

Treatment of Neonatal Hypoglycemia

Dextrose Gel

Why do we screen?

- Neonatal hypoglycemia is the most common metabolic disorder of infancy
- Transient asymptomatic hypoglycemia of the newborn is common as infants transition from their mother's energy stores, including glucose, to their own
- Blood glucose monitoring, or screening, helps to identify abnormal glucose levels

Newman & Bunch, 2017

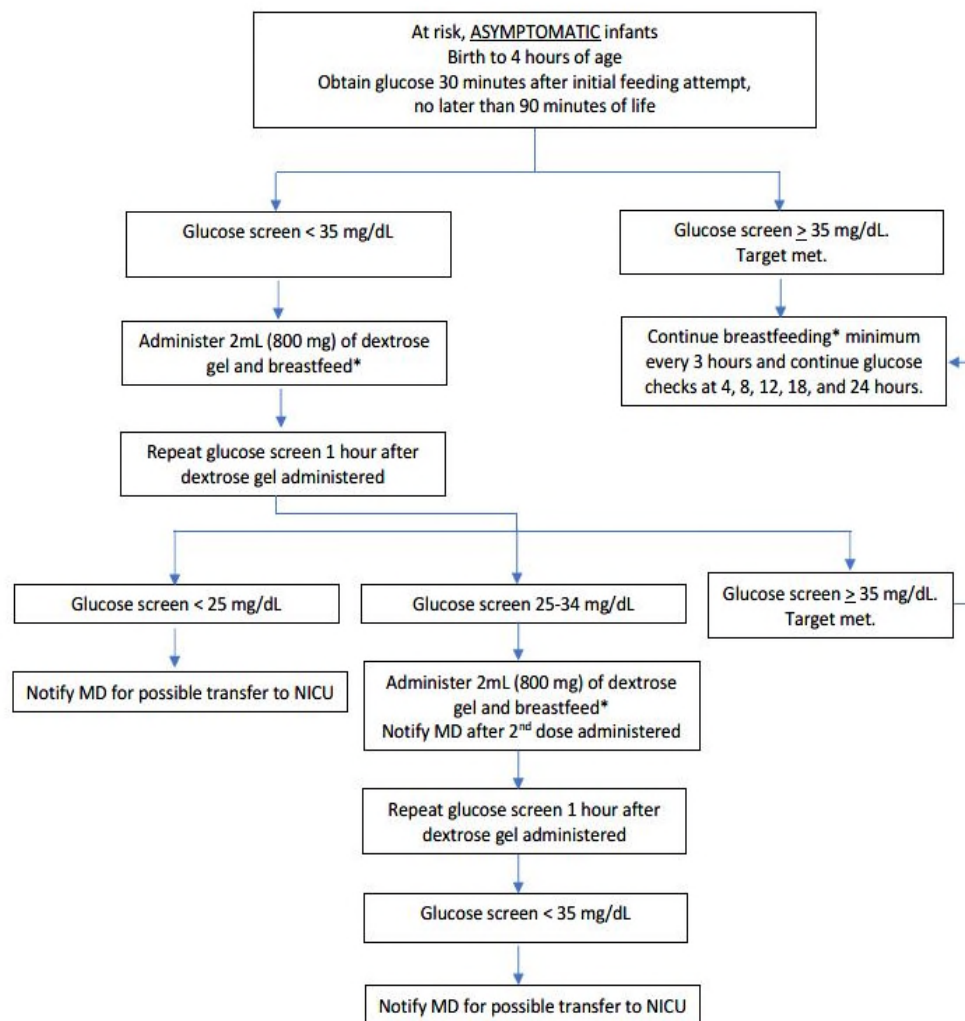
What causes hypoglycemia in the newborn?

- Upon delivery of the infant, the umbilical cord is cut and delivery of maternal glucose abruptly ends
- Some infants are more at risk for hypoglycemia due to the following reasons:
 - Inadequate glycogen stores (late preterm infants or small for gestational age)
 - Increased neonatal insulin levels (large for gestational age or infants of diabetic mothers)
 - Increased glycogen use (prolonged resuscitation or cold stress)

Who do we screen?

- Late preterm infants less than 37 weeks gestation (LPI)
- Infants with a birth weight greater than or equal to 4000 grams (LGA)
- Infants with a birth weight less than or equal to 2500 grams (SGA)
- Infants of diabetic mothers (IDM)
 - including gestation and pre-gestational mother
- Infants identified at the discretion of the provider

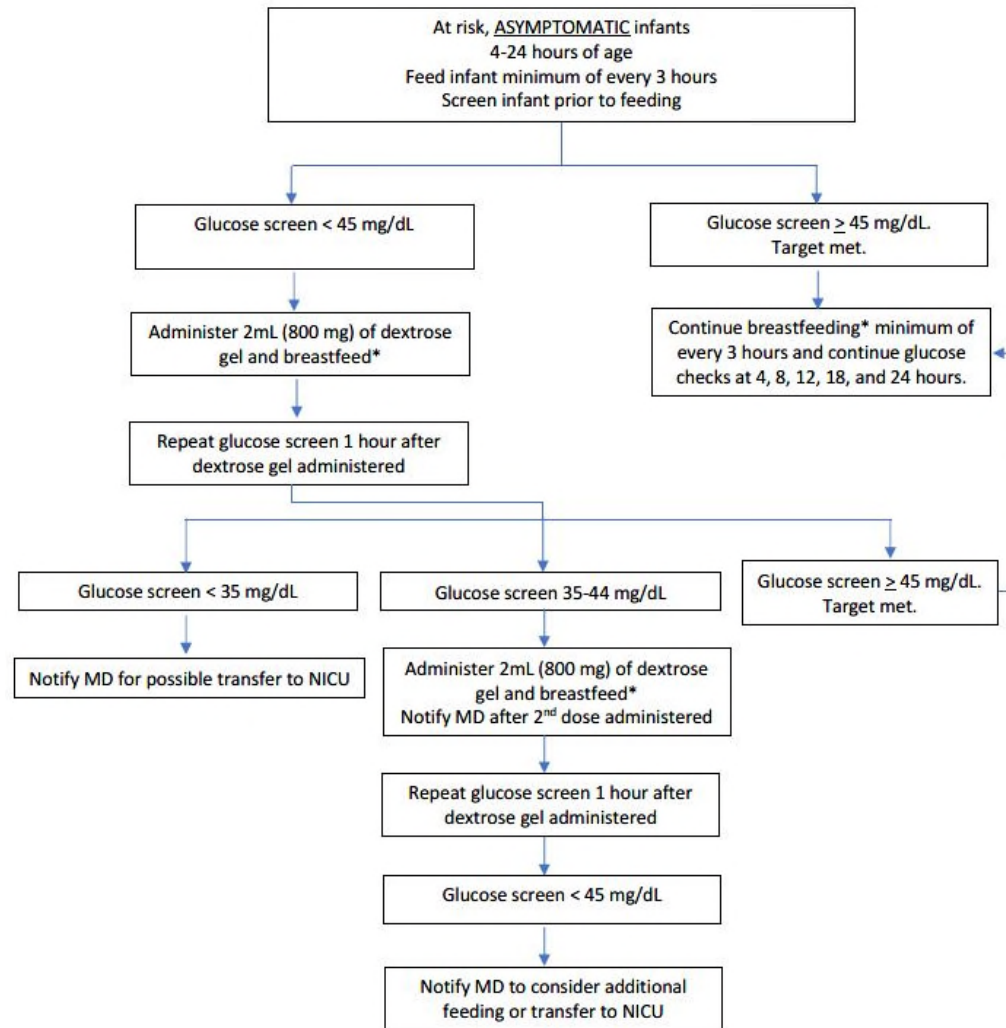
Hypoglycemia Screening Guidelines for Asymptomatic at Risk Newborns: Birth to 4 hours



* May use formula if mother is unavailable or if feeding preference is exclusively formula feeding.

** May administer up to 3 doses of dextrose gel in 24 hours. Notify provider after 2 doses given.

Hypoglycemia Screening Guidelines for Asymptomatic at Risk Newborns: 4-24 hours



* May use formula if mother is unavailable or if feeding preference is exclusive formula feeding.

** May administer up to 3 doses of dextrose gel in 24 hours. Notify provider after 2 doses given.

Hypoglycemia Screening Guidelines for Asymptomatic at Risk Newborns



0 – 4 hours of life
Maintain glucose \geq 35
mg/dL



4 – 24 hours of life
Maintain glucose \geq 45
mg/dL

Contact Provider for symptoms of hypoglycemia regardless of POCT level.

Reminder: Symptoms of Hypoglycemia

Include, but not limited to:

- Irritability
- Tremors
- Jitteriness
- Exaggerated Moro reflex
- High pitched cry
- Lethargy
- Floppiness, poor tone
- Poor feeding

Rare, but require immediate intervention:

- Apnea
- Cyanosis
- Seizures



When do we screen?

- Infants that are able, should feed within the first hour of life
- Skin to skin contact has been proven effective at promoting glucose stabilization. Infants should remain skin to skin during the first hour of life if stable
- Initial screening should not occur prior to 30 minutes of life and optimally after the first feeding
- Initial screening must be occur by 90 minutes of life

When do we intervene?

- Additional screens should occur prior to feeding every 3 hours
- If treatment for hypoglycemia is required, rescreening should occur 1 hour after treatment with Dextrose gel
- May administer up to three doses of Dextrose gel in 24 hours.
- Notify MD after 2nd dose administered.

How do we treat?

40% dextrose gel

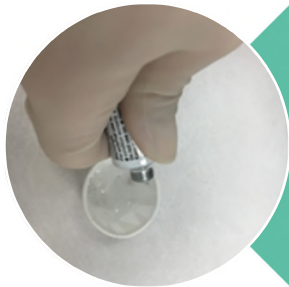
- Use of 40% dextrose gel to treat neonatal hypoglycemia began in the 1990s
- Benefits of dextrose gel:
 - Inexpensive
 - Non-invasive
 - Massage directly to the buccal mucosa (inner cheek) for rapid correction
 - Absorption rate is equal to IV dextrose
 - Promote continued breast feeding and maternal bonding by avoiding formula supplementation

Academy of Breastfeeding Medicine

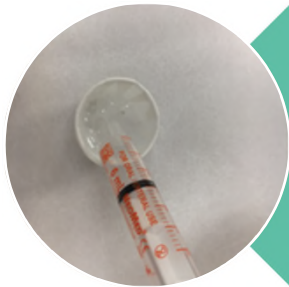
2017 Statement

“40% dextrose gel applied to the side of the infant’s cheek is effective in increasing blood glucose levels in asymptomatic hypoglycemia unresponsive to frequent breastfeeding, and improves the rate of exclusive breastfeeding after discharge with no evidence of adverse effects.”

How to administer 40% dextrose gel



Squeeze 40% dextrose gel from tube into clean medicine cup

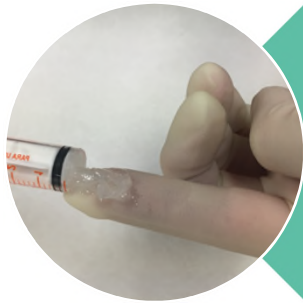


Draw up/pour 2 mL (800 g) of 40% dextrose gel into oral syringe



Dry the buccal mucosa (inner cheek) using a 2x2 gauze

How to administer 40% dextrose gel



Place a portion of dextrose gel onto a gloved finger



Massage 1 ml of dextrose gel onto each buccal mucosa (inner cheek)

NOTE: Infants should not “drink” this medication

Documentation of Critical Notification and 40% dextrose gel Administration - REQUIRED

Phototherapy Nursery Point of Care Tests Blood Product Adminis... CRITICAL NOTIFICATION TRANSPC CRITICAL NOTIFICATI

Jump To Hide All Show All

- LAB
- PATIENT CONDI...
- MEDICATION
- RADIOLOGY
- OTHER FINDINGS

Accordian Expanded View All

1m 5m 10m 15m 30m 1h 2h 4h 8h 24h Based On: 0700 Reset Now

Admission (Curr... 4/2/19 1300

LAB	Critical Lab	Lab Test
	YES	GLUCOSE POCT
Other Lab Test (Name)		
Result / Primary Findings		
Notified by (Last Name, First Initial)		
Notified (Time)		
Verified with Readback		
Provider Notified (Last Name, First Initial)		
Provider Notified (Time)		

04/02/19 1300

Lab Test

GLUCOSE POCT

Select Multiple Options: (F5)

- FIBRINOGEN
- GENTAMICIN
- GLUCOSE
- GLUCOSE GTT3 (3 HR GTT)
- GLUCOSE POCT
- GLUCP
- HEMATOCRIT
- HEMOGLOBIN
- HEPARIN (ANTI-XA)
- HEPARIN LMWH
- HEPARIN UFH
- INR

Dextrose 40 % Oral Gel 0.8 g (GLUTOSE) : Ordered Dose 800 mg : Admin Dose 0.8 g : Oral : AS NEEDED : per Glucose POCT Rx

orders :

Admin Instructions:

Squeeze dextrose gel into clean medicine cup. Withdraw 800 MG (2 mL) into oral syringe. Dry the buccal mucosa (inner cheek) with 2x2 gauze. Place a portion of the dextrose gel onto a gloved finger. Massage the gel into the buccal mucosa, alternating sides until the complete dose is administered.

NOTE:
 Infants should not "drink" this medication
 May administer up to three doses of dextrose gel in 24 hours.
 Notify physician after second dextrose gel administration.

Ordered Admin Amount: 2 mL = 0.8 g of 0.4 g/mL

Dispense Location: FMC 1ST FL IP RX MAIN

References

- Clinical Practice Guideline Panel. Oral dextrose gel to treat neonatal hypoglycaemia: New Zealand clinical practice guidelines 2015. (Accessed January 25, 2018). https://www.fmhs.auckland.ac.nz/assets/fmhs/som/paed/docs/Oral_dextrose%20gel_%20guideline2.pdf.
- Harris D, Weston P, Signal M, Chase J, Harding J. (2013). Dextrose gel for neonatal hypoglycemia (the Sugar Babies Study): a randomised, doubleblind, placebo-controlled trial. *Lancet*. 382:2077-2083.
- Lippincott Procedures. Blood glucose monitoring, neonate. Last reviewed May 12, 2017. <http://procedures.lww.com/lmp/view.do?pld=1824775>
- Newnam, K., & Bunch, M. (2017). Glucose gel as treatment strategy for transient neonatal hypoglycemia. *Advances in Neonatal Care*, 17 (6), 470-77.
- Scheans, P., Bennett, C., Harris, D. (2017). Using dextrose (glucose) gel to reverse neonatal hypoglycemia. *Neonatal Network*, 36 (4), 233-238.

Case Scenario

Newborn female infant delivered to a 25 year old G3 P2 mother at 36 weeks gestation by normal spontaneous vaginal delivery. Pertinent maternal history include gestational diabetes. Apgar scores were 8 and 9 at one and five minutes respectively. Growth parameters were within normal range.

Infant was placed skin to skin immediately after birth and breastfed within the first 20 minutes of life.

Knowledge Check #1

When does the initial blood glucose need to be obtained?

- A. 30 minutes after initial feeding
- B. 60 minutes after initial feeding
- C. 90 minutes after initial feeding
- D. None-infant must have fed for a continuous 10 minute period

Knowledge Check #1

When does the initial blood glucose need to be obtained?

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- B. 60 minutes after initial feeding
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Case Scenario Continued

Knowledge Check #2

Initial blood glucose was 28 mg/dL. The infant was administered 2 ml (800 mg) of dextrose gel and breastfed.

When is the next glucose check after the initial dextrose gel administration?

- A. 30 minutes
- B. 60 minutes
- C. 45 minutes
- D. 90 minutes

Knowledge Check #2

When is the next glucose check after the initial dextrose gel administration?

- A. 30 minutes
- B. 60 minutes
- C. 45 minutes
- D. 90 minutes

Case Scenario Continued

Knowledge Check #3

Infant's blood glucose level was assessed an hour later and was 31 mg/dL.

What is the next step?

- A. Notify MD for possible transfer to NICU
- B. Nothing-Glucose Target met.
- C. Administer 2 ml(800 mg) of dextrose gel and breastfeed.

Knowledge Check #3

What is the next step?

- A. Notify MD for possible transfer to NICU
- B. Nothing-Glucose Target met
- C. Administer 2 ml (800 mg) of dextrose gel and breastfeed

Case Scenario

Knowledge Check #4

After administering the second dose of dextrose gel; what actions must the nurse perform?

- A. Repeat glucose screen immediately
- B. Inform MD that second dose of dextrose gel was administered
- C. Notify MD for possible transfer to NICU

Knowledge Check #4

After administering the second dose of dextrose gel; what actions must you perform?

- A. Repeat glucose screen immediately
- B. Inform MD that second dose of dextrose gel was administered
- C. Notify MD for possible transfer to NICU

Case Scenario Continued

Knowledge Check #5

Repeat glucose screen an hour after dextrose gel administration was 48 mg/dL. Infant continues to breastfeed and glucose checks (conducted every 3 hours) met target of 45 mg/dL. Mom observes that infant is more lethargic, irritable and the last feedings have been poor. The nurse notices slight jitteriness and conducts a glucose check with a result of 47 mg/dL.

What are the next steps for the nurse?

- A. Nothing; the glucose check hits target
- B. Contact MD to report symptoms
- C. Reassure mom her observations are “normal” newborn behaviors

Knowledge Check #5

What are the next steps for the nurse?

- A. Nothing; the glucose check hits target
- B. Contact MD to report symptoms
- C. Reassure mom her observations are “normal” newborn behaviors.

Congratulations!
You have successfully completed the
Treatment of Neonatal Hypoglycemia
Dextrose Gel
module