Preventing infant drops and falls in health care

Vizient Patient Safety Organization Safety Alert
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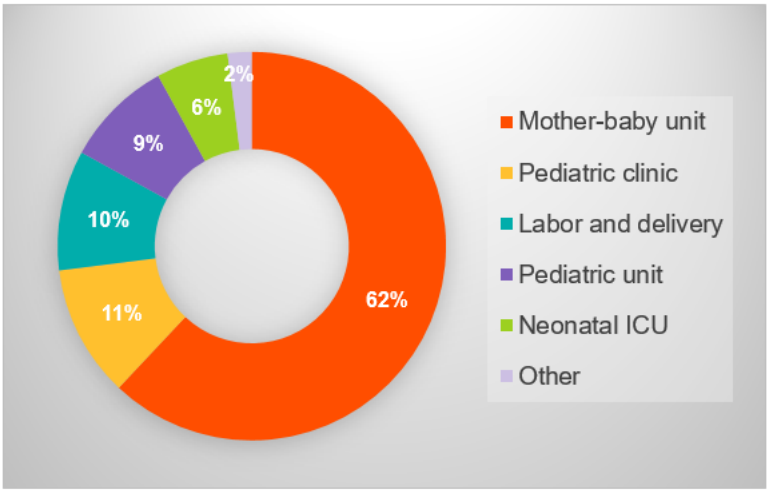
Background

The prevention of patient falls and injuries in adults in health care has received substantial national attention; however, there has been less awareness and focus on infant falls and drops which are under researched.[1,2] Infant falls can result in significant injury—predominantly to the head—or even death and subsequent emotional distress to the family.[2] More serious injuries from falls tend to occur if the height of the fall is greater than 4 feet.[3] The rate of newborn falls in the hospital varies between 1.6 and 5.9 per 10,000 live births, with an estimated 600 to 1,600 falls per year in the United States.[4-7] However, infant falls may be underreported by parents, relatives or caregivers due to feelings of guilt and shame.[1,2]

In-hospital infant falls can occur in labor and delivery, postpartum, neonatal intensive care (NICU) and pediatric units. Risk factors vary by the situation involved. Newborn falls on mother-baby units commonly occur because parents or other visitors fall asleep while holding the infant in a bed or chair, during breastfeeding and during the middle of the night or early morning hours, particularly on the second or third postoperative night.[6,8-11,12] Other factors that can contribute to newborn falls include parental sleep deprivation, administration of an epidural anesthesia, unstable ambulation after childbirth, use of pain or sedating medication, anemia, postpartum hemorrhage, hypotension, cesarean section and parental exposure to alcohol and illicit drugs.[1,4,8-11] In addition, infant falls can occur accidentally due to environmental clutter in the path to the crib or from an unsecured infant bed. In the past few years, there have been a number of reports to the U.S. Food and Drug Administration (FDA) Manufacturer and User Facility Device Experience (MAUDE) database describing infants who fell from incubators and warmers to the floor because side panels were unknowingly left unlatched or the latch was damaged compromising its safety. In other cases, an infant fell to the floor from the incubator or warmer through a port hole. Although some of the infants did not sustain an injury from the fall, others had head injuries including a skull fracture or subdural hematoma.

Assessment

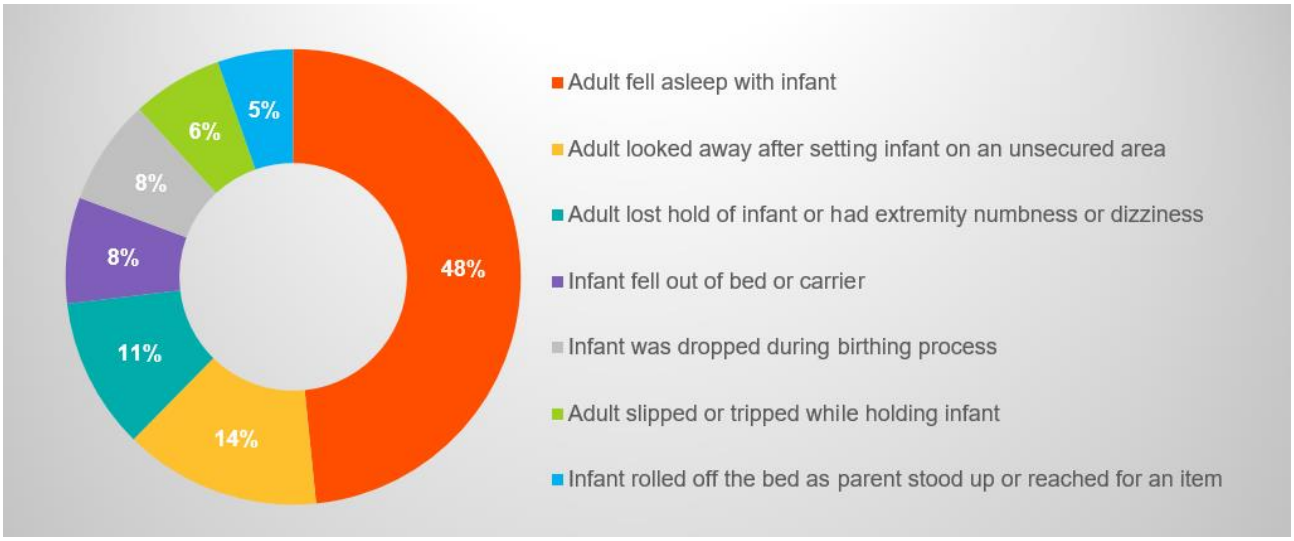
Figure 1. Location of infant fall



Data source: Vizient Patient Safety Organization.
Period of data: January 2017-February 2019; number of events: 93

The Vizient® Patient Safety Organization (PSO) staff conducted a search of reports involving infant falls that occurred from January 2017 to February 2019 to improve our understanding of the surrounding circumstances and contributing factors. Ninety-three infant falls were reported mainly in perinatal, NICU and pediatric units, and pediatric clinics (Figure 1). In most events (79%), the mother of the baby was caring for the infant at the time of the fall; in others, the father of the baby or a visitor or relative (15%), or a staff member (6%) was involved. Figure 2 displays a summary of the circumstances surrounding the events.

Figure 2. Factors involved in infant falls



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In hospital units, the majority of falls occurred while an adult was holding, sitting or lying down with the baby. The infant was dropped or the baby slid or rolled off the bed, couch or chair. The most common factor that contributed to these falls was the parent or other visitor fell asleep while holding the baby (51%). In almost one-third of these events, the mother had been breastfeeding before falling asleep. Infants rolled off the bed as the parent was getting out of bed or when the parent briefly turned away from the infant who was lying on

the bed, couch or chair. Sometimes, the adult dropped the infant because they lost their grip, suddenly became dizzy or unsteady, or their arm or leg became numb. In other cases, the parent or visitor tripped or slipped while holding the infant, sometimes due to environmental clutter. In equipment-related events, the infant fell out of an incubator or warmer, because the side rail of the incubator or warmer came down because it was broken or left unlatched. The crying infant was found on the floor.

There were multiple cases in which the newborn was dropped during the birthing process due to a rapid or an unattended delivery, or the clinician's view was obstructed. In the outpatient settings, infants commonly fell off the exam table or baby scale or out of the carrier when parents turned away briefly to grab something, were distracted by their other children in the examination room, or did not strap the infant properly in their carrier seat.

In many of these falls, the infant did not have evidence of physical harm but was crying and the parent, visitor or staff was emotionally distraught by the incident. Post-fall assessments were commonly completed by a nurse and physician. Sometimes imaging tests were performed to ensure the infant did not sustain a head injury from the fall. Infants required additional monitoring and in some cases were transferred to the NICU. In some cases, the infant sustained minor injuries like bruising, swelling or minor cuts, but in others, the infant had a significant injury such as a skull fracture.

Recommendations

The Vizient PSO, in collaboration with an expert advisory team, developed recommendations for preventing infant falls across health care settings.

Preventing in-hospital newborn and infant falls

- Create an infant fall prevention taskforce or include experts from perinatal care and the NICU to the existing falls taskforce.[6]
- Develop a policy and procedure for infant fall prevention that addresses environmental safety, maternal assessment and interventions, patient and family education, monitoring and post-fall assessment. Promote separate, but close, sleep spaces between mothers and newborns, and prohibit co-sleeping with a newborn.[1,13]
- Educate unit staff on the policies and procedures for infant fall prevention and risk reduction strategies.[1,10]
- Heighten parental awareness of the risk of newborn and infant falls through standardized teaching using the teach-back method and a safety agreement in the parent's primary language that outlines the expectations to ensure infant safety.[5,10,11,13-15] For expecting parents, educate and engage parents in fall prevention during prenatal office visits and during prenatal classes. Prior to delivery, review and have

parents sign, a safety agreement. Review the agreement with the parents, family and visitors on the postpartum unit. Reinforce infant fall risk education every shift throughout the hospitalization.[2,11,16]

- Educate parents and visitors on the risk of falls and injury when falling asleep with an infant, during transport of the infant to the bassinet while standing and sitting. Instruct parents to call for help if they are feeling tired or sleepy, after narcotic pain medication, and when they need to take their newborn to bed.[17] Instruct post-cesarian section and post-epidural patients not to ambulate while holding infant due to unsteady gait.
- Use multiple modalities for education such as developing a video to educate parents on risk factors for infant falls and drops and how to prevent them.
- Increase staff, patient and family awareness about the increased risk of infant falls on the second or third postoperative night when mothers experience heightened fatigue[12] and babies cluster feed (i.e., feed over and over for several hours), also referred to as second night syndrome.
- Identify mothers who may be at risk of dropping their newborns using an evidence-based postpartum mobility assessment and a fall risk assessment tool.[2,9,11,13,15,18-21] Determine the level of supervision required during mother-baby contact (e.g., constant or intermittent supervision) based on the assessment and the mother's ability to take responsibility for their newborn.[11,13]
- Assess and monitor at-risk parents and visitors who may be under the influence of illicit drugs or alcohol, because they have an increased risk of sleepiness and infant falls and drops.[1]
- During safety huddles each shift, review patients who are at higher risk for newborn drops including mothers or other family members or visitors who are not compliant with safety precautions.
- Create vigilance by establishing and conducting hourly rounding so that staff can assess maternal, paternal or other visitor sleepiness and proactively put the newborn in the crib.[5,8,11]
- Display newborn or infant safety signage in the room and on the crib card to remind parents and visitors about falls and safe sleep[10,11]
- Promote maternal rest by partnering with the mother to schedule nap times, identifying a wakeful family member or helper to assist with care, posting quiet signage outside the entrance door to the room, or offering the use of the nursery when family support is unavailable.[11,17]
- Address environmental safety risks such as keeping the bed in a low position with the breaks locked, placing the call light and phone within easy reach, and ensuring the walkways are unobstructed. Educate mothers on the risk of tripping on equipment and during toileting and to call for assistance.
- Incorporate non-pharmacologic intereventions prior to resorting to postpartum narcotics and sedatives.
- Improve equipment safety by using hospital beds that are designed to prevent falls, such as those that adjust to a low position and to the same level as the mother's bed.[5]
- Incorporate the risk assessment, risk level and care plan into the electronic health record.
- Track and analyze infant fall data as part of a quality improvement process.[2]

Preventing falls from incubators and warmers

- Educate staff as well as parents who access incubators and warmers on bed safety. Develop a staff competency checklist. Ensure that staff are educated to use the bed maneuvering handles, not the bedside panels, when moving warmers because this can cause damage to the panel or latch areas.[22]
- Create a workflow process with building services, clinical engineering and nursing for cleaning and safety inspection of warmers and incubators before patient use. Develop a checklist of all required cleaning and inspection items that each department will use to guide a thorough inspection, and document the process including resolution of any issues.
- Incorporate safety checks of the incubators and warmers into existing rounding processes. Develop a standardized process for addressing damaged or malfunctioning warmers or incubators while in use and when not in use to ensure patient safety.
- Create an infant, development-centered care policy in the NICU to guide staff on the safe use of blankets for covering the top of the incubator to address proper lighting for preterm infants and prevent the adverse clinical effects associated with bright light.[23] Because infants have the potential to move more in their bed after 32 weeks of age, ensure that the blanket does not cover the porthole and the infant is visible in the incubator. Additionally, use positioners which provide boundaries for movement.
- To reduce the risk that an unlatched incubator or warmer door goes unnoticed or of suffocation or entrapment, create a safe infant sleeping space with a mattress that is firm, maintains its shape when the model-specific, fitted sheet is applied and does not have gaps between the mattress and the side of the sleeping space. Do not permit soft objects and blankets in the sleeping area.[24]
- Display signage that prompts staff, parents and visitors to check that the lock on the incubator or warmer side or port hole has engaged.
- Report equipment safety issues to the FDA MAUDE database and manufacturers.
- Encourage manufacturers to address safety issues associated with the design, use and breakage of infant incubators and warmers. For example, to prevent infant falls from unlatched portholes or side panels:
  - Design incubators to alarm after a set period of time if the porthole or side panel has not engaged.
  - Design mattresses that are lower than or can be lowered when care is not being provided so that the porthole is higher than the mattress to prevent the possibility of the infant falling through an open porthole.

Preventing infant falls and drops in ambulatory care

- As part of standard work, counsel parents on the risks of injury from infant falls and strategies to prevent them. Upon entry into the office exam room, inform parents not to lay their infant on the scale or exam table due to the high risk of falls.
- Place signage near the scale and exam table warning of the high risk of falls.

- Monitor infant falls and drops and the circumstances surrounding these events. Take actions to prevent falls based on the causes.

Post fall evaluation

- Establish guidelines for the evaluation of the infant after the infant fall or drop.[7]
  - Develop a standardized algorithm for the management of the newborn after the fall.[2,5,25]
  - Conduct a post-fall assessment of the newborn including a physical exam, skull X-rays or a CT scan of the head when clinical symptoms are present, and 24 hours of monitoring including neurological checks on an inpatient unit or intensive care unit if there are abnormal physical or neurological findings.[1,4,7]
- Conduct a standardized post-fall debriefing and document the contributing factors, circumstances surrounding the fall, the assessment of the baby and the updated plan of care. Identify opportunities for system improvements.[2,5,14,15]

For more information, contact Tammy Williams or Ellen Flynn.

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