

## Appendix D. Diagnostic Fasting Studies.

- I. Purpose of a diagnostic fasting study: Diagnostic fasting studies may be performed on infants who have prolonged or severe hypoglycemia. This is a different study than a safety fasting study (appendix C.)
- II. Endocrine input: Endocrine should be consulted in advance of diagnostic testing. Specific laboratory evaluations may differ based on the infant's clinical situation and suspected diagnosis.
- III. Preparation for study:
  - a) To prepare for a diagnostic fasting study, a “**diagnostic fast outline sheet** (below)” should be completed by the primary team in consultation with endocrinology and posted at the bedside. This sheet will review the feeding/fasting plan, the timing of blood draws and the labs to be sent at each time point.
  - b) This outline sheet should be completed in consultation with the endocrine service before the fast and reviewed before commencing the diagnostic fasting study with the bedside RN who will be responsible for the infant during the study.
  - c) Glucagon should be ordered and at the bedside, if needed, before the fasting study is initiated.
  - d) Parents should be informed that this study is planned, the rationale for the study explained to them, their permission obtained, and what to expect during the study.
  - e) The chemistry laboratory should be made aware that a fasting study will be performed on an infant and that all STAT labs should be called back to the bedside RN as soon as possible, but within 20 minutes of a blood draw.
  - f) Place a urine bag on the infant after the last feed and before initiation of fasting study.
  - g) Diagnostic fasting studies should be conducted only on weekdays (not on weekends or holidays), with bloodwork being sent to the lab between 10am and 6pm due to laboratory availability.
  - h) Please confirm the tube type and volumes on the online Partners Lab Handbook (<https://epath.partners.org/BWH>)

## Diagnostic Fasting Study Outline Sheet

Infant's name, MR, date and time of study: \_\_\_\_\_

Name and cell phone contact of Neonatology Attending: \_\_\_\_\_

Name and cell phone contact of Endocrine Attending who was consulted: \_\_\_\_\_

Name of bedside RN during study (ensure this document has been reviewed with RN before start of study):

Date and time of infant's last feed before diagnostic fasting study (see IIIg above):

*Please ensure that the plan for the fasting study has been discussed with the family before initiation.*

### Diagnostic Fast Study Outline

- 3 hours after the last feed is the start time for the diagnostic fasting study. *For example, if the baby's last feed was at 9 am, the diagnostic fasting study start time (referred to henceforth as "study start time") would be noon.*
  - Send STAT plasma glucose and POC blood glucose **every hour** starting at the study start time.
- 1. Labs: If plasma glucose is <50mg/dL, obtain the labs below that are checked via venipuncture. Please prepare the tubes and labels beforehand (see IIIh above):

Check below if lab should be sent		Type/color of tube	Minimum Volume	priority
	Insulin	Gold microtainer*	0.6 ml	STAT
	Cortisol	Gold microtainer*	0.6ml	
	Growth hormone <sup>†</sup>	Gold microtainer*	1.2 ml	
	Beta-hydroxybutyrate	Gold microtainer*	0.6ml	STAT
	Ammonia	Purple microtainer	0.6ml	STAT
	Lactate	Blood gas capillary tube	0.2ml	STAT
	Free fatty acid or NEFA <sup>†</sup> (paper requisition)	Gold microtainer*	1.2ml	routine
	Acylcarnitine <sup>†</sup>	Sodium Heparin	0.5 ml	routine
	Urine organic acids <sup>†</sup> and urine acylglycine <sup>†</sup> (when urine available)	Urine container	5-10ml	routine
*gold microtainer tests may be combined and a lower volume may be sent after discussion with lab; can interchange gold microtainer and red top tube. <sup>†</sup> Send out test				

2. Is Glucagon Stimulation test needed?

Please circle here: **YES** or **NO**

- If yes, follow directions below:
    - Once laboratory glucose is ≤50 mg/dL: give 0.5mg glucagon IM or IV; infant should remain NPO
    - Measure POCT BG and plasma glucose at 10, 20 and 30 minutes after glucagon injection
    - 30 min after glucagon is given (and last blood glucose has been drawn), feed infant. In addition, consider providing dextrose gel if most recent lab or POCT glucose <40mg/dL.
  - If glucagon stimulation test is not needed, infant can be fed after labs are drawn.
3. Length of study:
- If infant has not had a lab glucose <50mg/dL by (Please circle):

**6 hours or 8 hours**

study is terminated and infant should be fed.