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Policy Statement:

The purpose of the protocol is to provide standardized guidance across L&D, MBU, and NICU for identification and treatment of newborn hypoglycemia from 0-4 hours and >4-24 hours in infants who are at risk for hypoglycemia (please see algorithms). Risk factors for hypoglycemia include: infant of a diabetic mother, SGA/LGA, and late preterm infants (<37 weeks). Infants who are symptomatic (please see algorithm for sx) should also be screened.

Background/Rationale:

Newborns have a normal, physiologic nadir in glucose concentrations within the first three hours of life and then return to higher levels after this period. The American Academy of Pediatrics states that there is no adverse medical outcome from this nadir. The protocol has different normal low blood glucose cutoffs for 0-4 hours versus >4-24 hours because of the initial nadir period. Infants should be able to maintain their blood glucose above 40 in the first four hours of life and above 45 mg/dL in the subsequent >4-24 hours. This protocol ensures that infants are treated appropriately if they dip below normal blood glucose concentrations.

The American Academy of Pediatrics recommends checking glucose 30 minutes after the first feed. Glucose should not be checked before this time unless the infant is symptomatic. Checking before the first feed results in false positives and more intervention during the normal, physiologic nadir period.

Glucose gel administration on the buccal mucosa is a safe and effective way to provide glucose to infants who are ≥34 weeks of age. It works quickly and limits the use of formula in the neonatal period. This is important because UWMC is part of the Baby Friendly Initiative that requires 80% exclusive breastfeeding rates (formula counts against this but glucose gel does not). The Baby Friendly Policy & Procedure specifically: "Encourage skin-to-skin contact immediately after birth and continue uninterrupted for the first hour after birth for all infants. Postpone weighing the infant until after the first feeding. Help the mother/infant initiate breastfeeding within an hour of birth. If the infant is unable to feed effectively, help the mother hand-express colostrum and give the colostrum to the infant via oral syringe or spoon."
References:

Algorithm Modified from Seattle Children’s Hospital/University of Washington Division of Neonatology.


REVIEW/REVISION DATES:
Revision Date: 7/2018

SIGNATURE:

Nurse Manager, MIC: Gigi Jurich Date: 5/2018
Nurse Manager, MBU: Angie Dohey Date: 7/2018
Nurse Manager, NICU: Debi Grace Date: 7/2018
Medical Director, NBN: Sheela Sathyanarayana Date: 7/2018
Medical Director, NICU: Thomas Strandjord Date: 7/2018
Newborn Glucose Screening and Hypoglycemia Management
For Infants >34 Weeks at 0-4 Hours of Life

- Identify newborns at risk for hypoglycemia.
- Initiate hand expression within 1 hour and with each feeding for high risk infants.
- If infant is stable: Immediate and uninterrupted skin to skin contact, frequent feeding, and hand expression promote glucose homeostasis.

**SYMPTOMATIC INFANTS:**
Check POC glucose at symptom onset

**HIGHER RISK INFANTS:**
Check POC glucose 30 minutes after first feed

**Hypoglycemia Symptoms:**
- Abnormal neurologic status: Irritable, lethargic, jittery, hypotonic, high pitched cry, apneic, hypothermic, having seizures
- Feeding difficulty: Poor suck, uninterested
- Respiratory distress (including tachypnea, cyanosis)
  - Call Provider with POC glucose result (83694 or 81390)
  - Expect NICU transfer if <40 AND symptomatic

**POC glucose <25 mg/dL**
- Notify provider (83694 or 81390)
- Administer glucose gel
- Breastfeed and give EMM (give formula if EMM contraindicated)
- Send central glucose STAT. Call NICU charge (89769) for blood draw assist, if needed.

**POC glucose 25-39 mg/dL**
- Administer glucose gel
- Breastfeed and give EMM (give formula if EMM is contraindicated)

**POC glucose ≥40 mg/dL**
- Feed per cues
- Continue to monitor POC per protocol
- Continue to monitor for symptoms of hypoglycemia

Repeat POC glucose 60 min after 1st gel = _______

**POC glucose <25 mg/dL after 1st gel**
- Notify provider (83694 or 81390)
- Repeat glucose gel, 2nd dose
- Breastfeed and give EMM (give formula if EMM is contraindicated)
- TRANSFER TO PCN/NICU

Repeat POC glucose 60 min after 2nd gel = _______

**POC glucose <40 mg/dL after 2nd gel**
- Notify provider (83694 or 81390)
- Repeat glucose gel, 3rd dose
- Give EMM (give formula if no EMM)
- TRANSFER TO PCN/NICU

**POC glucose ≥40 mg/dL**
- Feed per cues
- Continue to monitor POC per protocol
- Continue to monitor for symptoms of hypoglycemia

Please see Reverse Side for Management for Infants >4-24 hours
Newborn Glucose Screening and Hypoglycemia Management
For Infants >34 Weeks at >4-24 Hours of Life

- Identify newborns at risk for hypoglycemia.
- If infant is stable: Check glucometer readings per protocol.
- Continue breastfeeding on demand, and hand expression with each feeding for high risk infants.

**Newborn Glucose Screening and Hypoglycemia Management**

**For Infants >34 Weeks at >4-24 Hours of Life**

POC glucose (Point of Care) = Heel stick
EMM = Expressed Mother’s Milk

**SYMPTOMATIC INFANTS:**
Check POC glucose at symptom onset

Hypoglycemia Symptoms:
- Abnormal neurologic status: Irritable, lethargic, jittery, hypotonic, high pitched cry, apneic, hypothermic, having seizures
- Feeding difficulty: Poor suck, uninterested
- Respiratory distress (including tachypnea, cyanosis)
  ✦ Call Provider with POC glucose result (83694 or 81390)
  ✦ Expect NICU transfer if <40 AND symptomatic

**HIGH RISK INFANTS:**
Check ac POC glucose

Hypoglycemia Risk Factors:
- LGA (>90%) or SGA (<10%)
- Birth weight <2500 grams
- Late preterm (34 weeks to 36 weeks and 6 days)
- Infant of a diabetic mother (IDM)
- Post dates (>42 weeks)
  ✦ Notify provider (83694 or 81390)
  ✦ Administer glucose gel
  ✦ Breastfeed and give EMM (give formula if breast milk is contraindicated)
  ✦ Send central glucose STAT. Call NICU charge (89769) for blood draw assist if needed.

**POC glucose <35 mg/dL**
- Notify provider (83694 or 81390)
- Administer glucose gel
- Breastfeed and give EMM (or formula if EMM contraindicated)
- Send central glucose STAT. Call NICU charge (89769) for blood draw assist if needed.

**POC glucose ≥45 mg/dL**
- Feed per cues
- Continue to monitor POC per protocol
- Continue to monitor for symptoms of hypoglycemia

**POC glucose 35-44 mg/dL**
- Administer glucose gel
- Breastfeed and give EMM (give formula if breast milk is contraindicated)

- Feed EMM or formula if no EMM
- Give 3rd dose of gel and notify provider (83694 or 81390) that dose given

- Feed per cues
- Continue to monitor POC per protocol
- Continue to monitor for symptoms of hypoglycemia

**POC glucose <35 after 1st gel**
- Notify provider (83694 or 81390)
- Repeat glucose gel, 2nd dose
- Breastfeed and give EMM (give formula if no EMM)
- TRANSFER TO PCN/NICU

- Notify provider (83694 or 81390)
- Repeat glucose gel, 2nd dose
- Breastfeed and give EMM (give formula if breast milk is contraindicated)
- Send central glucose STAT. Call NICU charge (89769) for blood draw assist, if needed.
- Consider transfer to PCN/NICU

**POC glucose ≥45 mg/dL after 1st gel**
- Feed per cues
- Continue to monitor POC per protocol
- Continue to monitor for symptoms of hypoglycemia

**POC glucose <35 after 2nd gel**
- Notify provider (83694 or 81390)
- Repeat glucose gel, 3rd dose
- Give EMM (give formula if no EMM)
- TRANSFER TO PCN/NICU

Please see Reverse Side for Management for Infants 0-4 hours
How to Administer Glucose Gel

Available in 6EL, 6S, and 5S Pyxis machines: 37.5 gram tube of Glucose 40% Oral Gel (“GLUTOSE 15”). Remove tube on OVERRIDE under infant’s name. Use one tube to provide multiple doses for a single infant. Discard after 24 hours.

Dose: 0.5 ml/kg (round infant’s weight UP to the nearest 0.5 kg when calculating dose)
Indication: POC glucose < 40mg/dL as directed by newborn hypoglycemia protocol
Onset: 5 min (Peak: 30 min) Glucose gel is absorbed directly into the buccal mucosa, quickly entering the circulation

***Disregard dosing instructions on GLUTOSE15 tube. The instructions are for adult use.***

<table>
<thead>
<tr>
<th>Infant’s birth weight, kg*</th>
<th>Dose of 40% glucose gel = 0.5 ml/kg</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>1 ml</td>
</tr>
<tr>
<td>2.5</td>
<td>1.25 ml</td>
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<td>2.25 ml</td>
</tr>
<tr>
<td>5</td>
<td>2.5 ml</td>
</tr>
</tbody>
</table>

*Round infant’s birth weight UP to nearest 0.5kg.

How to draw up dose of glucose gel from GLUTOSE15 tube:

1. Obtain gloves and a 6ml oral syringe. Remove orange top from syringe and place aside for later use.
2. Twist off the top of the GLUTOSE15 tube.
3. Remove plunger from syringe and place on clean surface. Squeeze gel directly into syringe barrel to appropriate dose.
   (Alternative method: Do not remove plunger from syringe. Squeeze a small amount of gel into a clean medicine cup and draw gel up into syringe.)
4. Push out large air bubbles. Small bubbles are to be expected with this viscous solution.
5. Dry the infant’s buccal mucosa (inner cheeks) with 2x2 gauze.
6. Apply ¼ of the dose of gel onto your gloved fingertip and massage into the right buccal cavity.
7. Repeat Step 6 for the left buccal cavity and then the right and left buccal cavities again, until all gel is administered.
8. Gently massage the infant’s cheeks to stimulate absorption.
9. Recap glucose gel tube with orange syringe cap and label tube of gel with infant sticker and the date and time that the gel was opened. Keep at room temperature. May reuse on same infant for up to 24 hours. After 24 hours, discard tube.

Last updated May 2017