Readiness, Recognition, and Response:

Prevention of Newborn Falls

NPIC
National Perinatal Information Center

GE HealthCare

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About National Perinatal Information Center

The National Perinatal Information Center (NPIC) is dedicated to the improvement of perinatal and neonatal outcomes through best-in-class comparative data analysis, program evaluation, health services research, and professional continuing education. NPIC is recognized as a national leader in comparative data analysis, advancing value, quality, safety, and best practices in perinatal health. Since its inception in 1985, NPIC's dedication & engagement to advance improvements in perinatal health have distinguished the organization as a cornerstone of the perinatal community. Early on, NPIC became nationally recognized for its unique expertise in the organization of perinatal care and contributions to the regionalization of perinatal care. This early work served as the foundation by which NPIC would broaden its reach and impact over the next three decades. To this day, NPIC's mission remains the constant driving force that guides the organization, motivates the team, and defines its purpose.

About GE HealthCare

GE HealthCare is a leading global medical technology, pharmaceutical diagnostics, and digital solutions innovator, dedicated to providing integrated solutions, services, and data analytics to make hospitals more efficient, clinicians more effective, therapies more precise, and patients healthier and happier. Serving patients and providers for more than 100 years, GE HealthCare is advancing personalized, connected, and compassionate care, while simplifying the patient's journey across the care pathway. Together our Imaging, Ultrasound, Patient Care Solutions, and Pharmaceutical Diagnostics businesses help improve patient care from diagnosis to therapy, to monitoring.

This work has only begun.

For years, there have been discussions on how to reduce and prevent newborn in-hospital falls and drops in the immediate postpartum period. Hospital teams have provided outstanding quality improvement projects and research studies over the years to continue to understand this phenomenon. And despite these efforts, newborn falls continue to occur in hospitals across the nation.

This white paper is an outstanding example of how hospital teams, non-profit organizations, and industry partners can partner to provide meaningful and sustainable approaches to solving our most complex healthcare challenges.

The efforts in reducing newborn falls and eliminating preventable harm will continue. The deepest gratitude and appreciation to the contributors to this work product and their organizations for supporting them in this important journey.

Introduction

According to The Joint Commission, there are 600 -1,600 in-hospital newborn falls/drops in the United States annually and it is one of the most underreported and under-researched patient safety events. These rates were initially studied and shared by Helsey, McDonald & Stewart (2010), and that estimate has continued to be used in most publications since that time. In 2018, The Joint Commission released a safety alert highlighting in-hospital newborn falls. This announcement heralded a renewed interest in this safety event, as newborn falls were not widely described in the literature prior to that time. Newborn fall rates continue to impress upon healthcare experts and providers the urgency of this preventable event. Monson and colleagues (2008) identified a rate of 1.6 newborn falls/10,000 births, the majority resulting in soft tissue injury in addition to reported skull fractures.

Before the last decade, the discussion of in-hospital newborn falls was virtually nonexistent in the literature, covered at conferences, or described by national accreditation agencies (Ainsworth, Summerlin-Long & Mog, 2016). **The first major study on newborn falls was published in 2008** (Monson et al) and at that time, did not garner further interest or intentional discussion. Helsley (2011) presented information from Providence Women's Health to the Minnesota Hospital Association, which was one of the first hospital presentations on newborn falls, and provided an overview of some challenges, including bed design and equipment hazards. As presented, in 2005, Providence Health began to see a "regular and unusual" occurrence of newborn falls/drops. Most importantly, families were reluctant to report the fall, which encouraged greater awareness and emphasis on the education of families and staff.

During the years 2011 to 2015, the discussion on newborn falls was primarily found within the nursing and midwifery literature (Galuska, 2011; Paul, Goodman, Remorino & Bolger, 2011; Paul, Goodman, Remorino & Bolger, 2011; Ainsworth, Maetzold, Mog, & Summerlin- Long, 2013; Matteson, Henderson-Williams & Nelson, 2013; Gaffey, 2015; Teuten, Bolger & Paul, 2015; Wallace, 2015). These early discussions continue to reinforce the continuing challenges of recognizing the science and significance of nursing study and research and amplifying these findings within the broader healthcare community. **After 2016, the newborn falls literature began to accelerate, particularly with the release of The Joint Commission Safety Alert in 2018** (The Joint Commission, 2018).

According to the National Database for Nursing Quality Indicators (NDNQI) and The Joint Commission, there are two terms that are used within the context of newborn falls: *newborn falls* and *newborn drops*:

- **Newborn Fall:** 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
- **Newborn Drop:** A fall in which a baby being held or carried by a health care professional, parent, family member, or visitor falls or slips from that person's hands, arms, lap, etc.

For this discussion, the term newborn fall will be utilized to represent both hospitalized newborn falls and newborn drops, unless specifically detailing a particular element.

Increasing the Visibility of Newborn Falls

During the fall of 2020, the Synova Leadership Forum presented a seminar on newborn falls, *Newborn Fall Prevention and Awareness of Care Environment*, with over 150 participants in attendance. This session created additional inquiry into the phenomenon of newborn falls, and nursing leaders expressed interest in learning more about reducing the risk factors associated with newborn falls in hospitals.

In January 2021, the National Perinatal Information Center (NPIC) hosted a *Reducing Newborn Falls* webinar. This webinar had one of the highest attendance rates to date and continues to generate interest two years later. In addition, hospitals and other healthcare providers have continued to reach out to connect with others seeking to reduce and eliminate newborn falls in their organizations and create innovative strategies to reduce harm related to these events.

The Association of Women's Health, Obstetrics, and Neonatal Nurses (AWHONN) conference in June 2022 presented a Newborn Falls Symposium with strong attendance and engagement. This symposium, sponsored by GE HealthCare, focused on a collaboration between clinicians, professional associations, and industry partners to highlight concerns raised by nurses surrounding newborn falls in the inpatient setting.

Phase I:
Identifying the Critical Themes of Newborn Falls in the Hospital

In August 2022, NPIC hosted a Virtual Newborn Falls Summit (Virtual Summit) to begin the deeper exploration of the factors associated with newborn falls. Clinical expert representatives from the National Association of Neonatal Nurses (NANN), Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), National Perinatal Association (NPA), and two (2) national healthcare systems. Based on the results of the Summit, seven (7) themes emerged from the discussions:

Distractions
Distractions were reported by several of the participants in this Virtual Summit. Summit participants described cell phone use to be the most common form of distraction for new mothers and families. However, there is little discussion within the literature regarding distractions as a causative factor in newborn falls. A PubMed, CINAHL, EBSCO Host, and Google Scholar search revealed one study by Knipper and colleagues (2021) that specifically addresses distractions of both parent and caregiver.

Fatigue
Maternal fatigue has been described as the primary cause of newborn falls within the postpartum period and is by far the most researched and studied. Most documented newborn fall near-misses involve finding the mother or caregiver asleep with the baby in their arms. In 2019, Driscoll and colleagues published *In-hospital Neonatal Falls: An Unintended Consequence of Efforts to Improve Breastfeeding*. This publication created significant

discussion within the postpartum and pediatric communities, as it was viewed as the first documented discussion of Baby-Friendly designated hospitals and the efforts for rooming-in and its potential impact on maternal fatigue. Kukielka & Wallace (2019) reviewed five years of inpatient newborn falls data in Pennsylvania (2014 – 2018), with 56.6% of falls occurring between the hours of midnight and 7am, with the highest frequency between 4am and 5am (p. 49). Other similar studies report newborn falls involving caregivers falling asleep, with most falls occurring during early morning hours between midnight and 6 am, similar to the findings in Pennsylvania. Lipke and colleagues (2018) found that 14% of newborns were discovered in near-miss events with mothers sleeping with baby in arms. Many hospitals with rooming-in procedures do not have a respite nursery for newborn care while mothers sleep or obtain rest. This trend seems to be shifting, with more hospitals leaning towards a small respite nursery or opportunities for babies to be cared for while the mother obtains sleep in between breastfeeding.

Equipment
During the Virtual Summit, there was a great deal of discussion surrounding equipment and equipment failures. Various elements of newborn falls were described, including falling off the mother's bed, falling out of an incubator or off a warming table/bed, tripping on cords, and other fall hazards. Miner (2019) found that potential causative factors of newborn falls included communication/handoff, protocols/methods, people, equipment, environment, education, and training. The four (4) equipment areas described in this study focused on the mother's bed, including the height of the bed, hospital bed with open side rails, lack of feeding support pillow, and bassinette separate from the mother's bed.

Blame/Shame Culture
Virtual summit attendees all describe the phenomena of underreporting of newborn falls. They described concerns surrounding reporting from both a parent and staff perspective:
- Staff: disciplinary action, concerns about stigma related to care competency
- Parents: concerns surrounding fitness to parent, blame for the drop, protective services or family services referral
- Multiple studies (Ainsworth, Summerlin, & Mog, 2016; Kukielka & Wallace, 2019; Miner, 2019; Monson et al, 2008) describe newborn falls as one of the most underreported events and issues for hospitals.
- Near misses are much higher but are not reported with routine frequency.

Staffing
Nurse staffing research in obstetric and neonatal care has predominantly focused on Labor and Delivery and NICU units. Staffing and the ability to proactively care for and anticipate needs are of critical importance. However, there is interest growing in the best staffing requirements to support couplet care and rooming-in practices to assure the safety of both mother and newborn. AWHONN's *Standards for Professional Registered Nurse Staffing for Perinatal Units* (2022) recommends no more than three couplets per nurse in postpartum care settings. The American Academy of Pediatrics in 2016 recommended the frequency of

assessment for late preterm infants which requires no more than 3 couplets per nurse (Feldman-Winter et al., 2016). Missed Care Research in Labor and Delivery and NICU environments has been helpful in better understanding the impact of staffing and care opportunities. For missed care, the most frequently missed care items were patient

education. Assuring high-quality nursing education, which includes fall prevention, education and equipment training may be adversely impacted by staffing challenges or increases in acuity.

Social Determinants of Health

Social determinants of health were an unexpected yet welcomed finding in this discussion. Several participants brought up mothers who had preferred keeping their newborns in bed with them, as that is how they would be living at home. Their concerns surrounding gun violence and other types of violence had created a need to keep their newborns at hand, to ensure their safety. This discussion continued to ensure that disparities and care equity should be connected throughout all work products. Upon conducting the literature review, there is no discussion of SDOH within the discussion of newborn falls, so this is novel work and should be explored more fully. Interesting that no publication has focused on the importance of translation and interpretive services for patients who may not speak English, or who require alternative methods of communication.

Standardization

Standardization within the discussion of the newborn fall had some of the most discussion. Many participants expressed concerns that there are standardized hospital processes/procedures for child and adult falls, but policies and standards related to newborn falls do not yet exist. While each hospital tends to have its own process, a national response to newborn falls has not yet been addressed. In 2008, Monson and colleagues were some of the first researchers to describe newborn in-hospital falls. They discussed the lack of specific programs designed to reduce newborn falls and asked their readers to share any protocols/procedures/standards that may exist. Miner (2019) was the first to publish a Post- Falls algorithm that offered a standardized format of what steps to take in the event of a newborn fall. Also published was a Newborn Fall Debrief Form that provided specific details on what information is important to guide potential changes in care. Other issues included standardization of terminology. Following are some of the keywords from literature searches (CINAHL, EBSCO, ProQuest, WorldCat, Google Scholar) that provided insight into newborn falls:

- **Newborn fall**
- **Newborn drop**
- **Baby fall**
- **Baby drop**
- **Baby slip**
- **Newborn in-patient fall**
- **Neonatal fall**
- **Neonatal drop**

Phase II:
Creating a Pathway for Newborn Falls Readiness, Recognition, and Response

Based upon the initial literature review, combined with the findings of the Virtual Newborn Falls Summit, an in-person convening was scheduled with the support of GE HealthCare to better define the nature of newborn falls occurring within the hospital. The following objectives were identified as key measures of success:

1. **A national framework and proposal developed to provide prevention and response guidance to quality, safety, and accrediting organizations:** There are currently no specific national standards or guidelines that exist for the prevention of and elimination of preventable newborn falls. While there are recommendations in the literature, each recommendation is slightly unique and continues to challenge a standardized approach to newborn fall prevention.

2. **Establish standardized, unit-specific simulation activities and drills that can be used in hospitals to promote readiness, recognition of risk, prevention of, and response to a newborn fall.** While there is substantive research and study on the impact of simulation in clinical care, there is currently no literature or study on the use of simulation in newborn fall prevention. This current gap also provides an opportunity for a standardized approach to education, multidisciplinary team coordination, and quality of care.

Based on a broad literature review of current newborn falls research and quality improvement, the following team members were invited to participate in a 2-day live Summit to address the key measures of success, and to address both obstetric and neonatal intensive care perspectives:

<u>Invited Participants (*Published in Newborn Falls literature)</u>

Name	Organization/Hospital	Unit
*Rose Mary Ainsworth, MSN, RN	Huntsville Hospital, Huntsville AL	Mother/Baby
*Gail A. Bagwell, DNP, APRN, CNS, FAAN	Nationwide Children's Hospital	NICU
Jenny C. Clapp, MSN, RNC-OB, CNS	Cone Health	L/D; Mother/Baby
*Heather Condo DiCioccio, DNP, RNC-MNN, C-ONQS	Cleveland Clinic Fairview Hospital	L/D; Mother/Baby
*Elizabeth Duthie Ph.D., RN	Montefiore Medical Center	Quality/Risk/Patient Safety
Kelley Franklin MSN, RN	The Joint Commission	Clinical Quality Measures
Luann Jones, DNP, NNP, RN	Independent Consultant	NICU
Michele Kulhanek, MSN, RN	Peace Health	Patient Safety
*Cathy Mog, RN	Huntsville Hospital, Huntsville AL	Mother/Baby
*Shandra Padron, MSN, RN	St. Luke's Health System	Postpartum
Rachael Zastrow, MSN, NNP	Advocate Aurora Health	NICU

Based on the findings of the Newborn Falls Virtual Summit, the following themes and categories were identified as primary factors in newborn falls risk:

1) Maternal/Family
2) Staff/Education
3) Environment/Equipment
4) Distractions (added during Live Summit)

The team was separated into three (3) distinct groups and separated to work through the four stations: Maternal/Family; Staff/Education; Environment/Equipment; and Distractions (added as a fourth area of interest during the live session). The three groups worked independently on the same questions to assess for saturation of factors, and their responses are cataloged below:

What are the potential factors related to newborn falls in the immediate postpartum period?

Maternal/Family
Fatigue
Medication
Denial/"Can't happen to my baby"
Lack of support/restrictive visitor policies
Lack of education
Rapid discharge times and processes
Teach back processes not consistent
Language barriers
Co-sleeping

Staff/Education
Lack of knowledge/standardized education
Inconsistency of knowledge sharing
No validated newborn fall assessment
Missed care
Staff education is not prioritized/paid for/part of "productivity"
Frequent staff turnover
Lack of simulation for newborn care safety
Lack of staffing on shifts where most falls occur
New graduate readiness lacking
Near misses not reported, only actual events
No content about newborn falls in school or orientation
Event report systems are cumbersome and not user friendly

Equipment/Environment
Alarm fatigue
Ergonomics and function
Multiple cords/lines (maternal/staff tripping hazard)
Unfamiliar with equipment safety/utilization
Hourly rounding interfering with maternal sleep
Safety contracts are viewed as punitive
"Put in a ticket" mindset/lack of functional equipment
Putting defective equipment back in use when supplies limited
Incubator covers/line of sight
Sleeping areas for support persons do not accommodate newborns

Distractions
Patient/Family:
Technology (cell phone, tablets, cameras, etc.)
Visitors
Television
Hospital staff
Staff
Medication administration
Phone calls
Patient care
Alarms
Documentation
Visitor and staff questions

Preparing for a Safe Environment: Simulation

In 2017, Hollenbeck and colleagues (Hollenbeck et al., 2017) described a Falls Simulation Room that was utilized to train new nurses in medical-surgical environments in identifying key elements of fall risk. With no current literature describing simulation in newborn fall prevention, an opportunity exists to build a standardized process for simulation learning for newborn fall prevention. To best understand the current opportunities and challenges that exist for teams related to in-situ simulation exercises, a SWOT (Strengths/Weaknesses/Opportunities/Threats) Analysis was conducted with the participants. The same process was utilized for this exercise: participants were placed in three (3) random groups, and worked through the same areas to discern saturation of simulation training opportunities and threats in the obstetric and neonatal clinical space:

Simulation Strengths, Weaknesses, Opportunities, and Threats (SWOT)
Strengths
Freedom to make mistakes
Safe space for failing
Repetition
Build teamwork and expectations
Identify repetitive errors
Limitations
Timing, time-consuming
Information overload
Availability of equipment
Availability of space
Staffing barriers
Lack of multidisciplinary commitment
Conflicting care priorities
Opportunities
Encourage multidisciplinary engagement
Consistent messaging
Change culture/practice
Encourage simulation with lived experience experts
Threats
Poor reputation
Budgeting constraints
Costs
Employee time
Lack of support/prioritization from providers for simulation experiences

Simulation Exercise

The group was separated into two distinct teams to work through two (2) simulations, including Labor & Delivery, Mother/Baby/Postpartum, and Neonatal Intensive Care (NICU)/transfer. Each team worked through the same simulation activities to bring additional depth to the exercise, determine any variations in content elements, and achieve saturation in ideation. The following tables include the overarching findings from the teams:

Simulation Exercises and Essential Elements
Postpartum
Bed position and bedrail management
Bassinette management and tipping risks
Unintended sleep and sleep education
Breastfeeding positions and fatigue
Cable management and ambulation
Teach-back and closed-loop communication

Simulation Exercises and Essential Elements
Neonatal Intensive Care
Hybrid/Incubator Beds
Line of sight and environmental checks/incubator covers
Porthole safety and parent education
Side wall/bedside panel workflow and assembly simulation
Radiant warmer:
Cord management/tripping hazards
Sidewall/bedside panel workflow and use

Transfer Points and Risk for Drops (examples)
Labor and Delivery
Provider → Mom/parent/nurse
Delivery Room baby nurse/team → Mom/parent/nurse
Postpartum
Mom/parent→ Support person
Visitor → Visitor/other
Mom/parent → Bassinet
Staff → Staff
Staff → Scale/Procedure
NICU
Bed-> Bed
Bed → parent/family
Bed → scale/Procedure
Bed → transport isolette

Simulation Key Findings

One of the overarching goals of this work was to better identify and define the phenomenon of newborn falls during the immediate postpartum period, and the potential use of simulation training to support reductions in falls. Based on literature searches, there are no current publications that focus on simulation as an avenue to reduce newborn falls in the immediate postpartum period. Results of this work have illuminated the challenges that currently exist in complex healthcare systems, including the identification of facilitators and barriers to simulation training. Simulation has been shown to support improved outcomes in such clinical events as postpartum hemorrhage, severe hypertension, rapid response, and cardiac arrest, but these same Cochrane and systematic review studies reflect additional research is needed to show sustained results (Dillon et al, 2021; Eubanks et al, 2020; Fransen et al, 2020; Yucel et al, 2020).

Based on the clinical teams' exploration of the opportunities for simulation related to preventing newborn falls, a patient care bundle was developed, similar to the patient care

bundles used for maternal care within the Alliance for Innovation for Maternal Health (AIM). This bundle has been designed to promote a multidisciplinary, team-based approach, to include parents/family in newborn fall reduction.

Newborn Fall Risk Patient Care Bundle

Readiness
Every Unit
- Consider all newborns at risk for a fall/drop
- Conduct interprofessional and team-based simulation drills and preventive measures with a timely debriefing that includes the use of simulated patients
- Conduct workflow-driven training with the use of in-situ equipment
- All staff awareness of near-miss recognition and accountability
- A fall risk protocol and risk assessment, including patient education, that includes collaboration with patients and families

Recognition & Prevention
Every Patient
- Assess and communicate fall risk to all team members as patient conditions change (maternal fatigue, support person unavailable, new equipment, pre-use equipment checks, etc.)
- Provide ongoing education to all patients and their families regarding newborn fall risk in their preferred language
- Identify and communicate high-risk transfer points and tripping hazards

Response
Every Newborn Fall
- Use a standardized, facility-wide newborn post-fall management algorithm with a checklist and care escalation plan developed by a multidisciplinary team
- Communicate newborn status updates early and often to the patient/family/staff who were directly involved in a newborn fall event, including transfer to a higher level of care, follow-up appointments, etc.
- Provide evidence-based, trauma-informed support for patients, family, and staff involved in a newborn fall

Reporting and Systems Learning
Every Unit
- Establish a culture of multidisciplinary planning, huddles, and post-event debriefs for every newborn fall, which identifies successes, opportunities for improvement, and action planning for future falls
- Perform multidisciplinary reviews of serious complications related to a newborn fall
- Establish processes for mandatory and voluntary event reporting, including near-miss events, and the sharing of events with the care team, providers, and facility stakeholders
- Routinely survey and benchmark psychological safety culture within healthcare teams and address deficiencies and concerns of staff

Respectful, Equitable, and Supportive Care
Every Unit/Provider/Team Member
- Establish a blame-free, shame-free culture surrounding newborn falls
- Assure appropriate translation/interpretation services for debriefing a newborn fall
- Ensure patient/visitor/staff member involved with a newborn fall receives timely psychosocial support and follow-up care
- Assess potential sleep safety needs at home prior to discharge

Phase III:
Dissemination of Findings

It is the goal of this team that these findings are shared broadly and utilized in a way that can promote conversations, recognition, and swift action to provide an environment to reduce the risk and incidence of newborn falls. Based on the findings of these collaborations, the following recommendations are made:

Next steps for health policy:

- Consider standardization of language for immediate postpartum in-hospital newborn falls and drops
- Additional nursing and health services research in Mother/Baby units to assess and measure missed care episodes, similar to Labor and Delivery/Neonatal Intensive Care Units
- Better understanding and measurement of psychological safety within healthcare teams
- Better streamlined event reporting that provides ease of use and reduces the time burden for reporting, particularly near-miss events.

Next steps for healthcare teams:
- Assume all newborns are at risk of falls/drops
- Assess for and take action on potential/real implicit /explicit bias that may be related to newborn falls prevention
- All quality improvement should be implemented and sustained through an equity lens.
  - o Availability of a support person during the night and periods of rest
  - o Availability of childcare for other dependent children
  - o Availability of postpartum doula services to support breastmilk feeding, bonding, rooming-in, and rest periods
- Review these findings and apply the Newborn Falls Risk Patient Safety Bundle for all newborns, no matter the location
- Immediately initiate a post-falls response algorithm that is shared broadly. Include all teams impacted by the response in development and simulation efforts
- Provide a standardized approach to educating non-clinical teams on how to support newborn falls prevention
- Include high-risk newborn transfers within an in-situ simulation program, including areas not typically included in newborn simulation programs (emergency rooms, radiology departments, post-anesthesia care units, adult intensive care units)
- Include parents/families in newborn fall risk reduction program development.

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