DEFINITION AND DIAGNOSIS OF DIABETES MELLITUS AND INTERMEDIATE HYPERGLYCAEMIA

World Health Organization

International Diabetes Federation

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REPORT OF A WHO/IDF CONSULTATION

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SUMMARY OF TECHNICAL REPORT AND RECOMMENDATIONS

Since 1965 the World Health Organization (WHO) has published guidelines for the diagnosis and classification of diabetes. These were last reviewed in 1998 and were published as the guidelines for the *Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications*. Since then more information relevant to the diagnosis of diabetes has become available. In November 2005 a joint WHO and International Diabetes Federation (IDF) Technical Advisory Group met in Geneva to review and update the current WHO guidelines.

After consideration of available data and recent recommendations made by other organisations, the Group made the following recommendations:

Recommendation 1 The current WHO diagnostic criteria for diabetes should be maintained – fasting plasma glucose ≥ 7.0mmol/l (126mg/dl) or 2–h plasma glucose ≥ 11.1mmol/l (200mg/dl).

Despite the limitations with the data from which the diagnostic criteria for diabetes are derived, the current criteria distinguish a group with significantly increased premature mortality and increased risk of microvascular and cardiovascular complications.

Recommendation 2 Since there are insufficient data to accurately define normal glucose levels, the term 'normoglycaemia' should be used for glucose levels associated with low risk of developing diabetes or cardiovascular disease, that is levels below those used to define intermediate hyperglycaemia.

Recommendation 3 The current WHO definition for Impaired Glucose Tolerance (IGT) should be maintained for the present.

Consideration should be given to replacing this category of intermediate hyperglycaemia by an overall risk assessment for diabetes, cardiovascular disease, or both, which includes a measure of glucose as a continuous variable.

Recommendation 4 The fasting plasma glucose cut-point for Impaired Fasting Glucose (IFG) should remain at 6.1mmol/l.

This decision was based on concerns about the significant increase in IFG prevalence which would occur with lowering the cut-point and the impact on individuals and health systems. There is a lack of evidence of any benefit in terms of reducing adverse outcomes or progression to diabetes and people identified by a lower cut-point eg 5.6mmol/l (100mg/dl) have a more favourable cardiovascular risk profile and only half the risk of developing diabetes compared with those above the current WHO cut-point. Lowering the cut-point would increase the proportion of people with IGT who also have IFG but decreases the proportion of people with IFG who also have IGT.

Consideration should be given to replacing this category of intermediate hyperglycaemia by an overall risk assessment for diabetes, cardiovascular disease, or both, which includes a measure of glucose as a continuous variable.

Recommendation 5

1. Venous plasma glucose should be the standard method for measuring and reporting glucose concentrations in blood. However in recognition of the widespread use of capillary sampling, especially in under-resourced countries, conversion values for capillary plasma glucose are provided for post-load glucose values. Fasting values for venous and capillary plasma glucose are identical.
2. Glucose should be measured immediately after collection by near-patient testing, or if a blood sample is collected, plasma should be immediately separated, or the sample should be collected into a container with glycolytic inhibitors and placed in ice-water until separated prior to analysis.

Recommendation 6 The oral glucose tolerance test (OGTT) should be retained as a diagnostic test for the following reasons:

- fasting plasma glucose alone fails to diagnose approximately 30% of cases of previously undiagnosed diabetes,
- [illegible] OGTT is the only means of identifying people with IGT