BIG Baby

- Blood sugar was measured at 90 minutes of life and was 32
- Baby is put back to breast but is now sleepy
- What are your options?
  - EBM?
  - Formula?
  - Donor Milk?
  - Dextrose Gel?

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Antenatal Expression

- Hand expression twice daily starting at 36 weeks gestation in women with GDM
  - 319 women hand expressing
  - 316 standard care
- No difference in gestational age at birth
- No difference in NICU admissions
- No difference in episodes of hypoglycemia
- No difference in breastfeeding rates
- SAFE TO DO THIS

Forster et al. Lancet 2017

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Dextrose Gel

- Commonly used in diabetic children and adults with low blood sugars
- Sugar Babies Study
  - Examined 237 hypoglycemic babies who were > 35 weeks EGA, < 48 hours old, and had risk factors for hypoglycemia
  - Babies treated with 40% Dextrose Gel + feeding vs Placebo Gel + feedings were
    - Less likely to have more low blood sugars
    - Less likely to be admitted to the NICU
    - More Likely to be breastfeeding at 2 weeks of life

Harris et al. Lancet 2013

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Dextrose Gel

- 40% Dextrose Gel
- 2.5 ml prepackaged syringe
- Round weight to nearest KG to dose

Weight	Dose
2 kg	1.0 mL
3 kg	1.5 mL
4 kg	2.0 mL
5 kg	2.5 mL

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To give dextrose gel squeeze a large drop of gel onto a gloved finger and rub into buccal mucosa

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Repeat this process alternating cheeks until entire dose is given

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Big Baby

- Choice is made to hand express colostrum and spoon feed baby
- Repeat blood sugar is 48 at 3 hours of life
- Continue to check blood sugars before feeds about every 2-3 hours until baby is 12 hours old
- At 9 hours of life baby has blood sugar 43

AAP: Management of this Baby?

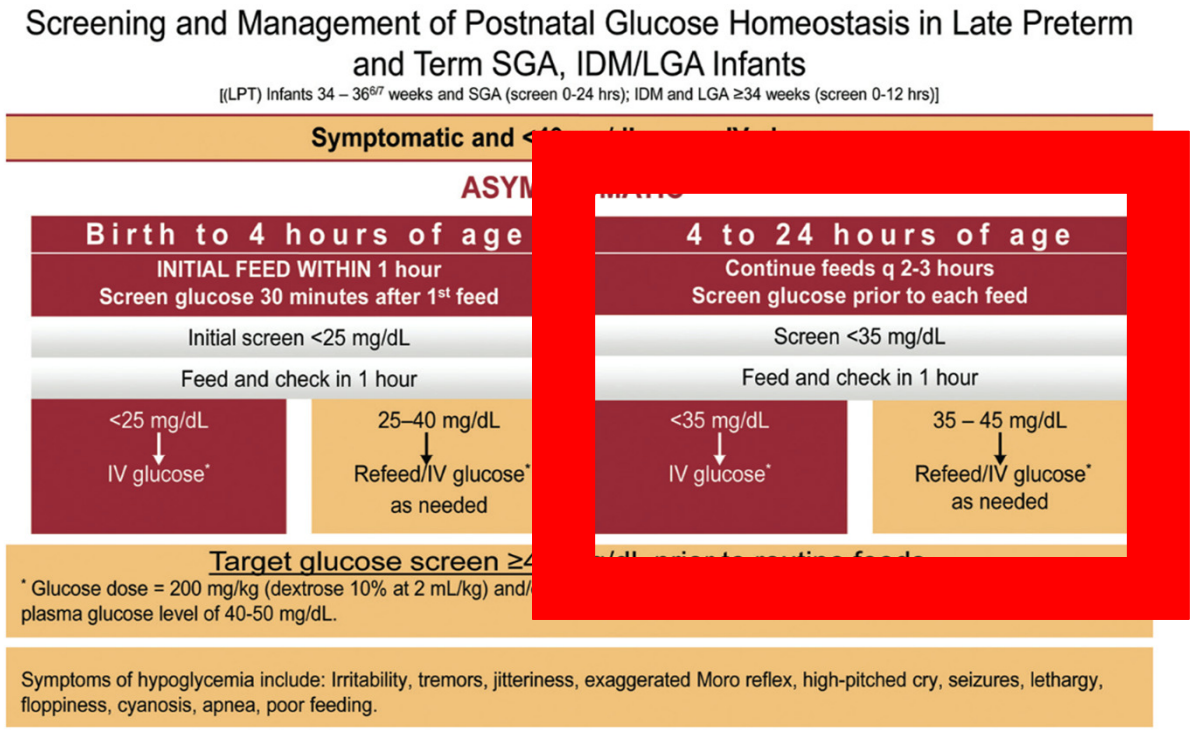

FIGURE 1
Screening for and management of postnatal glucose homeostasis in late-preterm (LPT 34–36⁶⁄₇ weeks) and term small-for-gestational age (SGA) infants and infants who were born to mothers with diabetes (IDM)/large-for-gestational age (LGA) infants. LPT and SGA (screen 0–24 hours), IDM and LGA ≥34 weeks (screen 0–12 hours). IV indicates intravenous.

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BIG Baby

- Baby continues to breastfeed well
- Blood sugars hover between 35-45
- Baby is clinically vigorous and asymptomatic
- You don’t have dextrose gel
- What can you do?
  - Check a serum glucose!

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Why the serum glucose?

- Plasma blood glucose levels tend to be approximately 10-18% higher than whole blood values.
  - Bedside test strip glucose analyzers such as the Accu-Check use whole blood values and can be used for screening.
  - POC tests less accurate at low glucose concentrations
- Significant hypoglycemia should be confirmed with a plasma blood glucose level.

BIG Baby

- **Serum glucose is 54**
- Baby continues to breastfeed well
- Next 3 point of care blood sugars are > 45
- Protocol is stopped at 15 hours of life

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Case # 3 The LITTLE Baby

- A 39 week newborn is born by repeat c-section
- Pregnancy was complicated by HTN
- Baby is 2400 gms (SGA)
- This is mom's second baby. She breastfed the first full term AGA baby
- Your nursery has a policy that all SGA babies are supplemented with formula
  - Mom is hesitant and wants to start pumping

Risk Factors?

- Yes!
- SGA
  - Babies who are SGA and who are late preterm have lower SUPPLY than demand.
  - Decreased glycogen stores and decreased fat stores
  - NO RESERVES

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Do we screen this baby?

- Yes!
- SGA, IUGR and Late Preterm Babies are screened for 24 hours or until blood sugars levels are consistently > 45 mg/dL
- SGA babies May develop hypoglycemia as early as 3 hours of life

LITTLE Baby

- Mom immediately does skin to skin
- Baby latches on and feeds well
- Mom hand expresses about 3 ml of colostrum and spoon feeds to baby
- Initial blood sugar is 22
- Hand expresses another 5 ml colostrum
- Repeat blood sugar is 32

When is Supplementation Medically Necessary?

- 1-5 ml/kg supplementation
  - AAP and ABM do not specify type of supplemental feed
  - Formula will raise glucose level faster
  - Colostrum/EBM lead to more ketogenesis
- Question of volume and availability

Little Baby

- Mom hand expresssing and pumping 1-3 ml colostrum
- Sugars hovering in mid 30s
- Mom decides to purchase donor breastmilk
  - Continues to breastfeed
  - Increases supplement to 10ml total and feeds baby every 2 hours
  - Recovery of sugars to > 45

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How can we support the family?

- Reassure mother there is nothing wrong with her milk
- Temporary situation
- Hand express or pump at least 8 times/ 24 hours
- Continue skin to skin care

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Review

- Hypoglycemia is a common problem in the Newborn Nursery
  - Low blood sugar levels are common in healthy neonates by 1-2 hours after birth and are considered to be part of normal adaption to postnatal life.
- Hypoglycemia can cause brain injury
  - There is no specific level or duration of hypoglycemia that is known to produce acute symptoms or brain injury.

Review

- Most infants with hypoglycemia are asymptomatic
- Most symptoms of hypoglycemia are non specific
- Symptoms of hypoglycemia include:

Unarrousability	Apnea	Lethargy	Heart Rate < 100
Seizures	Irritability	Heart Rate > 160	Hypotonia
Jittiriness	Tachypnea	Resp Distress	Sweating
Poor feeding	Cyanosis	Pallor	Vomiting
High Pitched Cry	Hyperactive Moro		

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Review

- Who should be screened?
  - Infants of Diabetic Mothers
  - LGA (Large for Gestational Age) infants
  - SGA (Small for Gestational Age) infants
  - Infants < 2500 grams
  - Late preterm infants 35 0/7 – 36 6/7 weeks

Consider one time blood sugar screen 30 minutes after the first feed if:

- Apgar ≤3 at 1 min, ≤7 at 5 min
- Temp < 97.4
- Respiratory distress
- Early signs of narcotic withdrawal
- Maternal drug treatment with
  - Beta blockers (labetalol)
  - Oral hypoglycemic agent (metformin, glyburide)
- History of IUGR during pregnancy
- Maternal obesity

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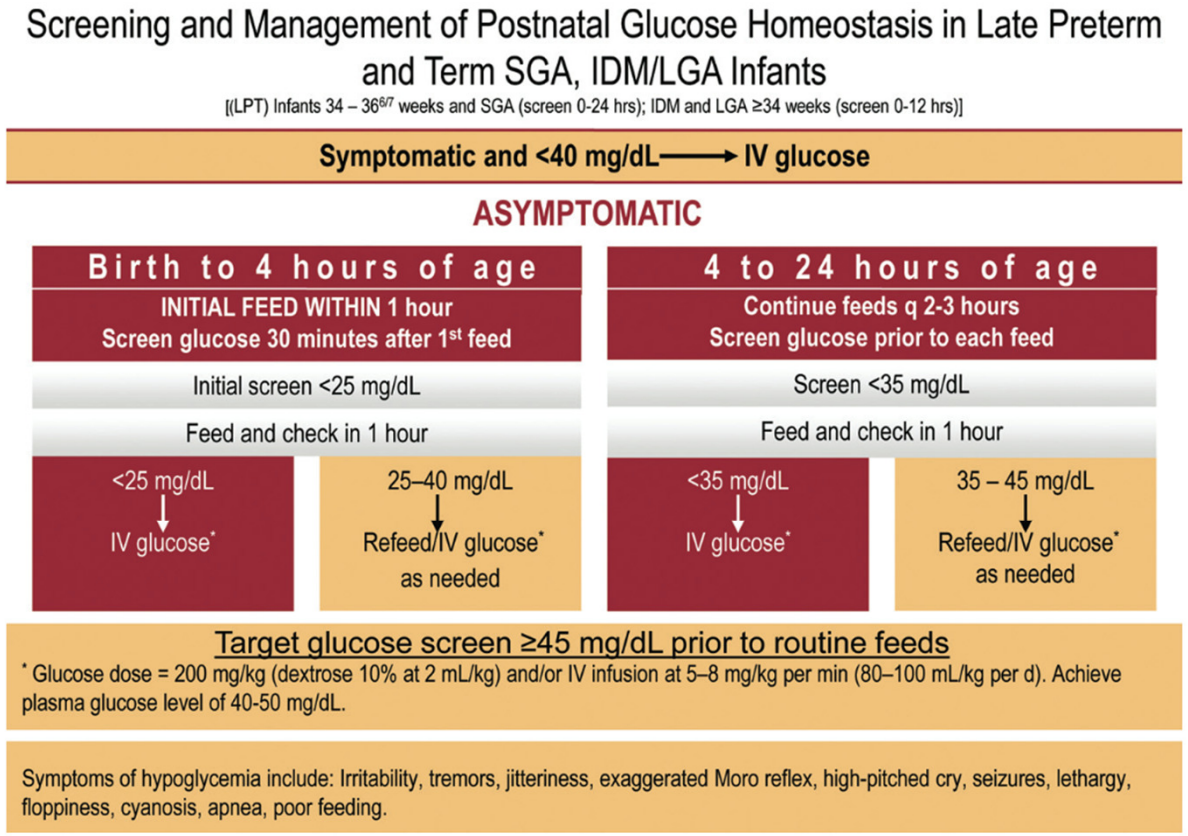
Review: Symptomatic Infants

- All **symptomatic infants** should be screened for hypoglycemia
- *Symptoms = jitteriness, cyanosis, seizures, apnea, lethargy, high pitched cry*
- If results < 40 transfer to NICU
- If results ≥ 40 call newborn care provider to evaluate baby

Review



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Review

- Early skin to skin
- Breastfeed in the first hour
- Feed frequently and early with hunger cues
- Don’t underestimate the power of colostrum
- Don’t be afraid to supplement if needed