

 <p style="text-align: center;">Covenant Health Laboratory Policy</p>	FACILITY: <i>Covenant Medical Center/Covenant Children's Hospital</i>
	DEPARTMENT: <i>Laboratory</i>
	SECTION: <i>General Laboratory</i>
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TITLE: <i>Glucose Tolerance Collection</i>	

TITLE: GLUCOSE TOLERANCE COLLECTION

PRINCIPLE/PURPOSE:

A glucose tolerance test is the administration of glucose in a controlled and defined environment to determine how quickly it is cleared from the blood. The test is usually used to test for diabetes, insulin resistance, and sometimes reactive hypoglycemia. The glucose is most often given orally.

TEXT:

1. Specimen Requirement (Collection & preparation where needed):

- A.** *The patient should be instructed to maintain a normal diet for the days prior to the test.*
- B.** *The day before the test the patient should fast for a period of 8 to 14 hours. Water is allowed.*
- C.** *It is best to conduct testing in the morning (0800 to 1000).*
- D.** *Blood collected in a PST (green tiger top), SST (serum separator tube), or gray top tubes are the specimens of choice. A random urine sample may also be necessary depending on where the patient's samples are collected. Collect specimens using standard laboratory procedures. Universal precautions apply to the collecting, processing and testing of all serum or plasma samples.*
- E.** *Testing requires that a minimum of 1ml of blood be drawn. However, it is preferred that 7 ml of specimen be obtained for each draw.*

2. Materials Needed (Reagents, standards, controls, supplies):

- A.** *Vacutainer holder/needle or syringe/needle*
- B.** *Tourniquet*
- C.** *Glucola (50g, 75g or 100g).*
- D.** *Gray top, PST (green tiger top), or SST (serum separator) tubes*
- E.** *Alcohol prep*
- F.** *Gauze*

- G. Bandage
- H. Sharpie for specimen labeling
- I. Timer or specimen log to monitor times of draws
- J. Urine dip sticks
- K. Urine cup

3. Instrumentation (Including calibration protocols and schedules):

- A. N/A

4. Procedures (Directions, including result reporting, troubleshooting & corrective action):

A. Inpatient/Outpatient – Medical Center and Children’s Campus

- 1) The floor will initiate an order in the LIS for the type of Glucose Tolerance Test the physician has specified.
- 2) A fasting glucose specimen will be collected, labeled properly as a fasting specimen, and sent to the laboratory for testing. ****NOTE – testing should be performed as timely as possible to expedite the completion of the tolerance test.**
- 3) Chemistry personnel will notify phlebotomy/floor of the fasting glucose level.
 - a. If the fasting glucose level is less than or equal to 126 mg/dL, the test may proceed.
 - b. If the fasting glucose level is greater than 126 mg/dL, physician approval is required to continue the tolerance test.
- 4) If continuing the tolerance test, determine the appropriate amount of Glucola to administer to the patient. ****Note – this may be specified in the physician orders. If not, use the following guide lines.**
 - a. The standard dose is 75g for non-pregnant patients unless specified otherwise in physician orders.
 - b. For pregnant patients, use a dose of 50g when doing the 1 Gestational Diabetes Screen (O’Sullivan tests). If a multiple hour Glucose Tolerance Test is being performed, administer 100g unless the physician has made other specifications.
 - c. For pediatric patients or those weighing less than 94 lb, consult patient’s physician for the appropriate amount of Glucola.
- 5) Administer the Glucola to the patient. All of the Glucola should be consumed within 5 minutes. The patient must not eat or drink anything (water is acceptable) and they should limit their activity until the test is complete. Once all of the Glucola has been consumed, begin timing the test.
- 6) Continue drawing the timed specimens as specified in the physician’s orders. ****Note – The labeling of specimens is very important. For accuracy purposes, when using LIS generated labels it is very important to**

correctly label the timed draws. These specimens should be sent to the lab immediately for processing.

- 7) Once the final specimen has been obtained, notify nursing personnel.

B. Outpatient – LDC, MOB, Oxford Lab

- 1) The patient will present to the PSC with a paper order or order in the EHR.
- 2) Laboratory staff will review the order.
- 3) The phlebotomist will instruct the patient to collect a random urine. At the laboratory's outreach location, this is essential for the patient's safety as their fasting specimens will not be processed before the test is complete.
- 4) Phlebotomy personnel will label the patient's random urine with the patient's name and date of birth. The urine will be dipped and checked for the presence of glucose.
 - a. If this is positive, the fasting blood specimen should be sent to the laboratory for immediate processing. Verification of glucose level above 126 mg/dL will require physician approval to continue with testing.
 - b. If the urine dip is negative, tolerance testing may proceed.
 - c. The result of the urine dip should be noted on the patient's requisition.
- 5) If continuing the tolerance test, determine the appropriate amount of Glucola to administer to the patient. ****Note – this may be specified in the physician orders. If not, use the following guidelines:**
 - a. The standard dose is 75g for non-pregnant patients unless specified otherwise in physician orders.
 - b. For pregnant patients, use a dose of 50g for the 1 Gestational Diabetes Screen (O'Sullivan Tests). If a multiple hour Glucose Tolerance Test is being performed, administer 100g unless the physician has made other specifications.
 - c. For pediatric patients or those weighing less than 94 lb, consult patient's physician for the appropriate amount of Glucola.
- 6) Administer the Glucola to the patient. All the Glucola should be consumed within 5 minutes. The patient must not eat or drink anything (water is acceptable) for the duration of the test. They should limit their activity for the duration of the test. Once the Glucola has been consumed, begin timing the test.
- 7) Continue drawing the timed specimens as specified in the physician's orders. ****Note -- The labeling of specimens is very important. For accuracy purposes, it is vital that phlebotomy personnel clearly label each tube with the patient's name, date of birth, and time of draw.**
- 8) Once the final specimen has been obtained, the patient may be dismissed.

5. Calculations:

N/A

6. Controls (Frequency and corrective action):

N/A

7. Expected Values (Also alert values):

- A. Healthy subjects peak at ½ hour and return to fasting levels at 2 hours.
- B. Diabetics peak late (approximately 1 hour) or even show a plateau at 2 to 3 hours and return to baseline after 3 hours.

8. Procedure Notes (Linearity or detection limits):

N/A

9. Limitations (Interfering Substances and/or precautions):

Substances that cause abnormal

N/A

10. References:

Kaplan, Lawrence A.; Pesce, Amadeo J. *Clinical Chemistry: Theory, Analysis and Correlation*. 2nd Edition. C.V. Mosby Co. 1989

11. Special Notes:

****Any questions regarding the appropriate dosing can be directed to a Medical Director.**