

**ARNOT HEALTH  
POLICY & PROCEDURE MANUAL**

**POLICY #:** LS.PAL.0009  
(replaces VII.iii.1290)  
**TITLE:** GLUCOSE TOLERANCE TEST

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**DATE OF ISSUE:** 12/10/05  
**DATE(s) OF REVISION:** SEE LAST PAGE  
**DATE(s) OF REVIEW:** SEE LAST PAGE

**APPROVAL:** Dr.Lenhardt, MD, PhD 12/13/05  
Noemi Bentley, MT 12/10/05

**FACILITIES COVERED:**  AOMC     AMS     SJH     IDMH

**OWNER(S):** LABORATORY, CLA SUPERVISOR

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**Title:** Glucose Tolerance Test

The glucose tolerance test (GTT) is used to check for carbohydrate metabolism problems. The major carbohydrate is glucose. The problems associated with glucose metabolism are those in which the glucose level is increased (hyperglycemia), as in diabetes mellitus, and those in which the blood glucose is decreased (hypoglycemia). The enzyme insulin produced by the pancreas is primarily responsible for regulating blood glucose levels. The GTT evaluates insulin response to a measured dose of glucose by recording glucose levels at specific time intervals.

**Materials:**

1. A bottle of Glucola or glucose solution ( 50 grams, 75 grams or 100 grams )
  - Jelly Beans may serve as an alternative to glucola. ( Calculation: 18 regular-sized jelly beans is equivalent to a 50 gram glucose load.); 27 jelly beans = 75 gram glucola; 36 jelly beans = 100 gram glucola. NB 10/18/06
2. empty cup
3. venipuncture materials/green top tubes
4. glucose strip meter device (utilized at HMOB collection station only; all other PSCs perform prenatal glucose, 1-hour glucose tolerance and 2-hour post prandial or post consumption only)

**Procedure:**

1. Out-patient tolerances are scheduled through the Out-Patient Phlebotomy on Monday through Saturday and in HMOB on Monday through Friday. In-patient tolerances must be scheduled by the floors.
2. The patient is instructed to take no nourishment by mouth for at least 12 hours before the test. They may have water as desired. Do not smoke or chew gum the day of the test. For the duration of the test, out-patients are to remain in the out-patient area and engage in minimal activity.

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3. HMOB is the only Arnot Health OP Phlebotomy Station that utilizes a glucose strip meter system to test the patient's fasting glucose level before a glucose drink is given.
4. For HMOB Draw Station only – Please follow the glucose strip procedure on page 124a of the phlebotomy manual. This can also be found on the intranet under Laboratory, Point of Care Section.
5. Fasting specimens drawn in the hospital's Outpatient area must be sent to the lab for testing before a glucose drink is given.  
Fasting glucose levels of greater than 160 mg/dl are to be cancelled. Do not give the patient the glucose drink if the fasting glucose is greater than 160 mg/dl. Notify the floor for in-patients or the requesting physician for out-patients.
6. Adult patients are given a commercial glucose beverage containing 50 grams, 75 grams or 100 grams of glucose, depending on the order ( one, two, three, four or five-hour GTT ). Children and small adults are given approximately 1 g per kg of weight. (See calculations below.) **The patient should consume the glucose drink within 5 minutes. If Jelly beans are requested instead of the glucose drink, please refer to the required amount listed under 'Materials' above. For 1-hour GTT, the jelly beans should be consumed in less than 10 minutes. For 3-hour GTT, the jelly beans should be consumed in less than 15 minutes.**
7. Timing for the test begins as soon as the patient finishes the glucose beverage.
8. Blood samples are obtained at the respective intervals.
9. Give the patient complete instructions including: how long the test will be, when the next sample is due, not to eat, smoke, chew gum, or leave the area. They are encouraged to sip ice water as needed. Ask them to watch the clock as the phlebotomists may be busy and need reminding when the next test is due. Alert lab personnel if they are not feeling well.
10. At the conclusion of the test, ensure that the patient feels well enough to leave. If they do not feel well, give them juice and ask them to wait until they recover. For any serious problems, contact a pathologist. It may be necessary to test the glucose level again before releasing the patient to ensure it is not on a dangerous level, especially if the patient has to drive home.

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	<b>INCLUDES</b>	<b>COMPUTER ORDER</b>
GLUCOSE	fasting or as specified (No glucose drink)	GLU
PRENATAL GLUCOSE	part of prenatal pkg ( No glucose drink )	GLU
Glucose Tolerance, Prenatal 1 HR	patient fasting do not draw a fasting specimen give 50 g Glucola draw blood 1 hour later	GTPPN
2 HR GLUCOSE <u>PC</u> ( POST CONSUMPTION OR POST PRANDIAL )	Patient should eat a complete meal 2 hours after a meal, draw blood <b>Do not give Glucola</b>	GLUPP
2 HOUR GTT	Draw fasting specimen give 75 g Glucola 2 hour	GTT2

2 HOUR POST- PARTUM	fasting give 75 g Glucola 1 hour 2 hour	GTT2PP  NOTE: Not to be confused with 2 HOUR <u>POST</u> <u>PRANDIAL</u> or <u>POST</u> <u>CONSUMPTION</u> .
3 HOUR GTT-Non OB	fasting give 100 g Glucola 1 hour 2 hour 3 hour	GTT3
3 HOUR GTT- OB	fasting give 100 g Glucola 1 hour 2 hour 3 hour	GTT3OB

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Prepared By: Noemi Bentley	Date: 12/10/05
Medical Director: Terence Lenhardt, MD	Date: 12/13/05

Annual Review: NB10/18/06; NB 1/12/07; NB 7/14/08; NB 6/19/09; NB 8/03/10  
NB 08/02/11; NB 08/08/12; NB 11/19/13; NB 8/11/14; NB 4/9/15; NB 12/8/16  
NB 9/20/17; NB 03/12/18; NB 1/7/19; NB 1/8/20; NB 1/7/21

Revisions Made: Noemi Bentley 11/19/2013 (Step 4. Only HMOB and HCFW locations use the Hemocue device to test the patient's fasting glucose level. Accu-Check was taken out of OP, CDS, and SJH-HSB Draw stations);

Deleted 4 hour and 5 hour GTTs and non-adult GTT – NB 9/20/17

Deleted Hemocue procedure at SJH-HSB

Closed HCFW Draw Station making HMOB the only location to use the glucose strip meter system– NB 2/7/19

Deleted half hour timed collections for 2-Hour Post Partum and 3 Hour GTT Non OB – NB 2/7/19

Changed Hemocue Glucose Strip to a generic glucose strip meter system, procedure #s 3 and 4, pages 122, 125 of the procedure manual. NB 1/8/21

Revision signed and approved: Terence Lenhardt, MD 4/16/2015; 9/20/17; 2/7/19; 3/17/21