# NICU Pre-Learning Addendum

Contents

# Care of NICU Infants

For additional information refer to full Policy: *Care of NICU Infants* in PolicyStat

| ***NICU Electronic Charting – Minimum Standards*** | | |
|---|---|---|
| **Required Charting Element:** | **NICU Standard/Procedure** | **Epic Screen** |
| **Vital Signs:**<br>Temperature (T)<br>Pulse (P)<br>Blood Pressure (BP)<br>Oxygen Saturation (SpO2) | **On admission (within 10 minutes):**<br>• T, P, BP, SpO2, pain level<br>• First two temperatures are obtaining and charted in EHR at 5 minutes and 1 hour post delivery<br>**Ongoing:**<br>• T, P, R, pain every 3-6 hours, B/P every 6-24 hours. SpO2 as condition warrants<br>Post-Operatively:<br>• Q15 minutes x 1 hour<br>• Q30 minutes x 1 hour<br>• Q60 minutes x 2 hours<br>• Every 4 hours x 24 hours | Vital Signs: Flowsheet→Vital Signs Complex |
| **Pain Assessment:**<br>*Neonatal Pain, Agitation, and Sedation Scale (N-PASS)* | • On admission (with VS)<br>• With every VS check<br>• When intervention is initiated for comfort due to pain<br>• 60 minutes after intervention or at peak effect of medication/intervention<br>• At discharge | Flowsheet→ Vital Signs Complex |
| **Intake & Output** | • Strict I&O includes ALL fluids – In and Out<br>• Minimum charting intake/output – Q 4 hours<br>• Zero all IV pumps at 0600 and 1800 | Flowsheet→ Intake/Output, (LDA (Active) |
| **IV Fluids** | • Reset IV pump alarms Q 6 hours<br>• Document in EHR medication drips Q 1 hour<br>• Any changes in IV fluids, chart in real time<br>• All IV fluid amounts determined by pump volume infused | LDA (Active) PHS- IV fluids are documented in Flowsheets>Intake and Output |
| **Measurements:**<br>Weight (Wt)<br>Orbitofrontal Cortex (OFC)<br>Length (L) | • All measurements on admission<br>• Wt – daily unless unstable condition<br>• OFC and L – Q Sunday<br>• All measurements on discharge | Flowsheet→Vital Signs Complex |
| **Admission Data** | • Assessment performed/documented within 4 hours of admission<br>• Data collection: History, Care Needs, Education Assessment, all documented within 4 hours of admission | ADT Workflows→Admission navigator |
| **Plan of Care**:<br>Care plan<br>History<br>Care/Learning Needs<br>ED Record | • Complete initiation within 12 hours of admission (preferably before change of shift)<br>• Complete "shift summary" at the end of shift | Flowsheets>Care Plan→Requires the General Plan of care (Infant Inpatient Plan of Care) as a minimum as well as either the Preterm Infant (NICU) or Newborn (Newborn/NICU) |
| **System Assessment:**<br>(Ongoing) | • Assessment done as new staff assumes care<br>• As condition warrants | Flowsheet→NICU PCS Body System→(Safety is part of the system assessment but only part so maybe just take Safety out?) |
| **Working Discharge Plan** | • Initiated within 24 hours of admission | Care Plan |
| **Ongoing Education** | • Documentation of Education with each teaching point, Education assessment of family is entered as part of admission workflow | Education Tab |
| **Discharge** | • Care Plan Summary<br>• Summary of Final Discharge Plan<br>• Summary of patient condition to include:<br>  ○ NPASS at discharge<br>  ○ Patient Condition statement<br>  ○ Statement of family understanding of DC instruction/plan<br>• Document actual DC date/time from unit | Care Plan, Education→Add General NICU D/C education and Generic Teaching Goals/Outcomes on all babies as well as either Preterm infant (NICU) or Newborn (Newborn/NICU) |

## Family Presence in the NICU

For additional information refer to full Policy: *Family Presence in the NICU* in PolicyStat

**VISITORS:**

**For the safety of all, parents, family and all visitors should be in good health and without communicable illness. Individuals with illness may not enter the NICU.**

- Must be twelve years of age or older and accompanied by a banded parent.
- No family or visitors with a HSV-Active facial lesion will be allowed in the NICU until the lesion is crusted over.
- No visitors with covid will be allowed to enter the unit until deemed not contagious.
- Visitors with orange bands may visit without parents per policy but cannot bring in visitors or receive medical information.

**Rooming In:**

- Parental presence and participation in cares overnight is strongly encouraged.
- Designated support providers (orange bands) and participation in cares overnight is supported.
- Staff develop a plan with parents for how care will be provided overnight.
- Visitors <18 will not be allowed to spend the night. Parents <18 are not considered visitors and are encouraged to stay overnight.

## Newborn Skin Care

For additional information refer to full Policy: *Newborn Skin Care* in PolicyStat

Newborn baths are not necessary unless indicated by maternal infection risk factors, such as; HIV, syphilis, hepatitis B, hepatitis C, COVID-19, or parents desire. Vernix may offer antibacterial protection.

a. The newborns hair may be washed to remove blood, etc.

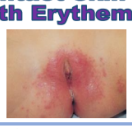
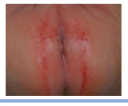
b. Support parental choice regarding newborn bath

c. Newborns of mothers with Hep B, Hep C, and/or HIV may enjoy 1-2 hours of skin-to-skin time with their mothers before their baths

d. Apply skin antisepsis swab before giving any injection

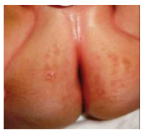
e. Provide education to the parents regarding bathing practices

### Oregon Region Diaper Dermatitis Guide

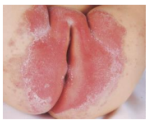
| | Prevention<br>• All infants<br>• Intact skin<br>• Without erythema | Intact Skin with Erythema  | Denuded Skin  |
|---|---|---|---|
| **Assessment** | | | |
| **Goal of Treatment** | • Prevent skin breakdown<br>• Provide skin barrier | • Prevent further skin breakdown<br>• Provide skin barrier<br>• Promote healing process | • Prevent further skin breakdown<br>• Provide skin barrier<br>• Promote healing process |
| **Treatment-Product** | • Silicone based skin barrier (e.g., Medline Hydraguard) | • Zinc oxide-based cream (e.g., Medline Zinc Paste)<br>• If no improvement in 48 hours, or worsening of breakdown occurs, advance to hydrophilic dressing (e.g., Coloplast Triad) | • Hydrophilic dressing cream (e.g., Coloplast Triad)<br>• Use Coloplast wipes to clean instead of baby wipes. Pat dry with 4x4<br>• If no improvement in 48 hours, or worsening of breakdown occurs, perform "Dust & Crust" method |
| **Application Instructions** | Apply a **thick** layer of silicone-based skin barrier over entire area to be protected<br>**With each diaper change**<br>• Only remove stool by gently patting, do not wipe, leave silicone layer in place.<br>• If skin is showing, replace silicone | Apply a **thick** layer of zinc oxide product over entire area to be protected.<br>**With each diaper change**<br>• Obtain LIP Order<br>• Scan product prior to application<br>• Only remove stool, leave zinc oxide in place.<br>• If skin is showing, replace zinc oxide<br>**Documentation**<br>• Open a LDA- Rash | Apply a **thick** layer of hydrophilic dressing product over entire area to be protected<br>**"Dust & Crust" method**<br>Gently squeeze stomadhesive powder on a gauze pad outside of isolette or crib then gently pat it on the buttocks. Brush off excess. Powder will stick to open skin. Seal with skin prep barrier spray. Repeat powder and skin prep barrier spray again. Allow crust to form. Apply thick layer of zinc oxide.<br>**With each diaper change**<br>• Only remove stool, leaving zinc oxide in place by gently patting, not wiping.<br>• If skin is showing, replace zinc oxide. Depending on how much skin is showing, consider reapplying "Dust & Crust" products<br>**Documentation**<br>• Complete LDA rash and open LDA Wound (Moisture Damage) in EPIC |

**Candida**

**Satellite lesions**



- Apply antifungal ointment (LIP order)
- Follow *Intact Skin with Erythema* treatment



**Denuded skin**

- Apply antifungal ointment (LIP order)
- Follow *Denuded Skin* treatment

*NOTE: If concerns arise during protocol implementation, consult with LIP who can assess if a wound care consult should be placed. Wound care may open LDA- Wound in EPIC. Menthol*

# Safe Sleep/Newborn Falls

For additional information refer to full Policy: *Newborn Fall Prevention Practice Guidelines (Perinatal, Pediatrics, & NICU)* in PolicyStat

Provide education to mother and family on the following:

1. While in the hospital it is not permitted to sleep with newborn in the maternal bed or while sitting or lying on other furniture. Explain rationale and safety risk.
2. If they become sleepy, dizzy, or unsteady call for assistance to place newborn in crib/bassinet/isolette.
3. Inform parent/family if you find them asleep while holding their newborn, staff will transfer newborn to crib/bassinet/isolette.
4. Do not to leave newborn unattended on bed or couch.
5. Use of prescribed pain medications, increased blood loss, fatigue from labor and delivery, and bed positioning may increase risk mother will fall asleep and newborn will fall from hospital bed to the floor.
6. Leave bed in lowest position with side rails up during feedings.
7. If mother is using patient controlled analgesia, other sedating medications, or on seizure precautions she should have another responsible person for the newborn to remain in the room.

Keep sides of crib/bassinet/isolette in up position close to maternal hospital bed to promote closeness and attachment. Check on mother frequently when newborn is in maternal hospital bed.

All newborns must be transported in their cribs or bassinet lying flat with sides up or in an isolette. Newborn may be in mother's arms on stretcher and/or wheelchair if mother is stable.

Staff members to make safety assessments during all rounds and every time they enter room.

If parent/family declines to follow recommendations, document education and non-compliance in their electronic health record (EHR).

*If a newborn fall does occur, call your lead nurse for support on the next steps and reporting.*

## Post-Fall Management:

Registered Nurse (RN) obtains vitals signs (VS), performs physical assessment, and notifies provider immediately of fall.

Physical assessment by newborn provider should be done as soon as possible and should include:

1. Full visible inspection for any evidence of trauma, with particular attention to the skull.
2. Neurologic assessment to include tone, alertness, movement.

Frequent observation of newborn is recommended for a minimum of 12-24 hours.

After initial assessment, vital signs and neuro assessment to include tone, responsiveness, reflexes, and fontanelle status or as ordered:

1. Every hour x 2
2. Every 4 hours x 2

After initial assessment, head circumference hourly x 4

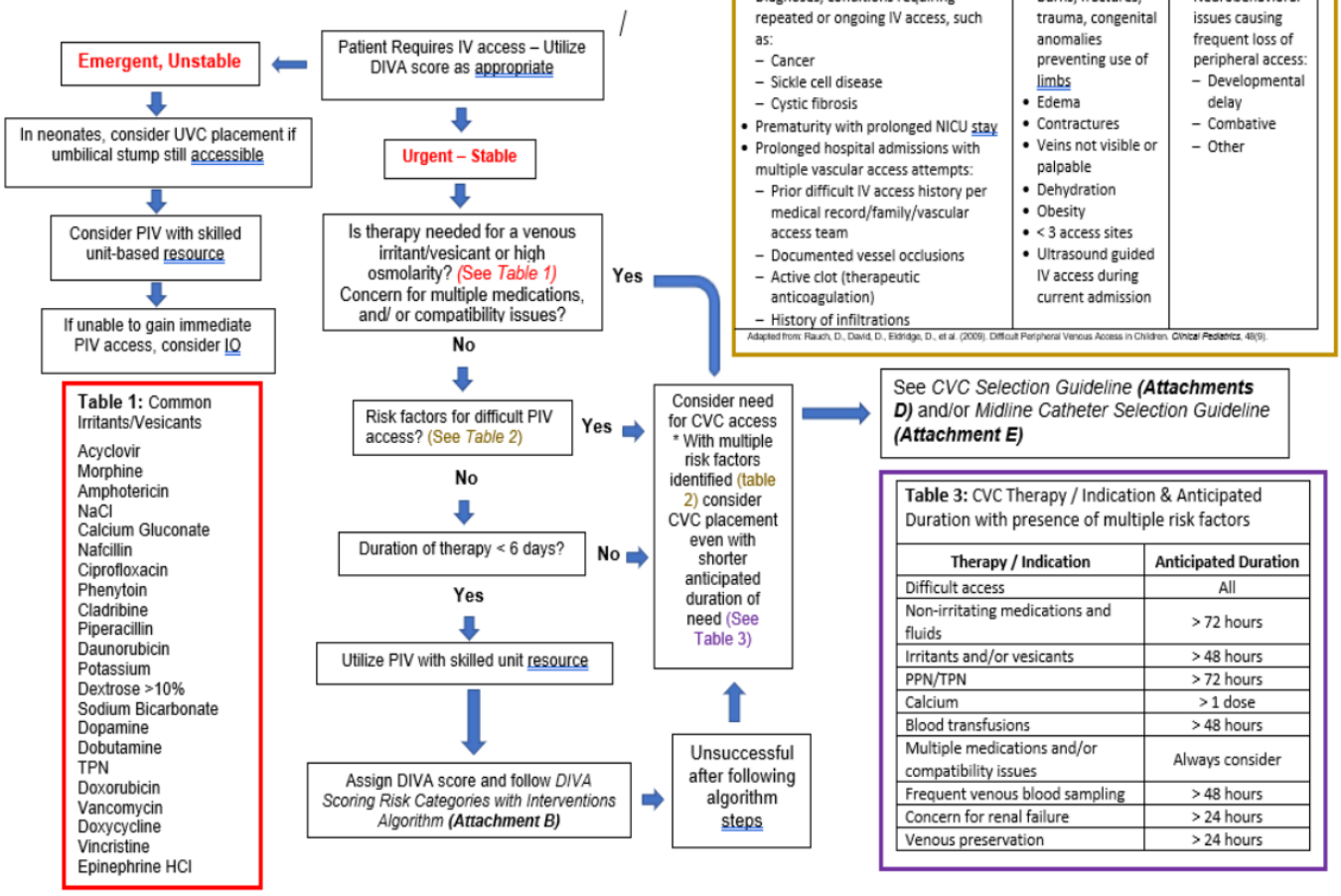
Pediatric provider should be immediately notified if any of the following occur:

1. VS abnormalities
2. Changes to behavior, movement, or neurologic status
3. New physical findings suggestive of injury
4. Vomiting
5. Any additional concerns

# Establishing Peripheral Intravenous Access in Neonatal & Pediatric Patients

For additional information refer to full Policy: *Establishing Peripheral Intravenous Access in Neonatal & Pediatric Patients and PICC Policies: Peripherally Inserted Central Venous Catheters and Placement, Maintenance and Removal* in PolicyStat

## *Neonatal/Pediatric Vascular Access Algorithm*



# NICU Vascular Access

For additional information refer to full Policy: *NICU Vascular Access* in PolicyStat

| Vascular Access Recommendations by Gestation & Clinical Status | | | | |
|---|---|---|---|---|
| | **22 to 24 6/7 weeks** | **25 to 29 6/7 weeks or < 1500 grams** | **≥ 30 Weeks** | **Therapeutic Hypothermia** |
| **UVC** | -UVC recommended<br>-UVC may be used up to 7 days if well-placed<br>-Low-lying UVC may be used for 48-72 hours<br>*May be appropriate in this age group to attempt central UVC access again or use the UAC for fluid infusion rather than attempting a PICC due to skin immaturity | -UVC recommended<br>-UVC may be used up to 7 days if well-placed<br>-Low-lying UVC may be used for 48 hours, obtain a PICC after 48 hours with head midline | -UVC recommended if intubated, hemodynamically unstable, or per LIP request<br>-UVC recommended if unable to establish PIV access within 4 attempts following delivery<br>-If a low-lying UVC is used, establish alternative vascular access at the earliest opportunity | -UVC recommended<br>-UVC may be used up to 7 days if well-placed |
| **UAC** | -UAC recommended<br>-Discontinue by DOL 7<br>In some circumstances, use beyond 7 days may be appropriate in this age group | -UAC recommended 25-28 weeks<br>-> 28 weeks, UAC recommended if hemodynamically unstable or mechanically ventilated<br>-Discontinue UAC when no longer clinically indicated or by DOL 7 | -UAC recommended if hemodynamically unstable or mechanically ventilated<br>-Discontinue UAC when no longer clinically indicated or by DOL 7 | -UAC recommended if clinically unstable<br>-Discontinue UAC when no longer clinically indicated or by DOL 7 |
| **PICC** | -PICC recommended after skin barrier formation is achieved (~5 DOL) or if central venous access is anticipated for longer than 7 days | -PICC recommended after 48 hours if low-lying UVC is in place.<br>-PICC recommended at DOL 5-7 if central venous access is anticipated for longer than 7 days | -PICC recommended after 48 hours if using a low-lying UVC and ongoing central venous access is indicated<br>-PICC recommended for infants who have extended central venous access needs (i.e., surgical infants, difficulty with PIV access, or are using the feeding protocol). | -PICC recommended after 48 hours if using a low-lying UVC and ongoing central venous access is indicated |
| **PIV** | -PIV not routinely recommended until skin barrier formation is achieved | -PIV may be appropriate for blood product administration or incompatibility of IV medications if alternative central access is unavailable | -PIV recommended if established within 4 attempts<br>-If unable to obtain IV access via PIV in 4 attempts, need for feeding protocol, or anticipated extended IV access (i.e., surgical infant), then consider PICC placement | -PIV may be appropriate for blood product administration or incompatibility of IV medications if alternative central access is unavailable |

# Hypoglycemia and Hyperglycemia in the NICU

For additional information refer to full Policy: *Hypoglycemia and Hyperglycemia in the NICU* in PolicyStat

**Glucose Monitoring in the NICU**

| | All infants admitted to NICU<br>On IV Fluids | <35 weeks<br>NO IV | ≥35 weeks<br>NO IV |
|---|---|---|---|
| First 4 hours after birth (goal ≥ 45) | ❖ Check glucose on admission and 1 hour after admission or initiation of feedings.<br>❖ If <30" of IV fluids infused prior to 1 hour glucose, then repeat again in 1 hour. | Check glucose 30" after initiation of feeding or before 1 hour of admission if feeding is delayed | ❖ Follow Regional Neonatal Hypoglycemia flowchart & check glucose 30" after initiation of feeding. |
| 4-24 hours after birth (goal ≥ 50) | ❖ Glucose every 6 hours if ≥ 50<br>❖ If < 50, check 30 min after intervention & every 3 hours until ≥ 50<br>❖ All glucose checks should be AC if on feeds | ❖ Check AC glucose until ≥ 50 x 2 (consecutive). | ❖ Follow Regional Neonatal Hypoglycemia flowchart.<br>***Exception ****<br>❖ Any infant that is on stable intakes of > 40 mL/kg/day may discontinue regional guideline if has two consecutive AC glucoses of >50 |
| 24-72 hours of life (goal ≥ 50) | ❖ Check glucose every 12 hours AC.<br>❖ Move to NO IV guidelines when applicable | No routine blood glucose. POCT blood glucose with AM labs only. | |
| After 72 hours of life (goal ≥ 60) | With AM blood draws unless otherwise specified. No need to check blood glucose with new TPN infusion unless indicated by LIP. Check blood glucoses x 2 when IVF discontinued. | | |
| ❖ Notify LIP for any blood glucose out of goal range (≤ 45 in first 4 hours, ≤ 50 in next 72 hours, and ≤ 60 thereafter) or > 180 mg/dL.<br>❖ Any infant with symptoms of low blood sugar should have glucose checked immediately | | | |

| MONITORING GUIDELINES WHILE ON INSULIN | |
|---|---|
| ➢ After initiation of insulin infusion or after bolus | Check at one hour |
| ➢ After change in titration | Check every two hours or per LIP orders* |
| ➢ Unstable condition or unstable blood sugar | |
| ➢ Stable blood sugar over 8 hours | Check every four hours or per LIP order* |
| *Dialogue with LIP essential; infant condition may warrant more or less frequent monitoring. | |

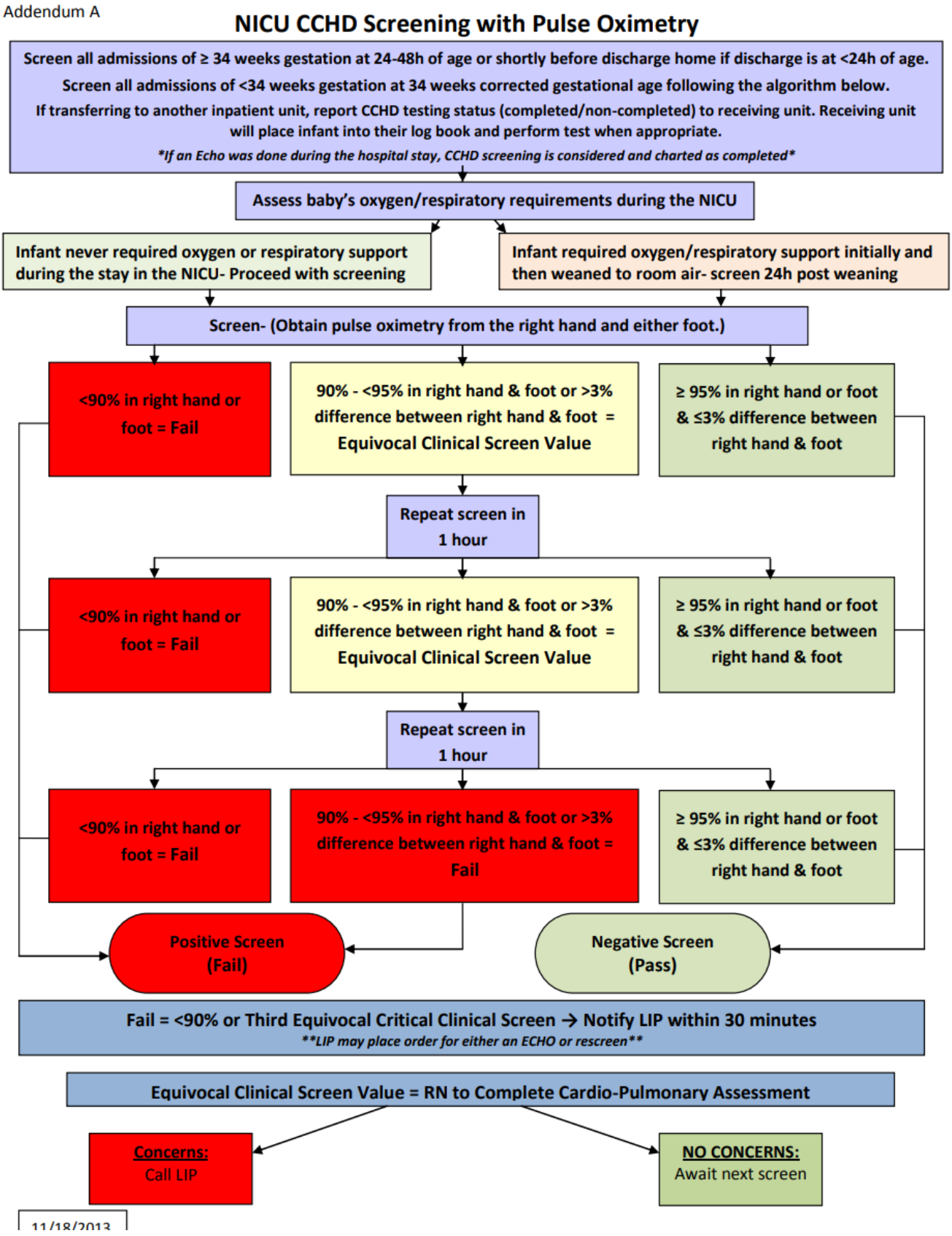
| INSULIN INFUSION DOSING ADJUSTMENTS (Recommended) | | |
|---|---|---|
| GLUCOSE (mg/DL) | Action/Dose adjustment | Further monitoring |
| <100 mg/dl | STOP insulin infusion, Notify LIP | Discuss with LIP, check at minimum |
| 100-149 mg/dl | Decrease dose by 0.01-0.02 units/kg per hour | Check in 2 hours † |
| GOAL if on insulin 150-200 | Continue current dose. (see below) If greater than 40 mg/dl difference noted between consecutive sugars, NOTIFY LIP for consideration of dose change | Check in 4 hours depending on stability of infant/glucoses. †If rate changes made check in 2 hours |
| 201-250 mg/dl | Increase insulin by 0.01-0.02 units/kg per hour | Check in 2 hours † |
| >250 mg/dl | Increase insulin by 0.02-0.04 units/kg per hour, NOTIFY LIP | Check in 2 hours † |
| | | |
| † Physician orders may vary from guidelines depending on infant condition, insulin dose, and blood sugar levels. | | |

*6/2023*

## Critical Congenital Heart Disease (CCHD) Screening

For additional information refer to full Policy: *Critical Congenital Heart Disease (CCHD) Screening for the Newborn (Perinatal, NICU, Pediatrics)* in PolicyStat

Addendum A



# Neonatal Feedings

For additional information refer to full policies in PolicyStat

- *Placement and Use of a Nasogastric/Orogastric Tube in the NICU)*
- *NICU Breast Milk Collection and Storage*
- *Donor Human Milk Administration (Perinatal, Pediatrics & NICU)*
- *POCT pH Neonatal Gastric Fluid pH test Paper Procedure*

| **Overall consistent message for all pump-dependent NICU mothers:**<br>*Frequent, complete breast emptying (8x/day) using hospital grade electric breastpump*<br>*with no more than one 5-hour stretch between pumpings at night* |
|---|
| **Goals:**<br>1. Hand expression as soon as possible after delivery<br>2. Initiation of electric pumping within 6 hours after delivery<br>3. Pump 8x/d with no more than one 5-hour stretch between pumpings at night.<br>4. Pumping regime:<br>a. Massage breasts (~1minute) prior to use of electric pump<br>b. If possible, do hands free electric pumping allowing for breast compression during pumping<br>c. Use hand expression after pumping (~5min) to maximize complete breast emptying. |

**Procedure – Storage of milk**

a. Assess need for potential fresh milk feed for infant. If fresh milk is not used immediately, place milk in refrigerator (in individual infant bin) within 4 hours of collection.

b. Place fresh milk in NICU freezer if not expected to be used within 96 hours. Use thawed breast milk within 48 hours of thawing.

## Donor milk

Confirm assent/consent has been obtained and documented:

a. **Perinatal and Pediatrics Units** - ensure *Consent for Infant Nutritional Supplementation* form (Addendum A - English or Spanish version) has been completed by parent/legal guardian

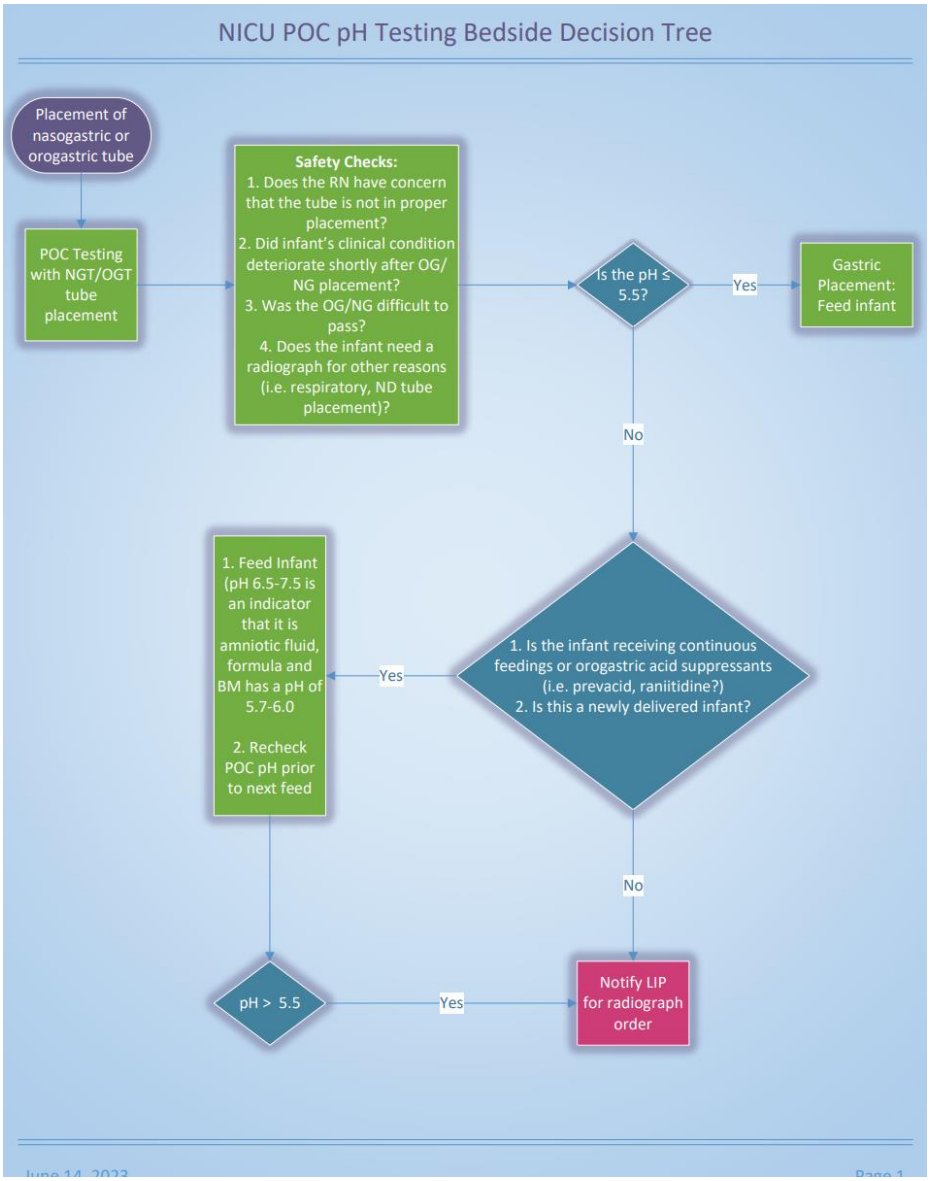
b. **NICU** - assent is documented as PARQ in LIP note:

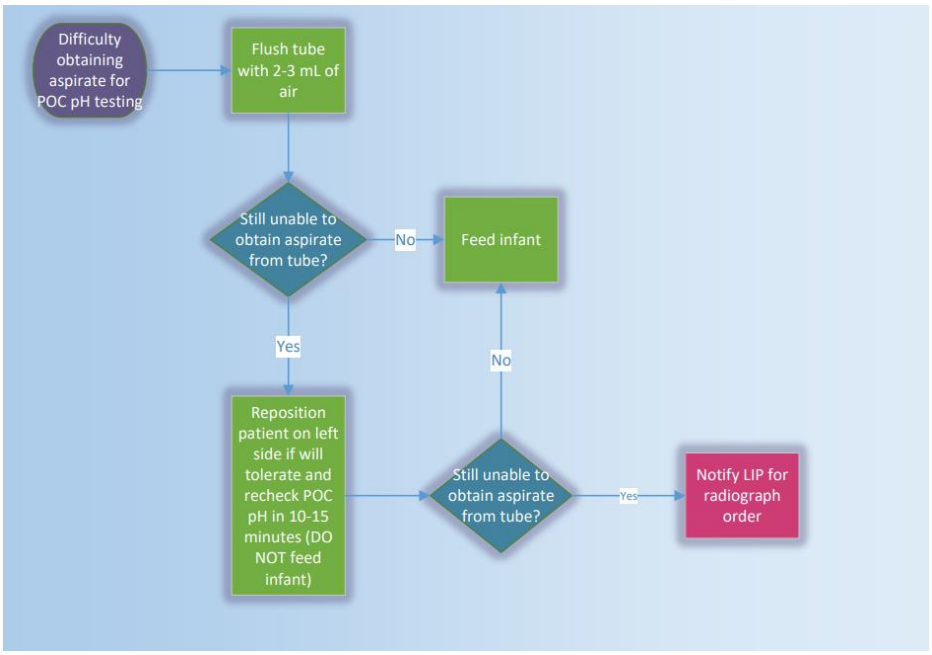
i. If baby is transferred out of NICU to a perinatal or pediatric unit, it is not necessary to have parents sign *Consent for Infant Nutritional Supplementation* form if NICU LIP has already completed a PARQ and assent is previously documented.

Confirm order for DHM in EHR

Thaw frozen DHM if defrosted DHM is not immediately available:

# Neonatal Feedings (cont)



# Newborn Blood Screening

For additional information refer to full Policy: *Newborn Blood Screening* in PolicyStat and [The Northwest Regional Newborn Screening Program (oregon.gov)]

**Age of Infant at Specimen Collection**

| | Collection Kit | First Specimen | Second Specimen | Third Specimen |
|---|---|---|---|---|
| Routine Birth | Double Kit | As soon as possible after 24 hours of age but before 48 hours of age | 10-14 days | Not collected |
| NICU infants transfused prior to 24 hours of age | Triple Kit | Prior to transfusion | 48-72 hours after birth | ~1 month, no sooner than 28 days |
| NICU infants not transfused prior to 24 hours of age | Triple Kit | As soon as possible after 24 hours of age but before 36 hours of age and prior to transfusion | 10-14 days of age (11-15 days of life) | ~1 month, no sooner than 28 days |

. SPECIAL CONSIDERATIONS

1. State law requires that all newborns be tested, and designates practitioners as being responsible for specimen collection. The definition of "practitioner" includes physicians, nurses, advanced practice registered nurses, and midwives who deliver or care for infants. Oregon law also specifies that parents are responsible to ensure that their infants are tested.
2. Testing must be done before discharge even if discharge occurs before the recommended time for testing. Failure to collect a specimen before discharge may result in a significant liability on both the facility and responsible practitioner if an affected infant is missed.
3. Oregon Administrative Rules (OAR) specify that infants who are transferred to another unit within 48 hours of birth should be tested by the receiving facility. See Age of Infant at Specimen Collection (Table below).

Specimen Collection

a. Obtain blood sample.

b. To prevent specimen contamination, do not touch any part of the filter paper circles with either your skin or the newborn's skin before, during, or after collection.

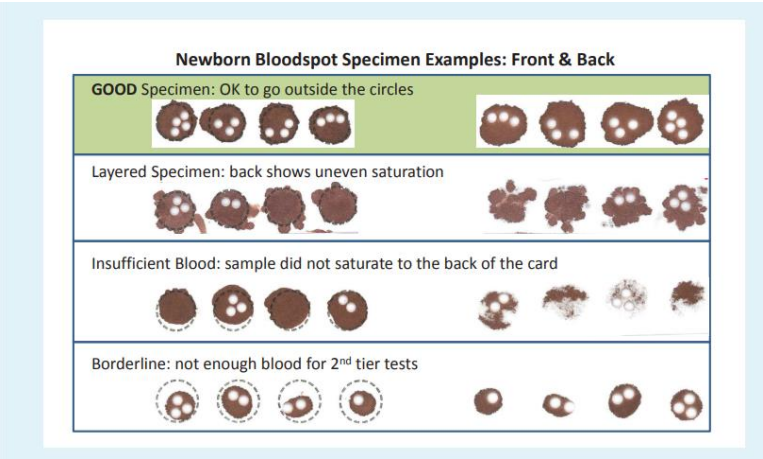
c. Apply blood to only one side of the filter paper. Blood should soak all the way through the paper such that the blood spots look similar on both sides.

d. Complete and even saturation of the entire circle is essential for accurate testing.

e. Do not superimpose the blood drops on top of each other. Let each drop touch the paper about 1/8 inch away from each other. This may prevent layering and uneven saturation, one cause of false results.

f. Collect the blood in all circles. A minimum of three circles is necessary to complete the screening panels. If there are problems with sufficient blood flow, it is better to fill three circles completely, than to fill four circles inadequately.

g. Follow facility process for handling and processing specimen. Air dry specimens at room temperature for 2-4 hours in a horizontal position with the blood spots exposed.



## Retinopathy of Prematurity (ROP) Screening Guideline

For additional information refer to full Policy: *Retinopathy of Prematurity (ROP) Screening Guideline* in PolicyStat

A. Infants are screened for ROP if birth weight is ≤ 1500 grams and/or gestational age is < 31 weeks.

B. Infants having an unstable clinical course and having a gestational age ≥ to 31 0/7 weeks and/or birth weight of 1501 to 2000 grams will be screened based on the judgment of the attending neonatologist.

C. All screening exams completed by the ophthalmologist will be done after pupillary dilation, using binocular indirect ophthalmoscopy to detect ROP.

## Documentation Requirements for Newborn, NICU and Pediatric RR and Code Blue Events

For additional information refer to full Policy: *Documentation Requirements for Newborn, NICU and Pediatric RR and Code Blue Events* in PolicyStat

**Documentation Requirements Include:**

A. During or After Event - At a minimum, EHR documentation will include start time, stop time, and end outcome included in:

1. *Rapid Response Flowsheet* for RRE or
2. *Code Narrator* (Infant) for CBE

B. Documentation not included in EHR is captured on either a *Neonatal Frequent Observation Flowsheet or Neonatal Resuscitation Form* (Attachment A1 or A2), depending on clinical severity of event, and scanned into patient's EHR.

C. *Sedation Narrator* in EHR may be used to capture specific procedures performed in the NICU.

## Newborn Comfort Care or Loss

Refer to full Policy: *Newborn Comfort Care in the Final Hours* and/or *Perinatal Loss* in PolicyStat for required steps for any neonatal or newborn comfort care or loss