g., age, gender, diagnosis, type of medications)?
- What were patients doing when they fell?
- Were fall risk assessments used, and if so, how reliably?
- Did the risk assessments accurately identify at-risk patients?
- Were interventions implemented based on the results of risk assessments?
- Why did a fall-related injury occur despite these interventions?

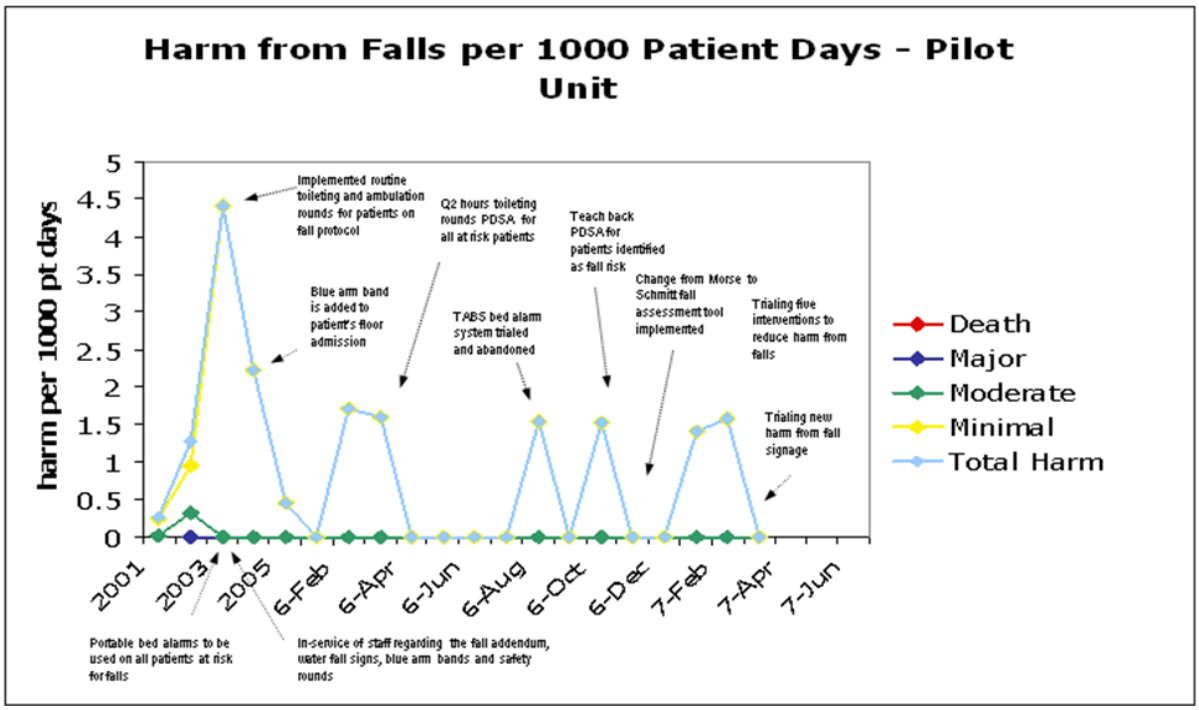
Interview patients and family members to gather additional information. Aggregate and analyze data on patient falls. Discuss falls with clinicians to better understand how to prevent falls and injury. Identify opportunities for improvement from gaps detected in the current processes (e.g., environmental hazards).

2b. Analyze data trends from the last three to five years of falls. Categorize falls by injury.

Use the National Quality Forum *National Voluntary Consensus Standards for Nursing Sensitive Care: Initial Performance Measure Set* to categorize falls by severity of injury. To clarify the magnitude of the problem, assess data trends in the incidence of falls and associated injury levels (see Figure 4). Consider the proportion of falls that result in serious injury and the number of falls associated with moderate injury that occur over time. Attempt to predict which patients might be at risk for injury in the event of a fall and plan custom interventions for testing.

National Voluntary Consensus Standards for Nursing-Sensitive Care: An Initial Performance Measurement Set. Washington, DC: National Quality Forum; 2004. Available at: http://www.qualityforum.org/pdf/reports/nsc.pdf.

Figure 4: Run Chart of Patient Falls on the Pilot Unit at Kaiser Permanente Roseville



Step 3. Develop an Aim to Prevent Falls and Reduce Fall-Related Injuries

3a. Select a pilot unit.

For the initial improvement work, select a pilot unit with staff who are motivated to reduce falls and fall-related injuries. Focus on a small subset of patients for initial testing.

A chart review of the last 20 falls associated with moderate or higher injury usually suggests a population subset on which to focus, such as patients on anticoagulation therapy, patients with osteoporosis, or frail elders. The subset should be easy to identify and large enough to allow for daily testing. Initially limit improvement work to patients in this subgroup on one clinical unit. As the reliability of the core processes (e.g., assessment, communication at handoffs, and rounds) improves, expand the project to a larger subset of patients until all patients on the unit are included.

For example, one hospital identified patients with anticoagulation or bone thinning disorders as their initial subgroup. The team's goal was to communicate the high risk of injury for these patients to all the relevant care team members, family members, and the patients themselves. The team first tested the addition of alerts to the shift handoff checklist for high-risk patients. Next, they added a transportation checklist to be used when patients left the unit for ancillary tests or procedures. Only when these processes functioned at a reliability level of 80 percent or higher—that is, at least 80 percent of the time patients at high risk for falls were identified and discussed at shift handoff—did the team address the next process they sought to make reliable—the addition of hourly rounds for all patients at risk for falling and fall-related injury. When rounding reached the 80 percent reliability level, the team included all patients in comfort rounds. The team found that patients used the call light less often and sustained fewer falls.

3b. Develop a clear aim statement.

Using data from the last 20 falls, historical fall data, and injury trends data, develop a clear aim statement for the initiative.

> *Sample Aim:*
> *On 3 West, we will prevent falls so that there are fewer than 1.7 falls per 1,000 patient days and reduce injury from falls (moderate, major, and death) to fewer than 0.5 per 1,000 patient days (< 1 per 10,000 patient days) by January 2010.*

State the aim so stakeholders easily understand the magnitude of change and can recognize when the team has reached its goal. Articulate in the aim statement the project's purpose, the specific patient population of focus, and the name of the specific pilot unit where initial testing will occur. Include measurable goals and a specific timeframe. To increase the likelihood of success, recruit a senior executive as a project sponsor and include the project's goals in the hospital's strategic plan.

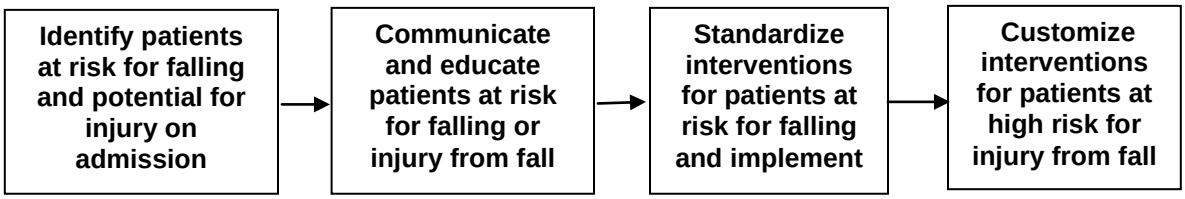
Step 4. Select Process Steps to Implement

4a. Agree on the actual process steps that prevent falls and fall-related injury.

- Identify the major steps in the process; include no more than five steps.
- Identify all care providers and services involved in each process.
- Create a high-level flowchart that illustrates these steps (see Figure 5).

Institute for Healthcare Improvement. *Flowchart (IHI Tool)*. Available at: http://www.ihi.org/IHI/topics/Improvement/ImprovementMethods/Tools/flowchart.htm.

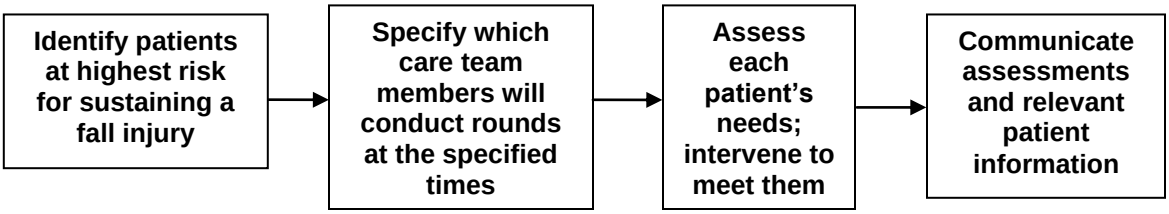
Figure 5: Example of High-Level Flow Chart



4b. Prioritize and improve each step for the high-risk patient population subset.

Identify the core processes that need improvement. Take as an example the standardization of comfort rounds. Begin with patients at risk for fall-related injury and create a detailed flow chart of the rounding process (see Figure 6). Identify the start and end of the process. Invite each team member to answer the question, "What happens next?" Use the answers to complete the flowchart. Indicate the staff member responsible for each step in the process. Try to portray the typical process as described by the staff who do the relevant work. To gather additional information, interview patients, staff, and family and review data from previous fall-related injuries. Walk through the process described by the front-line staff to better identify the frequency, location, and cause of any failures in the rounding process. Ensure that the team discusses and walks through the "usual" process and that team members validate it as their routine.

Figure 6: Example Flowchart of the Current Comfort Rounds Process



When first testing comfort rounds, select patients at highest risk of sustaining a fall injury. Once this process is reliable for high-risk patients, include all patients at risk for injury in the test. Next, commit to a specific level of reliability (e.g., "round on patients at highest risk of injury from a fall 95 percent of the time with a specified person"). Describe and document the "usual" care (i.e., actions that occur most of the time), preferably from the patient point of view to maintain a patient-centered focus. Avoid the distraction of activities other than rounding, such as administrative processes, when documenting the process.

Stimulate ideas about changes by examining the core process map. Examine current rounding process failures and ask: What failed in the process to allow a fall or fall-related injury to occur? Next, begin to identify and standardize steps for a more ideal process, based on information collected both about the current process failures and the cause and location of the most common defects.

Step 5. Create Standard Work: Standardize the Specific Steps in the Flowchart and Measure Reliability

Work processes tend to perform with a reliability of 80 percent. Achieving reliability of 90 percent or higher requires standardization. To implement standardized processes, first consider who, what, when, where, how and why a process is completed. For example, ask: Who conducts comfort or toileting rounds? How often? When? What tasks are included? How do staff use assessment during rounds? What processes could ensure that every care team member knows which elements of the rounds have been completed?

To standardize a large, complex process, first focus on one sub-process (for example, which staff member completes patient rounds and the timing of rounds) and implement changes to move to a higher reliability level. Staff members who know the process best should conduct small tests of change to fix gaps in the current process. Choose tests of change based on ideas from staff and information about process failures identified during review of falls associated with injuries. Each test of change informs the next.

> Nolan T, Resar R, Haraden C, Griffin FA. *Improving the Reliability of Health Care*. IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2004. Available at: http://www.ihi.org/IHI/Results/WhitePapers/ImprovingtheReliabilityofHealthCare.htm.
>
> Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. San Francisco: Jossey-Bass Publishers; 1996.

After standardizing a process, assess its performance. When staff use a standard process, they will describe the way work gets done in the same way. Interview five staff members who regularly do a particular task. Ask them to describe the aim or goal for preventing injury from falls and the steps in the standard process. Ask specific questions such as, “Describe how and when rounds are made and who conducts them.” Each time a staff member’s description varies from the defined standard process, it represents an opportunity for failure. Pay special attention when staff say “it depends” during their process description. Such a statement indicates ambiguity or process variation and suggests an important area for process review. Use such opportunities to better clarify roles and processes to improve standardization and reliability.

Elicit staff ideas for improvement and conduct small tests of change based on their ideas. Promptly eliminate failures that have been identified. Institute safeguards to identify and correct failures before a patient sustains a fall or injury. Use blame-free reminders to engage the entire team in supporting the aim. Consider the use of peer coaching, a technique in which nurses coach and remind each other, support expectations for risk prevention, and help reinforce habits to keep patients safe. Pilot units in some hospitals combined peer coaching and use of a reminder system to increase the reliability of patient protection interventions.

Institute for Healthcare Improvement. *OnDemand Presentation: The Right Treatment for the Right Patient Every Time – Applying Reliability Science to Health Care*. Available at: http://www.ihi.org/IHI/Programs/AudioAndWebPrograms/OnDemandPresentationReliability.htm.

Step 6. Redesign the Process and Test Changes

Based on the results of testing in Step 5, redesign each step of the process as necessary to achieve greater reliability. Such explicit redesign makes process failures visible so that involved staff can immediately identify and correct the failures before a patient is injured. Redesign should take advantage of existing habits, patterns and processes that avoid reliance on memory and provide forcing functions that make the right action the only action possible.

For example, several tests of change may be required to determine the most reliable way to conduct comfort rounds. To take advantage of habits and patterns, a pilot unit might combine safety checks for preventing falls and injuries with regularly performed tasks, such as measuring and recording fluid input and output, or conduct safety checks with previously standardized multidisciplinary rounds or bedside shift handoffs.

To ensure that changes result in improvement, IHI recommends using the Model for Improvement—a simple, powerful approach to accelerate improvement. The Model for Improvement poses three questions: 1) What are we trying to accomplish? 2) How will we know if a change is an improvement? 3) What changes can we make that will result in improvement? The Plan-Do-Study-Act (PDSA) cycle is used to conduct small tests and learn from them. Teams further refine and improve their process to create reliable and safe design. PDSA cycles are small-scale tests of change in real work settings. Plan a test, make a hypothesis, and ask, “If I do x, will I get z as a result?” (e.g., “If we round every hour for patients at highest risk for injury from a fall, will we reduce fall related injury?”). Make a prediction about the reliability of rounding, about whether rounding prevents falls, for example, if we round hourly 90 percent of patients will be seen each hour. Next, try the test, and compare the results to the prediction. What happened, and did the test go as planned? What confirmed or challenged the prediction; were there any surprises? What may be learned from the test and what is

the next step or next test, based on the results? This is a pragmatic approach to the scientific method and results in action-oriented learning.

> Model for Improvement. Available at: http://www.ihi.org/IHI/TOPICS/Improvement/ImprovementMethods/Howtoimprove/.

6a. Identify small tests of changes using PDSA cycles.

Teams conduct small tests of change to make improvements, learning quickly what works and refining changes prior to implementation. Keep tests small; be specific. Carry out tests immediately and refine the next test based on learning from the previous one. Expand test conditions to discover whether a change will work at different times of day (e.g., day and night shifts, weekends, holidays, when the unit is adequately staffed, in times of staffing challenges). Refine tests and continue the cycle of learning and testing to improve the reliability of the process. Collect enough data to evaluate whether a test has promise, was successful, or needs adjustment. The examples that follow show sample PDSA cycles for testing rounding and the Teach Back technique for patient education.

Example of small tests of change using PDSA cycles to test rounding:

- Cycle 1: One nurse tests rounding every 2 hours on assigned patients for one day.
- Cycle 2: One nurse, with a reduced patient load, rounds on all unit patients every 2 hours for one day.
- Cycle 3: One nurse and a care partner alternate rounding every 2 hours for one day.

Example of small tests of change using PDSA cycles to test Teach Back:

- Cycle 1: For one day, one nurse uses the Teach Back technique with one patient to evaluate the effectiveness of patient education about the use of the call light and other basic fall and injury reduction strategies. Hypothesis: If patients can Teach Back 100 percent of items the nurse taught them, then they will participate in protecting themselves from injury by using the call light and asking for help to

get out of bed to use the toilet. The team subsequently measures the percentage of times a patient can Teach Back 100 percent of instructional content or the number of items properly taught back (e.g., two of three items) and the number of times a patient fails to ask for help when needed. After the first test, the team reviews what happened, what went well, what could be improved, and which change to test next.

- Cycle 2: The same nurse, on one day, with patients at risk for injury from a fall, uses Teach Back to assess whether use of a video improves patient understanding. Hypothesis: Use of a video is more effective than face-to-face teaching because it is easier for patients to access and share with family. The team measures the number of items properly taught back and the number of times patients fail to follow through with desired behavior.
- Cycle 3: The same nurse tests the Teach Back process with different patients on one day to learn whether it has broader application (e.g., for patients who are cognitively impaired). Hypothesis: Cognitively impaired patients can neither Teach Back nor remember to ask for help as well as other patients and may need additional safety interventions.
- Cycle 4: A second nurse tests the new process on one patient every day of the patient's stay to reinforce these basic safety precautions.

Each test builds on learning from the previous one and moves the team closer to its aim. Multiple test cycles help staff identify differences among patients, shifts, and care teams, and help the team refine changes to bring about reliable, standardized work to improve care. For more information on possible interventions to test to reduce injuries from falls for hospitalized patients, see Section One and Teach Back tool in Section Four.

6b. Implement successful changes.

After testing changes on a small scale, learning from each test, refining changes through iterative PDSA cycles, and designing standard work, the team selects and implements successful changes. For example, once a team has determined how to

reliably conduct comfort rounds, it can begin full implementation of rounding. Implementation requires the institution of permanent changes such as documentation of new policies and procedures, development of a communication plan, staff training, changes to new hire orientation, and continued data monitoring to maintain improvement gains.

Step 7. Identify Failures to Guide Standard Process Redesign

7a. Standardize the process, then redesign to achieve higher levels of reliability.

Once a team has standardized a process at a reliability level of 80 percent or more, team members should identify resources needed to redesign the process with the goal of achieving a reliability level 95 percent or higher.

> Nolan T, Resar R, Haraden C, Griffin FA. *Improving the Reliability of Health Care.* IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2004. Available at: http://www.ihi.org/IHI/Results/WhitePapers/ImprovingtheReliabilityofHealthCare.htm.

7b. Review process failures and identify causes.

Review every process failure (e.g., a patient fall or rounds that were incompletely performed) and identify the contributing causes of the failure. Review should occur immediately after a failure. Assess whether there are failures in the process that led to the fall or the fall-related injury. Consider which portion of the process to protect patients from falls may have failed. Use the review to inform iterative tests to redesign the process.

7c. Identify barriers that create process failures and near-failures, and redesign to improve reliability.

Ask staff to identify barriers that prevent them from “doing it right every time.” For example, one manager asked her team about barriers and identified a need to make fall-prevention supplies readily available, whenever and wherever needed, to support staff implementation of preventive interventions. Use human factors tools, such as decision aids and visual reminders, to support staff in reliable implementation.

Redesign processes and make the desired action the default action. For example, one hospital team made fall and injury risk assessments a required field in the electronic assessment program and ensured that housekeeping staff place kits with fall and injury intervention supplies in each clean room before patients arrive. Create redundancies to prevent injury, if appropriate (e.g., a rounding documentation sheet that allows all team members to check activity completion throughout the day).

Staff at St. Luke's Hospital in Cedar Rapids, Iowa, identify failures in reliable assessment and completion of patient protection interventions with an audit tool (see Section Four).

Staff at many hospitals conduct a post-fall huddle to identify prevention failures immediately after a fall. During the huddle the team asks front-line staff for their opinion on how to prevent a similar fall in the future (see Section Four).

Step 8. Measure Your Progress

Measurement can support learning and energize team members. Measure specific outcomes to determine whether changes result in improvement. Display data in a run chart. Use either small multiples or display data as a separate series for each type of fall-related injury (minor, moderate, major, and death) on one chart.

Consider the following outcome measures.

- Monthly Hospital and Pilot Unit(s) Rate of Falls per 1,000 Patient Days (including past 2 years, if available)
- Monthly Hospital and Pilot Unit(s) Patient Injury from Falls per 1,000 Patient Days—minor, moderate, major, and death (including past 2 years, if available; each type of injury should be displayed separately; data should be aggregated for moderate and higher injury rates, as well as all injury rates)

Consider use of these definitions:

- Fall: An unplanned descent to the floor

- Pilot unit: The first unit to test and implement improvements before changes are spread to the hospital
- Severity of patient injury (as defined by the National Quality Forum):
  - Minor: Injury that results in application of dressing, ice, cleaning of a wound, limb elevation, or topical medication
  - Moderate: Injury that results in suturing, steri-strips, fracture, or splinting
  - Major: Injury that results in surgery, casting, or traction
  - Death: Death as a result of a fall

National Voluntary Consensus Standards for Nursing-Sensitive Care: An Initial Performance Measurement Set. Washington, DC: National Quality Forum; 2004. Available at: http://www.qualityforum.org/pdf/reports/nsc.pdf.

Benneyan JC, Lloyd RC, Plsek PE. Statistical process control as a tool for research and health care improvement. *Quality and Safety in Health Care.* 2003;12(6):458-464.

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Nelson L. A control chart for parts-per-million nonconforming items. *Journal of Quality Technology.* 1994;26(3):239-240.

Provost L, Murray S. *Data Guide: Learning from Data to Improve Healthcare*. Austin, TX: Associates in Process Improvement; 2007.

8a. Measure: Falls with Moderate or Higher Injury

Figure 7: Sample Run Chart: Falls Associated with Moderate or Severe Injury for Entire Hospital

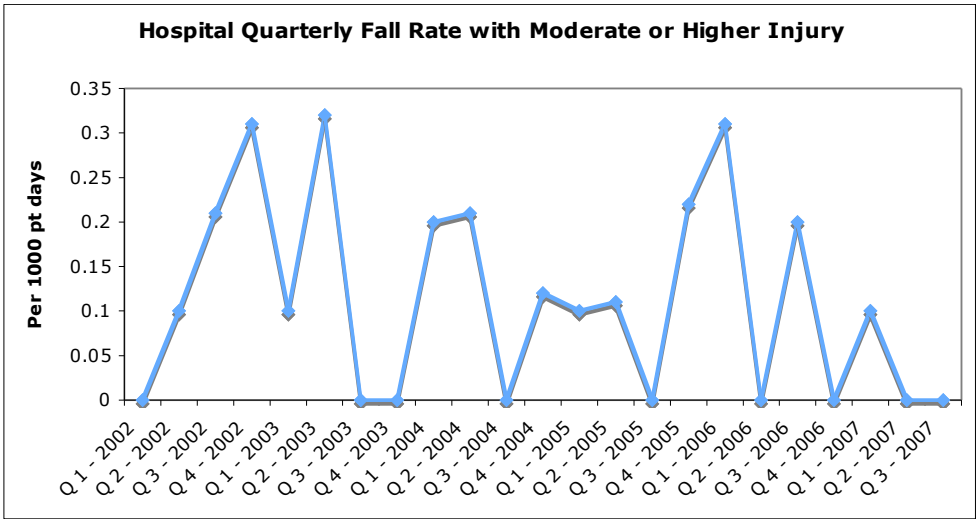
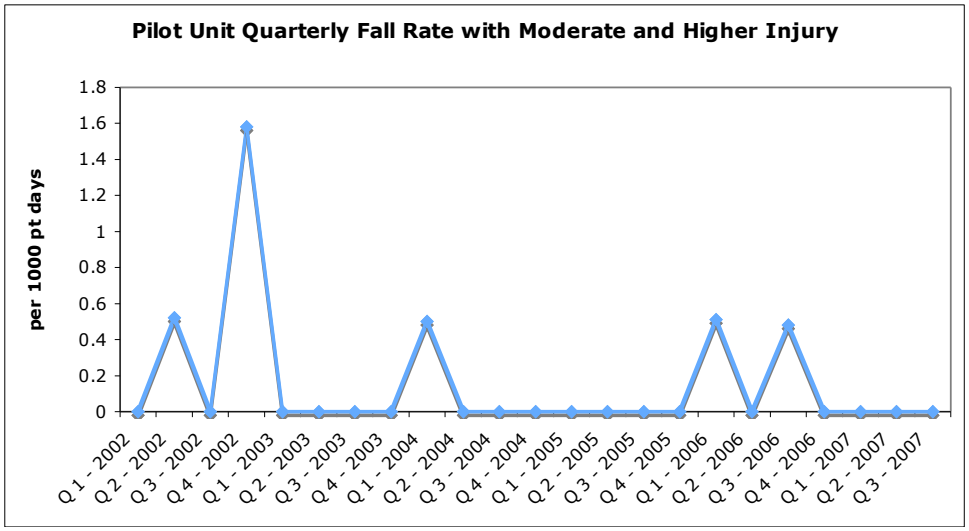


Figure 8: Sample Run Chart: Falls Associated with Moderate or Severe Injury for Pilot Unit



8b. Measure: Fall Rate per 1,000 Patient Days

Figure 8: Sample Run Chart: Rate of Falls per 1,000 Patient Days for Entire Hospital

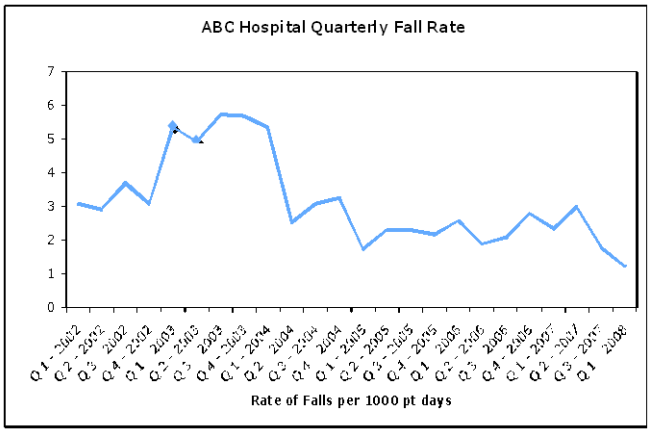
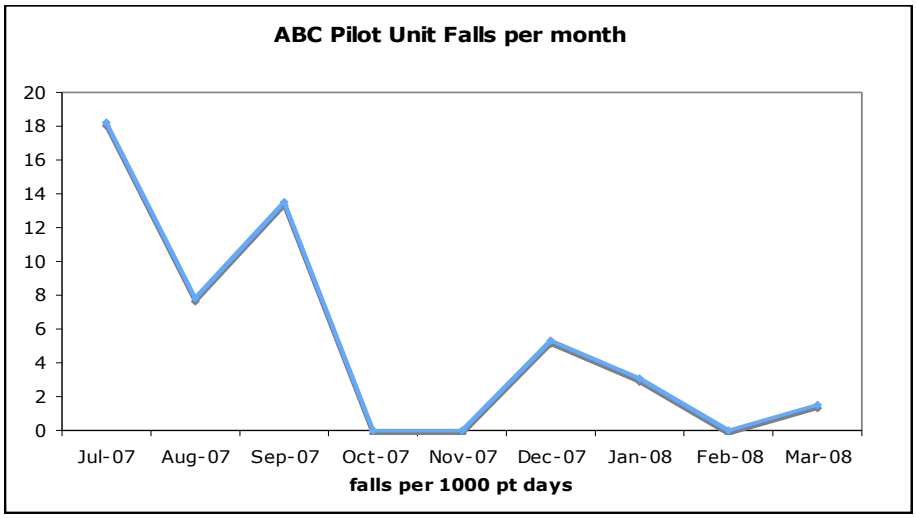


Figure 9: Sample Chart: Rate of Falls per 1,000 Patient Days for Pilot Unit



Quigley P, Neily J, Watson M, Strobel K, Wright M. Measuring fall program outcomes. *Online Journal of Issues in Nursing.* 2007;12(2):1-17.

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8c. Develop other useful process measures.

Encourage the team to develop and use process measures to assess their ability to reliably implement key processes that protect patients from injury. For example:

- Reliability of risk assessment: Percentage of assessment for injury from a fall (i.e., percentage of patients at highest risk for a serious injury who receive an assessment each shift)
- Reliability of safety/comfort rounds: Percentage of patients for whom rounds are made at designated times
- Reliability of handoff communications regarding fall and injury risk: Percentage of handoff communication about injury and fall risk that are completed at change of shift and on patient transfer to other care units and diagnostic areas (shift report and patient transfers measured separately)
- Reliability of Teach Back: Percentage of patients who successfully Teach Back 90 percent of information provided about prevention of falls and fall-related injury
- Reliability of comfort rounds: Percentage of shifts in which comfort rounds occur

Step 9. Spread the Reliable Design and Processes

Hospital leadership must take responsibility for spreading reliable design and processes within a hospital or health system. Leaders must commit sufficient resources to support such spread, including support for continued measurement and monitoring of fall prevention outcomes. Pilot units participating in TCAB used a variety of methods to communicate changes with care units initiating TCAB-related initiatives to prevent falls and fall-related injury, including communication boards, emails to staff, newsletters, and town hall meetings. One successful team held monthly nurse manager meetings sponsored by the chief nurse executive and patient safety officer to share information across units about falls that occurred in the preceding month and tests underway to prevent similar falls. Another successful team created a "swarm team" that promptly gathers at the site of each fall to accelerate the learning during the post-fall huddle. The team shared locally developed expertise and lessons learned from falls and testing in the huddles and spread this information across the hospital through nursing council meetings, newsletters, and patient safety committee meetings.

Massoud MR, Nielsen GA, Nolan K., Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change.* IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2006. Available at: http://www.ihi.org/IHI/Results/WhitePapers/AFrameworkforSpreadWhitePaper.htm.

Section Three

Section Three includes case studies that describe how three organizations used the TCAB process to prevent injuries from falls on their medical and surgical units.

- Case Study 1: St. Luke's Hospital, Cedar Rapids, Iowa
- Case Study 2: Trinity Medical Center, Rock Island, Illinois
- Case Study 3: Sentara Healthcare, Norfolk, Virginia

Case Study 1: St. Luke's Hospital, Cedar Rapids, Iowa

Contact: Dee Cook, RN, BSN, Nurse Manager of Medical/Skilled Nursing Unit, St. Luke's Hospital, Cedar Rapids, Iowa, 319-369-7739, cookdl@crstlukes.com

Background

Staff and leaders at St. Luke's Hospital, a senior affiliate of Iowa Health System, have taken several steps to prevent falls and fall-related injuries. Their results show the benefit of improving the reliability of care processes through the use of audits, rounding, written orders, and prevention tools (e.g., a premade fall prevention kit, patient education materials, and signals of risk such as patient arm bands, door signs, chart stickers, and red slippers).

Results

Figure 10: Rate of Falls per 1,000 Patient Days at St. Luke's Hospital

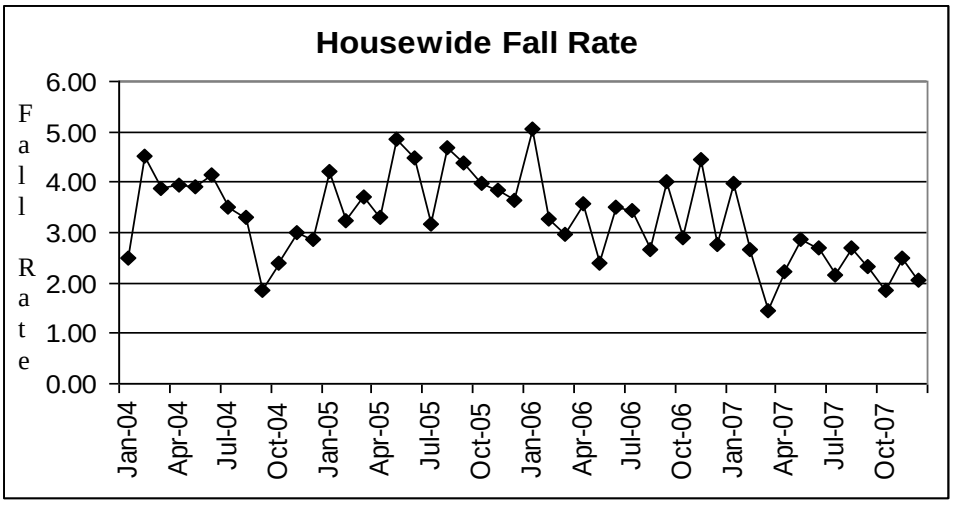


Figure 11: Rate of Falls with Moderate or Greater Injury per 1,000 Patient Days at St. Luke's Hospital

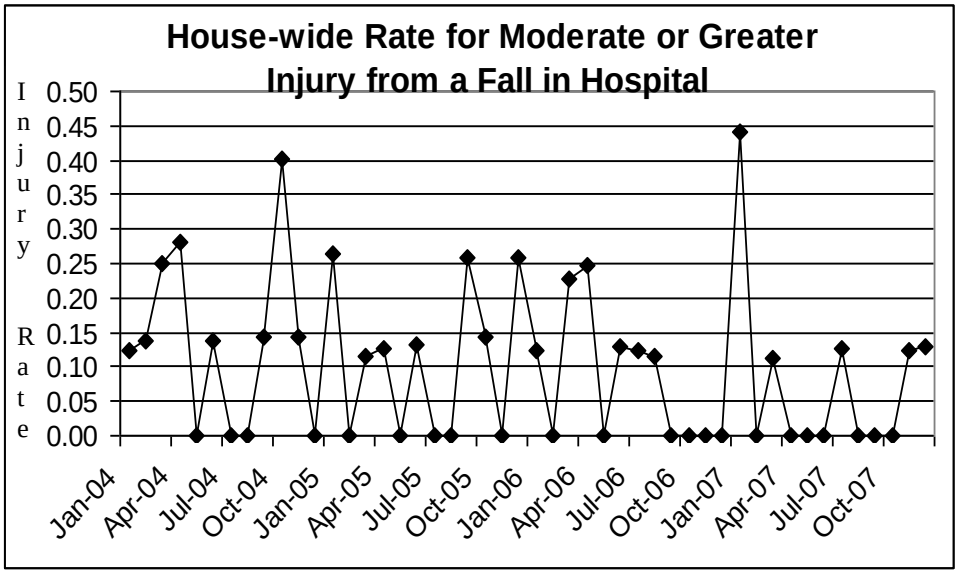


Figure 12: Percent Reliability of Interventions to Reduce Patient Falls and Fall-Related Injuries Implemented at St. Luke's Hospital

AUDIT ELEMENTS	Spring 2007	Aug 2007	Jan. 2008
Written orders	44%	77%	90%
Green ID wristband	56%	67%	80%
Sticker on chart	44%	78%	80%
Fall precaution sign on door	63%	56%	80%
Education of patient and family	69%	45%	80%
Red slippers provided	NA	34%	70%
Fall precautions supply kit provided	NA	34%	60%

The team audited the reliability of standard work processes; queried staff to uncover barriers to the use of planned interventions for every patient, every time (e.g., difficulty

acquiring needed supplies), and tested changes to overcome these barriers. They communicated lessons learned to units throughout the hospital.

The pilot unit's intervention timeline follows:

- May 2006 – Red slippers implemented house-wide
- July 2006 – Bed exit alarm descriptors placed on all beds
- July 2006-Feb 2007 – Transitional Care Unit tested alarms, signage, fall precaution bags
- December 2006 – 1West added lap blankets; began huddles and bundles
- March 2007 – 5E purchased 100 percent Stryker 3-zone alarm beds
- May 2007 – Nursing units, Respiratory Therapy, Radiology, Transport, Housekeeping, and Dietary all educated on fall prevention; nursing units educated on Safety Partner role (i.e., partners assisting with toileting)
- June 2007 – Safety Partner implementation; fall precaution supplies bags implementation
- August 2007 – Review of Safety Partner role and expectations
    - Back-to-basics review at staff meetings
    - Ordered larger red slippers
    - Ordered more supplies so bags were available on units at all times
    - Red slippers placed by Emergency Department staff
    - Re-audit of pilot units
- January 2008 – Trial Physical Therapy referral for all "Falls Precaution" patients effective
    - Re-audit of pilot units

Case Study 2: Trinity Medical Center, Rock Island, Illinois

Contact: Linda Guebert, RN, MS, Patient Safety Officer, Trinity Medical Center, Rock Island, Illinois, 309-779-5122, guebertl@ihs.org

Background

Trinity Medical Center, a member of the Iowa Health System, is a 500-bed facility with nearly 3,000 employees, located on three campuses in the Quad Cities in Iowa and Illinois. Trinity Medical Center participated in both phases of IHI's Fall Prevention Initiative and shared many practical ideas for improvement gleaned from previous experience.

Aim

1. Decrease the incidence of falls to a rate of no more than 2.5 per 1,000 patient days
2. Reduce the incidence of falls associated with moderate or severe injury to a rate of no more than 1 per 10,000 patient days

Measures

- Fall rate for the hospital and pilot unit
- Rate of moderate-to-severe harm from falls for the hospital and pilot unit

Key Changes

The following changes were tested and implemented on pilot units and spread to all Trinity care units:

- Built the belief that injuries from falls can be eliminated
- Used small tests of change to understand what changes make a difference and how to improve implementation before spreading to additional units
- Posted falls data monthly on care units
- Increased the involvement of internal data analysis experts to look for opportunities

- Consistently used a valid falls risk assessment tool
- Identified patients at risk of injury from a fall by using the mneumonic ("ABCs"):
    - **A**ge over 85
    - **B**one disorders (e.g., metastasis, osteoporosis)
    - **C**oagulation disorders (e.g., bleeding, anticoagulant use)
    - **S**urgery (specifically thoracic or abdominal surgery or lower limb amputation)
- Consistently communicated individualized information about patients at risk for injury from falls to all caregivers and hospital staff by:
    - Identifying patients most at risk during Safety Huddles at the beginning of each shift. See the Safety Huddle Form in Section Four.
    - Placing a red leaf-shaped icon on the at-risk patients' doors
    - Convening staff huddles after each fall event to discuss and document the cause of the fall and ways to prevent similar falls
    - Discussing fall events and ways to mitigate risk to patients at monthly Fall Prevention Team meetings
    - All unit nurse managers attending monthly falls prevention meetings, including Trinity's patient safety officer, the senior nursing executive, and a patient representative to develop a culture of safety
    - Using the SBAR communication technique and signaling communication handoff between caregivers with a yellow baton when they transport patients (see Figure 13)

Figure 13: Yellow Batons Used for Handoffs at Trinity Medical Center

- Conducted hourly comfort and safety rounds
- Prevented falls and injuries with tools such as low beds with side rails, bed and chair alarms, one-to-one observation when necessary, non-skid slippers with treads on top and bottom, floor mats, and nurses walking patients with gait belts
- Stocked all patient rooms with a falls prevention kit containing relevant signage, bed alarms, and other tools
- Engaged the whole hospital using data displays on units, discussion at organizational meetings, awareness education, and safety fairs
- Engaged ancillary staff in the process of fall and injury prevention, including handoffs between departments and assisting with identifying at-risk patients and keeping them safe
- Incorporated more celebration into the process by recognizing units for days between falls and reducing falls and related injuries

The Trinity falls reduction team implemented the following to increase reliability:

- Consistent education, auditing, and gap analysis (e.g., project leaders ensured that staff learned how to standardize comfort rounds)
- Managers audited comfort rounds through staff observation and patient interviews during admission and after discharge
- Project leaders integrated changes into routine work rather than creating additional tasks

Even before the team started the project in January 2006, Iowa Health System administrators provided nursing and physician executives with reports about fall prevention. They requested that hospital leaders ask unit staff three questions to learn how well units implemented fall prevention interventions and to reinforce their importance:

- When was the last fall on your unit?
- What did you learn from the event?
- What did you change in response to the fall?

Lessons Learned

Sustainable change requires that standard work becomes part of the care system. Once the system is redesigned to include improvements, even when a manager and with several staff positions became vacant, and it was difficult to work on new fall prevention initiatives—efforts continued because the work did not rely on any specific individual. Iowa Health System supported project momentum. Once Trinity Hospital filled its vacancies, changes were spread to other units.

Figure 14: Rate of Falls per 1,000 Patient Days at Trinity Medical Center

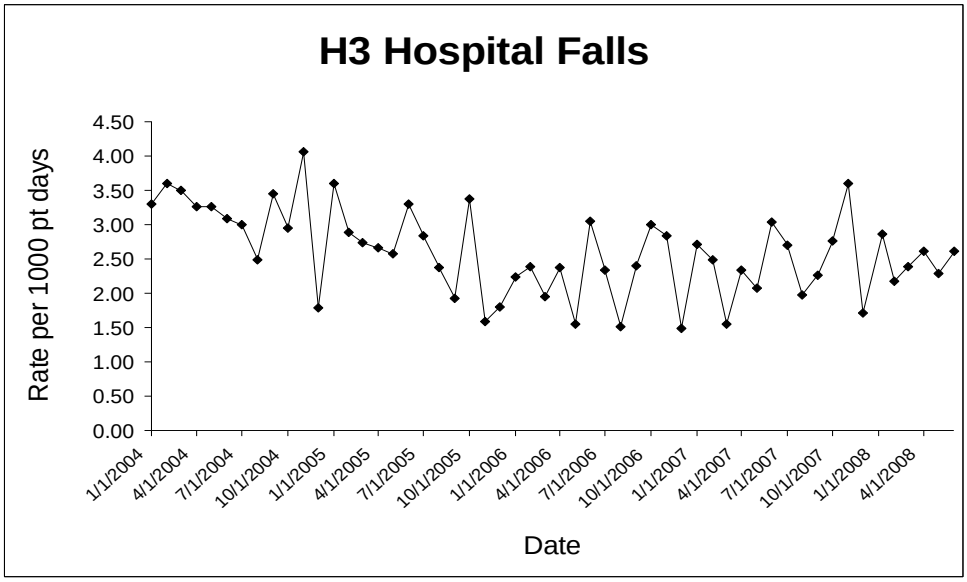


Figure 15: Falls with Major Injuries (Including Severe Fractures) on Medical and Surgical Units at Trinity Medical Center

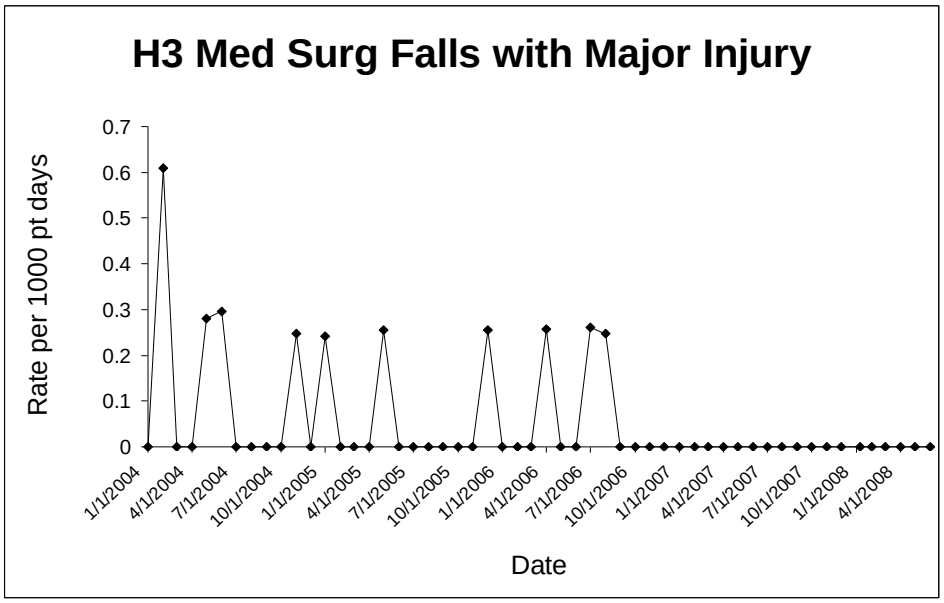
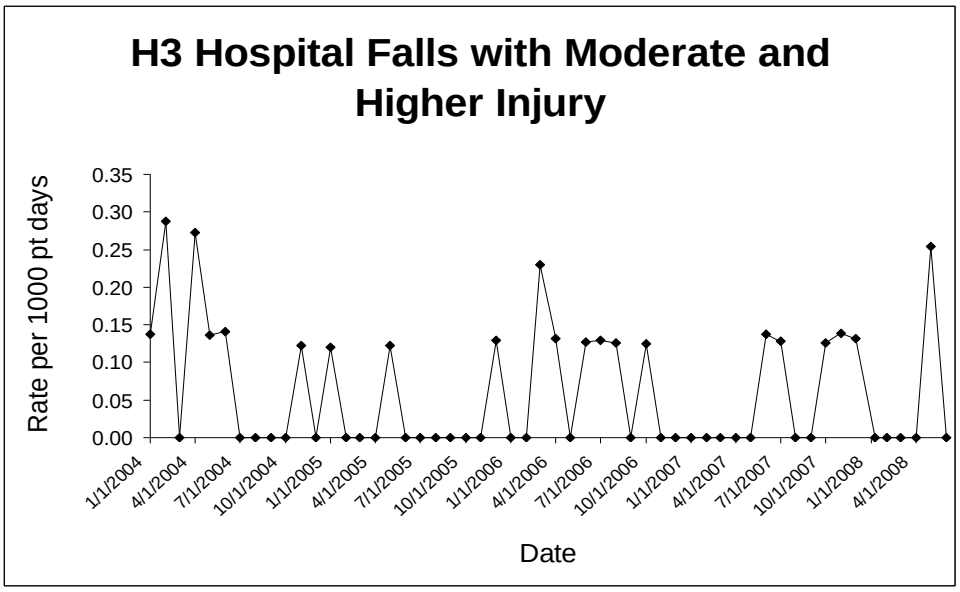


Figure 16: Falls Associated with Moderate or Higher Injury at Trinity Medical Center



The hospital successfully completed seven months without a moderate or higher injury from falls. However, more work remains to reduce moderate injury from falls, as evidenced by the relatively small reduction in moderate to severe injuries given the larger reduction in the incidence of major falls.

Case Study 3: Sentara Healthcare System, Virginia

Contact: Stephanie S. Jackson, RN, MSN, ACNS-BC, Manager, Patient Care Services, Education Department, Diabetes and ET Services, Sentara Norfolk General Hospital, Norfolk, Virginia, 757-388-2484, sxjacks1@sentara.com

Background

Sentara Healthcare, an integrated health system that serves more than 2 million people in southeastern Virginia and northeastern North Carolina, operates seven acute care hospitals with more than 1,700 beds. Two of the Sentara hospitals, Sentara Norfolk General Hospital and Sentara Virginia Beach General Hospital, participated in the IHI Falls Prevention Initiative.

In 2001, staff and leaders at Sentara Healthcare System began a journey to prevent falls and fall-associated injuries. They took several key steps, including:

- Developing a fall reduction model as a conceptual framework
- Implementing the Conley scale as a fall risk assessment tool, identifying at-risk patients with pink armbands and wall signs
- Communicating falls to all levels of local leadership at the time of the fall and fall rates, a quality indicator reported to the system board of directors
- Procuring safety equipment, including beds with exit alarms and chair alarms
- Implementing system-wide Falls Task Force, hospital-based multidisciplinary task forces, unit-level champions
- Conducting hospital- and unit-based environmental assessments
- Holding hospital-based safety fairs
- Sponsoring system-wide educational programs

In 2003, leaders at Sentara Healthcare initiated a program to shift to a culture of safety at every level of the corporation. The organization set several expectations for employees regarding safety:

- Safety is a core corporation value

- Safety behaviors and tools for success were implemented:
  - Pay attention to detail
  - Communicate clearly
  - Have a questioning attitude
  - Handoff effectively
  - "Be a wing man"—engage in peer coaching and checking (e.g., safety coaches promoted peer coaching and checking in every hospital department)

On safety rounds, executive leaders demonstrated the commitment of the health system to reduce workplace error by asking staff about the safety behaviors. Interventions added to the health system's Fall Prevention Program included:

- Focus and simplify policies and procedures
- Standardize the nursing handoff tool to promote discussion of fall prevention
- Conduct common cause analysis to better determine causes of falls
- Use action planning to better focus on preventing falls
- Implement post-fall huddles with a local fall prevention "expert" to promote education and action planning

Sentara Healthcare System also participated in the IHI Falls Prevention Initiative based on their expertise in fall prevention. A unit that cared for medical, surgical, and oncology patients at Virginia Beach General Hospital, a 282-bed acute care hospital located in Virginia Beach, Virginia, was the pilot unit.

Aim

Reduce injury from falls at all hospitals to a rate of no more than 1 fall associated with moderate-to-severe injury per 10,000 patient days.

Measures

- Falls associated with moderate-to-severe harm per 1,000 adjusted patient days
- Falls rate per 1,000 patient days

Key Changes

Because of their previous success reducing falls and injury from falls, team members from the participating Sentara hospitals served as mentors and coaches to other hospitals in the initiative. In addition, they set two objectives: to develop a tool to identify patients at high risk to harm (HRTH) and to identify and implement additional interventions to prevent injuries from falls. This work was to take place on the pilot unit and then spread to other units throughout the hospital system.

The team recognized patients at risk for injury from a fall might be missed when a standard fall assessment was used. To prevent this, they created a tool to identify patients at risk for harm from a fall—the ABCs HRTH assessment tool— in collaboration with other hospital teams participating in the IHI Falls Prevention Initiative. The Sentara pilot unit tested the tool and discovered that some patients at risk for harm from falls were not necessarily at greater risk for falling. The team then combined their falls risk assessment with the HRTH tool to assess patients for both falls and risk of injury from a fall.

Other tested changes included:

- Safety Huddles: At the beginning of each shift, front-line staff gather together and identify patients at highest risk for injury, including fall-related injury, using a form developed by the team to list at-risk patients.

- Fall Follow-Up: A unit-based fall prevention expert immediately reviews with front-line staff the circumstances regarding every fall and documents the information on this form.

- Safe Exit: Using the PDSA cycle, the team developed a “Safe Exit” strategy for transferring patients out of a bed.
    - The team simulates the patient’s room at home, based on patient and family information (e.g., bed position relative to bathroom), and identifies a “safe” exit to the bathroom.

- The team posts visual aides in the patient's room to cue him or her to the safe side of the bed from which to exit.

The team took several steps to increase the reliability of these processes, including:

- Consistently communicating about fall-related injury by adding risk for injury to the shift handoff report tool
- Using post-fall huddles to identify factors that led to falls and ideas for mitigating them
- Sharing the analysis of fall-related data with all system hospitals to mitigate falls and injury from falls

Lessons Learned

Health system leaders reinforced their dedication to fostering a culture of safety through their commitment to initiatives to prevent fall-related injury. The steps taken to prevent falls provided a framework for improvements and promoted an environment that encourages critical thinking, on in which all members of the hospital team "have a questioning attitude."

Figure 17: Rate of Falls per 1,000 Patient Days at Virginia Beach General Hospital

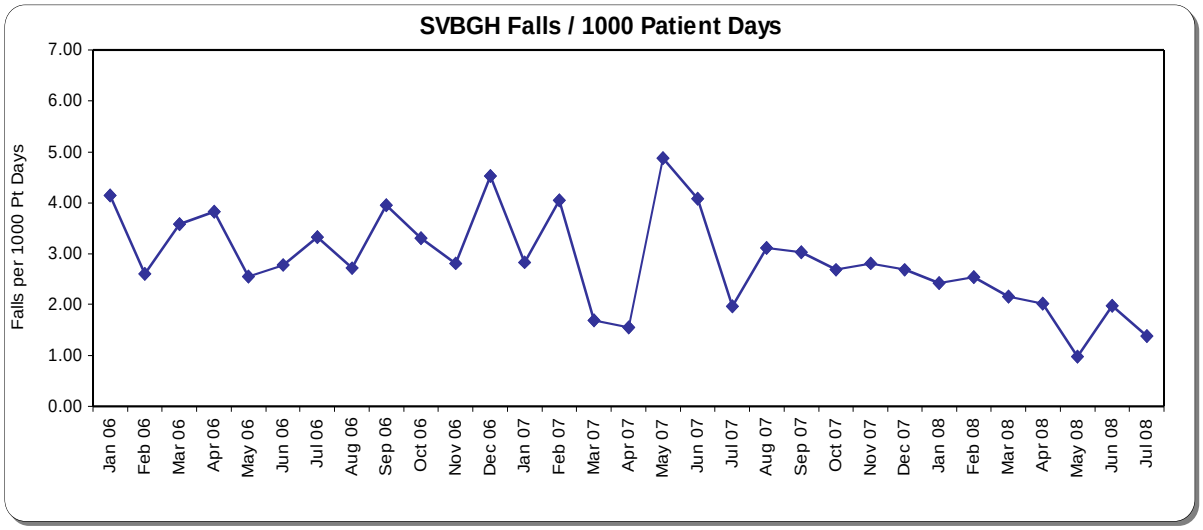


Figure 18: Falls Associated with Injury at Virginia Beach General Hospital

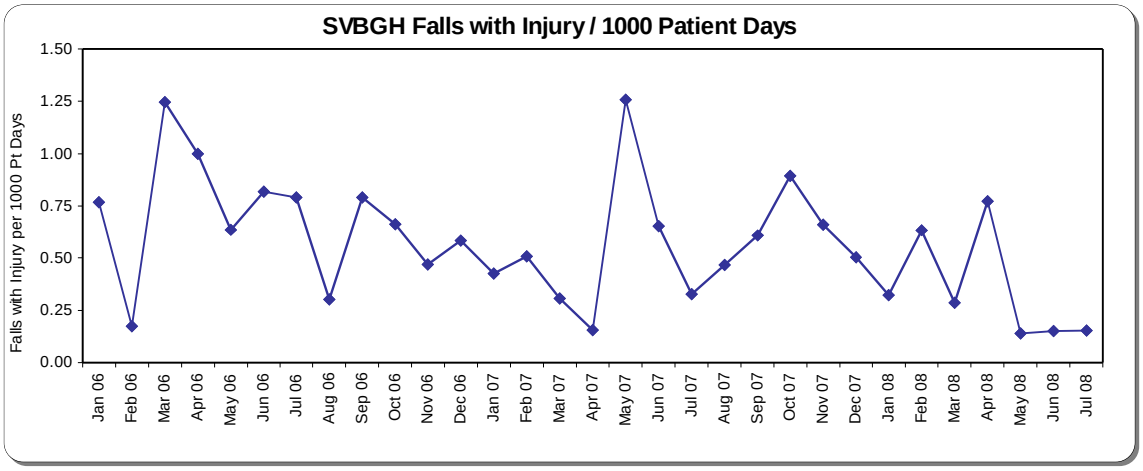
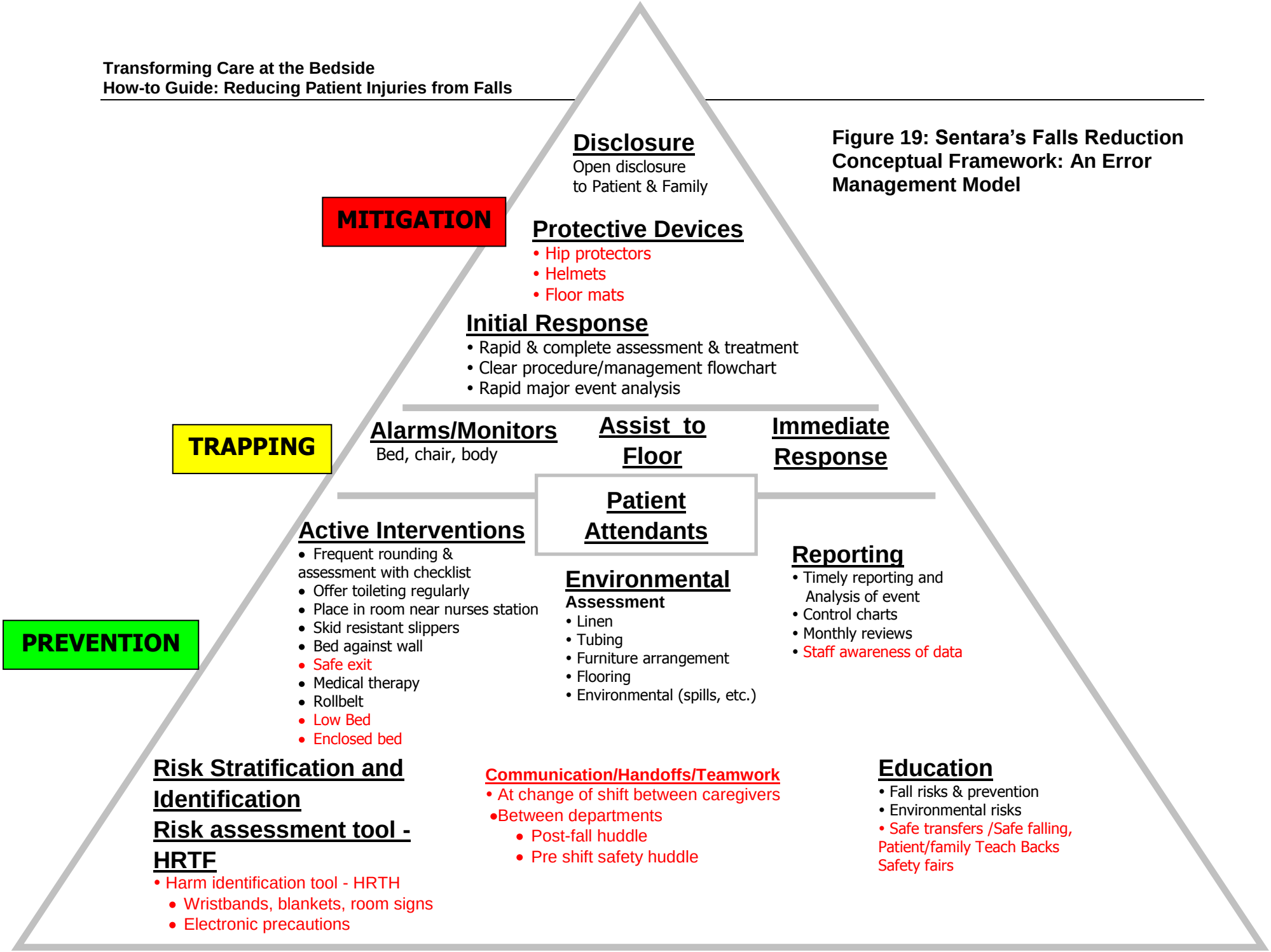


Figure 19: Sentara's Falls Reduction Conceptual Framework: An Error Management Model



Section Four

This section includes the tools and resources developed by hospitals engaged in fall prevention work.

- Nursing Handoff Checklist and Worksheet
- Environmental Fall Risk Assessment
- Fall Risk Assessment and Interventions Audit
- Safety Huddle Form
- Instructions for PDSA on Using Ask Me 3 and Teach Back to Redesign Patient Teaching
- Hourly Rounding Form
- Biomechanics of Falls from Bed and Bedside Floor Mats
- Gait Belt FAQs

Nursing Handoff Checklist and Worksheet

SENTARA

Required Knowledge About Each Patient

Patient

[Place Patient Label Here]

Attending Physician:
Consulting Physician(s):

Diagnosis:

History:

Allergies:
Fall risk? ☐ No ☐ Yes, due to:
Intervention:**armband** ☐ **doorsign** ☐ **bed alarm**☐

Other:_____

High Risk For Harm?

1. Patients 85 and over
2. Patients at risk for bleeding
3. Patients with osteoporosis
4. History of hip fracture and history of fall

Intervention:_____
Restraints? ☐ No ☐ Yes
Isolation? ☐ No ☐ Yes

Code status:
Vital Signs & Weight:

Meds	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**
	13	1	1	1	1	1	1	2	2	2	2	2
		4	5	6	7	8	9	0	1	2	3	4

Problems/Systems Assessment

Neurological

☐ Level of consciousness ☐ Neurological deficits ☐ Pain score/meds
☐ Sedation score current/desired ☐ Glasgow coma score

☐ Lab results

Cardiovascular

☐ Lab results ☐ PRN meds ☐ Telemetry ☐ Rhythm ☐ Tubes/drains
☐ Peripheral pulses/edema ☐ IV access/location/drip meds
☐ Pacemaker settings/rate ☐ **IABP** ☐ **Alarm parameters**

Respiratory

☐ Lab results ☐ PRN meds ☐ O2 sat/requirements ☐ Breath sounds
☐ Tracheotomy/chest tubes/drains ☐ Sputum characteristics
☐ **Ventilator settings/weaning status**

Plan of Care

Pending procedures / tests:

Results of procedures / tests:

Clinical pathways / guidelines / protocols:

Education needs / IPOC:

If smoker, cessation education given: ☐ No ☐ Yes
Vaccines update: ☐ No ☐ Yes

Purpose/Desired Outcome

Anticipated discharge/transfer date:

Discharge/transfer destination:

Precautions

Concerns and priorities for my patient:

Gastrointestinal

☐ Lab results ☐ PRN meds ☐ Bowel sounds/movement/consistency
☐ Nutrition ☐ Rectal tubes/output/ostomies ☐ Oral care

Genitourinary

☐ Lab results ☐ PRN meds ☐ Urine output/color/sediment

☐ Voiding/catheter ☐ Dialysis

Endocrine

☐ Lab results ☐ PRN meds ☐ Blood sugar

Integumentary

☐ Decubitus ulcer stage/treatment ☐ Erythema/rash
☐ Surgical incisions/dressing ☐ Specialty bed

Musculoskeletal

☐ Weakness/paralysis ☐ Mobility/activity level ☐ Assistive devices
☐ Joint swelling/tenderness

Psychosocial

☐ Behavioral/mental health ☐ Family dynamics/support system
☐ Customer service issues

Bold Font = ICU Related Criteria
Revision M: May 23, 2006

Environmental Fall Risk Assessment

Date: _____ Hospital _____ Unit: _____

Rooms assessed: _____
(minimum of 10% of rooms)

Individual(s) Surveying:
_____

Item #	Environmental Consideration	Yes	No	N/A	Room # / area deficiencies found	Comments
PATIENT ROOM						
1	Is there adequate lighting in the patient's room? (Bright light – no burned out bulbs?)					
2	Is the nightlight on the patient's bed functional / operating?					
3	Does the patient have an unobstructed path to the bathroom?					
4	Are patient room furnishings safely arranged?					
5	Is bedside furniture free of sharp edges?					
6	Is the bedside furniture sturdy?					
7	Are beds /stretchers kept at lowest setting whenever possible?					
8	Are beds/ stretchers kept in locked position?					
9	Were the upper siderails in the up position for patient to reach controls?					
10	Was the bedcheck system on in the patient's room?					
11	Were the patient's personal belongings / telephone call bell within reach?					
12	Are handrails provided in patient bathroom and properly secured?					
13	Emergency call button / cord in patient care bathroom present and works properly?					
14	Are nonslip surfaces provided in patient showers?					
15	Are the door openings into the patient bathroom wide enough for an assistive device to fit through?					
16	Are door openings flush with the floor for ease of movement for patient equipment?					
EQUIPMENT						
17	Portable equipment pushed by patient (i.e. IV pole) sturdy and in good repair?					
18	Are bedside commodes available on the unit and have proper rubber slip tips on the legs?					
19	Do walkers / canes / crutches have the appropriate slip tips?					
20	Are wheelchairs locked when stationary?					
21	Is broken equipment properly tagged for non-use?					

OTHER ENVIRONMENTAL CONSIDERATIONS						
22	Are floor surfaces/carpeting free of cracks and tripping hazards?					
23	Are hallways kept adequately clear / clutter free to allow patient ambulation?					
24	Are floors properly marked when wet to avoid slipping or spill cleaned up immediately?					
25	Do parking lots have uneven pavement / potholes / tripping hazards?					
26	Do sidewalks have uneven pavement / tripping hazards?					
27	Entrance areas free and clear?					
28	Parking areas / entrances well – lit?					
29	Parking lots well marked?					

ENVIRONMENTAL FALL RISK ASSESSMENT FOLLOW-UP

ITEM #	CORRECTIVE ACTION	DATE INITIATED	RESPONSIBLE INDIVIDUAL(S)	ANTICIPATED DATE OF COMPLETION

Original 2005, rev 5/08

Fall Risk Assessment and Interventions Audit

Instructions for use of Fall Risk Assessment and Interventions Audit

1. Review 10 patients in your first test sample. Choose the patients for review using random selection.

2. Complete a data collection form for each patient in the audit. Place a patient label on each form.

3. Ask charge/designee if they are aware of any patients that have fallen within their stay. Post fall audit questions are used if one of these patients turn up in the random sample.

3. Closely review each of the randomly selected charts to look for information to support or negate fall precautions.
    a) Was a risk assessment completed upon admission?
    b) From this score was the patient appropriate for fall prevention (FP) implementation?
    c) Utilizing the SOP, were the appropriate FP interventions completed?

4. If a patient had a fall:
    a) Were the appropriate items completed?
    b) Was documentation complete?

5. Send completed forms to your Falls Team leader.

6. Bring results of the sample review to the January 30-31 meeting.
    a) % of patients assessed for risk of falling
    b) % of patients assessed for risk of injury from falling
    c) % of patients with <u>all</u> indicated fall precaution interventions completed
    d) % of patients who fell who have <u>all</u> indicated interventions completed
    e) Summary of the % of yes/no responses (indicates where you need to work on reliability – what gets in the way?)

Fall Risk Assessment and Interventions Audit

Date: _____ **Hospital/Unit** _____

1. Reliability of Assessment and Interventions

a) Patient was assessed for risk of falling? □ **Yes** □ **No** Risk of harm? □ **Yes** □ **No**

b) Admission Fall Score:_____

c) Was the patient placed on **F**all **P**recaution (FP) upon admission? □ **Yes** □ **No** □ **N/A**

d) If the patient is on FP is there a:

	Yes	**No**	**N/A**	**Comments**
Written nursing order				
Risk ID arm band on the patient				
High risk sticker on chart				
FP sign on doorframe				
Red slippers on/near patient				
Education of patient and family – CareCast/Adm				
Evidence of Teach Back				
Evidence of call light Show Back				
Fall Precaution bag in patient's room				
Risk communication on handoff				
ALL OR NONE SCORE = 1 or 0				In "all" count those in your SOPs

2. If there was an identified fall:	**Yes**	**No**	**N/A**	**Comments**
a) Was the patient on FP prior to the fall?				
b) Was patient placed on FP after the fall?				
c) Was there communication on handoff?				
d) Is there a written nursing order?				
e) Is there an arm band on?				
f) Is there a sticker on the chart?				
g) Is there evidence of education of the patient and family completed in the chart?				
h) Is there a FP sign on the doorframe?				
i) Are red slippers on/near patient?				
j) Is there a fall precaution bag in room?				

k) Is there a personal alarm in use now?				
l) Is there a bed alarm in use now?				
ALL OR NONE SCORE = 1 or 0				In "all" count those indicated

3. Reassessment

a) Was the patient reassessed with each new patient care giver? (Look back 7 days only)

□ **YES** □ **NO**: Explain when it wasn't complete date/time: _____

_____

b) Transfer: Was the patient reassessed for FP upon transfer? □ **Yes** □ **No** □**N/A**

c) Following a fall: Was the patient reassessed for FP following a fall? □ **Yes** □ **No** □**N/A**

Safety Huddle Form

TRINITY
IOWA HEALTH SYSTEM

DATE: _____

Shift:__3rd_	**Shift:__1st____**	**Shift:__2nd__**
Top 3 Patients for Fall Precautions	Top 3 Patients for Fall Precautions	Top 3 Patients for Falls Precautions
1._____	1._____	1._____
2._____	2._____	2._____
3._____	3._____	3._____
Patient/Family Issues	Patient/Family Issues	Patient/Family Issues
1._____	1._____	1._____
Most Unstable Patient	Most Unstable Patient	Most Unstable Patient
1._____	1._____	1._____
Highest Acuity	Highest Acuity	Highest Acuity
1._____	1._____	1._____

Instructions for PDSA on Using Ask Me 3 and Teach Back to Redesign Patient Teaching

1. Break down the content into 2 to 4 simple, “need to know” concepts using the Ask Me 3 questions.
2. TEACH the patient.
3. Ask the patient to TEACH BACK the information.
4. ANALYZE your results using the questions that follow:

What percent of information could patients Teach Back?

What did you learn?

What surprised you?

What are you curious about now?

Next steps you planned as a result of findings?

Test of Change Data Report Form

PDSA on Using Ask Me 3 and Teach Back to Redesign Patient Teaching

PATIENT	TEACHING POINT #1	TEACHING POINT #2	TEACHING POINT #3	SCORE	LESSONS LEARNED

Sample Test of Change Data Report

PDSA on Using Ask Me 3 and Teach Back to Redesign Patient Teaching

PATIENT	TEACHING POINT #1	TEACHING POINT #2	TEACHING POINT #3	SCORE	LESSONS LEARNED
Age/Gender: 67F Admitting dx. Lt. knee replacement	At risk for falling because of the surgery on her knee	How to call for help. Review of the call light system.	Why it is important to ask for help. Pain medication may cause dizziness and confusion that may increase your risk for falls.	0%	Patient unable to call for assistance so increased fall precautions required
Age/Gender 68F	Up with walker, weakness, IV pole	How to call for help. Review of the call light system.	Why it is important to ask for help. The IV pole is hard to move and it may cause you to trip and fall.	75%	Patient didn't see using a walker with an IV pole as a fall risk
Age/Gender: 72M Admitting dx. Weakness & SOB	At risk for falling because of weakness and shortness of breath	How to call for help. Review of the call light system.	Why it is important to ask for help we are concerned that you are a risk for falling and getting hurt; we want to keep you safe.	100%	Patient able to repeat back all teaching points. Patient already placed on fall precautions (Morse fall score> 45).
Age/Gender 85F Admitted for CHF	At risk for age, shortness of breath	How to call for help. Review of the call light system.	Why it is important to ask for help: Because you are short of breath we fear that you will need our help to walk. You might fall and get hurt	50%	Patient able to repeat her risks, but struggled with the call light and why important to call nurse

			requiring you to stay in the hospital longer.		
Age/Gender: 27M Admitting dx. s/p MVA with Lt. radial fx.	d/t pain medication which can cause dizziness, confusion and reduced mobility of left arm	How to call for help. Review of the call light system.	Why it is important to ask for help: Because of your dizziness and weakness of your arm, we are afraid you will fall and get hurt, The bathroom is a place where it is easy to fall and surfaces are very hard.	100%	Patient able to repeat back all teaching points. Patient not placed on fall precautions Morse fall Score <45. But nurses were worried that confusion could return

Conclusions: Teach Back used in conjunction with Ask Me 3 teaching and using the fall assessment tool was valuable in assessing the patients' understanding of "if and how they could call for help." Staff who participated in the Teach Back explained that by questioning the patients about their understanding of "how to call for help" and the patients' ability to repeat-back the why and how to call for help provided an extra assessment needed to aid in preventing falls.

Hourly Rounding Form

Purpose: The purpose of this log is for data collection on hourly patient rounding ensuring clinical accountability and keeping our patients and families informed.

Instructions: The log serves as documentation of hourly rounds. Completed logs are submitted to the Clinical Supervisor daily for review and compliance. The Manager will retain the log for 30 days.

Date:_____ Room #_____(Do **NOT** include name)

Time Standard Time Military Time	**Initials of Person Rounding**	**Time of Rounding Visit**	**Reason for Patient Unavailable**	
			Sleeping	Off unit / Out of room
6– 7 a.m. 0600 - 0700				
7 – 8 a.m. 0700 - 0800				
8 – 9 a.m. 0800 - 0900				
9 – 10 a.m. 0900 - 1000				
10 – 11 a.m. 1000 - 1100				
11 a.m.– 12 noon 1100 - 1200				
12 noon – 1 p.m. 1200 - 1300				
1 – 2 p.m. 1300 - 1400				
2 – 3 p.m. 1400 - 1500				
3 – 4 p.m. 1500 - 1600				
4 – 5 p.m. 1600 - 1700				
5 – 6 p.m. 1700 - 1800				
6 – 7 p.m. 1800 - 1900				
7 – 8 p.m. 1900 - 2000				
8 – 9 p.m. 2000 - 2100				
9 – 10 p.m. 2100 - 2200				
10 – 12 a.m. 2200 - 2400				
12 a.m. – 2 a.m. 2400 - 0200				
2 a.m. – 4 a.m. 200 - 0400				
4 a.m. – 6 a.m. 400 - 0600				

Do not put patient label or identifying information on this form;
not a part of the permanent medical record.

Biomechanics of Falls from Bed and Bedside Floor Mats

Veterans Administration VISN 8 Patient Safety Center of Inquiry, Tampa, Florida

1. Based on laboratory research using an instrumented mannequin at the VISN 8 Patient Safety Center, the force of fall from a bed can cause mild, moderate or severe injury depending on height of bed and floor surface. Head-first falls that can occur when a person rolls out of a bed were compared to feet-first falls that can occur when a frail or weak person tries to get out of bed without assistance.

2. Biomechanical forces of falling from bed can be minimized with the use of height-adjustable low beds that are kept in the low position and lowering side rails to decrease the height of a fall, and using bedside floor mats to decrease the impact of a fall.
    - Although calculated Head Injury Criteria (HIC) values (i.e., a value used in the automotive industry to correlate acceleration with injury severity), suggested a 40% chance of sustaining a serious brain injury as a consequence of a feet-first fall from bed, the use of a mat significantly reduced risk by an average of 72% across bed heights ranging from 0.34 to 0.98m.
    - Falls onto an unprotected surface did not present any significant risk of hip fracture, and use of a bedside floor mat reduces pelvis impact forces by only 6%.

3. In some of the trials the mannequin's head hit the bare floor at the headboard end of the bed when the bedside floor mat was in place, and occasionally hit the floor to the side of the mat. The head may also strike furniture near the head of the bed.
    - Based on this finding, the size of the floor mat is an important consideration for use. It is most prudent to use a mat that extends beyond the head of the bed and one that is at least 44 inches wide.
    - Furniture near the head of the bed should be placed with care and sharp edges should be padded for persons likely to fall from bed.

4. Researchers at the VISN 8 Patient Safety Center are currently investigating the energy absorbing properties of different flooring surfaces and bedside floor mats.

5. Other considerations of using bedside floor mats were not addressed by this study.
    - Although there is no empirical evidence to support the use of mats with beveled edges, in theory, beveled edges should decrease tripping risk. Anecdotally, nurses who have used mats with beveled edges reported that the beveled edge seems to reduce tripping risk. Make sure the edges of the mat do not curl up over the life of the mat.
    - Check with the manufacturer for cleansing instructions. Work with your local environment of care/housekeeping service to establish a routine cleaning schedule and process.
    - Many staff store mats underneath the bed when the patient is not in the bed. Mats that are constructed with fold lines may be easier to store than ones that cannot be folded.

Gait Belt FAQs

What is a gait belt?

- Gait belts are thick fabric belts that give staff a place to hold onto the patient to assist with balance and support of the patient. Contact your supervisor for location of gait belts on your unit.

Why should you use a gait belt?

- Gait belts should be worn to ensure safe mobility for patient and staff, and also to decrease staff liability.

Who should use a gait belt?

- Every staff member that assists patients with mobility including transfers and ambulation.

Where should you place a gait belt?

- Most gait belts are placed at the waist level. Some patients have injuries or surgery that require the belt to be placed higher or lower than waist level.

When should you use a gait belt?

- Gait belts should be worn ***every time you assist a patient with mobility!!!*** Gait belts should be worn in patient's room, in the halls if ambulating, or any place patient will need to transfer from one surface to another.

How do you use a gait belt?

- Buckling the belt: Bring the metal end through the teeth side of the buckle and pull snugly, and then thread the metal end through the other end of the buckle.
- Holding the belt: Depending on the level of assistance that the patient requires, one hand can be placed on the belt threading fingers from the bottom towards the top of the belt or two hands can be used on each side of the belt at patient's waist. If patient has a weaker side, spotter must stand on that side (i.e., patient with right-sided paralysis, you stand on their right side), or if patient requires a great amount of assistance more than one person should be holding onto the belt.