
Lab Dept: Chemistry

Test Name: GLUCOSE TOLERANCE 2 HOUR

General Information

Lab Order Codes: GTT

Synonyms: OGTT; Eval Glucose Tolerance

CPT Codes: 82951 – Glucose; tolerance test, three specimens
82952 – Glucose tolerance test, each additional beyond three specimens

Test Includes: Fasting glucose, administration of glucose tolerance beverage, ½ hour glucose, 1 hour glucose and 2 hour glucose. All glucose concentrations are reported in mg/dL.

Logistics

Test Indications: The most frequently encountered disorder of carbohydrate metabolism is high blood glucose (hyperglycemia) due to diabetes mellitus. Hypoglycemia is a blood glucose concentration below the fasting level in the GTT test. Serial measurement of plasma glucose before and after an oral dose of glucose provides one method to evaluate and diagnose diabetes mellitus.

Lab Testing Sections: Chemistry

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 30 minutes from receipt in the laboratory

Special Instructions: Contact the lab to schedule the test. The patient's weight is required to calculate the dose of glucose tolerance beverage to be given. See [Patient Preparation](#).

Specimen

Specimen Type: Blood

Container: **Preferred:** Green top (Li Heparin) tube
Alternate: Red, marble or gold top tube

Draw Volume: 0.6 mL blood, each collection

Processed Volume: 0.2 mL plasma/serum, each collection

Collection:

1. Following an overnight fast (8-14 hours), a fasting glucose is drawn, and processed immediately. The glucose value must be <126 mg/dL to proceed with the tolerance. If >126 mg/dL, consult with a Pathologist.
2. After the fasting glucose results are evaluated, have the patient drink the glucose tolerance beverage. Ingestion should be completed within 5 minutes. The timing starts when the patient finishes the required dose of glucose tolerance beverage.

The amount of glucose to administer is based on the following calculation:

of ounces to administer = body weight in kg X 0.175.

The maximum dose should not exceed 75 g of glucose or 7.5 ounces of the glucose tolerance beverage.

3. Draw the additional specimens at ½ hour, 1 hour and 2 hours after the ingestion of the glucose tolerance beverage and label each specimen with correct collection time.

Note:

- Patient is not allowed to smoke or drink, other than sips of water.
- Patient must remain seated during the test.
- Vomiting negates the test.

Special Processing: Fingertstick specimens are not recommended.

Patient Preparation: 8 - 14 hour fast. Patient must follow a special high carbohydrate (1.75 g/kg) diet prior to this test unless otherwise directed by physician.

Sample Rejection: Mislabeled or unlabeled specimens

Interpretive

Reference Range:

Fasting:	
0 – 1 month:	60 – 90 mg/dL
1 month – 12 years:	60 – 105 mg/dL
>12 years:	70 – 110 mg/dL
½ hour:	undefined
1 hour:	undefined

2 hour:	60 – 140 mg/dL
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Critical Values: <50 or >300 mg/dL

Limitations: Glucose tolerance testing should not be performed on hospitalized or acutely ill. Results obtained by glucose meter are not acceptable for a glucose tolerance.

Methodology: Hexokinase Ultraviolet (UV)

References: Clinical Chemistry (March 2002) Volume 48, Number 3, pg 436-446

[CAP Today](#) (2002) William Winter, MD

Product Insert: Thermo Fisher Scientific, Middletown, VA, 22645, 2010

AmJ Clin Pathol 1999;112:665-674

Pre-Analytical, Analytical and Post-Analytical Factors Influencing Specific Tests for Diagnosis and Monitoring of DM, Dubravka Juretic, eJIFCC vol 13 no5

Jacobs & DeMott Laboratory Test Handbook (2001) Lexi-Comp, Inc, Hudson, OH, 5th Edition

Updates: 8/28/2005: Critical value previously listed for patients 0-1 mo: <40 or >160 mg/dL.
12/14/2009: Edited calculation for # of ounces to be administered.
9/4/2014: Turnaround time updated, previously listed as 4 hours, references updated.
2/9/16: Update alt tube type