

## GLUCOSE TOLERANCE TESTS

### DEFINITIONS

Patient (Pt) testing options for glucose testing are shown below. Protocols and interpretations for individual glucose tolerance tests follow along with information on pediatric dosing.

All samples are heparinized plasma unless otherwise stated.

<b>Glucose, Fasting</b>	Pt is drawn <i>fasting</i> .	FBS
<b>Glucose, Post-Prandial</b>	Provider specifies what patient may eat and when collection is to occur after eating, prior to this draw. <b>No reference range</b> is provided.	GLU-PP
<b>Glucose, Random</b>	Random glucose. Although flagged using fasting glucose reference range, random non-fasting glucose may exceed this range.	GLU
<b>Glucose, 2 Hr Post Glucola, no fasting sample is tested</b>	<b>Fasting</b> Pt is given 75 g oral glucose (Glucola) and is drawn at 2 hours post-Glucola only.	GLU2H
<b>Glucose Tolerance – Fasting and 2 Hr sample</b>	Pt is drawn <i>fasting</i> , then given 75 g oral glucose (Glucola). Pt is drawn at 2 hours; the 2 hour sample is interpreted per ADA guidelines; serum is acceptable.	TBD GTADA
<b>Glucose Tolerance – extended – 2 Hr, 3 Hr, 4 Hr, 5 Hr</b>	Pt is drawn <i>fasting</i> , then given 75 g oral glucose (Glucola). Pt is drawn at hourly intervals for the duration of the specified tolerance. This tolerance must be ordered as described in later section. Physician determines the duration of the test.	GTT2HR GTT3HR GTT4HR GTT5HR

- The cutoff for fasting hyperglycemia has been lowered to 99 mg/dL per ADA revised guidelines.
- Random glucose values of > or = 200 mg/dL are diagnostic of Diabetes Mellitus (DM). Random glucose values of <200 mg/dL do not rule-out DM.

**TEST CODES:**

*Currently recommended per ADA Guidelines:*

Glucose Tolerance, fast & 2 hour

GTADA (0 hour fasting draw, and 2 hour post-Glucola draw)

*Maintained per MD preferences:*

When ordering these, choose test that incorporates the desired draw times.

Glucose Tolerance – 2 hour

GTT2HR (0, 1, 2 hour draws)

Glucose Tolerance – 3 hour

GTT3HR (0, 1, 2, 3 hour draws)

Glucose Tolerance – 4 hour

GTT4HR (0, 1, 2, 3, 4 hour draws)

Glucose Tolerance – 5 hour

GTT5HR (0, 1, 2, 3, 4, 5 hour draws)

**GLUCOSE TOLERANCE TEST FOR NON-PREGNANT ADULTS****PATIENT PREPARATION:**

The test should be performed on patients who are otherwise healthy and ambulatory (not hospitalized). Ideally the test should be performed in the morning after at least three days of unrestricted physical activity and diet adequate in carbohydrate intake (at least 150 g daily carbohydrate). The adult subject should fast at least eight (8) hours immediately prior to the start of the tolerance test. Water is permitted during this fasting period. During the test, the subject should remain seated (or minimal activity) and not smoke or consume caffeine-containing beverages.

**TEST DOSE:**

Administer a 75 g dose of glucose.

**PROCEDURE:**

Obtain a fasting blood specimen from the patient. Administer the dose. Have the patient drink the dose within a five-minute interval. Collect blood specimens at the indicated times within +/- 10 minutes. Centrifuge the blood specimen within 45 minutes after drawing and determine the plasma glucose.

**INDICATIONS FOR TESTING:**

Glucose levels are used to diagnose and manage diabetes mellitus and other carbohydrate metabolism disorders.

**INTERPRETATION OF ORAL GTT RESULTS:**

Interpretation of OGTT for Non-pregnant Adults and Children per 2004 ADA Guidelines:

	<u>Fasting</u>	<u>2 hour Post-Dose</u>
Reference (Normal) Range	70 – 99 mg/dL	<140 mg/dL
Diagnostic of Diabetes Mellitus (DM)	>=126 mg/dL	>=200 mg/dL
Impaired Fasting Glucose	100 – 125 mg/dL	
Impaired Glucose Tolerance		140 – 199 mg/dL

## **GLUCOSE TOLERANCE TEST FOR CHILDREN (Under 12 years of age)**

### **PATIENT PREPARATION:**

The test should be performed on patients who are otherwise healthy and ambulatory (not hospitalized). Ideally the test should be performed in the morning after at least three days of unrestricted physical activity and diet adequate in carbohydrate intake (at least 150 g daily carbohydrate). The subject should fast at least 8 hours immediately prior to the start of the tolerance test. Water is permitted during this fasting period. During the test, the subject should remain seated (or minimal activity) and not smoke or consume caffeine-containing beverages.

### **TEST DOSE:**

Administer the dose using a dose of 1.75 g/kg, according to the chart below, using a maximum dose of 75 g (225 mL). Other dosages may be specified by the pediatrician.

### **PEDIATRIC PATIENTS:**

Fractional Volume of glucose tolerance beverage to be given to a Child under 12 Years of Age, dosing at 1.75 g/kg.

All Volumes Based on 100 g/300 mL Bottle.

<u>Weight</u>	<u>Amount</u>	<u>Weight</u>	<u>Amount</u>	<u>Weight</u>	<u>Amount</u>
14 lbs	use 33 mL	16 lbs	use 38 mL	18 lbs	use 43 mL
20 lbs	use 48 mL	22 lbs	use 52 mL	24 lbs	use 57 mL
26 lbs	use 62 mL	28 lbs	use 67 mL	30 lbs	use 71 mL
32 lbs	use 76 mL	34 lbs	use 81 mL	36 lbs	use 86 mL
38 lbs	use 90 mL	40 lbs	use 95 mL	42 lbs	use 100 mL
44 lbs	use 105 mL	46 lbs	use 110 mL	48 lbs	use 114 mL
50 lbs	use 119 mL	52 lbs	use 124 mL	54 lbs	use 129 mL
56 lbs	use 133 mL	58 lbs	use 138 mL	60 lbs	use 143 mL
62 lbs	use 148 mL	64 lbs	use 152 mL	66 lbs	use 157 mL
68 lbs	use 162 mL	70 lbs	use 167 mL	72 lbs	use 171 mL
74 lbs	use 176 mL	76 lbs	use 181 mL	78 lbs	use 186 mL
80 lbs	use 191 mL	82 lbs	use 195 mL	84 lbs	use 200 mL
86 lbs	use 205 mL	88 lbs	use 210 mL	90 lbs	use 214 mL
92 lbs	use 219 mL	94 lbs	use 224 mL	96 lbs	use 225 mL

For all weights of 96 lbs or more, give a dose of 75 g (225 mL).

All Volumes Based on 75 g/296 mL Bottle.

<u>Weight</u>	<u>Amount</u>	<u>Weight</u>	<u>Amount</u>	<u>Weight</u>	<u>Amount</u>
14 lbs	use 44 mL	16 lbs	use 50 mL	18 lbs	use 56 mL
20 lbs	use 63 mL	22 lbs	use 69 mL	24 lbs	use 75 mL
26 lbs	use 81 mL	28 lbs	use 88 mL	30 lbs	use 94 mL
32 lbs	use 100 mL	34 lbs	use 107 mL	36 lbs	use 113 mL
38 lbs	use 119 mL	40 lbs	use 125 mL	42 lbs	use 132 mL
44 lbs	use 138 mL	46 lbs	use 144 mL	48 lbs	use 150 mL
50 lbs	use 157 mL	52 lbs	use 163 mL	54 lbs	use 169 mL
56 lbs	use 175 mL	58 lbs	use 182 mL	60 lbs	use 188 mL
62 lbs	use 194 mL	64 lbs	use 200 mL	66 lbs	use 207 mL
68 lbs	use 213 mL	70 lbs	use 219 mL	72 lbs	use 226 mL
74 lbs	use 232 mL	76 lbs	use 238 mL	78 lbs	use 244 mL
80 lbs	use 251 mL	82 lbs	use 257 mL	84 lbs	use 263 mL
86 lbs	use 269 mL	88 lbs	use 276 mL	90 lbs	use 282 mL
92 lbs	use 288 mL	94 lbs	use 294 mL	96 lbs	use 296 mL

For all weights of 96 lbs or more, give a dose of 75 g (296 mL).

**TEST CODE:**

Unless specified otherwise by the physician, the standard length of the tolerance is two hours. The test code is GTADA.

**PROCEDURE:**

Same as adults.