Newborn Nursery ≥ 36 weeks Hypoglycemia Algorithm for the first 24 hours after delivery

Symptomatic Infant

Any Age in Hours

1. Draw a Serum / Lab Glucose
2. If serum / lab glucose < 40 mg/dl:
1. Call Neonatology (662-0069) to assess infant and deteremine treatment plan.
2. Call PCP after serum / lab glucose result

Symptoms suggestive of hypoglycemia as follows:
Jitteriness, tachypnea, hypotonia, poor feeding, apnea, temperature instability, lethargy, & Seizures*

**Neonatal seizures are often subclinical. Infants with seizures may only appear intermittently lethargic and not feed well. Clinical seizures in newborns are typically characterized by rhythmic jerking of an extremity that may also be associated with eye deviation and oxygen desaturation. Neonatal seizures do not typically appear as a tonic-clonic seizure*

Asymptomatic Infant

Birth to 4 hours of Age

1. Promote early skin-to-skin contact with mother
2. Initiate breast feeding/colostrum feeds within 30-60 min of age **
3. Initial glucose ck ~30min after 1st feed and no later than 90 mins of age

If Initial Serum / Lab Glucose Screen by 90 mins of Age is:

- **≤ 25 mg/dl**
- **26-39 mg/dl** → **Feed infant****
- **≥ 40 mg/dl**

Check serum / lab glucose in 30-60 minutes if infant asymptomatic (*if baby becomes symptomatic, see left panel for management)*

≤ 25 mg/dl
1. **Give Glucose Gel *****
Feed infant**
2. Call Neonatology (662-0069); alert PCP
3. Repeat serum / lab glucose 30 min

26-39 mg/dl
1. **Give Glucose Gel *****,
Feed infant **
2. Contact PCP
3. Check serum / lab glucose 30-60 min after gel

≥ 40 mg/dl
1. Feed q2-3 hrs
2. Re-check serum / lab glucose q3hrs

4-24 hours of Age

1. Continue breastmilk feeding/colostrum feeds q2-3hrs or feed per parental choice (3-10 ml/kg) **
2. Target Glucose Levels should be ≥ 45 mg/dl - Consult NICU if unable to maintain or for recurrent hypoglycemia

Check Serum / Lab Glucose every 3 hours, if results:

≤ 35 mg/dl
1. **Give Glucose Gel *****
Feed infant **
2. Call Neonatology (662-0069); alert PCP
3. Repeat serum / lab glucose 30 min

36-44 mg/dl
1. **Give Glucose Gel *****
2. **Feed Infant ****
3. Contact PCP
4. Check serum / lab glucose 30-60 min after gel

≥ 45 mg/dl
1. **Feed Infant**
** q2-3 hours
2. Check serum / lab glucose q3hrs

≤ 44 mg/dl
1. **Give Glucose Gel *****
Feed infant **
2. Call Neonatology (662-0069); alert PCP
3. Repeat serum / lab glucose 30 min

Infants that present with hypoglycemia AFTER 12 hours of age, strongly consider other causes (sepsis, inborn errors of metabolism, or endocrine problems).

Length of Glucose Screening is Risk Dependent
1. < 37 wks GA, term SGA infants, and infants < 2.5 kg should have glucose levels monitored at least 24 hrs
2. All other at risk infants should have glucose levels monitored at least 12 hrs.

IV GLUCOSE* INFO:
1. D10W- 2 ml/kg over 1-2 min then
2. Maintenance IV D10W (80 ml/kg/day)
3. Repeat blood serum / lab glucose 30 minutes after IV glucose initiated

****Feed Infant:** Hypoglycemia is a medical issue and infants should be given more than what is recommended per the healthy infant feeding guidelines
Breastfeed, latched at breast and actively sucking for 10+ minutes per feeding
Expressed colostrum, feed any droplets available, ideally 1mL-10mL per feeding
Donor milk, 2mL-10mL per feeding in first 24 hours (see policy)

***Glucose Gel: Dextrose 40% gel (200mg/kg) does of 0.5ml/kg massaged into buccal mucosa

Dosing Guidelines	
2 kg	1 ml
2.5 kg	1.25 ml
3kg	1.5 ml
3.5 kg	1.75 ml
4 kg	2 ml
4.5 kg	2.25 ml
5 kg	2.5 ml

MAX GLUCOSE GEL = 2 DOSES TOTAL

➢ 36 weeks Newborn Hypoglycemia General Information* (first 24 hours of life)

Glucose Target Values

Infants 0 and < 4 hours of age, blood glucose levels should be ≥ 40mg/dL
Infants ≥ 4 and < 24 hours of age, blood glucose levels should be ≥ 45 mg/dL
Infants ≥ 24 hours of age, blood glucose levels should be ≥ 50 mg/dL

Screening

Data suggests asymptomatic infants with persistent or recurrent hypoglycemia are at risk for delayed neurodevelopment. Screening high-risk infants combined with appropriate management to meet operational glucose levels is essential in the newborn period.

All High Risk Infants will be screened by 90 minutes of birth:

- **Infants born to insulin dependent diabetic mothers or mothers with gestational diabetes**
- **Infants < 2.5 kg**
- **Infants > 4 kg**
- **LGA infants (>90% ile as plotted on Fenton curve)**
- **SGA infants (< 10% ile as plotted on Fenton curve)**
- **Gestational age < 37 weeks**
- **Discordant twin (weight 10% below larger twin)**
- **Newborns suspected of sepsis or born to mother suspected of having chorioamnionitis**
- **Newborns exposed to any beta-blocker medications**
- **Newborns with symptoms suggestive of hypoglycemia as follows:**
  - ***Jitteriness, tachypnea, hypotonia, poor feeding, apnea, temperature instability, lethargy, Seizures: Neonatal seizures are often subclinical. Infants with seizures may only appear intermittently lethargic and not feed well. Clinical seizures in newborns are typically characterized by rhythmic jerking of an extremity that may also be associated with eye deviation and oxygen desaturation. Neonatal seizures do not typically appear as a tonic-clonic seizure.***

Other indications for screening include the following:

- ***Infants with significant perinatal distress or with five minute APGAR scores < 5***
- ***Infants with mothers on terbutaline or beta-blockers***
- ***Infants with suspected inborn errors of metabolism***
- ***Infants with hepatomegaly, microcephaly, anterior midline defects, gigantism, macroglossia***
- ***Infants with hemihypertrophy or microphallus***

See Algorithm for monitoring and management options

Abnormal glucose values need to be followed by rechecking blood glucose levels after interventions. Remember to follow blood glucose levels anytime there is a change in intervention (i.e. following gel treatment or transitioning from IV glucose and/or supplemental feedings). Infants with a respiratory rate > 60/minute may need nasogastric gavage feedings. Infants that are not responding to your intervention, or those that present with hypoglycemia AFTER 12 hours of age, strongly consider other causes (sepsis, inborn errors of metabolism, or endocrine problems). Consider Neonatology consult to assist with diagnoses.

References

AAP Clinical Report- Postnatal Glucose Hemeostasis in Late-Preterm and Term Infants, Pediatrics, 127 (3), March 2011

Cornblath M. Controversies regarding definition of neonatal hypoglycemia: Suggested operational thresholds. Pediatrics 105:1141-1145 (2000)

Wight, N, et al. ABM Clinical Protocol #1: Guidelines for Monitoring and Treatment of Hypoglycemia in Breastfed Neonates.

Adamkin, D. and COFN. Clinical Report-Postnatal glucose homeostasis in late-preterm and term infants. Pediatrics 127: 575-579 (2011)

Algorithms are not intended to replace providers' clinical judgment or to create a single protocol. Some clinical problems may not be adequately addressed in this guideline. As always, clinicians are urged to document management strategies.

Revised April 2023 by the Newborn Nursery Committee, Family Birth Center, Maine Medical Center. For questions regarding this guideline, contact the Medical Director of the Newborn Nursery

The Barbara Bush Children's Hospital
At Maine Medical Center

Newborn Hypoglycemia
IV Glucose Weaning Algorithm

Criteria for stability
AC glucose ≥ to 50 mg/dL without IV glucose bolus
Without increase in IV glucose infusion
Maintaining thermoregulation, RR<60

Bottle feeding minimum of 10 mls / kg q 3 hrs
and/or breastfeeding with lactation consulting

-Wean IV rate by 25% of original rate q 3-6 hrs
-Maintain and assess feeding q 3 hrs
-Assess criteria for stability and notify physician if not maintaining **

Blood Glucose q 3 hrs ac **while weaning**
Notify Physician if any blood glucose <50**

****Consider Neonatology Consult at any point for difficult to wean babies**

IV glucose Wean

Saline lock IV

Blood Glucose q 3 hrs ac x 2 over minimum 6 consecutive hrs after wean complete

Notify physician of any ac glucose < 50 and or if not maintaining criteria for stability

Follow up glucose

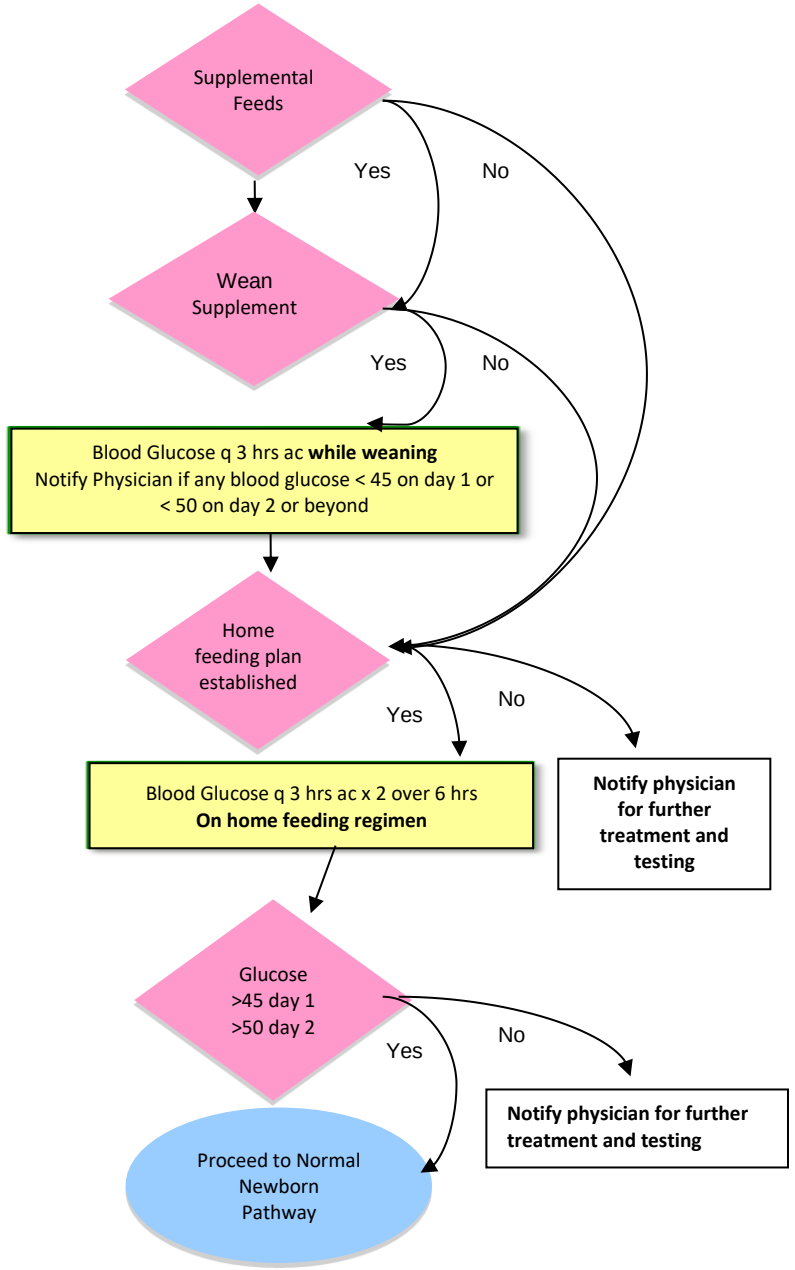
Yes

No

Notify physician for further treatment and testing

Proceed to Neonatal Hypoglycemia Feeding Algorithm

Newborn Hypoglycemia
Feeding Algorithm



This algorithm is intended to be a reference for clinicians caring for Newborns with Neonatal Hypoglycemia and is a part of the Newborn Hypoglycemia Clinical Guideline. Algorithms are not intended to replace providers' clinical judgment or to create a single protocol. Some clinical problems may not be adequately addressed in this guideline. As always, clinicians are urged to document management strategies. (revised April 2023. For questions regarding this guideline, please contact the Medical Director of the Newborn Nursery).