HURON PERTH HEALTHCARE ALLIANCE

MEDICAL DIRECTIVE

Medical Directive	Screening and Immediate Management of Newborn Hypoglycemia
Directive #	MD-MATC-003
Approval	Medical Advisory Committee
Date	
Signature	
Review/Revision Date	O - Sep/19; R - Sep/20
Specific to	HPHA Maternal Child Department

Description of Procedure:

Order and obtain Point of Care Testing – glucose (POCT–GLU) lab sampling, venous sampling when capillary blood glucose is 2.9 mmol/L or less AND initiate 40% dextrose gel, on demand breast feed (or formula if ordered as primary method of feeding) and/or feeding expressed breastmilk, donor breastmilk or formula as a supplemental volume, as per Hypoglycemia algorithm (Appendix A).

Authorized to:

Nurses employed at the HPHA in the Maternal Child Department who have successfully completed an educational component specific to this medical directive and are an authorized and compliant operator of the point of care analyzer (i.e. Glucometer).

Specific Patient Conditions:

- Newborns (postnatal age less than or equal to 72 hours) admitted to the Labour & Delivery and/or Post-partum unit.
- Small for Gestational Age (SGA) – birth weight less than the 10th percentile.
- Intra-uterine Growth Restriction (IUGR)
- Large for Gestational Age (LGA) – birth weight greater than the 90th percentile.
- Preterm Infant – infants born at less than 37 weeks gestation.
  NOTE: infants born at less than 35 weeks 0 days gestation should not receive 40% dextrose gel to treat newborn hypoglycemia.
- Exposure to antenatal steroids within 7 days prior to birth

- Maternal history of diabetes – Gestational or Pre-existing controlled by diet or insulin
- Maternal Labetolol exposure during pregnancy
- Hypothermia not responding to interventions
- History of current/recent maternal narcotic substance use (i.e. Opioids, Methadone, Cocaine, Methamphetamines)
- Newborn displaying signs and symptoms associated with hypoglycemia
    - Jitteriness or tremors
    - Tachycardia
    - Cyanosis, Apnea, Tachypnea
    - Convulsions, Staring, Seizures
    - Weak or high-pitched cry,
    - Limpness or lethargy, hypotonia
    - Difficulty feeding
    - Eye rolling
    - Temperature instability

Contraindications

- Newborns born less than 35 weeks 0 days gestational age should not receive 40% dextrose gel to treat newborn hypoglycemia. For these infants, supplemental feeding to treat hypoglycemia will be the treatment path for the nurse to follow.
- Newborns admitted to the Special Care Nursery (SCN)
- Lack of Substitute Decision Maker (SDM) consent with notation documented in the patient's electronic health record.

NOTE: An order is required for formula supplementation.

Reasons to seek immediate medical consultation or discontinue procedure/ treatment/intervention:

- Deterioration of the newborn's condition or vital signs.
- Newborns with serum glucose level less than 1.8 mmol/L 30 minutes after administering 1st dose of 40% dextrose gel and/or feeding as per algorithm (Appendix A)
- Insulin Diabetes Mellitus (IDM), LGA infants, infants with intrauterine exposure to Labetolol and/or antenatal steroids with glucose level less than 2.6 mmol/L at 12 hours of age or later
- Preterm, SGA and IUGR infants with glucose level less than 2.6 mmol/L at 24 hours of age
- When implementing the directive delays life-saving treatment
- Where transfer to a higher level of care is required (i.e. SCN)

PROCEDURE

Point of Care Testing and Lab Results:

- **For any newborn meeting criteria noted above:**
    - Obtain STAT POCT–GLU and follow Algorithm for the Screening and Immediate Management of Babies at Risk for Hypoglycemia - HPHA (Appendix A)

- **For POCT-GLU test results 2.9 mmol/L or less:**

  Immediately initiate collection of a blood specimen. Wipe away the existing drop of blood using a sterile gauze and proceed to collect 600 microlitres (µL) of blood into a mint top microtainer (LiHep PST, PEDGRN-PST). After collection, secure lid and gently mix. Label the specimen with the patient's Meditech lab label.

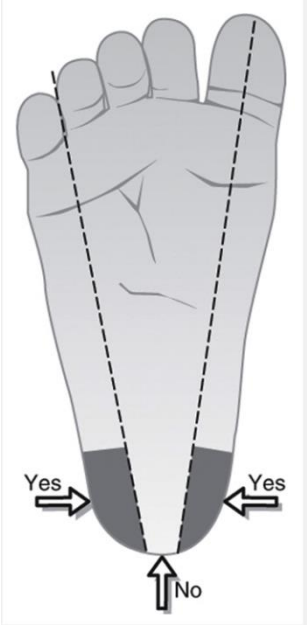
  - Send to Lab as a STAT order, call ext 2525 to notify the Core Lab.
  - When glucometer flags the results as critical requiring a comment code, this Medical Directive is considered a Physician Deferral.

Note: Serum results are considered to be the validated result used for clinical decision making.

Note: For patient comfort and to meet best practice in this patient population only, 1 heel prick should yield one POCT-GLU test and one 600 µL microtainer (PEDGRN-PST, mint green microtainer) collection as required. Do not perform a second heel puncture unless you are unable to complete collection from the first puncture site.

Note: Maintain thermal regulation by encouraging skin-to-skin contact to promote glucose homeostasis.

Note: Avoid previous puncture sites when obtaining POCT-GLU.



Recommended sites for heel stick. (From Verger, J.T., Lebet, R.M. [Eds.]. [2008]. *AACN procedure manual for pediatric acute and critical care.* St. Louis: Saunders.)

POCT-GLU supplies

- (1) Swab with 2% Chlorhexidine/70% alcohol
- (1) Heel Incision Device (Lancet), newborn 1.0mm depth
- (2) Gauze, sterile 2x2
- (1) Reagent Strips
- (1) LiHep PST Micro-container for blood collection (mint green lid)

Supplemental Feeding to Treat Hypoglycemia:

Primary feeding of the infant is determined at, or before, birth by the infant's substitute decision maker (SDM) (i.e. the infant's mother). **Note:** A physician order is required for the use of formula and or Donor Breast Milk (DBM) as a primary feeding method.

When the mother is unable to provide the desired amount of expressed breastmilk for a supplemental feed, this medical directive allows the nurse to administer DBM or Formula as a

substitute to treat hypoglycemia as per the Algorithm for the Screening and Immediate Management of Babies at Risk for Hypoglycemia - HPHA. (Appendix A)

When supplemental feeds are required to treat hypoglycemia in the newborn, mother's own breastmilk is preferred. However, in order of preference, DBM or Formula may be used for supplementation when breastfeeding is not the primary feeding method or when the mother is unable to provide an adequate amount.

- **When the infant's primary feeding method is breastfeeding:** if the infant requires a measured supplemental feeding to treat hypoglycemia, the mother will attempt to pump the required amount, which will be fed to the infant with the most appropriate vessel.
- **When the mother is unable to provide an adequate amount of breastmilk for supplementation:** Donor Breast Milk may be given to the infant as a supplemental amount if available. Please refer to the Donor Breast Milk Policy for dispensing and administering DBM to treat hypoglycemia.
    - If DBM is unavailable, Formula may be used for the supplemental feeding
- **When the infant's feeding method is Formula:** supplemental feeds will be administered using formula

Documentation:

- Implementation of the Medical Directive including name and number of the directive, name, signature and credentials of the implementer and name of the attending physician in the order section of the newborn's chart.
- Document a focus note for any:
    - Newborn assessment that is not within defined limits
    - Symptomatic newborn
    - "At-risk newborn" requiring nursing intervention, lactation consultant consultation or MRP
    - Notification
- Document effectiveness of all newborn feeds at a minimum of q 3 hrs for the first 24 hrs. Include:
    - intake and output

Communication

- Verbally report implementation of this medical directive to inter-professional team members including primary nurse and primary care provider at each **Transfer of Accountability** encounter

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Quality Assurance

- The Medical Program Director, Maternal Child will approve the education component of the Medical Directive.
- The Maternal Child RN/RPN will have completed an educational component specific to this medical directive to be eligible to implement the directive.
- The Medical Program Director, Laboratory, will approve all aspects of the Point-of-Care Testing Program.
- Annual recertification for POCT-GLU (Whole Blood Glucose Point of Care Testing) is required to retain authorization to operate glucometer.

- An annual review will be conducted at the discretion of the HPHA Maternal Child Care Team to review the appropriateness of the Medical Directive.

Originator	HPHA Educators
Current Review/Revision	
Responsibility	HPHA Maternal Child Care Team
Distribution	HPHA Maternal Child Care Team, HPHA POCT Coordinator

Reference(s):

Aziz, K., Dancey, P., Canadian Paediatric Society & Fetus and Newborn Committee (CPS, 2004 reaffirmed 2018). Position Statement: Screening guidelines for newborns at risk for low blood glucose. Paediatrics & Child Health, retrieved from https://www.cps.ca/en/documents/position/newborns-low-blood-glucose

Narvey, M., Marks, S., Canadian Paediatric Society, Fetus and Newborn Committee (2019). Position Statement: The Screening and management of newborns at risk for low blood glucose. Paediatric Child Health 2019 24(8): 536-544.

Sifianou, P., Thanou, V., Karga, H. (2015). Metabolic and hormonal effects of antenatal betamethasone after 35 weeks of gestation. *Journal of Pediatric Pharmacology and Therapeutics. 20(2):138-143.*

IHLP Related Documents

OPOCT/0007 – Heel Stick Procedure (Infants and Neonates)
OPOCT/0012 – Patient Testing – Whole Blood Glucose
OPOCT/0029 - Whole Blood Glucose – Quick Reference Sheet

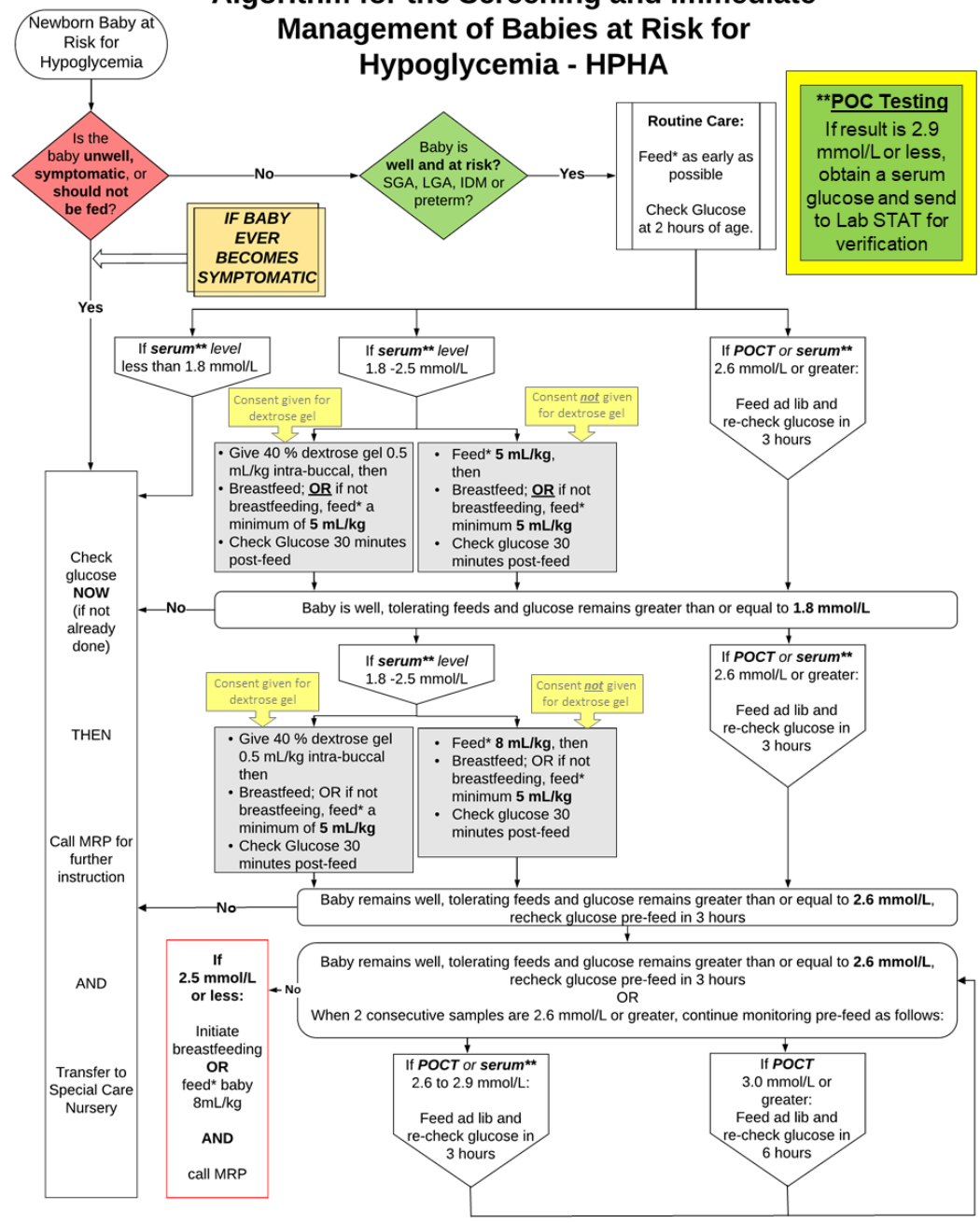
HPHA Related Documents

HPHA Donor Breast Milk Policy

E-Learning: Glucose Meter https://elearn.hpha.ca/course/view.php?id=61

E-Learning: Medical Directive - The Screening and Immediate Management of Newborn Hypoglycemia

Algorithm for the Screening and Immediate Management of Babies at Risk for Hypoglycemia - HPHA



Maximum of TWO doses of dextrose gel to be given.
If a third dose is required, call MRP and transfer to SCN.

40% Glucose Gel Calculation (prefer Insta-glucose)
0.5 mL/kg X _____ kg = _____ mL

Infant must have at least **TWO** consecutive glucose levels 2.6 mmol/L or greater without intervention (Dextrose or Supplemental Feed) before discontinuing surveillance.
❖Contact MRP if surveillance goes beyond recommended duration.

***Fluids for supplemental feeds in order of preference:**
1. EBM,
2. Donor Milk*
3. Formula

** if available*

Duration of Surveillance:
❖Well LGA infants or infants born to diabetic mothers = 12 hrs
❖Well premature, SGA or IUGR infants = 24 hrs
❖Maternal Beta-blocker (Labetalol) and/or Betamethasone exposure during pregnancy = 12 hrs

Adapted from the Canadian Paediatric Society's Position Statement: The Screening and Management of Newborns at risk for Low Blood Glucose (2019)
Revised September 15, 2020