



## Consensus panel proposes new diagnostic criteria for gestational diabetes

📌 To start, discard the 1-hour glucose loading test and the 3-hour OGTT, a global group says. Are you going to sign on, or remain an “OBSkeptictrician”?

To and fro, obstetricians and endocrinologists have long debated the relative value of diagnosing and treating gestational diabetes mellitus (GDM). No doubt, significant health advantages can follow from identifying and treating women who have GDM, including:

- protecting the fetus from macrosomia and a lifetime of excess body fat and obesity
- avoiding birth injury, such as shoulder dystocia, and life-long paralytic disability
- early recognition of a group of women at risk of type 2 diabetes mellitus, which can result in cardiovascular disease and premature death when undertreated.<sup>1-6</sup>

### Setting thresholds is a key sticking point

A fundamental issue with establishing diagnostic criteria for GDM, however, is that a continuum relationship exists between, on one hand, the maternal circulating glucose concentration below a level diagnostic of type 2 diabe-

tes mellitus and, on the other hand, such outcomes as macrosomia, neonatal hyperglycemia, preeclampsia, preterm delivery, shoulder dystocia, birth injury, hyperbilirubinemia, and admission to a neonatal intensive care nursery. That is why there's been a need for an expert consensus panel to establish glucose cutoffs that separate a “normal” state from GDM, based on an analysis of benefits and risks.

In June 2008, the International Association of Diabetes and Pregnancy Study Group convened 225 experts, from 40 countries, to review data and establish new criteria for diagnosing GDM.<sup>7</sup> The panel decided that its target for detailed analysis should be a **maternal glucose concentration that resulted in an increased risk of 1.75 for various adverse outcomes.**

### PART 1: New criteria for making a diagnosis of GDM

Consequently, the Study Group consensus panel concluded that GDM should be diagnosed when *any one* of three tests is abnormal:

- **fasting venous plasma glucose**  $\geq 92$  mg/dL but  $< 126$  mg/dL
- **1-hour glucose** after a 75-g oral glucose load (the oral glucose tolerance test [OGTT])  $\geq 180$  mg/dL
- **2-hour glucose** after a 75-g OGTT  $\geq 153$  mg/dL.

Note the implications of these conclusions on diagnosis: Among the findings of the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study,<sup>4</sup> 8.3% of subjects had a fasting venous plasma glucose  $\geq 92$  mg/dL, and would be diagnosed with GDM, and an additional 7.8% had a 1-hour or 2-hour glucose above threshold limits after an OGTT. In total, therefore, 11.1% of women in the HAPO study had one elevated result; 3.9% had two elevated results; and 1.1% had all three results elevated.

### PART 2: New criteria for diagnosing overt diabetes in pregnancy

The Study Group consensus panel recommended using the following tests and thresholds to diagnose **overt diabetes** (*not* GDM) in pregnancy:

- **fasting venous plasma glucose**  $\geq 126$  mg/dL
- **hemoglobin A<sub>1c</sub>**  $\geq 6.5\%$
- **random plasma glucose**  $\geq 200$  mg/dL.

If one of the tests listed above is abnormal, a confirmatory test is clinically appropriate.

### Testing during first and second trimesters

The consensus panel recommends that, at the *first prenatal visit*, you

What is the hemoglobin A<sub>1c</sub> level an indicator of?

Take Dr. Barbieri's **Instant Quiz**

👉 on GDM on page 8.

## Interventions to prevent gestational diabetes

The percentage of pregnant women who have gestational diabetes mellitus (GDM) is increasing: In Massachusetts, from 1998 to 2006, the rate rose from 3.4% to 4.9%.

In part, we've seen this rise because minority women, older women, and overweight women—all of whom are at increased risk of GDM—account for a growing percentage of pregnant women.<sup>1</sup> Given ongoing change in these birth demographics, the increase in the rate of GDM over the past decade will likely continue—even accelerate.

### We can make a difference. Here is how.

Effective interventions for preventing GDM are to **1)** optimize metabolic conditioning and body mass before pregnancy and **2)** exercise and limit weight gain, consistent with fetal health, during pregnancy.<sup>2</sup>

In a large cohort study, a BMI >25 kg/m<sup>2</sup> was associated with a relative risk of having a diagnosis of GDM of 2.25, compared with the risk in women whose BMI was <25 kg/m<sup>2</sup>.<sup>3</sup>

Abdominal obesity, as measured by waist-hip ratio, also appears to be independently associated with an increased risk of GDM. In a small clinical trial, exercise training during pregnancy—comprising 200 minutes of cycling a week at 65% of predicted aerobic capacity—reduced birth weight by 4%, improved maternal insulin sensitivity, and reduced concentrations of fetal cord insulin-like growth factors I and II.<sup>4</sup>

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measure the fasting venous plasma glucose, hemoglobin A<sub>1c</sub>, or random plasma glucose in either all women or high-risk women only. If the result indicates overt diabetes, provide treatment and follow-up as is standard for a pregnant woman who has pregestational diabetes mellitus. If the result is *not* diagnostic of overt diabetes and the fasting blood glucose level is ≥92 mg/dL but <126 mg/dL, then GDM should be diagnosed. If the fasting venous plasma glucose is <92 mg/dL, then you should perform a 75-g

OGTT at 24 to 28 weeks' gestation.

The panel recommends that, at *24 to 28 weeks' gestation*, a 2-hour, 75-g OGTT be performed following an overnight fast on all women not previously diagnosed with overt diabetes or GDM during the first-trimester testing. Based on the results of the 75-g OGTT, diabetes would be diagnosed if the fasting venous plasma glucose is ≥126 mg/dL. You would diagnose GDM if the 1-hour fasting venous plasma glucose is ≥180 mg/dL or the 2-hour result is ≥153 mg/dL.

Although the panel did *not* recommend applying the following piece of information in clinical practice, it noted that, if the fasting venous plasma glucose is ≤80 mg/dL in the first trimester, **1)** it is unlikely that the patient will have an adverse pregnancy outcome attributable to hyperglycemia and **2)** it might be possible to avoid the second-trimester OGTT in this select group

## Immediate implications for care

The consensus panel recommends ending use of the 1-hour glucose loading test and the 3-hour OGTT. They recommend that you use a 2-hour 75-g OGTT whenever you employ an oral glucose load in the algorithm for diagnosing diabetes—whether your patient is pregnant or not.

The panel also recommends that you evaluate pregnant women for diabetes mellitus during the first trimester *and again* at 24 to 28 weeks' gestation.

**Reported incidence will rise.** Using these consensus recommendations means that more pregnant women will be given a diagnosis of gestational diabetes. An unintended effect of putting a GDM label on more women could be that we see more inductions and other obstetric interventions—some of which will represent unnecessary costs and lead to adverse outcomes.

**Emphasis on detecting type 2 diabetes will strengthen.** OBs and primary care providers need to do more to ensure that women who have a history of GDM are routinely evaluated for type 2 diabetes mellitus after delivery and as they age. Screening for type 2 diabetes has now been simplified by the consensus group's recommendation that you test for hemoglobin A<sub>1c</sub>—with a level ≥6.5% suggesting a diagnosis of diabetes.

CONTINUED ON PAGE 8

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Wednesday, June 2	12:00 NOON
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*Heavy Menstrual Bleeding  
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DATE	EASTERN
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Wednesday, June 9	7:00 PM
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*Idiopathic Heavy  
Menstrual Bleeding*

DATE	EASTERN
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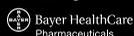
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## Editorial

### These proposals probably won't end the back-and-forth

Proponents and skeptics are likely to continue their back-and-forth about the right approach to diagnosing and treating GDM. It's likely that additional research is needed to more firmly establish a quantitative relationship between the newly proposed criteria for diagnosing GDM, and various fetal, childhood, and maternal outcomes. In addition, more research is needed to identify the most cost-effective approach to diagnosing and treating GDM.

When it comes to GDM, are you an OBskeptitrician or an OBconvert?

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### References

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## Instant Quiz



### Gestational diabetes mellitus: True or False?

1. White women are at greater risk of gestational diabetes mellitus (GDM) than women from Southeast Asia because the latter tend to have a smaller body mass index. **TRUE? FALSE?**
2. Nutritional recommendations for women who have GDM include dividing calories over three meals and three snacks that, in total, have a nutritional distribution of 20% carbohydrate, 30% protein, and 50% fat. **TRUE? FALSE?**
3. When using a 50-g glucose test to screen women for GDM, a plasma or serum glucose threshold  $\geq 130$  mg/dL is more sensitive than a glucose threshold  $\geq 140$ . **TRUE? FALSE?**
4. Hemoglobin A<sub>1c</sub> is a measurement of glucose control over the preceding 3 months. **TRUE? FALSE?**
5. Iron deficiency anemia is associated with an increased hemoglobin A<sub>1c</sub> value in pregnant and nonpregnant women. **TRUE? FALSE?**

See page 68 for the answers.

