Burden of Diabetes in Pregnancy
Diabetes in Pregnancy Is Increasing

Single-State Retrospective Study*1 (N=209,287 screened pregnancies)

19-State Retrospective Study†2

*Kaiser Permanente Hospitals, Southern California.
†AHRQ inpatient database, 19 U.S. states.

AHRQ, Agency for Healthcare Research and Quality; GDM, gestational diabetes mellitus; T1D, type 1 diabetes; T2D, type 2 diabetes.

Pregnancy Complicated by Pre-existing Diabetes, But Not GDM, Is Rising

Kaiser-Permanente Study (N=175,249*)

*Women with 209,287 singleton deliveries of 20 weeks' gestation.

## Risks Associated With Diabetes in Pregnancy

<table>
<thead>
<tr>
<th>Maternal Risks</th>
<th>Fetal Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preeclampsia</td>
<td>• Birth injuries</td>
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<tr>
<td>• Increased caesarean delivery</td>
<td>• Childhood obesity</td>
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<tr>
<td>• Subsequent development of T2D</td>
<td>• Hyperbilirubinemia</td>
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<tr>
<td>• 30% maternal mortality rate</td>
<td>• Hypoglycemia</td>
</tr>
<tr>
<td>• Progression of chronic complications of diabetes</td>
<td>• Macrosomia</td>
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<tr>
<td>• Gestational hypertension</td>
<td>• Shoulder dystocia</td>
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<tr>
<td>• Hypoglycemia</td>
<td>• Respiratory distress syndrome</td>
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<tr>
<td>• Infection (eg, pyelonephritis)</td>
<td>• Premature birth</td>
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<tr>
<td>• Ketoacidosis</td>
<td>• Increased cord-blood serum C-peptide levels</td>
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<tr>
<td>• Polyhydramnios</td>
<td>• Abnormal birth weight (low or high)</td>
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<tr>
<td>• Preterm labor</td>
<td>• Increased risk of T2D and/or GDM later in life</td>
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<tr>
<td>• Seizures</td>
<td>• Increased congenital malformations</td>
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<tr>
<td>• Doubled spontaneous abortion risk</td>
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<tr>
<td>• Maternal birth weight &lt;4 lb 7 oz</td>
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</tbody>
</table>

GDM, gestational diabetes mellitus; T2D, type 2 diabetes.

Pathophysiology of Gestational Diabetes Mellitus

Insulin resistance due to placental secretion of anti-insulin hormones

Maternal hepatic glucose production increases by 15%-30% to meet fetal demand late in pregnancy

Pancreatic β-cell dysfunction due to
- Genetics
- Autoimmune disorders
- Chronic insulin resistance

Gestational diabetes mellitus

GDM: Etiology and Risk Factors

**Etiology**
- Hormonally induced insulin resistance
- Leads to impaired glucose tolerance
- Eventually progresses to diabetes

**Risk factors**
- Obesity
- Previous history of GDM
- Prior delivery of a large baby (>9 lbs)
- Glycosuria
- History of diabetes in a first-degree relative

**Risk of future T2D**
- 5%-10% of women with GDM develop T2D immediately postpartum
- 35%-60% chance of T2D over next 10-20 years

Cost-Effectiveness of New Screening Criteria

- International Association of the Diabetes and Pregnancy Study Groups (IADPSG) has proposed new screening criteria for gestational diabetes mellitus (GDM)
  - For every 100,000 women screened under the updated criteria, 6,178 quality-adjusted life-years (QALYs) will be gained at a cost of approximately $126 million
  - Compared with current GDM screening practices, the new IADPSG strategy has an incremental cost-effectiveness ratio (ICER) of $20,336 per QALY gained