



Title:	Phlebotomy Glucose Tolerance Collection				
Version:	6	Approved:	William Klingensmith MD (Medical Director)	Date:	01/10/2019

PURPOSE: To establish guidelines for Glucose Tolerance Test specimen collection.

“Glucose Tolerance Testing” can be modified as “Postprandial Glucose Testing” to monitor a known diabetic response to treatment when patients have blood drawn after ingesting a meal rather than a standardized glucose beverage. “Glucose Tolerance Testing” can be modified as a “Gestational Diabetes Screening” for pregnant women.

GLUCOSE TOLERANCE TESTING (1-4 HOUR)

EQUIPMENT:

- Venipuncture supplies as listed in the [Phlebotomy Policy Collection of Blood Specimens](#) .
- Glucose solution beverage (glucose in a flavored base 100g concentration)
- Sterile urine specimen collection cups

SPECIMEN REQUIREMENTS:

- Blood and urine are collected at timed intervals around patient drinking glucose beverage.
- Preferred blood specimen is 2 mL of heparinized plasma at each collection.
- A minimum of 5 mL of urine should be collected each time.

PATIENT REQUIREMENTS:

- Outpatient Glucose Tolerance testing is performed as a scheduled procedure.
- Only one procedure will be scheduled per day to begin no later than 8am.
- When the procedure is scheduled inform the patient of the necessity to fast for at least 8 hours prior to test.
- Must not eat, drink, smoke or chew during test (very small amounts of water are permissible).
- Must refrain from activity during test: inpatients should stay in bed, outpatients in lab waiting area.

PROCEDURE:

1. Identify patient as per [Phlebotomy Policy Patient and Sample Identification](#) .
2. Determine if patient has been fasting for previous 8 hours. If patient did not fast:
 - Inpatient – report this information to the patient’s nurse and ask physician be informed.
 - Outpatient – laboratory will report this information to the physician.
3. If physician wishes test to continue, a comment “non-fasting” should be added to test results.
4. Outpatients; order the appropriate glucose tolerance test (1-4 hours) in Beacon (Type in GTT and select, will be ordered as a group).
5. Draw fasting glucose as per [Phlebotomy Policy Collection of Blood Specimens](#) and deliver to core lab.
6. Obtain urine specimen from patient. Label as per [Phlebotomy Policy Collection of Blood Specimens](#) and deliver to the testing area.
7. Core lab will inform phlebotomist if fasting results are acceptable (less than 200 mg/dL) and the patient may be given the beverage. **Do not give the glucose beverage to the patient until told fasting results are acceptable.**
8. If results are unacceptable (greater than or equal to 200 mg/dL):

Printed documents may not represent the current approved version

- The tech will notify patient's physician of results and testing will be discontinued. The tech will document this on the fasting Glucose results.
 - The phlebotomist will inform patient the GTT cannot be performed and cancel the remainder of the test. Patient should contact physician.
9. If results are acceptable (less than 200 mg/dL); administer the glucose beverage. The volume of glucose solution is based on patient weight. Adults drink entire 100g solution. Refer to chart at the end of procedure for appropriate volumes for pediatric patients. **DO NOT SAVE UNUSED GLUCOSE SOLUTION.** Instruct patients to drink within 10 minutes. Patients may find cold solution easier to drink. If not previously refrigerated, serve over ice.
 10. Begin timing when patient finishes beverage. This exact time is used to time other specimen collections.
 11. 30 minutes after patient finishes beverage, blood and urine specimen will be obtained. Re-identify patient as per Patient and Specimen Identification Process" SOP for every specimen collection. Subsequent specimens will be collected hourly until test is completed. Specimens must be collected on time for accurate results.

EXAMPLE:

Fasting blood/urine collected.....08:00
 Fasting results approved. Patient finishes beverage... **08:35**
 ½ **hour** samples collected.....09:05
1 hour samples collected.....09:35
2 hour samples collected.....10:35
3 hour samples collected.....11:35
4 hour samples collected.....12:35
 5 hour glucose tolerance tests are not performed at MMH

12. Phlebotomist must observe for any signs of illness during procedure.
 - If patient vomits at any time during the procedure the test is invalid and stopped.
 - Immediately notify patient's nurse. If outpatient notify Pathologist or Supervisor.
 - Outpatients should be taken to drawing room for observation and treatment.
 - If unable to drive and no family/friends are available, MMH will pay for a cab or bus to patient's home.

GESTATIONAL DIABETES SCREENING**EQUIPMENT:**

- Venipuncture supplies as listed in the [Phlebotomy Policy Collection of Blood Specimens](#) Glucose solution beverage (glucose in a flavored base 50g or 100g concentrations)

SPECIMEN REQUIREMENTS:

- Blood is collected at timed intervals in conjunction with patient drinking glucose beverage.
- Preferred blood specimen is 2 mL of heparinized plasma at each collection.

PATIENT REQUIREMENTS:

- The patient does not need to be fasting.
- Patient follows other patient requirements listed in Glucose Tolerance Testing Procedure above.
- Urine specimens are **not** collected.

PROCEDURE:

1. Identify patient as per [Phlebotomy Policy Patient and Sample Identification](#) .
2. Order 'GESTATIONAL DIABETES SCREEN' Beacon. A fasting specimen is not drawn
3. The patient receives 50g glucose beverage (or 5oz of 100g beverage). Chill beverage as described above. Instruct patient to drink beverage within 5 minutes.

4. Note time patient finishes beverage.
5. Each hour after patient finishes beverage, collect blood specimen. Re-identify patient as per [Phlebotomy Policy Patient and Sample Identification](#) at each collection.
6. Phlebotomist must observe for any signs of illness during procedure. Follow steps outlined in step “12” of Glucose Tolerance Test procedure.

POSTPRANDIAL GLUCOSE TESTING:

EQUIPMENT REQUIREMENTS:

- Venipuncture supplies as listed in [Phlebotomy Policy Collection of Blood Specimens](#) .

PATIENT REQUIREMENTS:

- Must fast for at least 8 hours prior to test.

PROCEDURE:

1. Identify patient as per [Phlebotomy Policy Patient and Sample Identification](#) .
2. Determine if patient has been fasting for previous 8 hours. If patient did not fast:
 - Inpatient – report this information to the patient’s nurse and ask physician be informed.
 - Outpatient – laboratory will report this information to the physician.
3. If physician wishes test to continue, a comment “non-fasting” should be added to test results.
4. Draw fasting glucose as per [Phlebotomy Policy Collection of Blood Specimens](#) .
5. Order ‘GLUCOSE FAST-1HR(or 2HR) POSTPRANDIAL’ and deliver to Core Lab. Patient is instructed to go and eat a meal. Patient should return to the laboratory 1 or 2 hours after consuming the meal.
6. When patient returns, re-identify patient as per [Phlebotomy Policy Patient and Sample Identification](#) .
7. Draw glucose as per [Phlebotomy Policy Collection of Blood Specimens](#) , order ‘GLUCOSE, 1HR(or 2 HR) POSTPRANDIAL’ and deliver to Core Lab for testing.
8. Patient may return home.

REFERENCES:

Tietz Textbook of Clinical Chemistry and Molecular Diagnostics; Copyright 2006, Elsevier Inc.

Volume of Glucose Tolerance Beverage Administered on the Basis of Weight for Children

Weight, lb	Weight, kg	Oz. Glucose Beverage
10	4.5	0.8
12	5.4	1.0
14	6.4	1.1
16	7.3	1.3
18	8.2	1.4
20	9.1	1.6
22	10.0	1.7
24	10.9	1.9
26	11.8	2.1
28	12.7	2.2
30	13.6	2.4
32	14.5	2.5

34	15.4	2.7
36	16.3	2.9
38	17.2	3.0
40	18.1	3.2
42	19.1	3.3
44	20.0	3.5
46	20.9	3.7
48	21.8	3.8
50	22.7	4.0
52	23.6	4.1
54	24.5	4.3
56	25.4	4.4
58	26.3	4.6
60	27.2	4.8
62	28.1	4.9
64	29.0	5.1
66	29.9	5.2
68	30.8	5.4
70	31.8	5.6
72	32.7	5.7
74	33.6	5.9
76	34.5	6.0
78	35.4	6.2
80	36.3	6.4
82	37.2	6.5
84	38.1	6.7
86	39.0	6.8
88	39.9	7.0
90	40.8	7.1
92	41.7	7.3
94	42.6	7.5

OVER 94 lb: use 7.5 oz.

Revision number	Date	Description of Document or Document Change
6	01/10/2019	New Version- changed Putty to Beacon