Hot Topics

Neonatal Hypoglycemia

July 17, 2025

A little about me…

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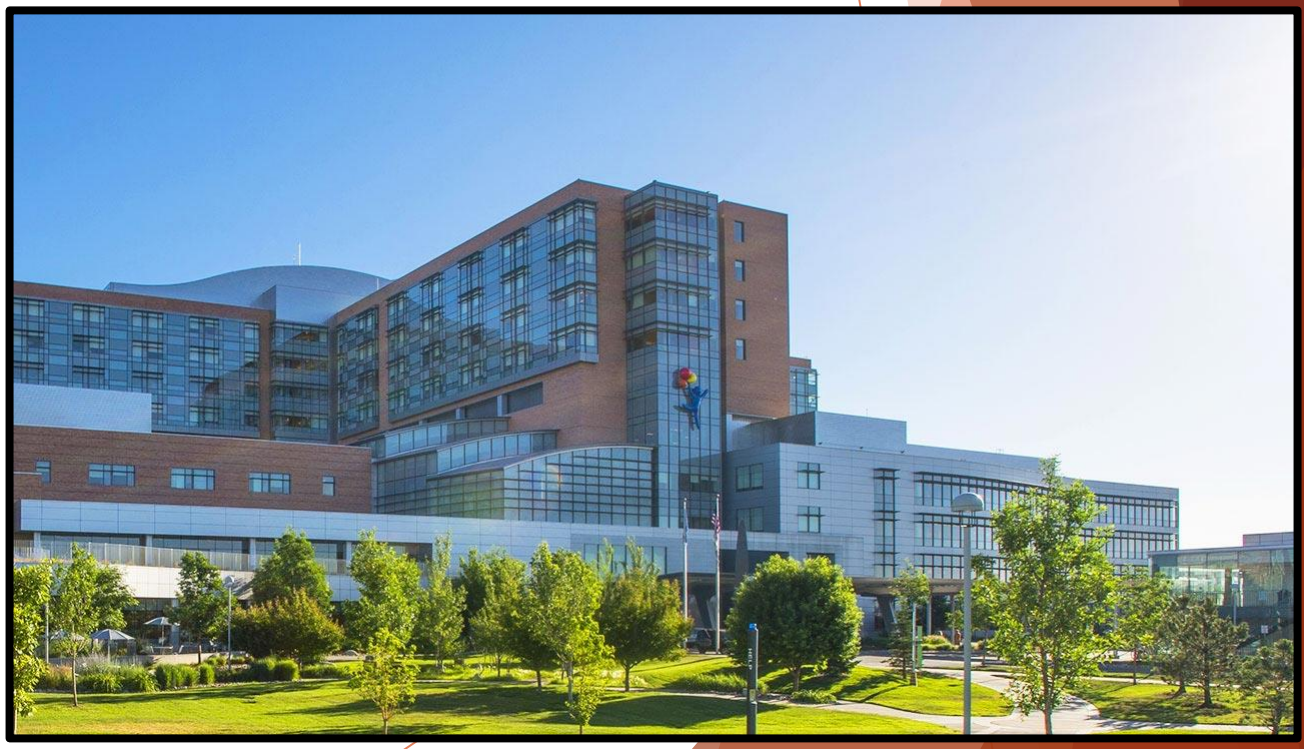
  - Pediatric nurse since 1995
  - Clinical Documentation Specialist since 2013
    - CDI Educator: 2020
    - CDI Manager: 2024
  - Children’s Hospital Colorado
    - 4 hospitals
    - 632 licensed beds
    - 19,448 inpatient admissions



Disclaimer

This forum is intended for discussion purposes only and does not aim to replace or contradict any official Guideline or Coding Clinic advice. Please remember that our clinical backgrounds, experiences, and CDI programs vary. We encourage you to share your knowledge and learn from others.

Questions/comments received about neonatal hypoglycemia

- Neonatal glycemia "at risk for..." and use of glucose gel.
- Our staff and denials team do not capture or query if only one dose of gel and glucose monitoring was done or if the "neonatal hypoglycemia & at Risk for neonatal hypoglycemia" are documented under these circumstances.
- Our Neonatologists state that if they give the gel (even right after birth) this is not neonatal hypoglycemia.
- Denials team sees these on the back end.
- What do others find and/or what is your policy?

Fun Facts about Hypoglycemia in Neonates

- Most common metabolic disturbance occurring in the neonatal period
- American Academy of Pediatrics estimates that up to 25% of newborns are at risk of having hypoglycemia within their first 24-48 hours of life
- After 48 hours of life, blood glucose levels normalize (approx. 70-100 mg/dL)
- **“The definition of clinically significant hypoglycemia remains one of the most controversial issues in contemporary neonatology…normal range of blood glucose levels in the first 48 h of life is yet to be determined.”** Diagnosis and Management of Neonatal Hypoglycemia: A Comprehensive Review of Guidelines – PMC*
- The American Academy of Pediatrics and Pediatric Endocrine Society do not agree on the definition of neonatal hypoglycemia

Fun Facts about Hypoglycemia in Neonates

- **From:** Neonatal Hypoglycemia - StatPearls - NCBI Bookshelf
  - Because “healthy infants experience transient hypoglycemia as a part of the normal adaption to extrauterine life, with a decline in blood glucose concentrations to values as low as 20 to 25 mg/dL in the first two hours of life…do no routinely measure blood glucose concentrations in healthy infants without risk factors for hypoglycemia, it is difficult to define ‘normal’ levels of blood glucose in the first 48 hours of life.”
  - 1988 multicenter study by Lucas et al suggested blood glucose levels of <47 mg/dL as the critical threshold associated with adverse neurodevelopmental outcomes
    - This study was of preterm infants with BW of less than 1850 grams
    - Blood glucose level <47 mg/dL on 5 or greater days had 3-5x increased risk of neurodevelopmental impairment
    - “As a result, this value of '47 mg/dL' became widely accepted as the standard numerical value to define neonatal hypoglycemia for all infants, even healthy, term, appropriate for gestational age infants”

AAP-Glucose Homeostasis in SGA, IDM/LGA Newborns

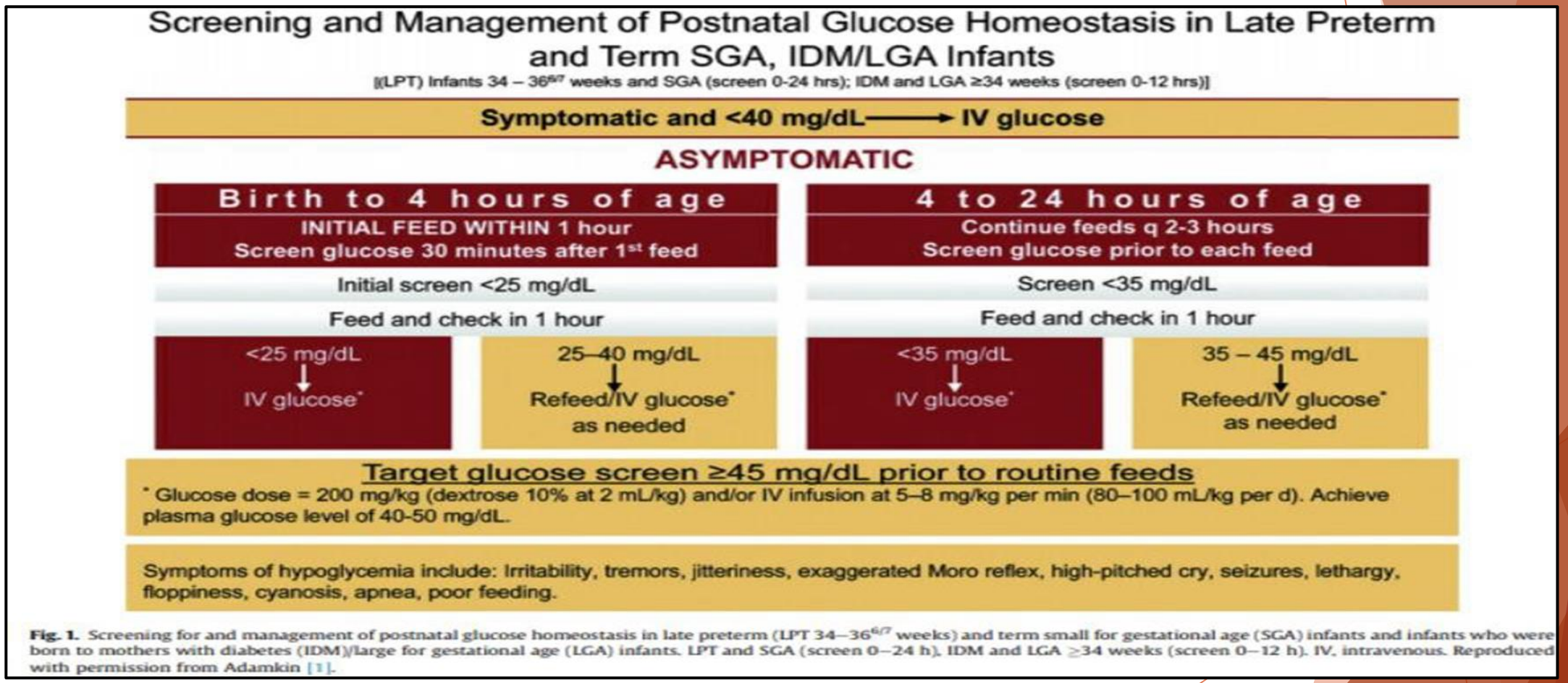
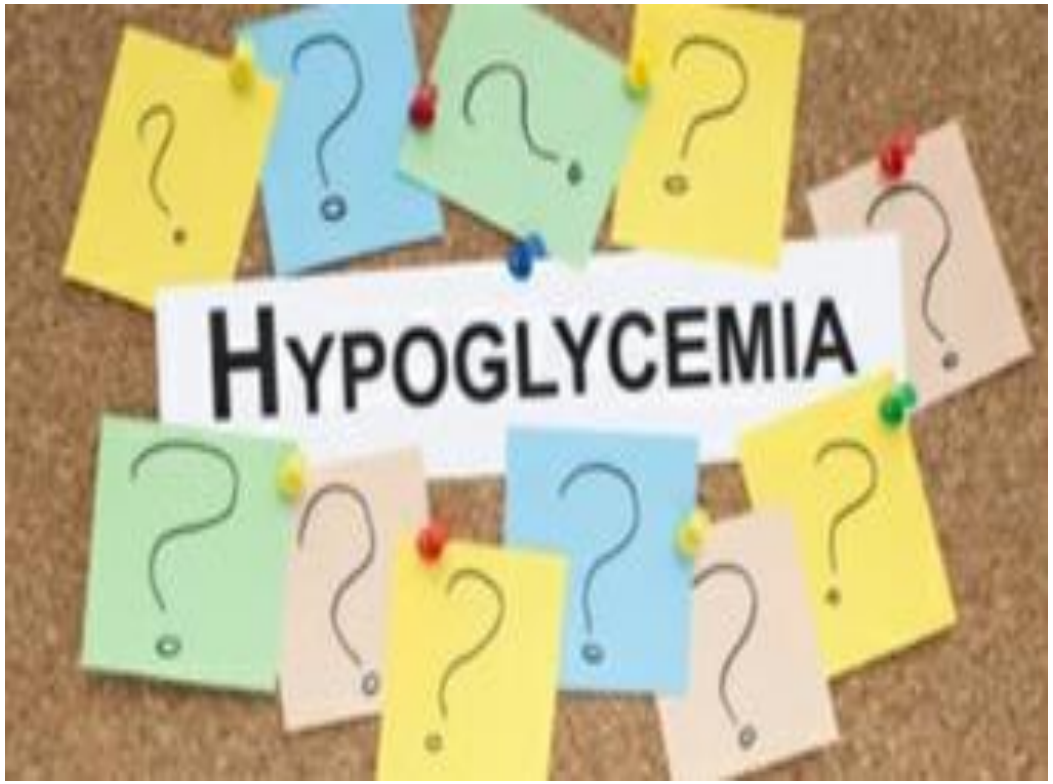


Fig. 1. Screening for and management of postnatal glucose homeostasis in late preterm (LPT 34–36$^{6/7}$ weeks) and term small for gestational age (SGA) infants and infants who were born to mothers with diabetes (IDM)/large for gestational age (LGA) infants. LPT and SGA (screen 0–24 h), IDM and LGA ≥34 weeks (screen 0–12 h). IV, intravenous. Reproduced with permission from Adamkin [1].

Etiology of Neonatal Hypoglycemia

- Due to disruption of nutrients received from the placenta, an expected drop in blood glucose occurs immediately after birth with declines in the first hour of life
- For most healthy infants, this transitional hypoglycemia is brief, transient and most often asymptomatic
- Glycogen stores in liver built up during pregnancy can help with glucose levels; this supply is decreased in infants who are SGA or with IUGR
  - Glycogen stores are depleted typically within the first 8 to 12 hours of life
- Two articles:
  - Diagnosis and Management of Neonatal Hypoglycemia: A Comprehensive Review of Guidelines – PMC
  - Hypoglycemia in Neonates, Infants, and Children - Endotext - NCBI Bookshelf

Signs and Symptoms



- Shakiness/tremors/jitteriness
- Irritability/high pitched cry
- Cyanosis of skin and lips
- Apnea
- Hypothermia
- Poor muscle tone/floppy
- Lack of interest in feeding
- Lethargy
- Seizures

Risk Factors

Symptoms of hypoglycemia

Large for gestational age (even without maternal diabetes)

Perinatal stress:

- birth asphyxia/ischemia; cesarean delivery for fetal distress
- maternal pre-eclampsia/eclampsia or hypertension
- intrauterine growth restriction (small for gestational age)
- meconium aspiration syndrome, polycythemia, hypothermia

Premature (late preterm 34 to 36.5 weeks gestational age) or post-mature delivery

Infant of diabetic mother

Family history of a genetic form of hypoglycemia

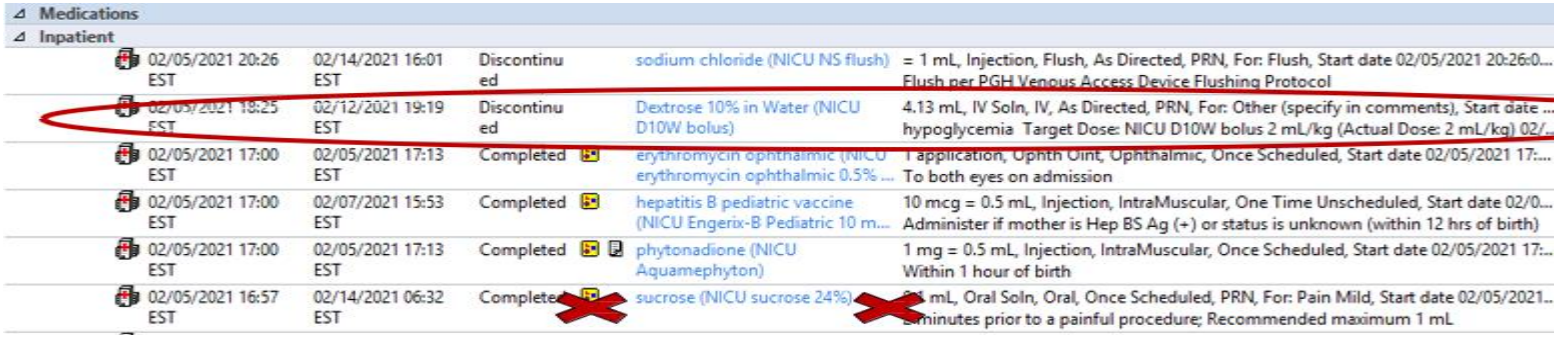
Congenital syndrome (e.g. Beckwith-Wiedemann), abnormal physical features (e.g. midline facial malformations, microphallus)

Treatment of Neonatal Hypoglycemia

- Glucose gel (NOT sucrose)

https://slideplayer.com/slide/16159101/95/images/2/40%25+ORAL+GLUCOSE+GEL+DOSING+CHART+Recommended+dose+%3D+0.5mL/kg.jpg

- Dextrose bolus



Medications

Inpatient

02/05/2021 20:26 EST	02/14/2021 16:01 EST	Discontinued	sodium chloride (NICU NS flush)	= 1 mL, Injection, Flush, As Directed, PRN, For: Flush, Start date 02/05/2021 20:26:0... Flush per PGH Venous Access Device Flushing Protocol
02/05/2021 18:25 EST	02/12/2021 19:19 EST	Discontinued	Dextrose 10% in Water (NICU D10W bolus)	4.13 mL, IV Soln, IV, As Directed, PRN, For: Other (specify in comments), Start date ... hypoglycemia Target Dose: NICU D10W bolus 2 mL/kg (Actual Dose: 2 mL/kg) 02/...
02/05/2021 17:00 EST	02/05/2021 17:13 EST	Completed	erythromycin ophthalmic (NICU erythromycin ophthalmic 0.5% ...	1 application, Ophth Oint, Ophthalmic, Once Scheduled, Start date 02/05/2021 17:... To both eyes on admission
02/05/2021 17:00 EST	02/07/2021 15:53 EST	Completed	hepatitis B pediatric vaccine (NICU Engerix-B Pediatric 10 m...	10 mcg = 0.5 mL, Injection, IntraMuscular, One Time Unscheduled, Start date 02/0... Administer if mother is Hep BS Ag (+) or status is unknown (within 12 hrs of birth)
02/05/2021 17:00 EST	02/05/2021 17:13 EST	Completed	phytonadione (NICU Aquamephyton)	1 mg = 0.5 mL, Injection, IntraMuscular, Once Scheduled, Start date 02/05/2021 17:... Within 1 hour of birth
02/05/2021 16:57 EST	02/14/2021 06:32 EST	Complete	sucrose (NICU sucrose 24%)	mL, Oral Soln, Oral, Once Scheduled, PRN, For: Pain Mild, Start date 02/05/2021... minutes prior to a painful procedure; Recommended maximum 1 mL

- Increase in dextrose concentration in maintenance IV fluids or TPN

Treatment of Neonatal Hypoglycemia

- Protocols outline what actions to be taken based on symptomatic/asymptomatic, risk factors and blood glucose level
- Meets criteria for a secondary diagnosis if condition requires:
  - Clinical evaluation *or*
  - Therapeutic treatment *or*
  - Diagnostic studies *or*
  - An extended length of stay *or*
  - Increased nursing care and/or monitoring *or*
  - Implications for future healthcare needs

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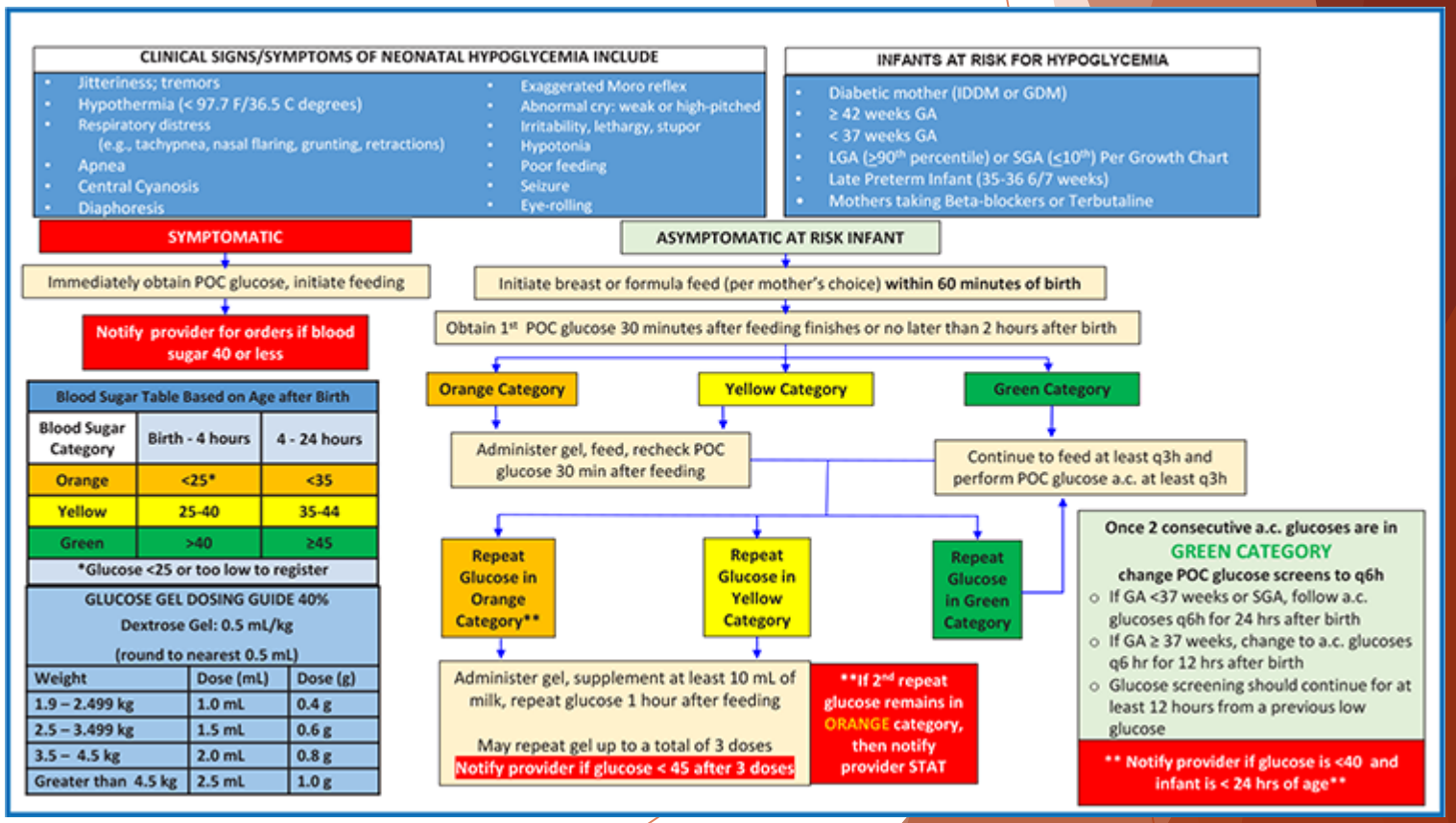


https://floridapediatrician.org/publications/neonatal-hypoglycemia-management/

Coding References- Coding Clinics

- 3rd Q 1991

Infant of a diabetic mother syndrome
ICD-9-CM Coding Clinic, Third Quarter 1991 Page: 5 Effective with discharges: July 1, 1991

Code 775.0: Syndrome of Infant of a Diabetic Mother

When the newborn infant of a diabetic or gestational diabetic mother manifests features of this condition (macrosomia, decrease in blood sugar, etc.), this code should be assigned.

- 1st Q 1994

H. Assign a code for Newborn conditions originating in the perinatal period (categories 760-779), as well as complications arising during the current episode of care classified in other chapters, only if the diagnoses have been documented by the responsible physician at the time of transfer or discharge as having affected the fetus or newborn.

Example 1: The physician documents "transient hypoglycemia" on the newborn's facesheet. Assign code 775.6, Endocrine and metabolic disturbances specific to the fetus and newborn, neonatal hypoglycemia. The note at the beginning of the category states that this range of codes includes "transitory endocrine and metabolic disturbances."

- 1st Q 2004

Newborn of diabetic mother
ICD-9-CM Coding Clinic, First Quarter 2004 Page: 8 Effective with discharges: April 20, 2004
Related Information

Question:

What is the appropriate code assignment for a normal infant born to a diabetic mother who presents with no manifestations of the syndrome?

Answer:

Assign code V30.00, Single liveborn, born in hospital, delivered without mention of cesarean delivery, as the principal diagnosis. Code V18.0, Family history of certain other specific conditions, Diabetes mellitus, should be assigned as an additional diagnosis.

Coding References- Coding Clinics

- 1st Q 2004

Newborn with diabetic mother

ICD-9-CM Coding Clinic, First Quarter 2004 Page: 8 Effective with discharges: April 20, 2004
Related Information

Question:

When coding the record of a newborn whose mother is diabetic, must the baby have multiple symptoms in order for the diagnosis of "infant of a diabetic mother syndrome" to be valid?

Answer:

P700: Syndrome of infant of mother with gestational diabetes
P701: Syndrome of infant of a diabetic mother

No, it is not necessary for the baby to have multiple symptoms. The infant of a diabetic mother may present with one or more symptoms and it would still be appropriate to assign code 775.0, Syndrome of infant of a diabetic mother. As previously stated, infants of diabetic mothers require special surveillance and are at an increased risk for a variety of complications and/or other conditions. These babies are generally larger and may exhibit a number of problems as noted in the previous answer.

- 2nd Q 2005

Infant of diabetic mother

ICD-9-CM Coding Clinic, Second Quarter 2005 Page: 21 Effective with discharges: July 10, 2005

Clarifications

Infant of Diabetic Mother

Question:

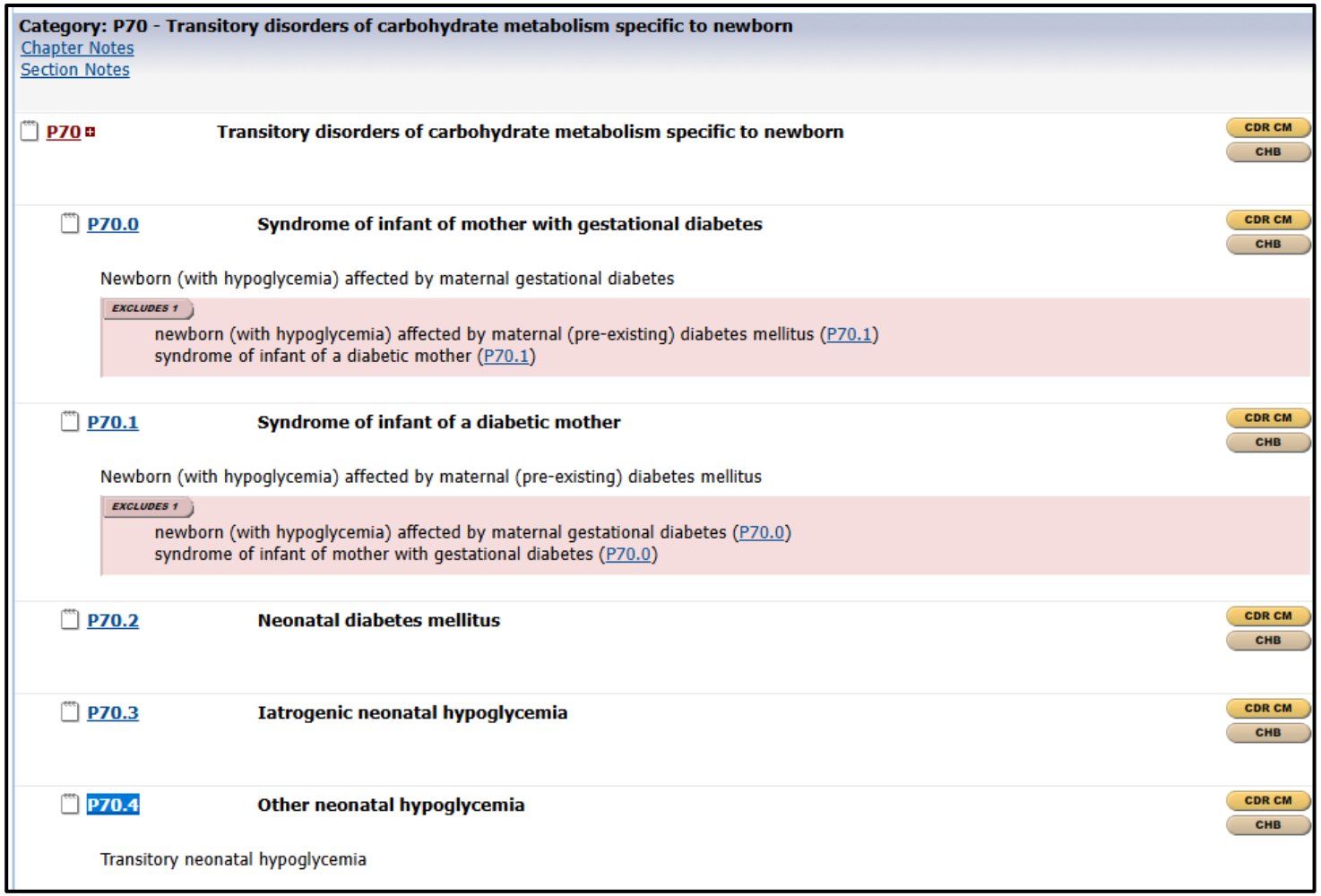
Coding Clinic First Quarter 2004, page 8, advised the assignment of codes V30.00, Single live born, born in hospital, delivered without mention of cesarean delivery, and V18.0, Family history of certain other specific conditions, Diabetes mellitus, for a normal infant born to a diabetic mother but without manifestations of infant of a diabetic mother syndrome. Isn't code V29.3, Observation for suspected genetic or metabolic condition, a more appropriate code assignment since the baby is being observed due to the increased risk for complications associated with the mother's diabetes?

Z0542: Observation and evaluation of newborn for suspected metabolic condition ruled out

Answer:

Yes, you are correct. Assign code V29.3, Observation and evaluation of newborns and infants for suspected condition not found, Observation for suspected genetic or metabolic condition, as an additional diagnosis for a newborn infant who requires special surveillance after being born to a diabetic mother, but is without manifestations of infant of a diabetic mother syndrome.

Coding References-Codebook



Category: P70 - Transitory disorders of carbohydrate metabolism specific to newborn
Chapter Notes
Section Notes

P70 **Transitory disorders of carbohydrate metabolism specific to newborn** CDR CM CHB

P70.0 **Syndrome of infant of mother with gestational diabetes** CDR CM CHB

Newborn (with hypoglycemia) affected by maternal gestational diabetes

EXCLUDES 1
newborn (with hypoglycemia) affected by maternal (pre-existing) diabetes mellitus (P70.1)
syndrome of infant of a diabetic mother (P70.1)

P70.1 **Syndrome of infant of a diabetic mother** CDR CM CHB

Newborn (with hypoglycemia) affected by maternal (pre-existing) diabetes mellitus

EXCLUDES 1
newborn (with hypoglycemia) affected by maternal gestational diabetes (P70.0)
syndrome of infant of mother with gestational diabetes (P70.0)

P70.2 **Neonatal diabetes mellitus** CDR CM CHB

P70.3 **Iatrogenic neonatal hypoglycemia** CDR CM CHB

P70.4 **Other neonatal hypoglycemia** CDR CM CHB

Transitory neonatal hypoglycemia

APR and MS DRG impact of hypoglycemia codes for normal full term newborn

	Without hypoglycemia	With P704 hypoglycemia*
DRG	**CO APR 640** Neonate BW >2499 gms, normal newborn or neonate with other problem	**CO APR 640** Neonate BW >2499 gms, normal newborn or neonate with other problem
Principal Diagnosis	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally
Relative Weight	0.1411	0.1867
Severity of Illness	1	2
Risk of Mortality	1	1
Expected Length of Stay	1.96	2.28
Estimated Reimbursement	$1340.08	$1773.16

	Without hypoglycemia	With P700 Syndrome of infant of mother with gestational diabetes and P701 diabetes	With P704 hypoglycemia*
DRG	**MS DRG 795** Normal Newborn	**MS DRG 794** Neonate with other significant problems	**MS DRG 793** Full term Neonate with Major Problems
Principal Diagnosis	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally
Relative Weight	0.1998	1.4762	4.1705
Expected Length of Stay (ALOS)	3.1	3.4	4.7

APR and MS DRG impact of hypoglycemia codes for newborn w/ BW 1700 gms, 32 weeks GA

	Without hypoglycemia	With P700 , P701, or P704
DRG	**CO APR 614** Neonate BW 1500-1999 grams with or without other significant condition	**CO APR 614** Neonate BW 1500-1999 grams with or without other significant condition
Principal Diagnosis	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally
Relative Weight	1.1555	1.1555
Severity of Illness	1	1
Risk of Mortality	1	1
Expected Length of Stay	10.81	10.81
Estimated Reimbursement	$10974.21	$10974.21

	Without hypoglycemia	With P700 or P701 Syndrome of infant of mother with gestational diabetes OR diabetic mother	With P704 hypoglycemia*
DRG	**MS DRG 792** Prematurity without Major Problems	**MS DRG 792** Prematurity without Major Problems	**MS DRG 791** Prematurity with Major Problems
Principal Diagnosis	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally	Single liveborn infant, delivered vaginally
Relative Weight	2.4497	2.4497	4.0599
Expected Length of Stay (ALOS)	8.6	8.6	13.3

Suggestions

- Be aware of neonatal hypoglycemia protocols at your facility
- Encourage the creation of a clinical definition of neonatal hypoglycemia at your facility
- Create a neonatal hypoglycemia query template
- Query for clinical significance (“at risk for”-present/not present), conflicting documentation, or etiology of hypoglycemia
  - Review nursing notes for clinical indicators

References

- Neonatal Hypoglycemia | Pediatrics In Review | American Academy of Pediatrics
  - Per the most recent AAP guidelines, published in 2011, screening is recommended for 2 groups of infants: term and late preterm infants who are symptomatic and infants who are asymptomatic but have risk factors. The goal is to have blood glucose values of 45 mg/dL (2.5 mmol/L) or greater prior to a feeding. Infants of diabetic mothers (IDMs) and large-for-gestational age (LGA) infants are screened for 12 hours after birth; SGA and preterm infants are screened for the first 24 hours.
- Pathogenesis, screening, and diagnosis of neonatal hypoglycemia – UpToDate
- Diagnosis and Management of Neonatal Hypoglycemia: A Comprehensive Review of Guidelines – PMC
- Hypoglycemia in Neonates, Infants, and Children - Endotext - NCBI Bookshelf

Thank you for your time and attention!

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