Department of Clinical Chemistry
Tallaght Hospital

Telephone: **(01) 414 3911**
Email: gerard.boran@amnch.ie

A CPA-Accredited Clinical Laboratory

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Re: Use of HbA1c as a diagnostic test for diabetes in adults

The WHO (2011) Diabetes Guidelines for the first time permits the use of HbA1c as a diagnostic test for diabetes in certain circumstances (www.who.int/diabetes/publications/diagnosis_diabetes2011/en/index.html). This should simplify the diagnosis particularly of the very common Type 2 Diabetes in adults and hence we are implementing this strategy at Tallaght Hospital.

In combination with judicious use of plasma glucose measurements, this should also obviate the need to perform Glucose Tolerance tests in these patients except in rare circumstances.

Initial Testing Recommendation

Initial testing in **non-pregnant adult patients suspected of having type 2 diabetes** should now include **a Fasting Venous Plasma Glucose and concurrent HbA1c measurement**
Patient selection may be further refined by using a type 2 diabetes risk-assessment questionnaire such as FINDRISC (see: www.diabetes.fi/en/finnish_diabetes_association/dehko/publications)

Diagnosis

A:- Symptoms

When classic symptoms of hyperglycaemia are present, any **ONE** of the Laboratory measurements **(B)** is sufficient to establish the diagnosis (and usually the quoted thresholds are significantly exceeded).

In the absence of classic symptoms, **ANY TWO** of the Laboratory measurements **(B)** may be used to establish the diagnosis of diabetes.

B:- Laboratory Data Diagnostic Cut-points for diabetes (WHO-2011):

IFCC HbA1c ≥ 48 mmol/L (6.5%) NEW

Fasting Venous Plasma Glucose ≥ 7.0 mmol/L

Random Venous Plasma Glucose ≥ 11.1 mmol/L

HbA1c

For HbA1c, a value of **≥** 48 mmol/mol (6.5% in the old units) using an IFCC-standardised method (as pertains in any accredited laboratory in Ireland) is recommended as the cut-point for diagnosing diabetes.

A number of exclusions apply where HbA1c measurement is not suitable (see list) however in the vast majority of cases the diagnosis of diabetes can be established on

the basis of plasma glucose measurements without recourse to Glucose Tolerance testing.

List of exclusions (do not rely on HbA1c testing for diagnosis)

- All children and young people
- Patients of any age suspected of having Type 1 diabetes
- Patients with symptoms of diabetes for less than 2 months
- Patients at high diabetes risk who are acutely ill (e.g. those requiring hospital admission)
- Patients taking medication that may cause rapid glucose rise e.g. steroids, antipsychotics
- Patients with acute pancreatic damage, including pancreatic surgery
- In pregnancy
- Presence of genetic, haematological and illness-related factors that influence HbA1c and its measurement (e.g known haemoglobinopathy, altered red cell survival)

See Guideline for comprehensive information.

Glucose Tolerance Testing

As a result of these changes, we will not be providing an open access service for GTTs. All requests for GTT will need to be discussed in advance of ordering with the Chemical Pathology team.

Intermediate Findings and Areas of Uncertainty

As with plasma glucose measurements at present, intermediate findings also occur commonly with use of HbA1c for diagnosis. Most patients with abnormal glucose or HbA1c values which fall short of diabetes are likely to benefit from lifestyle and other interventions as for existing pre-diabetes management. Further information and suggested approaches can be found in the Guideline. We are also happy to answer any queries you have on these patients by contacting us or the diabetes team.

Yours sincerely

GERARD BORAN FRCPath, FFPath (RCPI), FRCPI
CONSULTANT CHEMICAL PATHOLOGIST
MCN# 00399