

Emergency Department Hypoglycemia Pathway

Evidence Based Outcome Center

EXCLUSION CRITERIA

- Patients with a previously diagnosed hormonal or metabolic disorder known to cause hypoglycemia
- Patients admitted to NBN or NICU
- Diabetes mellitus

- 1 Patient monitoring:**
- Place on cardiac monitor, pulse oximetry, and telemetry
 - Monitor vital signs q5 min until stable, then q15 min x 4
 - Perform neurologic checks q15 min x 4

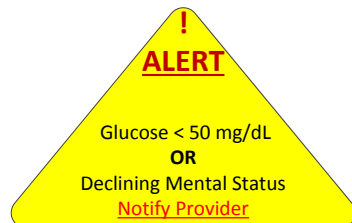
- 2**
- Lactate: Use grey tube
 - Ammonia: Use green tube
 - Samples must be placed on ice

- 3**
- Discharge is at the discretion of provider;
Criteria to consider:
- Maintains POC glucose > 70 x 2 hours without need for IV dextrose
 - Age > 1 year
 - Tolerating po
 - Consistent with ketotic hypoglycemia (presence of ketones with history of prolonged fasting, normal growth parameters, and no hepatomegaly)
 - Has PCP who can review pending labs

Inclusion Criteria
Blood glucose < 50 mg/dL

Place peripheral IV
- AND -
Initiate patient monitoring ①

Seizing
OR
Apnea



Initial Diagnostic Labs:
Collect Critical Sample Prior to Treatment:

High Priority:
BMP
Beta Hydroxybutyrate
Lactate ②

Tier 2 priority labs (if enough blood):

Free fatty acids	Cortisol
Insulin	Growth hormone
C-peptide	Ammonia ②
Acetoacetic acid	

Tier 3 priority labs (with remaining blood):

Free carnitine	Serum amino acids
Acylcarnitine profile	Pyruvate
IGFBP-1	
Save Serum Tube (-70 C spin and hold)	

Urine organic acids
Urine reducing substances
Consider urine toxicology

IV dextrose (0.2-0.5 g/kg/dose) should be administered at varying concentrations based on patient's age and fluid availability:

- Infants/Children up to 12 years old: D10W 2 - 5 ml/kg/dose
- Adolescents: D25W 1 - 2 ml/kg/dose | MAX = 100 ml/dose
- Adolescents/Adults: D50W 0.5 - 1 ml/kg/dose | MAX = 1 amp (50 mL/dose)

Yes

- Provide sugary beverages @ maintenance fluid rate
- Provide complex carbohydrate snacks

Tolerating po?

No

- Start D5 NS, D5 ½ NS or D10 NS @ maintenance fluid rate
- Offer po as tolerated

- Monitor POC glucose q15 min until >70 mg/dL, then q30 min
- For glucose < 50 mg/dL, repeat IV dextrose bolus (weight-based as per above), obtain any critical labs not previously done, and return to q15 min POC glucose checks until >70 mg/dL then q30 min
- Initiate, adjust, or discontinue dextrose-containing IVF as needed based on glucose levels and po intake

Discharge home
(Family should continue to provide snacks with complex carbs at home)

Disposition ③

ADMIT to hospital

Inpatient Hypoglycemia Pathway

Evidence Based Outcome Center

EXCLUSION CRITERIA

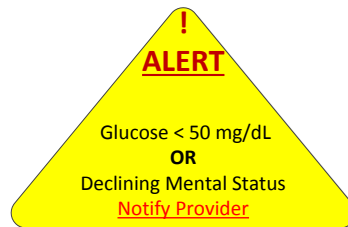
- Patients with a previously diagnosed hormonal or metabolic disorder known to cause hypoglycemia
- Patients admitted to NBN or NICU
- Diabetes mellitus

- 1** Patient monitoring:
- Place on pulse oximetry monitor
 - Monitor vital signs and neurologic checks q15 min until glucose stabilized

- 2** Lactate: Use grey tube
Ammonia: Use green tube
Samples must be placed on ice

Inclusion Criteria
Blood glucose < 50 mg/dL

Place peripheral IV
- AND -
Initiate patient monitoring ①
(If not previously done)



Initial Diagnostic Labs:
Collect Critical Sample Prior to Treatment:

High Priority:
BMP
Beta Hydroxybutyrate
Lactate ②

Tier 2 priority labs (if enough blood):
Free fatty acids
Insulin
C-peptide
Acetoacetic acid

Tier 3 priority labs (with remaining blood):
Free carnitine
Acylcarnitine profile
IGFBP-1
Save Serum Tube (-70 C | spin and hold)

Cortisol
Growth hormone
Ammonia ②

Serum amino acids
Pyruvate

Urine organic acids
Urine reducing substances
Consider urine toxicology

Administer IV Dextrose (0.2 g/kg/dose):
• D10W at 2 ml/kg/dose

ED Admit for hypoglycemia

Tolerating po?

- Yes
- Provide sugary beverages @ maintenance fluid rate
 - Provide complex carbohydrate snacks

- No
- Start D5 or D10 NS with or without KCl @ maintenance fluid rate
 - Offer po as tolerated

- Monitor POC glucose q15 min until >70 mg/dL, then q30 min x 2
- For glucose < 50 mg/dL, repeat IV dextrose bolus (weight-based as per above), obtain any critical labs not previously done, and return to q15 min POC glucose checks until >70 mg/dL then q30 min. Consider calling for critical response team (CRT) to obtain additional nursing resources. Consider transfer to higher-level of care if unable to stabilize glucose.
- Initiate, adjust, or discontinue dextrose-containing IVF as needed based on glucose levels and po intake
- Consider consult with endocrinology for further instruction

- If glucose remains > 70 mg/dL, space checks to q2hrs x 2 and then q4hrs
- If applicable, wean IVF as able
- Continue to offer complex carbohydrates po

Discontinue pathway at provider's discretion

Hypoglycemia Critical Sample Laboratory Tests Evidence Based Outcome Center

Laboratory test	Sunquest mnemonic	Special instructions	Acceptable tubes	Minimum amount of blood (ml)
High Priority Labs				
BMP	BMPNL		MINT GREEN	0.5 ml
BHOB (beta hydroxybuturate)	BHOB		MINT GREEN	0.5 ml
Lactic Acid	LACT	Keep on ice once collected	GREY	1 ml
Total blood needed for High Priority labs:				2 ml
Tier 2 priority testing (order if enough blood is collected after high priority labs)				
MISC: Free fatty acids MAYO 8280	MISCB: FREE FATTY ACIDS	Lab-spin w/in 45min of draw	GOLD	1 ml
Insulin	INS		GOLD	1 ml
MISC: Acetoacetate to MAYO	MISCB: ACETOACETATE		PURPLE	2.4 ml
c-peptide	CPEP		MINT GREEN	1.5 ml
Cortisol	CORT		MINT GREEN	1 ml
Growth Hormone	GRHM		MINT GREEN	1 ml
Ammonia	AMON	Keep on ice once collected	MINT GREEN	1 ml
Total blood needed for High Priority & Tier 2 labs:				10.9 ml
Tier 3 priority testing (order with remaining blood after higher priority)				
IGFBP-1	SMM		GOLD	1 ml
Pyruvic Acid	PACID	Lab use pyruvic acid tube in ref STAT	MINT GREEN	1 ml
Free & total carnitine (not in acylcarnitine profile) profile	carntf		MINT GREEN	0.5 ml
Acyl-carnitine profile- order as MISC until pathnet go-live	misc - ACYLM		MINT GREEN	0.5 ml
Amino acids, plasma	AAP	LAB ONCE CENTIFUGED-CRITICAL FROZ	MINT GREEN	1 ml
Total blood needed for all Critical Sample Labs (High priority, Tier 2, & 3)				14.9 ml

Blood Tube	Minimum blood volume (ml)
GOLD	3 ml
MINT GREEN	8.5 ml
PURPLE	2.4 ml
GREY	1 ml
Total blood needed for Critical Sample	14.9 ml