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PEDIATRIC NEWBORN MEDICINE CLINICAL PRACTICE GUIDELINES

Management of a Neonatal Fall During Initial Hospitalization



Clinical Guideline Name	Management of a Neonatal Fall During Initial Hospitalization
Implementation Date	November 19, 2020
Due for CPC Review	
Contact Person	Medical Director, NICU
Approved By	Pediatric Newborn Medicine Clinical Practice Council <u>11/12/20</u> CWN PPG _____ BWH SPP Steering _____ Nurse Executive Board/CNO

This is a clinical practice guideline. While the guideline is useful in approaching care of the infant who has experienced a fall while hospitalized, clinical judgment and / or new evidence may favor an alternative plan of care, the rationale for which should be documented in the medical record. These guidelines are based on consensus and resources currently available at Brigham and Women's Hospital.

I. Purpose

To standardize the process of evaluation and management of neonates who experience a fall or drop to the ground during initial hospitalization after birth.

Definitions:

According to the Joint commission: The National Database for Nursing Quality Indicators (NDNQI) defines both newborn falls and newborn drops.

- A 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.
- A 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. 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 resulted in injury.

II. All CPGs rely on the [NICU Nursing Standards of Care](#). All relevant nursing PPGs are listed below.

[WNH R.4 Newborn Rapid Response Situations and Infant Codes](#)

[WNH R.1 Resuscitation of an Infant](#)

[WNH T.4 Infant Transport](#)

[WNH S.5 Identification and Referrals of Patients and/or Families to Social work](#)

[WNH I.1 Infant Identification](#)

III. Background

The Joint Commission Sentinel Alert Event (2015), reports that every year in the United States, hundreds of thousands of patients fall in hospitals, with 30-50 percent resulting in injury. These patients require additional treatment and sometimes prolonged hospital stays. In-hospital falls are a major

health hazard which prevention has been a major goal for The Joint Commission. In-hospital newborn falls are defined as a newborn falling onto the hospital floor accidentally. These falls are typically under-researched and under-reported. The incidence of newborn falls in the United States can reach 600 to 1,600 per year. These falls result in significant injury or even death of the newborn, legal issues for the institution, and severe emotional stress to the parents and caregivers.

IV. Procedure

Upon the discovery of an infant fall:

1. Transfer the infant to the nursery radiant warmer, and place pulse oximetry on the baby to initiate monitoring
2. **Initiate a Neonatal Rapid Response (RR).** Infant will be evaluated by NICU RR team.
3. The RR Team, in collaboration with the nursery nurse, will discuss the fall with the parent(s) to gather as much information as possible.
4. Prior to transfer to the NICU, the NICU MD who responded to the RR will update the parents on the plan of care and admission to the NICU unless emergent care of the infant is needed.
5. The baby will require a NICU admission for observation for minimum of 12-24 hours under continuous cardiorespiratory monitoring.
6. Upon arrival to the NICU, the NICU attending will be paged to complete a neurological assessment according to standardized encephalopathy score (see Appendix I) with the RR Team.
7. **A safety report will be completed by the RN assigned to the mother. In addition, the nursery nurse will document the fall event in Epic.**

V. Clinical Assessment and Management

1. Complete History and Physical Examination

2. RR Resident to complete Rapid Response note with Intake for Newborn Fall (see Appendix II) using Smart-phrase: .NICURAPIDRESPONSEFALL

3. Complete Neurological Examination with Encephalopathy Score (Appendix-I)

- Neurological check (by NICU attending or fellow) on admission; then the fellow, attending or NNP will perform a neurological checks every 1-2 hour for 6 hours then every 3 hours for a minimum of 12-24 hours or until the baby is transferred back to the mother-baby unit. The admission documentation will include an Encephalopathy examination using the smartphrase .NICUENCEPHALOPATHYEXAM; then a daily note should include serial scores. If the exam score increases, indicating worsening clinical trend, a new Encephalopathy examination will be entered as Event Note.

4. Feeding/ IV Hydration

- PO and breast feeding will be allowed if normal neurological examination and vital signs.
- If any alteration in vital signs or neurological exam, IV will be inserted and maintenance IV fluids will be started.
- Central lines will be attempted in critically ill infants.

5. Blood work:

- CBC on admission and at 12-24 hours, or sooner as clinically indicated.
- Type and Screen on admission.
- Blood glucose measurement and other labs as clinically indicated.

6. Imaging:

- In case of significantly abnormal physical findings, STAT CT scan at Boston Children's Hospital (BCH) and STAT neurosurgical consultation will be obtained.
- In less severe cases, MRI will be done while still admitted to the NICU in lieu of CT scan to avoid radiation exposure. MRI is to be completed within 24 hours at BWH or BCH according to availability.
- A head ultrasound and other skeletal X-rays can be considered in a case-by-case. Head ultrasound can be a valuable tool to identify linear fractures. These fractures are usually benign and noted as incidental findings, and very rarely (< 1%) carry the risk for development of leptomeningeal cysts. In the event the neonatologist needs to further assess the presence of linear fracture, she/he will discuss the diagnostic process with consulting services.

7. Consultations:

- Neurosurgery Service from BCH will be consulted on any infant with a documented fall
- Social Service consult to provide parental support. 51A filing is not mandatory but will be assessed on case by case basis.
- Consider other consulting services for example:
 - Ophthalmology consultation for retinal exam if concern for non-accidental trauma
 - Neurology consultation for non-traumatic MRI findings, etc

8. DPH mandatory reporting: According to the Massachusetts General Law Chapter 305 of the Act 2008, (an act to promote cost containment, transparency and efficiency in the delivery of quality of care), hospitals are required to report falls to DPH.

- The attending neonatologist will disclose to the mother/guardian of DPH reporting as part of hospital safety monitoring and that they will be receiving a letter with a copy of that report in the mail per the DPH regulations.
 - When disclosing mandatory reporting to mother/guardians the care team can consider including either Social Work or Patient Family relations during the conversation to support the family members, if they think the family would benefit from this support.
- Points of emphasis:
 - DPH reporting is not punitive; it helps hospitals in reviewing certain types of events and improving the quality and safety of care
 - The letter and a copy of the report of the hospital's findings is to share what we have learned or changed as a part of their review
 - The number for contacting the hospital (Patient Family Relations) with any questions about the review is included in the letter they will receive

References:

1. Preventing falls and fall-related injuries in health care facilities. Sentinel Event Alert, 2015(55): p. 1-5.
2. Joint Commission: Preventing Newborn Falls and Drops. QuickSafety, Issue 40, March 2018, https://www.jointcommission.org/sitecore/media-library/tjc/newsletters/quick_safety_issue_40_2018_newborn_falls_dropspdf/ . Last accessed 11-12-20.
3. Helsley, L., J.V. McDonald, and V.T. Stewart, Addressing in-hospital "falls" of newborn infants. Jt Comm J Qual Patient Saf, 2010. **36**(7): p. 327-33.
4. Monson, S.A., et al., In-hospital falls of newborn infants: data from a multihospital health care system. Pediatrics, 2008. **122**(2): p. e277-80.
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6. Greenes, D.S. and S.A. Schutzman, Infants with isolated skull fracture: what are their clinical characteristics, and do they require hospitalization? Ann Emerg Med, 1997. **30**(3): p. 253-9.
7. Cohen, A.R., et al., Feasibility of "rapid" magnetic resonance imaging in pediatric acute head injury. Am J Emerg Med, 2015. **33**(7): p. 887-90.
8. Roguski, M., et al., Magnetic resonance imaging as an alternative to computed tomography in select patients with traumatic brain injury: a retrospective comparison. J Neurosurg Pediatr, 2015. **15**(5): p. 529-34
9. Parri, N., et al, Ability of emergency ultrasonography to detect pediatric skull fractures: a prospective observational study. The Journal of emergency Medicine 2013. **44** : 135-141.
10. Parri, N., et al, Point of care Ultrasound for the diagnosis of skull fractures in children younger than tow years of age. 2018. **196**:230-236.

Appendix-I

Neonatal Encephalopathy Examination Scoring Sheet

1- Observe spontaneous activity	0 2 3	Normal Decreased= decreased frequency or amplitude of spontaneous facial and extremity movements Absent
2- Observe for Heart rate	0 1 2 3	0 Normal 1 Tachycardia = resting HR 160-180. Only occasionally decreased to 120 2 Bradycardia= resting HR 80-90. Only occasionally increases to 120 3 Variable= resting HR varies considerably without a consistent baseline
3- Observe for respiration	0 2 3	0 Normal 2 Periodic Breathing= 3 or more respiratory pauses \geq 3 sec separated by normal breathing and < 20 sec. Often associated with shallow breathing 3 Apnea= no breathing for \geq 20 sec or < 20sec with HR changes or O2 desaturation
4- Observe for posture	0 1 2 3	0 Normal 1 Mild Distal Flexion = Mild Fingers, toes in strong flexion, incomplete extension of fingers when stroked on dorsal surfaces. Thumbs flexed, adducted, opposed across palms “cortical thumb” 2 Strong Distal Flexion= Strong 3 Decerebrate= Head, neck and back are arched in extension (opithotonus), elbows are extended, wrists are pronated and hips are abducted.
5- Observe for level of consciousness	0 1 2 3	<u>Use Auditory stimulation, Visual stimulation and Tactile stimulation to assess level of consciousness</u> 0 Normal 1 Hyperalert Full wakefulness with eyes open/ staring but decreased frequency of blinking/ tracking. Spontaneous motor activity normal or decreased with lowered threshold to all stimulus types Irritable lowered threshold with excessive responses to all stimulus types. Can be seen with varied states including hyperalert, lethargy or obtundations 2 Lethargic Slightly delayed but complete response to stimuli with slightly increased threshold for eliciting responses and decreased spontaneous activity Obtunded Delayed and incomplete response with marked increased threshold to all sensory stimuli and little or no motor activity. 3 Stupor No spontaneous eye opening to tactile stimulation elicits poorly sustained eye opening. Responds only to strong noxious stimuli. Absent gag and cornel reflex Coma No eye opening with vigorous tactile stimulation
6- Tone Assessment	0 2 3	0 Normal 2 Hypotonic= Focal or generalized decreased resistance to passive movement. Associated with greater extension of extremities than normal 3 Flaccid= “ Flat on the mat” appearance. Maybe associated with frog-leg posturing with arm and hips/legs lying in abduction

		<p>A- Arm Recoil: Quickly extend (straighten) both arms; put next to body. Count to two. Let go. Repeat 3 times.</p>	
		<p>Normal: Arms flexes and remains flexed</p> 	<p>Hypotonia:</p> 
		<p>B- Leg Recoil: Take both ankles, bend hips+ knee. Quickly extend when infant not pushing. Let go. Repeat 3 times.</p>	
		<p>Normal: Complete Fast Flexion</p> 	<p>Hypotonia:</p> 
		<p>C- Vertical Suspension: Hold baby upright by placing hands under axillae</p>	
		<p>Normal: No Slip through</p>	<p>Hypotonia: Slip Through</p>
		<p>D- Head Lag: Pull baby to sit by the wrists and support head slightly.</p>	
		<p>Normal: Lifts head in line with body</p> 	<p>Hypotonia:</p> 
		<p>E- Ventral Suspension: Hold baby horizontal under the belly. Look at posture of back, arms, legs and head.</p>	
		<p>Normal: Back straight, head in line with body, limb flexed</p> 	<p>Hypotonia:</p> 
7- Reflexes		<p>a- Sucking reflex</p> <p>0 Normal</p> <p>1 Weak</p> <p>2 Weak/Incoordinated</p> <p>3 Absent</p> <p>b- Moro Reflex</p> <p>0 Normal</p> <p>1 Exaggerated</p> <p>2 Weak/Incomplete</p> <p>3 Absent</p> <p>c- Light Reflex</p> <p>0 Normal</p> <p>1 Dilated</p> <p>2 Constricted</p> <p>3 Unequal/ Fixed dilated</p>	
Total NE Score			

Appendix-II

NICU RAPID RESPONSE NEWBORN FALL

Date: ***

Time: ***

HPI: The NICU team was called to a rapid response for a fall of a *** hour old male/female neonate born via *** at *** weeks to a *** year old G***P***-->*** woman. Antenatal history was significant for ***. No sepsis risk factors, no maternal fever, GBS neg, HBsAg neg, HIV neg, Rubella immune, GC/CT neg.

PREGNANCY HISTORY:

MATERNAL MEDS DURING PREGNANCY:

FAMILY HISTORY:

LABOR/DELIVERY SUMMARY: Per the NICU delivery note. Pediatrics was present for the indication of ***. Infant emerged ***. Brought to warmer and dried, stimulated, and bulb suctioned. HR >100 bpm throughout. Apgar *** at 1 minute and *** at 5 minutes (for***).

EVENT DESCRIPTION: Newborn fall

Date of Event: @TD@

Time of Event: @NOW@

Age in Hours: @DOL@
@AGE2@

Location of Event: ***

Time event was reported to staff ***

Attending Physician @ATTPROV@

Who was involved in newborn fall

{Blank single:19197::"mother","staff","father","family","visitor"}.

Type of Fall

{Blank single:19197::"from maternal hospital bed","from chair","ambulation","from crib/isolette/warmer"}.

Estimated height of fall ***

Type of delivery {delmode:31066}.

Maternal Medication(s) at time of fall

{Blank multiples: 19196:: "Narcotics","Epidural","Magnesium","Others","None"}.

Time mother received medication -last administered prior to newborn fall ***

Other persons in the room at the time of fall {YES NO:22732}

Other Adults awake? {YES NO:22732}

Identification that newborn had fallen

{Blank single:19197::"Mother awake or woke up when newborn fall occurred","Nursing staff entered room and discovered that the newborn had fallen","Other"}.

Immediate parental report to nursing staff {YES NO:22732}

Newborn injuries identified {YES NO:22732}

VITALS: Pulse 120 | Resp 120 | Temp(Src) 37.6 °C (Axillary) | Wt | SpO2 91%

Physical exam

Appearance: ***

HEENT:***

Skin:***

Neck:***

CV:***
Abdomen***
MSK:***
Anus:***
Genitalia:***
Hips:*** Ortolani and Barlow.

On encephalopathy assessment examination on (Date:*, Time: ***):**

Level of consciousness was {Blank Single:19197::"normal","hyperalert/ irritable","lethargic","obtunded","stuporous","comatosed" }.
Spontaneous activity was {Blank Single:19197::"normal","decreased","absent"}.
Tone was {Blank Single:19197::"normal","hypotonia","faccid","hypertonia","rigid"}.
Posture showed {Blank Single:19197::"normal pattern","mild distal flexion","strong distal flexion", "complete extension (Frog like position)", "decerebrate pattern"}.
Sucking reflex was {Blank Single:19197::"normal","exaggerated", "weak", "incoordinated/biting", "absent"}.
Moro reflex was {Blank Single:19197::"normal","exaggerated","weak/incomplete", "absent"}.
Light reflex showed pupils {Blank Single:19197::"normal","dilated reactive ","constricted reactive","unequal","non-reactive","fixed dilated","deviated"}.
HR showed {Blank Single:19197::"normal rate","tachycardia","bradycardia", "variable HR"}.
Respiration showed {Blank Single:19197::"normal pattern","periodic breathing", "apnea"}.
Baby {WAS/WAS NOT:2100118327} mechanically ventilated.

Based on BWH Neonatal Encephalopathy Score, this exam gives a score of ***

LABS:

A/P: No new assessment & plan notes have been filed under this hospital service since the last note was generated.

Disposition: {PHS OB Pedi Delivery Disposition:304190005}

- Admit to NICU for min 12-24 h
- Neurological exam every 1 h for 6 h, then every 3 h.
- T&S
- CBC on admission and at 12-24 h, or sooner as indicated
- Blood sugar and other labs as clinically indicated
- Brain imaging within 24 h while admitted to NICU
- Neurosurgery Consult
- Social Service consult