

Actionable Patient Safety Solutions (APSS) #14B: **Mother/Baby Falls**

How to use this guide

This guide gives actions and resources for creating and sustaining safe practices to help prevent patient falls. In it, you'll find:

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Executive summary checklist

The Joint Commission cited the following in their March 2018 safety alert: " Inpatient falls have been well studied in the adult population, and there is a large body of research in fall prevention and cost reduction. Conversely, there is little attention to falls in the newborn population, although it has been estimated that 600 to 1,600 newborns in the United States experience an in-hospital fall every year." Infant falls can have catastrophic impact to the infant from skull fractures to death.

Pregnant women are not typically identified as high risk for a fall. Yet, falls are the leading cause for Emergency Department visits for this population (Weiss, Sauber-Schatz & Cook, 2008). Additionally, traditional tools utilized for identifying high risk cohorts have not been applied to this specific population. The call for population-specific fall prevention solutions as a top safety goal for health delivery systems is becoming louder as the evidence demonstrates the need for differentiated actions by healthcare leaders and providers.

Use data to find areas for improvement

- Assess your existing fall prevention and protection from injury policies, procedures, protocols, and education in relation to this special population - do not limit review to Maternal-child department
- Include the patient and family voice in this process by involving your organization's patient and family advisory body (such as Patient and Family Advisory Council (PFAC)) or by including current or former patients or patient advocates
- Develop data collection methodology isolating mother and newborn fall data - share data through state and national associations to promote benchmarking
- Sponsor research to advance understanding and knowledge of population specific fall prevention solutions and cultural changes required to elevate safety

Engage staff

- Develop a safety team to continually promote Mom-baby safety throughout the hospital stay and afterwards
- Consider creating a Newborn Safety Bundle to achieve greater outcomes
- Consider implementation of Maternal Safe Sleep protocols
- Debrief all falls, near misses and analyze the system of safety practice for points of failure and opportunities for improvement

What we know about falls and fall prevention

Fall prevention and protection requires a culture of vigilance and commitment to safety. Mother-Newborn safety requires a special focus on both mom and baby. For example one of the considerations is assessing moms ability to safely ambulate carrying her newborn.

The Agency for Healthcare Research and Quality (AHRQ) defines a fall as: An unplanned descent to the floor with or without injury to the patient. (AHRQ, 2013) This is the definition utilized for maternal falls. For newborn falls, there is the further expansion of definition. The National Database for Nursing Quality Indicators (NDNQI) defines newborn falls as the following:

“A newborn fall is a sudden unintentional descent, with or without injury to the patient that results in the patient coming to rest on the floor, on or against another surface, on another person or object.” A newborn drop is defined as “a fall in which a baby being held or carried by a healthcare professional, parent, family member, or visitor falls or slips from that person’s hand, arms, lap, etc. This can occur when a child is being transferred from one person to another. The fall is counted regardless of the surface on which the child lands and regardless of whether or not the fall results in injury” (NDNQI, 2012). The Joint Commission recommends that both a fall and/or a drop is a patient safety concern and should be investigated and treated with the same safety analysis process.

Factors that increase fall risk of the mother (Heafner, et al., 2013):

- Prior History: History of a fall, history of bedrest, visual impairment
- Cardiovascular: History of anemia or preeclampsia, orthostatic hypotension, dizziness
- Hemorrhage: Postpartum hemorrhage (>1500 ml), placental abruption or previa
- Neuro-function/anesthesia: Post-general, regional or neuraxial anesthesia, paresthesia in the thigh, epidural infusion discontinued <3 hours
- Motor/activity: Able to straight leg raise but unable to bridge, unable able to straight leg raise
- Medications: IV/IM narcotics, anti-hypertensive, tocolytics, sleep aids

Factors that increase fall risk of the newborn are associated with maternal risk factors and additionally (Hodges & Gibert, 2015):

- Second to third post-delivery night between 12 a.m. and 9 a.m
- Surgical delivery
- Maternal use of narcotics
- Mothers aged 18 - 23 years
- Breastfeeding

Additional risk factors for consideration:

- Mother (family) not aware of infant fall risk
- Falls occurred during feeding (bottle or breast)

The performance gap in preventing falls

Mother Fall Risk: Heafner and colleagues (2013), found in the absence of research on fall prevention tools for women hospitalized in obstetric units, most hospitals were utilizing one of the following in perinatal units: Morse Fall Score (MFS); Hendrich (1) Fall Risk Model; or Schmid. The MFS has undergone compelling reliability testing in adult medical-surgical patient

populations and long-term rehabilitation care areas. However, Morse identifies the exclusion of obstetric and pediatric populations. The Hendrich (1) Fall Risk Model was developed from a review of patients in an acute setting, mostly oncology and orthopedic patients. The Schmid tool was developed by comparing a group of “fallers” with age-matched “non-fallers” and tested on patients from four nursing units deemed high risk for falls.

The conclusion was these three instruments may not be appropriate tools to identify women in obstetric units at risk for falls.

Newborn Fall Risk: The literature supports maternal risk factors are more associated with newborn falls and drops than other risk factors usually associated with falls. The dichotomy facing healthcare providers is the very actions they take to promote infant health and well-being may in fact cause harm and hurt. There is strong evidence that supports skin to skin contact immediately after birth to facilitate infant physiological stabilization, however breast feeding to advance infant health and promotion of maternal-newborn interactions for attachment and bonding also contributes to infant falls or drops. Healthcare providers many times are singularly focused on activities, failing to expand their awareness of the possible risks.

Use appropriate tools:

Consider the following: Unless specifically developed for Maternal Fall Risk, most fall risk screening tools in electronic medical records have not been validated for this population.

Given that the literature supports the following actions:

1. Patients will temporarily be identified as high risk for falls for 6 hours after vaginal delivery or 6 hours after discontinuation of epidural anesthesia. For cesarean section delivery, patients will temporarily be identified as high for falls for 18 hours after delivery. This can be extended depending upon assessment and condition.
2. Provide assistance with ambulation until motor blockade is absent and/or patient’s ability to maintain her balance is restored.
3. Explain to patient/family that patient is at risk for falls.

A possible resource: <http://patient.sm/YaiKQz>

Newborn Safety:

To promote newborn safety in the acute care setting Simpson (2015) suggests the following strategies:

- a. Assess the individual needs of each mother, considering the level of pain, fatigue, support, medication status, and the understanding of infant-safety by the mother and family.
- b. Encourage mothers to room-in with their baby while avoiding maternal guilt if there is hesitation or resistance.
- c. Appropriate Nurse to Mom/Baby assignments based on national standards of staffing recommendations.

Infant Safety Bundle

Maternal Risk Factors

- Epidural Analgesia/Anesthesia
- Cesarean Birth
- High Level of Trauma
- Second or Third Postpartum Night
- Recent opioid or Sedative Use

Patient Safety Agreements

- Parental form with safety risks and education on keeping baby safe while in the hospital.
- Parents sign agreement after nurse reviews the agreement with the parents.

Safety Interventions for Parents and Visitors

- Safety bulletin boards on Mother-Baby Units
- Crib cards for safe sleeping on every baby crib.
- Nurses role model safe sleep practices.
- Nurses round every 1-2 hours minimum.
- Patient doors are left unlatched at night for nurses to check on infant.
- Nurses instruct mothers (and family) to call the nurses when ready to feed their baby.

Reporting and Debriefing Systems for Infant Falls

- Immediately assess the infant for injury. Assess for head injuries. Confirm attending neonatal provider has been notified and is aware of infants status.
- Complete a post fall assessment and debriefing after each fall.
- Communicate fall incidence in handover communications to assure appropriate monitoring.

Leadership plan

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 courageous leadership and action to address traditional actions and focus on the elevation of leadership and health systems' performance.

Create a culture of safety

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

- Find a balance among production efficiency, patient-centered responsibilities, reliability, and patient safety
- Understand trust violations among all stakeholders in care, including patients and families, and sustain a culture of trust among all such stakeholders
- Create a culture that removes the fear of reprisal among staff and, especially, fear among patients and families in expressing concerns to staff

- o In its place, leaders must foster and mentor open dialogue, curious inquiry, organizational learning, and solutions mindsets (Boushon, et al., 2012)
- o Clearly define what constitutes patient falls and infant drops.
 - In the event of a fall or infant drop, providing emotional support to the family or caregiver who may suffer as second victim in the event.
- o Leaders must also accept that with clearer definition of patient falls and infant drops, there will most likely be a reportable increase in falls in the early days of a program
- o High reliability organizations understand that this is not a reflection of staff negligence, but of better data collection policies
- o Categorize falls with injury: These National Database of Nursing Quality Indicators (NDNQI) definitions can help you standardize the compiling of the data for comparative analysis:
 - 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 injury: in application of a dressing, ice, cleaning of a wound, limb elevation, topical medication, bruise, or abrasion
 - Moderate injury: Resulted in suturing, application of steri-strips/skin glue, splinting, or muscle/joint strain
 - Major injury: 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)

Use quality improvement (QI) processes

- 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, et al, 2012; Degelau, et al., 2012; France, et al., 2017)
 - o Involve employees and representative patients and families through the QI process, including: debriefs, analysis of data, development of action plans, and the acquisition of resources that advance safety
 - o 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, et al., 2012).
 - o As you work to advance person and family engagement, there is a need for cultural transformation and heightened sensitivity to cultural indications and needs of the people you're serving. Understanding how best to engage and empower patients and families will strengthen the partnership and communication that advances patient safety.
 - o Use patient and family councils to redesign education, the physical environment, and patient/family partnerships that will reduce injuries (Ryu, Roche and Brunton, 2009)
 - o Develop your organizational story and use storytelling to galvanize the organization into action and stay focused on why there is a need for change

- o Use patient stories – in written and video form – to help identify gaps and inspire engagement and change in your staff

Action plan

Create the infrastructure needed to make changes

(Miake- Lye, Hempel, Ganz and Shekelle, 2013)

- Assess the current state of your fall prevention and injury protection program:
Consider the following:
 1. A welcome letter that includes safety interventions such as using a crib when up ambulating both in the room and beyond.
 2. An infant safety pledge form that is signed by the parents and family. The pledge should include avoiding co-sleeping and keeping the bed in the lower position.
 3. “Keep Me Safe” signs in the room as infant safety reminders.
 4. A “Days Since” sign on the unit visible for both Maternal and Infant safety days.
 5. Celebrate milestones.
- o Determine current processes within specific departments or units and assure that all departments are aware of safety initiatives,
- o Consider using tools, such as process mapping, to understand current practice and where actions could or should happen for fall prevention and protection from injury
- o Determine and understand the organizational context of the current program, such as lessons learned and barriers identified
- Review the assessment tools your program currently uses:
 - o Include representatives of fall-risk patients in this assessment
 - o Consider if the tools are used to triage or screen for the likelihood of a fall
 - o Consider tools to evaluate patients for muscle strength, gait, and other contributing factors
 - o Competency assessment of clinicians who utilize the tool should be done on an ongoing basis to ensure accuracy and knowledge application of the tools

Engage staff, patients, and families

- Review interventions for fall prevention and protection from injury:
 - o Use visual cues to indicate high-risk fall patients for staff members, in addition to ambulation equipment:
 - Examples of visual cues: color coded gowns, wristbands, socks, and external magnets
 - o Share this information with patients and families to raise their awareness of fall risks and your steps to prevent them
 - o Solicit their agreement to help prevent falls as part of your care team (see CampaignZERO.org for an example fall prevention checklist you can share)
- Ensure those involved in medication regimes, including administration, understand their roles in fall prevention and protection from injury (Beasley and Patatianian, 2009)

Collect and communicate data about falls

- Decide how information about patient fall risk factors is communicated, documented, and shared, then communicate this information to patients at risk and their family member care partners
- Decide how to integrate practice changes in current workflows
- Determine staff knowledge and possible biases about fall assessment and prevention
- Use consistent data collection methods before and after changes are made to your fall prevention and injury protection plan:
 - Clearly define within your institution what constitutes a patient fall (see Measuring outcomes later in this APSS)
 - Note that defining falls may cause the measured number of falls to rise at first. High-reliability organizations understand that this is not a reflection of staff negligence, but of better data collection policies.

Clearly define what constitutes a patient fall

Ganz 2013, Miake-Lye 2013, Registered Nurses Association of Ontario

- Leaders must 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 the types of falls:
 - 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
 - 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
 - Accidental: These falls occur in an 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:
 - No apparent injury
 - Minor injury: Bruises or abrasions as a result of the fall
 - Moderate injury: an injury that causes tube or line displacement, a fracture, or a laceration that requires repair
 - Major injury: injury that requires surgery or a move to intensive care unit for monitoring a life-threatening injury
 - Death

Technology plan

These suggested practices and technologies have shown proven benefit or, in some cases, are the only known technologies for certain tasks. If you know of other options not listed here, please complete the form for the PSMF Technology Vetting Workgroup to consider:

<http://patient.sm/eWyqJQ>

Leaders must plan for and incorporate a technology strategy to maximize the utilization of AI within their organization to create safer environments.

Technology in the field of fall prevention and protection from injury has advanced in the utilization of artificial intelligence (AI) with **predictive modeling**:

- Data and data analytic systems capture and utilize patient information through:
 - o Wearables (Goodwin et al., 2014)
 - o Sensors in garments and footwear
 - o 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 into electronic healthcare records
- Data analytics will drive advances in fall prevention and protection from injury (Baus et al., 2016)

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 and Pittman, 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 for many patients. Emerging is 3D technology and interactive games which have the potential to be customizable to the individual capabilities.

Approach technology use with the understanding that it is multifocal, evolutionary, and not static in both use and understanding. Investments of resources both capital and human are ongoing and need to be planned for as such (Hamm, Money, Atwal, and Paraskevopoulos, 2016).

Electronic Health Records can provide meaningful data that can inform predictive modeling, advances in patient safety and further application of evidence into practice. It is only through interoperability of clinical systems that this can be achieved.

System or practice	Available technology
ONC Meaningful Use Certified EHR system Electronic Health Record (EHR) System	

<ul style="list-style-type: none"> • Bed Connection to Nurse Call with priority for fall alarm 	<ul style="list-style-type: none"> • Te Nurse call systems • West-Com • Rauland • Hill-Rom • Ascom • Linet • Stryker • Umano
<ul style="list-style-type: none"> • Public health reporting systems for newborn screening 	<ul style="list-style-type: none"> • Oz Systems newborn screening or automated reporting with Oz BabyBundle

*Company has signed some form of the Open Data Pledge. Find more information on the Patient Safety Movement Foundation website: <http://patient.sm/wXRMFV>

Measuring outcomes

Maternal Falls with injury

Falls with injury

The definitions of a “fall” and a “fall with harm” from the state of Pennsylvania are:

- A fall is defined as any unplanned descent to the floor (or other horizontal surface such as a chair or table) with or without injury to the patient
- A fall with harm is defined as any fall that requires more than first-aid care. Treatment beyond first-aid care includes a laceration that requires physician intervention (e.g., sutures), more serious injury (e.g., fracture), or death.

Outcome measure formula

Numerator: Falls with injury

Denominator: Total number of adjusted patient days

- This measure is usually displayed as Total Falls with injury / Adjusted Patient Days *1,000

Infant Falls

Numerator: Infant falls or drops with or without injury

Denominator: 10,000 births

Metric recommendations

Direct Impact: All patients

Lives Spared Harm:

Lives Spared Harm =

$(\text{Falls Rate}_{\text{baseline}} - \text{Falls Rate}_{\text{measurement}}) \times \text{Adjusted Patient Days}_{\text{measurement}}$

Lives Saved:

Lives Saved = Lives Spared Harm *0.055

Notes

Adjusted Patient Days is defined as:

$$\frac{(\text{Inpatient Revenue} + \text{Outpatient Revenue} + (\text{Miscellaneous Revenue}))}{(\text{Inpatient Revenue})} \times \text{Total Patient Days}$$

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 APSSs recommend technologies that are offered by companies involved in the Patient Safety Movement Foundation. The workgroups have concluded, based on the available evidence, that these technologies work to address APSS patient safety issues. Workgroup members are required to disclose any potential conflicts of interest.

*This Workgroup member has reported a financial interest in an organization that provides a medical product or technology recommended in the Technology Plan for this APSS.

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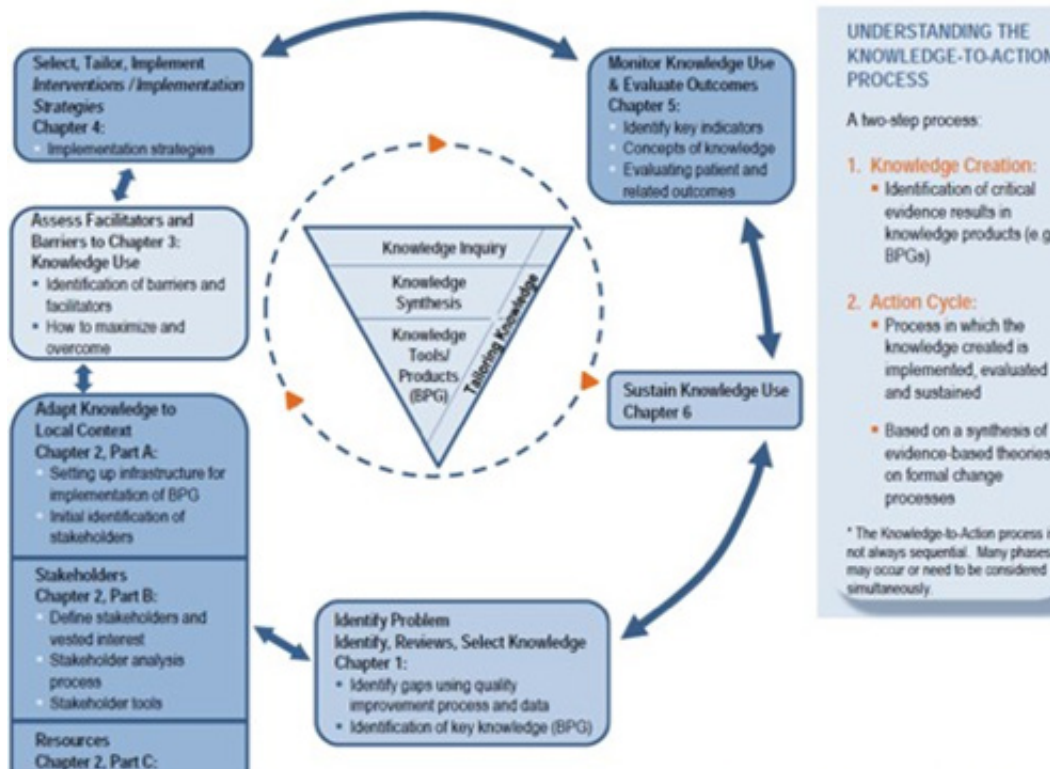
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Appendix A: Revised knowledge-to-action framework

REVISED KNOWLEDGE-TO-ACTION FRAMEWORK



Appendix B: Toolkits and additional resources

- Agency for Healthcare Research and Quality. AHRQ. Preventing falls in hospitals. A toolkit for improving quality of care.
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.
www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/com-pubs_FallsGuidelinesCommunity
- CampaignZERO: Families for Patient Safety, www.CampaignZERO.org, Information and checklists for families to help them partner with care providers to prevent falls, infections and other hospital acquired conditions.
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