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GLUCOSE TOLERANCE TEST
(for the diagnosis of diabetes mellitus)

This test is usually carried out to establish a diagnosis of diabetes mellitus (or glucose intolerance) when the fasting venous plasma glucose is < 7.0 mmol/L. **It is recommended to measure fasting blood glucose** before requesting this test. Glucose meters are **not suitable** for the diagnosis or exclusion of diabetes, but may be useful in screening for diabetes and monitoring the treatment of known diabetics.

Patient preparation:

The patient must have been on a 150 g carbohydrate diet for 3 days prior to the test, and should fast from midnight on the day of the test (only water is allowed). The test should commence at around 09.00 am, and smoking is not allowed during the test.

Procedure:

1. Take 2 mL blood for glucose and transfer the sample to a fluoride oxalate tube.
2. **Adult:** Give patient 75 g glucose in 200 mL water orally **OR** Lucozade (GlaxoSmithKline) as below.

| <u>Formulation</u> | <u>Energy content</u> (kcal/100mL) | <u>Amount for 75g</u> <u>WHO GTT (mL)</u> |
|------------------------|---------------------------------------|--|
| <i>Old</i> | 73 | 394 |
| <i>New (July 2007)</i> | 70 | 410 |

Child: (rarely required) Give 1.75 g of glucose per kg body weight, up to a maximum of 75 g.

3. At 2 hours after glucose, take a further 2 ml fluoride oxalate sample for glucose.
4. Send the clearly labelled samples including times of collection of blood together with request form to Chemical Pathology.

Interpretation of OGTT:

Venous plasma glucose concentration (mmol/L)

Diabetes Mellitus:

Fasting *or* ≥ 7.0
2 hour post glucose load ≥ 11.1

Impaired Glucose Tolerance (IGT):

Fasting (if measured) *and* < 7.0
2 hour post glucose load ≥ 7.8 and < 11.1

Impaired Fasting Glycaemia (IFG):

Fasting *and* ≥ 6.1 and 7.0
2 hour post glucose load (if measured) < 7.8

The diagnosis of diabetes should never be made on the basis of glycosuria or a stick reading of a finger prick blood glucose alone, although such tests may be useful for screening purposes. HbA1c measurement is also not recommended for the diagnosis of diabetes.