

**Actionable Patient Safety Solution (APSS) #14:
FALLS AND FALL PREVENTION**

Executive Summary Checklist

Patient falls are a major cause of in-patient injury and even death. Healthcare administration must develop, revise and support the plan through the following actionable steps: ("Preventing falls in hospitals: a toolkit for improving quality of care.", 2013; Boushon et al., 2008)

- Assess the existing fall prevention and protection from injury policies, procedures, protocols, and educational programs in relation to current evidence and emerging research.
- Identify existing needs or gaps in the fall prevention and protection from injury policies, procedures, protocols, and knowledge application for employees.
- Identify Opportunities for Improvement and Set Aims (Goodwin *et al.*, 2014; Mion *et al.*, 2012; Mccurley and Pittman, 2014; Waters *et al.*, 2015).
 - Collect fall and injury data to assist in advancing precision performance of fall prevention and protection from injury program.
 - Debrief all falls, including non-injury falls. Analyze for trends or patterns that assist in advancing performance of the fall prevention and protection from injury strategy.
 - Consider bundling evidence-based recommendations to achieve greater outcomes.
 - Consider provider training on how to partner with patients and their loved ones on safety strategies to prevent falls and protect from injuries.
 - Consider technological advancements to advance performance and reduce injuries.
 - Develop a multidisciplinary team to create, implement, and sustain fall prevention and protection from injury initiatives. This team should include, but is not limited to, Executive sponsor, Environmental Manager, Risk Manager, Physical Therapist, Occupational Therapist, Medical Doctor, Unit Manager, frontline nursing staff, or Certified Nursing Assistant. Efforts should be made to get as many representatives from all shifts.
 - Develop fall champions throughout all departments who further drive organizational knowledge and action in the healthcare setting.
 - Provide clear and concise communication regarding the champion's role and responsibilities.
 - Develop feedback mechanisms to learn what is working and what can be improved upon in the fall prevention and protection from injury plan from the champion's perspective.

The Performance Gap

Organizational Check: Does your organization understand the differences between a tool that triages and one that assesses for fall prevention and protection from injury?

Fall prevention and protection from injury is an organizational issue and needs to be addressed by all employees who might encounter a potential individual who is at risk for a fall. Consider assuring that rotations of students, volunteers and new employees understand the importance of the fall prevention and protection from injury actions. Clarity of their role and expectation of their actions must be clearly defined.

Guiding Principles related to fall prevention and protection from injury: (RNAO, n.d.)

- Many falls are predictable and preventable
- Some falls cannot be prevented; in these cases, the focus should be on proactively preventing fall injuries and decreasing the frequency of falls.
- Fall prevention is a shared responsibility within health care and throughout the institution.
- Person and family-centered care is foundational to the care of people at risk for a fall, and fall injuries.
- The risks and benefits for the person should be considered when implementing interventions to fall prevention and protection from injury.

Preventing falls and minimizing injuries is difficult and complex. Organizations many times have competing priorities which lead to fall prevention and protection from injury management being placed under one discipline such as nursing to address. Fall prevention and protection from injury must be an organizational focus with all employees understanding their role and the impact that they can have in creating a culture of safety. (HRET, 2016)

The Joint Commission's Sentinel Alert Event, Issue 55, released September 28, 2015 released their review and synthesis of current research (Alert, 2015).

"A considerable body of literature exists on falls prevention and reduction. Successful strategies include the use of a standardized assessment tool to identify fall and injury risk factors, assessing an individual patient's risks that may not have been captured through the tool, and interventions tailored to an individual patient's identified risks. In addition, systematic reporting and analysis of falls incidents are important components of a falls prevention program. Historically, hospitals have tried to reduce falls – and to some extent have succeeded – but significant, sustained reduction has proven elusive."

Many succeed temporarily due to a "placebos" effect. Simply raising staff awareness will reduce falls for a short period of time.

Assessment tools have been instituted throughout most organizations as part of a fall prevention and protection from injury strategy. Organizations should be cautious about utilization of tools that are internally designed without vetting through validation and interrater reliability processes. There needs to be clarification about the role that tools have within the practice setting. Tools used to triage for a fall are used to predict likelihood of an anticipated physiological fall and monitors fall risk (Degeleau 2012). The tool provides the probability of an anticipated physiological fall but does not inform caregivers what to do about it (Morse 1989). Assessment tools provide an assessment of the patient, such as gait, medication, mental status and other contributing factors. These tools are used to reduce the probability of an anticipated physiological fall. It is important that there is clarity about the tools being used and functionality to assure organizational performance (Degelau *et al.*, 2012).



Analysis of falls with injury in the Sentinel Event database of The Joint Commission revealed the most common contributing factors pertain to: (Joint Commission 2015)

1. Inadequate assessment
2. Communication failures
3. Lack of resources, including staffing
4. Lack of adherence to protocols and safety practices
5. Inadequate staff orientation, knowledge, supervision, or skill mix
6. Deficiencies in the physical environment
7. Lack of leadership

As part of The Joint Commission Center for Transforming Healthcare Preventing Falls with Injury Project, seven U.S. hospitals entered into a pilot study using Robust Process Improvement© which incorporates tools from Lean Six Sigma to identify the root cause of falls and develop strategies to reduce them. The top contributing factors to a fall were: (HRET, 2016)

1. Fall Risk Assessment Issues
2. Handoff Communication Issues
3. Toileting Issues
4. Call Light Issues
5. Education and Organizational Culture Issues
6. Medication Issues

A lack of congruence and organizational focus has caused, and continues to cause, preventable patient injury or death, and has increased the costs of care. Closing the performance gap with an organizational focus will require leaders and their health systems to commit to specific actions by all disciplines throughout the organization.

A framework to consider is the “Knowledge-to-Action” model which provides the process steps required for knowledge inquiry and application into practice (“Knowledge Translation in Health Care: Moving from Evidence to Practice”, 2009). Moving an organization forward to a precision performance requires an innovative approach with focused intent (**Appendix A**).

Leadership Plan

Organizational Check: What are the invisible rubber bands holding the organization back from advancing a culture of safety through a fall protection and injury prevention strategy?

Reducing fall injuries and deaths associated with falls is the ultimate outcome sought by leaders and their respective organizations. While all leaders strive to transform culture and advance patient safety, reducing patient falls requires cutting the invisible rubber bands or biases of traditional actions and focus on the elevation of leadership and health systems’ performance.

Leaders and their governing boards must: (IOM, 2004)

- Balance the tension between production efficiency patient-centered responsibility, reliability and patient safety. Research supports the correlation of staffing mixes, staffing adequacy, teamwork, and communication as a major influencer on fall prevention and protection from injury.
- Seek to understand trust violations and work to sustain a culture of trust throughout the organization. High trust organizations have a preoccupation with failure to advance patient safety. Leaders must create a culture that reduces the fear of reprisal and promotes open dialogue and organizational learning (Boushon 2012).



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- Clearly define what constitutes a patient fall. Research has advanced the understanding of physiological falls, both anticipated and unanticipated. Preventing accidental falls requires a critical eye on ensuring a safe environment.
 - Leaders must also accept that with clearer definition of patient falls, there will most likely be a reportable increase in falls in the early days of a program. High reliability organizations understand that this is not a reflection of staff negligence, but of better data collection policies. (HRET 2016)
- Categorize falls with injury.
 - The following is the National Database of Nursing Quality Indicators (NDNQI) definitions which assist in standardization of the compiling of the data for comparative analysis (National report card metrics, 2012).
 - None—patient had no injuries (no signs or symptoms) resulting from the fall, if an x-ray, CT scan or other post fall evaluation results in a finding of no injury.
 - Minor—resulted in application of a dressing, ice, cleaning of a wound, limb elevation, topical medication, bruise or abrasion.
 - Moderate—resulted in suturing, application of steri-strips/skin glue, splinting or muscle/joint strain.
 - Major—resulted in surgery, casting, traction, required consultation for neurological (basilar skull fracture, small subdural hematoma) or internal injury (rib fracture, small liver laceration) or patients with coagulopathy who receive blood products as a result of the fall.
 - Death—the patient died as a result of injuries sustained from the fall (not from physiologic events causing the fall)."
- Actively manage the process of change and transformation. Leaders must be committed and stay committed to fall prevention and protection from injury by clearly communicating their commitment, strategies and learnings (Boushon 2012, Degleau 2012, France 2017, Ganz 2013).
- Involving employees through the improvement process, including debriefs, analysis of data, development of action plans and the acquisition of resources that advancement of safety.
- Use knowledge and management practices to facilitate learning and to promote innovation within the organization. Leaders must apply evidence, innovation and experimental knowledge to new and existing physical environments, workflow, practice challenges and changes, and decision making (Boushon 2012).
- Develop the organizational story and use the skill set of storytelling to galvanize the organization into action and staying focused on why there is a need a for change.
- Utilize patient and family councils to redesign education, physical environment and patient/family partnerships that will reduce injuries and harm (Ryu, Roche and Brunton, 2009).

Practice Plan

Organizational Check: *Do you have a process to routinely follow up after a fall to ensure that an injury was not subsequently identified?*

Researchers agree that fall prevention and protection from injury strategies must acknowledge complexity and be multifocal, multicomponent in nature.

An effective practice plan needs to start with process steps before moving into application into the practice setting. The following is a summation of the steps to be taken before design and implementation of actual program (Miakel-Lye, Hempel, Ganz and Shekelle, 2013).

1. Determine the current state of fall program. Look for standardization and points of where there is variation.
2. Determine and understand the organizational context of the practice in fall prevention and protection from injury. Have there been prior efforts to improve practice? What lessons can be learned and barriers identified to address beforehand?
3. Determine who prescribes and review medications. Do those involved in medication regimes, including administration understand their roles in fall prevention and protection from injury (Beasley and Patatianian, 2009)?
4. Determine how information about patient fall risk factors are communicated, documented and shared to assure appropriate actions and culture of safety.
5. Determine current processes within specific departments or units. Consider using such tools as process mapping to understand current practice and where actions could or should be happening for fall prevention and protection from injury. While process mapping is time-consuming, examining each step can give critical insight into not only how particular care processes are being carried out, but can lead to further discussion on how they should be carried out.
6. Determine how to integrate practice changes in current workflows and rituals within the care settings.
7. Determine the current state of staff knowledge and understanding of fall assessment, prevention and protection from injury. Exploring possible biases about conducting risk assessments, interventions and perspectives about falls.

Factors associated with Patient Falls can be divided into four areas of influence. The following table (**Table 1**) outlines the factors to assist organizations to develop interventions and practice actions after assessing their current processes (Morgan, Mathison, Rice and Clemmer, 1985).



Table 1: Factors Associated with Patient Falls

Patient-Specific	Environmental	Situational	Organizational
Impaired gait	Furniture on wheels	Leaning forward	Staffing:
Impaired cognition	Cluttered pathways	Reaching up	Numbers
Forgetfulness	Poor lighting	Transferring on/off bed/chair	Knowledge
Poor judgment	Slippery floors		Skill mix
Impulsiveness	Height of furniture		Attitudes
Sedation	Unit layout making it difficult to see patients from nurses' station		Types of Policies:
Impaired vision	Medical devices (IV poles, indwelling urinary catheters)		Hourly rounding
Weakness, especially legs			Toileting schedules
Hypotension			Type of fall prevention program
Depression			Available Equipment purchases:
Urinary incontinence			Bed/chair alarms
Acute event (e.g., MI, PE)			Transfer equipment
Certain medications (sedatives, opioids, SSRIs)			Surveillance video monitoring



Non slip cushions

Available Furniture:

Low/very low beds

Chairs that facilitate seating

Clearly define what constitutes a patient fall (Ganz 2013, Miake-Lye 2013, Registered Nurses Association of Ontario).

Leaders must also accept, that with clearer definitions of patient falls, there will most likely be an increase in falls in the early days of the program. High-reliability organizations understand that this is not a reflection of staff negligence, but of better data collection policies.

Define Type of falls.

1. **Physiological (anticipated).** Most in-hospital falls belong to this category. These are falls that occur in patients who have risk factors for falls that can be identified in advance, such as altered mental status, abnormal gait, frequent toileting needs, or high-risk medications
2. **Physiological (unanticipated).** These are falls that occur in a patient who is otherwise at low fall risk, because of an event whose timing could not be anticipated, such as a seizure, stroke, or syncopal episode.
3. **Accidental.** These falls occur in otherwise low-risk patients due to an environmental hazard. Improving environmental safety will help reduce fall risk in these patients but is helpful for all patients

Categorize falls with injury.

1. No apparent injury
2. Minor: Bruises or abrasions as a result of the fall
3. Moderates: an injury that causes tube or line displacement, a fracture, or a laceration that requires repair.
4. Major: injury that requires surgery or a move to intensive care unit for monitoring a life-threatening injury.
5. Death.

Develop a multidisciplinary team to create, implement, and sustain fall prevention and protection from injury initiatives. This team should include, but is not limited to, Executive Sponsor, Environmental Manager, Risk Manager, Physical Therapist, Occupational Therapist, Medical Doctor, Unit Manager, Frontline Nursing staff, Certified Nursing Assistant. Efforts should be made to get as many representatives from all shifts.

Gain consistent data collection processes. Without reliable data metrics a facility cannot reliably compare before and after initiative validity.

1. Falls per 1,000 patient days is the most reliable metric.
2. Falls with injury per 1,000 patient days should also be noted.

Review Fall Assessment tools being utilized. The tool should have clarity on the purpose for the outcomes desired from the tool. Is the tool being used to triage or screen for the likelihood of a fall? Do you have tools to evaluate patients for muscle strength, gait, and other contributing factors? Competency assessment of clinicians who utilize the tool should be done on an ongoing basis to ensure accuracy and knowledge application of the tools.

Review Fall Prevention and Protection from Injury Interventions.

1. Institutions should be utilizing not only ambulation equipment but visual cues to indicate high risk fall patients for staff members. Color coded gowns, wristbands, socks, external magnets and other visual cueing notifies those trained in fall prevention and protection from injury that a patient is at risk, and thus requires greater monitoring.
2. Utilize appropriate interventions for individuals specific fall risk factors. Patients that have difficulty with toileting will require different interventions, then if a patient's risk factors are due to culprit medications.

Review Environmental Risk Factors

The following provisions should be followed to avoid environmental risk factors:

1. Beds kept in the lowest position.
2. Glare reduction windows in place.
3. Polarized windows decrease glare.
4. Tinted mylar shades can eliminate glare without loss of ambient light.
5. Translucent light filtering pleated shades or sheer draperies eliminate glare without loss of ambient light.
6. No gloss flooring should be utilized.
7. Handrails should be in the room, walkways and bathrooms. They should be easy to identify with a coloring different from the wall they are attached to assist those who are visually impaired or have low vision.
8. All ambulation and patient transferring equipment should be serviced and inspected within the manufacturer's guidelines.

Create staff teaching for new fall prevention and protection from injury initiatives

- These should be run by the fall champions, and encourage feedback from the staff for possible process improvements.

Create patient and visitor education

- Patient and visitor education is a vital component to any multifactorial fall prevention and protection from injury initiative.

Create a post fall huddle initiative

1. Post fall huddles should initially include guidelines on how to care for a patient that has fallen.
2. Once the immediate medical concerns of the fall have been addressed, a non-punitive root cause analysis should be performed. There are two different types of root cause analyses: aggregate and individual. Organizations should consider having both processes in place to assure maximum learning and improvement. Highly reliable institutions create a safe environment for staff members to report any potential patient safety concerns. Without this safe reporter environment, true root causes will never be found, thus creating negative patient safety outcomes indefinitely.

Re-Evaluate

1. The multidisciplinary committee should meet on a predetermined basis to review fall prevention and protection from injury initiatives for areas of improvement.



Technology Plan

Suggested practices and technologies are limited to those proven to show benefit or are the only known technologies with a particular capability. As other options may exist, please send information on any additional technologies, along with appropriate evidence, to info@patientsafetymovement.org.

Technology in the field of fall prevention and protection from injury has advanced in the utilization of artificial intelligence (AI) with predicative modeling. Data and data analytic systems capture and utilize patient information through wearables (Goodwin et al., 2014), sensors in garments and footwear; smart technology embedded within beds, chairs, commodes and other durable medical equipment. Predictive modeling is being embedded into alert systems such as communication and nurse call, and electronic healthcare records. Data analytics will drive advances in fall prevention and protection from injury (Baus et al., 2016). Leaders must plan for and incorporate a technology strategy to maximize the utilization of AI within their organization to create safer environments (for Health Solutions, 2014).

Technology is also advancing into the physical environment with systems designed to create safer environments. New advancements utilize high performance monitoring systems to reduce physical sitters needed for individual observation (Mccurley, 2014).

In the field of fall prevention and protection from injury, there is a focused approach to restore muscle strength and balance. In the inpatient arena, technology has influenced advancements in rehabilitation equipment that is supporting earlier mobilization (Knutson, 2017). In the outpatient arena, exercising and classes such as Tai chi have provided methods to help individuals at high risk for a fall with an overall approach to strengthen muscles. While these classes are good they are problematic in many ways for individuals. Emerging is 3D technology and interactive games which have the potential to be customizable to the individual capabilities.

The use of technology must be approached with the understanding that it is multifocal, evolutionary and not static in both use and understanding. Investments of resources both capital and human are on-going and need to be planned for as such (Hamm et al., 2016).

Metrics

Topic:

Falls with Injury

Total falls with injury (E through I on the NC-MERP classification scale)

Outcome Measure Formula:

Numerator: Falls with injury

Denominator: Total number of adjusted patient days

*Rate is typically displayed as Total Falls with injury/Adjusted Patient Days * 1,000*



Metric Recommendations:

Direct Impact:

All Patients

Lives Spared Harm:

$$\begin{aligned} \text{Lives Spared Harm} &= (\text{Falls Rate}_{\text{baseline}} \\ &\quad - \text{Falls Rate}_{\text{measurement}}) \times \text{Adjusted Patient Days}_{\text{measurement}} \end{aligned}$$

Lives Saved:

$$\text{Lives Saved} = \text{Lives Spared Harm} * 0.055$$

Notes:

Adjusted patient days is defined as:

$$\begin{aligned} &(\text{Inpatient Revenue} + \text{Outpatient Revenue} \\ &\quad + \text{Miscellaneous Revenue}) / (\text{Inpatient Revenue}) \times \text{Total Patient Days} \end{aligned}$$

Data Collection:

Data collection is dependent upon the information obtained from employees who were involved with the fall. Typically this is obtained through unusual occurrence reports. Data should be obtained on every fall that occurs within the organization. Utilizing the data to obtain trends or patterns will help to further engage discovery on contributing factors within the organization.

Mortality (will be calculated by the Patient Safety Movement Foundation):

The estimated inpatient mortality per fall is 0.055 (“2013 Annual Hospital-Acquired Condition Rate and Estimates of Cost Savings and Deaths Averted From 2010 to 2013 | Agency for Healthcare Research & Quality”, n.d.).



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Workgroup

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Conflicts of Interest Disclosure

The Patient Safety Movement Foundation partners with as many stakeholders as possible to focus on how to address patient safety challenges. The recommendations in the APSS are developed by workgroups that may include patient safety experts, healthcare technology professionals, hospital leaders, patient advocates, and medical technology industry volunteers. Some of the APSS recommend technologies offered by companies involved in the Patient Safety Movement Foundation that the workgroups have concluded, based on available evidence, are beneficial in addressing the patient safety issues addressed in the APSS. Workgroup members are required to disclose any potential conflicts of interest.



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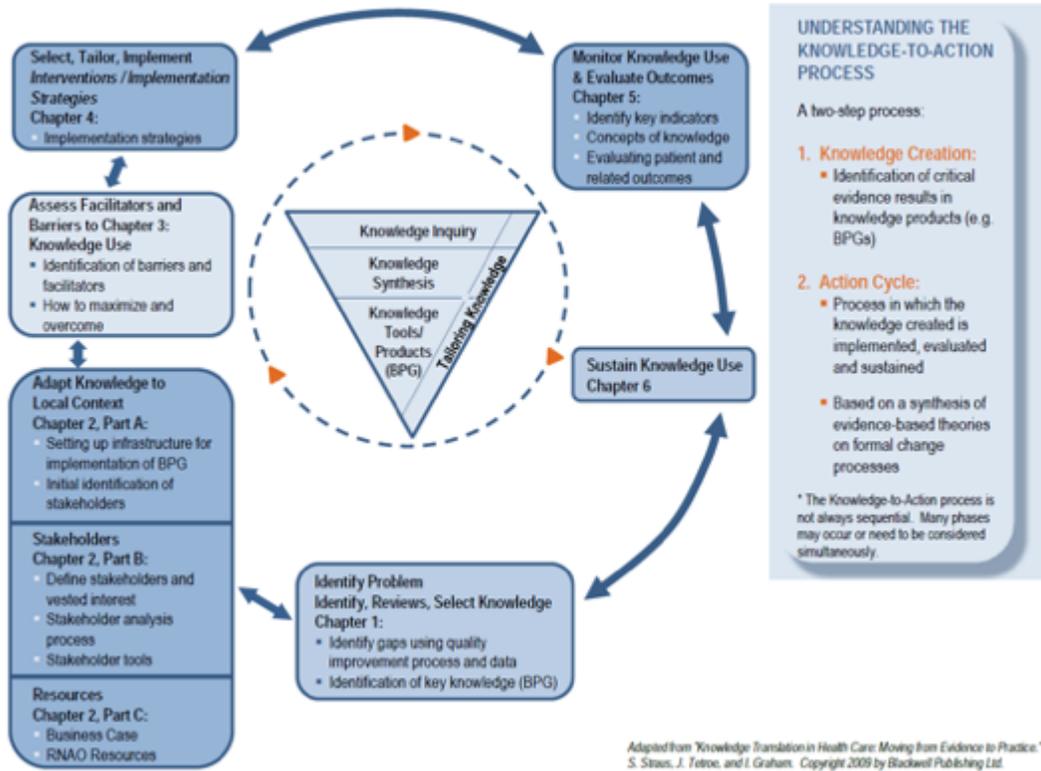
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Appendix A

REVISED KNOWLEDGE-TO-ACTION FRAMEWORK



Adapted from "Knowledge Translation in Health Care: Moving from Evidence to Practice," S. Straus, J. Fetroe, and I. Graham. Copyright 2009 by Blackwell Publishing Ltd.



Appendix B

Toolkits and additional resources:

Agency for Healthcare Research and Quality. AHRQ. *Preventing falls in hospitals. A toolkit for improving quality of care.* <https://www.ahrq.gov/professionals/systems/hospital/fallpxtoolkit/index.html>

Australian Commission on Safety and Quality in Healthcare. *Guidebook for Preventing Falls and Harm From Falls in Older People: Australian Hospitals.*

https://www.safetyandquality.gov.au/internet/safety/publishing_nsf/Content/com-pubs_FallsGuidelinesCommunity

ECRI Institute, *Falls. ECRI.* <https://www.ecri.org/components/HRC/Pages/SafSec2.aspx>

Health Research & Educational Trust. Preventing patient falls: A systematic approach from the Joint Commission Center for Transforming Healthcare project. www.hpoe.org/preventingfalls

Institute for Clinical Systems Improvement. Health Care Protocol: Prevention of Falls (Acute Care). www.icsi.org. <https://iu.instructure.com/courses/1491754/files/56997226/download?wrap=1>

National Council on Aging. Falls and Fall-Related Injuries Among Older Adults, A Practical Guide to State Coalition Building to Address a Growing Public Health Issue. <https://www.ncoa.org/wp-content/uploads/Falls-Prevention-Coalition-Toolkit.pdf>

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