# ADIPS Consensus Guidelines for the Testing and Diagnosis of Hyperglycaemia in Pregnancy in Australia and New Zealand
**(modified November 2014)**

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**The Australasian Diabetes in Pregnancy Society (ADIPS) originally formulated recommendations for the testing and diagnosis of gestational diabetes mellitus (GDM) in 1991.[1] These guidelines were primarily based on expert opinion. With some local variations, the ADIPS guidelines have been used since that time. In the light of recent evidence, ADIPS has elected to revise these guidelines in the current document. Recommendations for future research are summarised at the end of this document.**

**The Hyperglycemia and Adverse Pregnancy Outcome study (HAPO) published in 2008[2] was a large, prospective, blinded, multinational, observational study that examined pregnancy outcomes in 23,316 women whose plasma glucose (PG) levels were ≤ 5.8mmol/L fasting and ≤ 11.1mmol/L 2-hrs post 75g oral glucose load. This study reported a strong correlation between increasing maternal glucose levels at 24-32 weeks gestation and a range of adverse maternal and fetal outcomes. Subsequent consideration by the International Association of Diabetes and Pregnancy Study Groups (IADPSG), with Australasian representation, resulted in the formulation of new consensus guidelines for the testing and diagnosis of GDM.[3] These**

## Risk factors for hyperglycaemia in pregnancy

**Previous hyperglycaemia in pregnancy**
**Previously elevated blood glucose level**
**Maternal age ≥40 years**
**Ethnicity: Asian, Indian subcontinent, Aboriginal, Torres Strait Islander, Pacific Islander, Maori, Middle Eastern, non-white African**
**Family history DM (1$^{st}$ degree relative with diabetes or a sister with hyperglycaemia in pregnancy)**
**Pre-pregnancy BMI > 30 kg/m$^2$**
**Previous macrosomia (baby with birth weight > 4500 g or > 90$^{th}$ centile)**

(c) a random plasma glucose 11.1 mmol/l in the presence of diabetes symptoms.

2. The diagnosis of gestational diabetes mellitus at any time during pregnancy should be based on any one of the following values:
   (a) Fasting plasma glucose 5.1–6.9 mmol/l ;
   (b) 1-h post 75 g oral glucose load 10.0 mmol/l*;
   (c) 2-h post 75 g oral glucose load 8.5–11.0 mmol/l .

   *there are no established criteria for the diagnosis of diabetes mellitus in pregnancy based on the 1-h post-load value

Diabetes in pregnancy may not necessarily be confirmed as diabetes in the postpartum period. Diabetes is more likely to be confirmed in the postpartum period when the hyperglycaemia in pregnancy is diagnosed early and/or the degree of hyperglycaemia is marked.

### Levels of evidence

The diagnostic criteria are in accord with those chosen by the WHO. The 0, 1 and 2 hour values were chosen to identify the same risk of an adverse fetal outcome at each time point.

There are 2 large, RCTs (and other intervention studies)[6,7,8] which clearly demonstrate the benefits of treatment for both mother and fetus (Level 1 evidence) although the diagnostic criteria used in these studies were not consistent, and are slightly different from the values selected by the WHO and used in these guidelines.

In areas where the rate of undiagnosed type 2 diabetes is thought to be high, or in remote areas where the performance of a POGTT may be logistically difficult, a measurement of $HbA_{1c}$ can be considered. A level of ≥ 48mmol/mol (6.5%) is diagnostic of diabetes outside pregnancy and very likely represents previous undiagnosed type 2 diabetes. There is insufficient evidence to correlate lower levels of $HbA_{1c}$ with lesser degrees of glucose intolerance.

## 2. Suggested treatment targets in GDM

**3.**

## Acknowledgements

This second version of the guidelines has been produced with the assistance of the Royal Australasian College of Obstetrics and Gynaecology (RANZCOG) and the Royal College of Pathologists of Australia (RCPA). With the advice of the RCPA, the OGTT in pregnancy has been designated the pregnancy OGTT (POGTT). With the advice of the RANZCOG, the treatment targets and risk stratification have been moved to the section requiring further research.

## Areas requiring further research

These guidelines are based on available evidence and expert opinion. In many cases, the available data are not definitive. In the opinion of the ADIPS writing group, the following questions will need to be addressed.

**Resource allocation.** It is acknowledged that the increased prevalence of hyperglycaemia in pregnancy, even with potential revised models of care, will have resource implications. ADIPS would welcome participation in any comprehensive review of obstetric and neonatal resource allocation relating to hyperglycaemia in pregnancy.

**Early testing.** Hyperglycaemia of pregnancy is generally diagnosed in the late second or early third trimester. Early detection and treatment may potentially improve outcomes. However, there is a dearth of evidence in this area. We see a critical need for well-designed studies to determine the most appropriate means of testing for gestational diabetes in early pregnancy and to explore the outcomes of early treatment interventions.

**Alternatives to the GTT.** In some geographic areas, it is difficult for a fasting test or POGTT to be conducted. More research is required to assess the clinical utility of using diagnostic fasting levels in early pregnancy and random glucose levels (with confirmatory testing) at any time during the pregnancy. Much will depend on how local antenatal services are organised and on the preferences of the obstetric care providers and their patients.

**Diagnostic criteria.** Two large studies have already shown advantages of treatment for

**1-hour BG after commencing meal: ≤ 7.4mmol/L**
**2 hour BG after commencing meal: ≤ 6.7mmol/L**

**The 2 large RCTs [6,7] have demonstrated the benefits of treating hyperglycaemia in pregnancy using treatment targets of fasting < 5.3 and 5.5 mmol/L and 2 hour values of < 6.7 or 7 mmol/L respectively. There is level 1 evidence for a two-hour value of 6.7 mmol/L. The fasting target of < 5.1 has been chosen from observational data. There is level 1 evidence for a value of < 5.3 mmol/L. The one-hour target of < 7.4 mmol/L is based on the normal glucose levels in a small number of normal pregnant women. There is no evidence to indicate the risk-benefit ratio of treating to this target.**

**These suggestions are for self-measured capillary blood glucose (BG) levels. The reliability of these measurements is dependent on multiple factors, including the intrinsic accuracy of meters. When considering BG levels in individual women, the patterns of glycaemia are more important than individual results. Outlying BG levels are likely to be due to dietary or other lifestyle-related factors. In general, at least 2 elevated levels, at a given testing time, in 1 week, after consideration of dietary factors, should be a prompt to consider additional therapy.**

**These recommendations regarding treatment targets have been based on consensus discussions within ADIPS relating to limited but "best available" data. The validity of these treatment targets will need to be evaluated.**

**$HbA_{1c}$. This currently has limited use for the diagnosis, management and postpartum assessment of women with hyp6.916 0 Tc2(w)5.006 (est)-5.00387(yl)1unt w**

## References


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