

Diagnostic Criteria and Classification of Hyperglycaemia First Detected in Pregnancy

© World Health Organization 2013

All rights reserved. Publications of the World Health Organization can be obtained from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int). Requests for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press, at the above address (fax: +41 22 791 4806; e-mail: permissions@who.int).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

Executive summary

The high prevalence of diabetes globally and its increasing frequency in women of gestational age have generated new research data on the relationship between glycaemia and pregnancy outcomes. The diagnostic criteria for hyperglycaemia in pregnancy recommended by the World Health Organization (WHO) in 1999 were not evidence-based and needed to be updated in the light of previously unavailable data. The update follows the WHO procedures for guidelines development. Systematic reviews were conducted for key questions, and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology was applied to assess the quality of the evidence and to determine the strength of the recommendation on the diagnostic cut-off values for gestational diabetes. Where evidence was absent (diagnosis of diabetes in pregnancy) or GRADE was not deemed suitable (classification), recommendations were based on consensus.

The systematic review of cohort studies showed that women with hyperglycaemia detected during pregnancy are at greater risk for adverse pregnancy outcomes, notably, macrosomia of newborn and pre-eclampsia, even after excluding the more severe cases of hyperglycaemia that required treatment. Treatment of gestational diabetes (GDM) is effective in reducing macrosomia, large for gestational age, shoulder dystocia and pre-eclampsia/hypertensive disorders in pregnancy. The risk reduction for these outcomes is in general large, the number need to treat is low, and the quality of evidence is adequate to justify treatment of GDM.

1. Hyperglycaemia first detected at any time during pregnancy should be classified as either :

- **Diabetes mellitus in pregnancy (see recommendation 2)**
- **Gestational diabetes mellitus (see recommendation 3)**

Quality of evidence: not graded

Strength of recommendation: not evaluated

Current definitions of gestational diabetes include women with diabetes and women with intermediate hyperglycaemia – impaired glucose tolerance (IGT)

and impaired fasting glycaemia (IFG) as defined in non-pregnant adults. Concern has been expressed about the inclusion of such a wide range of glucose abnormalities in one definition, especially including those with more severe hyperglycaemia which defines diabetes in non-pregnant adults. This concern centres on special considerations about management during pregnancy and post-partum follow-up in women with more severe hyperglycaemia. Drawing conclusions about this group is particularly difficult because of the lack of good quality data at higher levels of hyperglycaemia since these women are excluded from epidemiological studies and randomised trials of GDM treatment. Recent consensus has moved back in favour of distinguishing between diabetes and lesser degrees of glucose intolerance in pregnancy. Therefore this guideline recommends a distinct category for pregnant women with glucose levels diagnostic of diabetes in non-pregnant adults based on the following:

- consensus that diabetes during pregnancy, whether symptomatic or not, is associated with significant risk of adverse perinatal outcomes
- pregnant women with more severe hyperglycaemia have been excluded from epidemiologic and intervention studies
- management of women with this level of hyperglycaemia requires assessment of chronic complications and is more likely to require pharmacological intervention, especially when detected earlier in the pregnancy

2. Diabetes in pregnancy should be diagnosed by the 2006 WHO criteria for diabetes if one or more of the following criteria are met:

- **fasting plasma glucose ≥ 7.0 mmol/l (126 mg/ dl)**
- **2-hour plasma glucose ≥ 11.1 mmol/l (200 mg/dl) following a 75g oral glucose load**
- **random plasma glucose ≥ 11.1 mmol/l (200 mg/ dl) in the presence of diabetes symptoms.**

Quality of evidence: not graded

Strength of recommendation: not evaluated

Diagnostic criteria for diabetes in non-pregnant individuals are based on the relationship between plasma glucose values and the risk of diabetes-specific microvascular complications. There are no data on this relationship in untreated pregnant women and such data are unlikely to emerge. Therefore, it was decided to recommend the same diagnostic criteria for diabetes in both pregnant and non-pregnant individuals.

3. Gestational diabetes mellitus should be diagnosed at any time in pregnancy if one or more of the following criteria are met:

- fasting plasma glucose 5.1-6.9 mmol/l (92 -125 mg/dl)
- 1-hour plasma glucose ≥ 10.0 mmol/l (180 mg/dl) following a 75g oral glucose load*
- 2-hour plasma glucose 8.5-11.0 mmol/l (153 -199 mg/dl) following a 75g oral glucose load

*there are no established criteria for the diagnosis of diabetes based on the 1-hour post-load value

Quality of evidence: very low

Strength of recommendation: weak

Diagnostic criteria for GDM are based on the risk of adverse pregnancy outcomes. However since there is a continuous risk of adverse outcomes with increasing glycaemia, any diagnostic thresholds will be somewhat arbitrary. The IADPSG Consensus Panel decided to define diagnostic values on the basis of an odds ratio of 1.75 for adverse neonatal outcomes (birth weight >90th percentile, cord C-peptide >90th percentile, and neonatal percent body fat >90th percentile) compared with mean values, for fasting plasma glucose, 1-hour, and 2-hour OGTT plasma glucose values.

The simulation study reported in Section 3.4.1. demonstrated some advantages of these criteria compared with the previous WHO criteria, with lower numbers needed to screen to prevent adverse outcomes. In the interest of moving towards a universal standard recommendation for the diagnosis of GDM, the WHO guideline development group decided to accept the general principles behind how the

International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria were derived and adopt these criteria, rather than introduce another set of arbitrary cut-off values. This definition applies for the diagnosis of GDM at any time during pregnancy.

This guideline:

- takes into consideration new evidence from the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study
- proposes a new classification for hyperglycaemia first detected in pregnancy
- removes the ambiguity with regard to fasting plasma glucose values in the 1999 WHO guideline
- clarifies ambiguities in the IADPSG criteria related to ranges of plasma glucose values for distinguishing diabetes in pregnancy and GDM.

1. Introduction

Diabetes complicating pregnancy is associated with adverse maternal and perinatal outcomes¹. Lesser degrees of glucose intolerance have also been shown to be harmful². However, how one defines what constitutes glucose intolerance in pregnancy has been an issue of considerable controversy, complicating clinical practice and research over the last three decades. The main reason for this diagnostic dilemma is the large number of procedures and glucose cutoffs proposed for the diagnosis of glucose intolerance in pregnancy. In 2010, the WHO convened an expert group to reviewed the current WHO recommendations on definition, diagnosis and classification of glucose intolerance in pregnancy³

1.1. Objectives and target audience

The objective of this guideline is to update the 1999 WHO recommendations for diagnosing and classifying hyperglycaemia in pregnancy³. The target users are health care professionals who care for pregnant women, most frequently primary care physicians and obstetricians/gynaecologists. However, researchers and policy makers will also find it useful.

1.2. Members of the Guideline Development Group

A guideline development group (GDG) was constituted, which included external experts and WHO staff.

External experts

Dr Mukesh M. Agarwal
Faculty of Medicine
UAE University
Al Ain
United Arab Emirates

Area of expertise: screening and diagnosis of gestational diabetes, laboratory quality assurance

Dr Michel Boulvain
Service d'obstétrique Maternité HUG
Faculty of Medicine
University of Geneva
Switzerland

Area of expertise: guideline development, systematic reviews, diabetes in pregnancy

Dr Edward Coetzee
Dept Obstetrics & Gynaecology
Groote Schuur Hospital
University of Cape Town
South Africa
Area of expertise: diabetes in pregnancy in Africa

Dr Stephen Colagiuri
Boden Institute of Obesity, Nutrition and Exercise
The University of Sydney
Australia
Area of expertise: guideline development, diabetes management

Dr Maicon Falavigna
Post Graduate Program in Epidemiology
Universidade Federal do Rio Grande do Sul
Porto Alegre
Brazil
Area of expertise: clinical epidemiology, systematic reviews, GRADE methodology

Dr Moshe Hod
Helen Schneider Hospital for Women
Rabin Medical Center
Sackler Faculty of Medicine
Tel-Aviv University, Petah-Tiqva
Israel
Area of expertise: perinatal medicine, diabetes in pregnancy

Dr Sara Meltzer
Departments of Medicine and Obstetrics and Gynaecology
McGill University
Montreal
Canada
Area of expertise: diagnosis of GDM, economic evaluation of screening strategies, guideline development

Dr Boyd Metzger

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_28282

