

Rising above risk: Eliminating infant falls

By Kimberly T. Hodges, MSN, RN, and Jason H. Gilbert, MBA, BSN, RN



Infant falls during the postpartum period are distressing phenomena that have gained increasing attention in healthcare organizations nationally. An infant fall is defined as a newborn falling to a hospital floor accidentally.^{1,2} This most commonly occurs when an exhausted mother or caregiver begins to fall asleep while holding the newborn and drops the infant.

Infant falls remain one of the least researched newborn care events in the acute care setting.^{2,4} Fall rates for adult patients are well researched and, because of mandatory regulatory reporting, have been a patient safety priority for many years. In contrast, hospitals aren't required by any regulatory agency to report infant fall rates, so the full scope of the problem isn't well defined. The lack of a national database, similar to the National Database of Nursing Quality Indicators,[®] creates additional barriers to reporting these incidents. Even in hospitals that do track infant falls, the rate may be underreported or falsified because of caregiver guilt or fear of judgment.^{2,5} The best estimate of infant fall rates nationally is 1.6 to 4.4 falls per 10,000 births.⁶

We describe an evidence-based infant fall intervention designed and implemented by an intra-professional team on a mother-baby unit.



Anatomy of an infant fall

Reported injuries related to infant falls range from minor abrasions and bruises to depressed skull fracture.^{4,6} Along with possible injuries sustained by the newborn, caregivers of infants who fall may experience feelings of emotional distress and guilt.^{2,4} The long-term effects of infant falls aren't known because longitudinal studies of children involved have never been conducted.

There's limited research on risk factors for infant falls; however, some risks have been identified in the literature, including:

- maternal exhaustion, particularly on the second postpartum night ("second night syndrome")
- opioid administration within 2 hours of the fall

- maternal history of substance abuse
- breastfeeding or combination of breast and bottle feeding. (Mothers and/or caregivers spend time holding the infant during feeding sessions. This event, coupled with maternal exhaustion, increases the risk of infant falls.)^{2,4,6,7}

The most common contributing factor is maternal exhaustion. Second night syndrome occurs on the second full night of a newborn's life when the baby wakes from a restful state and transitions to cluster feeding and inconsolable, continuous crying. The combination of an alert newborn and a fatigued parent increases the risk of a fall during this phase.

The experience of childbirth is exhausting for mothers, caregivers, and newborns. Mothers recovering from childbirth encounter several

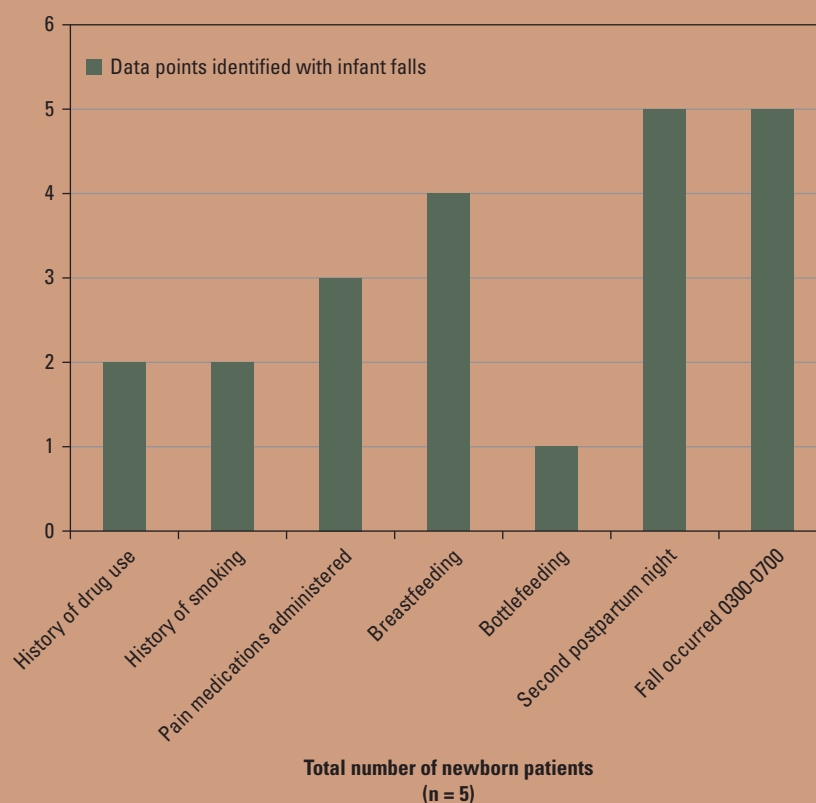
nights of little to no sleep coupled with multiple visits from nurses, medical staff, and family. The resulting high level of exhaustion leads to an increased risk of mothers falling asleep with their newborn in their arms, sometimes while feeding. The newborn then falls from the mother's arms to the floor, causing potential injury and harm. According to interviews conducted by our nursing team, new mothers and significant others were largely unaware of infant fall risk while recovering from childbirth.

Hospital equipment, such as hospital beds and bassinets, is also a contributing factor in infant falls. Standardized designs don't take into account the needs of this specialty population; more specifically, bassinet height is lower than the average adult hospital bed, creating a risk of falls during infant transfer to the bassinet.⁶

Hospitals must also consider environmental risks when implementing care standards. Having the newborn "room-in" with the mother 24 hours a day promotes breastfeeding and maternal-child bonding.² This practice is also recommended as an established standard for hospitals seeking World Health Organization Baby-Friendly designation.⁸ However, adoption of this practice must be coupled with careful risk identification and patient education. Rooming-in shouldn't be confused with cosleeping or bed-sharing, which have been identified as contributing factors to both infant falls and sudden infant death syndrome.^{2,6} Although there's strong evidence supporting the benefits of rooming-in, educate patients about safe sleep environments.

Interventions to prevent maternal exhaustion; identification and mitigation of environmental risks; and education of patients, families, and staff should be targeted to reduce infant falls.

Figure 1: Risk factors identified with infant fall events



Successful strategies

In late 2011, an intraprofessional team from the Maternity Center at Indiana University Health Methodist Hospital in Indianapolis, Ind., analyzed infant fall events, reviewed literature, and designed a safety program to eliminate infant falls. Members of the intraprofessional team included mother-baby clinical nurses, the mother-baby nurse manager, the maternity center nurse director, and physician leadership.

The Maternity Center delivers 3,357 infants annually. Five infant falls occurred in the Maternity Center from May 2011 to January 2012. Immediately following each event, the nurse manager interviewed the clinical team, mother, and family to identify risk factors leading to the event. Data gathered from the interviews were coupled with an extensive medical record review to assess the following variables: the mother's age, weight, height, gravida/para, gestation length, access to prenatal care, delivery type, and medical history (including drug and tobacco use); mode of newborn feeding; timing of infant fall; and associated pharmacologic administration. The overall health history and weight of the newborn were also assessed.

Figure 1 illustrates risk factors identified in the literature that were consistent in the patients who experienced infant fall events. Additional risk factors that weren't addressed in the literature, but were found consistently in the five events, were also identified. (See Table 1.)

Utilizing the data analysis, clinical nurses and physicians worked with nursing leadership to reduce the risk of infant falls. Because there was no clear evidence on interventions to prevent infant falls, the team brainstormed ideas. The team also

Table 1: Identified risk factors in infant fall events

Risk factors from literature ^{3,4}	Infant fall events, 2011 to 2012
Second to third postdelivery night between 12 a.m. and 9 a.m.	100% (n = 5)
Surgical delivery	100% vaginal delivery (n = 5)
Mother received opioids	40% received opioids (n = 2)
18- to 23-year-old maternal patients	15- to 27-year-old maternal patients
Breastfeeding	80% breastfeeding (n = 4)
Additional risk factors not identified in the literature	
Mother not aware of infant fall risk	100% upon patient interview (n = 5)
Fell during feeding (bottle or breast)	60% at time of feeding (n = 3)

reflected on situations in which risk was present, but infant falls didn't occur. The near-miss events were analyzed for identifiable factors that kept the mother and newborn safe.

Several strategies were implemented to reduce risk, including:

- redesign of unit safety huddles to address lack of staff awareness
- implementation of mother's nap time to support reduction of maternal exhaustion
- hiring of nursing students to heighten vigilance during the high-risk time frame
- development of patient education materials to raise awareness of infant falls.

Unit safety huddles were redesigned to designate maternal-infant pairs at highest risk for a fall event during each shift. After the redesign, specific risk factors regarding second night syndrome, maternal exhaustion, and lack of parental awareness were discussed, with a safety plan put into place by staff members each shift. Sharing the safety plan with the entire team helped promote awareness and increase responsiveness.

Mother's nap time was implemented on the mother-baby unit to encourage mothers to rest when possible. Signs were placed on patient

room doors and mothers were offered 2 hours of uninterrupted rest at any time during the hospital stay. Mothers were encouraged to nap while their newborn roomed-in to learn sleeping techniques and reinforce safe sleeping education. Mothers who took advantage of these naps reported less exhaustion during the high-risk time frame for infant falls (0300 to 0700).

A team of five nursing students was hired to round on patients during the high-risk time frame. The nursing students were trained to identify signs of maternal fatigue and partner with mothers to safely place newborns in their bassinets. Nursing students assisted clinical nurses by completing environmental safety checks at night, targeting the hours of highest risk.

Education materials, including signage in the patient rooms, were developed around second night syndrome and infant falls prevention strategies. These materials gave nurses a proactive tool for discussing risks with families before the second and third postdelivery nights.

Results and fine-tuning

After implementation of these strategies, the mother-baby unit

documented more than 730 days (2012 to 2014) without an infant fall.

Figure 2 depicts the incidence of infant falls on the unit during a 3-year period. Three infant falls occurred on the nursing unit in the spring of 2014; unit charge nurses followed a detailed operational plan to complete postfall huddles and notify unit leadership after the incidents. The nurse manager conducted interviews with the mothers and reviewed infant fall huddle data with the intraprofessional team to identify gaps in interventions. Although infant fall risk education was offered to every family as part of the original intervention, the most significant finding from the 2014 data was that parents who experienced an infant fall didn't perceive an increased risk.

Supplementary interventions, including the filming of a patient education video to eliminate the identified knowledge gap and the design and implementation of an electronic fall risk assessment tool to objectively identify patients at increased risk, were added to the original program.

Further, mothers who experienced an infant fall, as well as mothers with near-miss events, reported that bassinet height was a problem given the height of the side rails on the standard hospital beds. Our team assisted in the redesign of the infant bassinet to mitigate this risk.

The benefits of collaboration

A culture shift has occurred among the nurses working on the mother-baby unit. The most significant outcome of this culture shift is the enhanced safety of newborns receiving care. In addition, the power of intraprofessional collaboration proved significant for nurse leaders as it created a sense of shared ownership of intervention design and deployment. Several wins were identified from the collaboration, including utilizing the knowledge of bedside mother-baby nurse experts to produce a stronger safety program, engaging the caregivers who experienced the fall events to create a safety plan inclusive of direct feedback from families, and including staff from each shift as program champions to ensure that implemen-

tation of the safety program was embraced with positive energy.

Continuous risk awareness and open discussion with parents during the postpartum period support a safe environment for maternal-newborn bonding. Infant safety is interwoven into the professional practice of the nursing team to provide the optimal birth experience for our tiniest patients and their mothers. **NM**

REFERENCES

1. Phalen AG, Smolenski J. Newborn falls: seeking solutions for a never event. *J Obstetric Gynecologic Neonatal Nurs.* 2010;39(suppl s1):S46.
2. Matteson T, Henderson-Williams A, Nelson J. Preventing in-hospital newborn falls: a literature review. *MCN Am J Matern Child Nurs.* 2013;38(6):359-368.
3. Galuska L. Prevention of in-hospital newborn falls. *Nurs Womens Health.* 2011;15(1):59-61.
4. Monson SA, Henry E, Lambert DK, Schmutz N, Christensen RD. In-hospital falls of newborn infants: data from a multi-hospital health care system. *Pediatrics.* 2008;122(2):e277-e280.
5. Paul SP, Goodman A, Remorino R, Bolger S. Newborn falls in-hospital: time to address the issue. *Pract Midwife.* 2011;14(4):29-32.
6. Helsley L, McDonald JV, Stewart VT. Addressing in-hospital "falls" of newborn infants. *Jt Comm J Qual Patient Saf.* 2010;36(7):327-333.
7. Slogar A, Gargiulo D, Bodrock J. Tracking 'near misses' to keep newborns safe from falls. *Nurs Womens Health.* 2013;17(3):219-223.
8. Baby-Friendly USA, Inc. The guidelines and evaluation criteria. <https://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria>.

At Indiana University Health Methodist Hospital in Indianapolis, Ind., Kimberly T. Hodges was the manager of Clinical Operations, Mother-Baby Unit, and Jason H. Gilbert is the associate chief nursing officer. Hodges is currently the manager of Clinical Operations, Pediatric Intensive Care Unit, at Riley Hospital for Children at Indiana University Health in Indianapolis, Ind.

The authors have disclosed no financial relationships related to this article.

DOI-10.1097/01.NUMA.0000473504.41357.f5

Figure 2: Infant fall incidence, 2011 to 2014

