# TESTING FOR DIABETES IN PREGNANCY

| **DEFINITION** | Gestational diabetes: Diabetes which develops during pregnancy and resolves after pregnancy.  
Pregestational diabetes: Diabetes which developed prior to pregnancy or does not resolve after pregnancy.  
About 6-7% of US pregnancies are complicated by diabetes; 85% of cases are gestational diabetes. Diabetes is a risk factor for poor pregnancy outcomes. |
| --- | --- |

<table>
<thead>
<tr>
<th><strong>SUBJECTIVE</strong></th>
<th><strong>Prenatal Patient with History of Pregestational Diabetes</strong></th>
<th><strong>Prenatal Patient With Risk Factors or History of Gestational Diabetes</strong></th>
<th><strong>Prenatal Patient with No Risk Factors</strong></th>
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<td></td>
<td>Must include:</td>
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<td>Must exclude history of pre-gestational diabetes.</td>
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| | 1. Patient with pregestational diabetes, especially with current use of insulin, oral hypoglycemic agent, and/or diet. OR  
2. Past use of insulin, oral hypoglycemic agent, and/or diet outside of pregnancy, which patient stopped without physician advice. | | | |
| | May include: | May include: | Must exclude: |
| | 1. Obesity.  
2. Hypertension.  
3. Dyslipidemia.  
4. History of previous pregnancy losses or congenital anomalies. | 1. Previous gestational diabetes.  
2. Previous diagnosis of prediabetes outside of pregnancy with one of the following:  
   a. Hemoglobin A1C: 5.7-6.4  
   b. FBS 100-125  
   c. 2HPG 140-199  
3. Other risk factors:  
   a. Ethnicity: Native American, Alaska Native, African American, Asian, Hispanic, Pacific Islander.  
   b. Obesity (BMI ≥30 kg/m²).  
   c. Overweight women with additional factors: inactivity, HTN, CVD.  
   d. Early excessive weight gain in pregnancy.  
   e. Family history of diabetes (especially first-degree relatives).  
   f. Age ≥ 25 years.  
   g. Multifetal pregnancies.  
   h. History of prior delivery of macrosomic or large-for-gestational age infant (>4 kg or 8 lb. 12 oz).  
   i. History of prior pregnancy with unexplained stillborn, neonatal demise or congenital anomalies. | 1. Any history of diabetes.  
2. Any history of risk factors outlined in section “Patients with Risk Factors for Gestational Diabetes.” |

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<th>Must include pregnancy.</th>
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| | May include:  
1. Oligohydraminos.  
2. Small for gestational age.  
3. Large for gestational age. | May include:  
1. Size larger than dates ≥ 3 cm.  
2. Polyhydramnios.  
3. Excessive weight gain.  
4. Unexplained poor weight gain. | Must exclude:  
Polyhydramnios  
Excessive weight gain  
Unexplained poor weight gain |
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<tr>
<th><strong>LABORATORY</strong></th>
<th><strong>Prenatal Patient with History of Pregestational Diabetes</strong></th>
<th><strong>Prenatal Patient With Risk Factors or History of Gestational Diabetes</strong></th>
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| **PLAN**       | 1. Review patient’s glucose test results. If FBS > 126 or random or postprandial >200, refer to ER  
2. If no records of ongoing glucose monitoring, perform glucose test on monitor if available. If random sugar > 200 mg, refer to ER  
3. Order hemoglobin AIC to help estimate risk of fetal anomalies.  
4. Advise patient to continue all diabetic medications and ADA diet with appropriate caloric intake until seen by MD.  
5. Refer all patients for high risk obstetrical care. | There are 2 different recommendations to evaluate prenatal patients for glucose abnormalities. Follow local protocol using either:  
1. ACOG approach (See Attachment 1 Section 1)  
a. First prenatal visit.  
b. If first test normal, repeat at 24-28 weeks.  
2. ADA approach (See Attachment 1 Section 2)  
a. First prenatal visit.  
b. If first test normal, repeat at 24-28 weeks. | Perform testing at gestational age 24-28 weeks using either  
1. ACOG method-obtain 1 hour random glucola test with 50g at 24-28 weeks (See Attachment 1 Section I).  
2. ADA method-obtain 2 hour GTT following 75g glucola load (See Attachment 1 Section 2). |
| **PATIENT EDUCATION** | 1. Inform patient that pregnancy will greatly change her dietary and/or insulin requirements and that very tight glucose control is necessary throughout her pregnancy.  
2. Counsel patient to continue to use her current medications, until seen by MD. Tell her that insulin and metformin are used in pregnant women. The other oral agents are not generally used, but the risk to her fetus is greater with elevated glucose levels than with continued exposure to her medications.  
3. Advise patient to maintain appropriate ADA diet. | 1. Inform patient that pregnancy increases her chances of developing diabetes and that complications of diabetes for her and her fetus are potentially very serious. Because of her risk factors, she will be closely monitored throughout her pregnancy for signs of developing diabetes.  
2. Instruct patient to be alert for symptoms of diabetes (polyuria, polydipsia, polyphagia, abnormal weight gain or loss, blurred vision, slow wound healing) and to call the clinic if symptoms develop.  
3. Advise patient to limit dietary intake of simple sugars and fats.  
4. Advise patient to limit weight gain  
5. Recommend exercise (stationary cycling, resistance and toning exercises, walking). | Inform patient that pregnancy changes the way her body metabolizes glucose. For this reason, every prenatal patient must be tested. |
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<th>Prenatal Patient With Risk Factors or History of Gestational Diabetes</th>
<th>Prenatal Patient with No Risk Factors</th>
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</thead>
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<tr>
<td><strong>REFER to MD/ER</strong></td>
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<tr>
<td>1. Women with RBS or 2HPG &gt; 200.</td>
<td>1. All diabetic women not seen by MFM specialist.</td>
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<td>2. Women on oral glycemic agents with increased risk of birth defects.</td>
<td>2. Women with abnormal hemoglobin A1C but normal screening test.</td>
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<tr>
<td>3. Women with HBG A1C &gt;8 for counseling about birth defects.</td>
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<tr>
<td>4. All diabetic women not seen by MFM Specialist.</td>
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**REFERENCES**


Table 1
ACOG Screening Recommendations for Diabetes in Pregnancy

Screening Diabetes Test (1H-PG)
1. Administer 50g Glucola orally and draw a blood specimen by venipuncture 1 hour later for glucose. Patient need not be fasting prior to the test.
2. Interpretation of results:
   a. Normal < 135 mg/dl.
   b. Borderline ≥ 135 and < 139 mg/dl.
   c. Elevated value is ≥ 140 mg/dl.
3. Action to be taken depends upon results obtained.
   a. Normal: If 1H-PG is <135 mg/dl, repeat at 24-28 weeks.
   b. Borderline: If 1H-PG is ≥ 135 and ≤139 mg/dl, repeat 1H-PG in 4-6 weeks.
   c. Elevated: If 1H-PG is ≥ 140 and ≤179 mg/dl, order a 3 Hour Glucose Tolerance Test (3H-GTT), see Diagnostic Diabetes Testing below.
   d. Very Elevated: If 1H-PG is > 180 mg/dl and ≤239 mg/dl, obtain Fasting Blood Sugar (FBS) urgently according to local procedures.
      1) If FBS < 95, obtain 3H-GTT, see Diagnostic Diabetes Testing below.
      2) If FBS ≥ 95, refer for high risk OB care.
   e. Dangerously Elevated: 1H-PG ≥ 240 mg/dl, refer to ER or high risk OB care immediately according to local procedures.

Diagnostic Diabetes Testing (3 Hour Glucose Tolerance Test [3H-GTT])
1. Patient needs to have carbohydrate loading prior to testing. Instruct patient to eat an additional 300 grams of carbohydrate each day for 3 days prior to the test (typically this involves an addition of 2 servings from the bread/cereal/rice group to each meal) and have her present NPO for 8-12 hours prior to her test.
2. Oral Glucose Tolerance Test: administered in clinic or lab.
   a. Verify patient has been fasting 8-12 hours prior to the first venipuncture.
   b. Draw Fasting Blood Sugar (FBS). If elevated > 105, hold glucola loading.
   c. Administer 100 grams of Glucola and draw blood at 1 hour, 2 hours, and 3 hours. Patient should not eat or exercise during test. Smoking should also be discouraged.
3. Interpretation of results:
   Test Specimen     Normal values are:
   FBS               <95 mg/dl
   1 Hour            <180 mg/dl
   2 Hour            <155 mg/dl
   3 Hour            <140 mg/dl
4. Action to be taken depends on results:
   a. If the patient has a normal 3H-GTT, follow-up will depend upon risk factors:
      1) No risk factors, only repeat 3H-GTT if a new indication develops.
      2) If patient has history of gestational diabetes or has other risk factors for developing gestational diabetes, repeat 3H-GTT in place of the next scheduled 1H-PG test.
   b. If patient has an elevated FBS, do one of the following:
      1) If FBS ≥ 95 but <105, repeat FBS. If still elevated refer for high risk OB care. (A2DM.)
      2) If FBS ≥ 105, refer for high risk OB care ASAP. (A2DM)
   c. If patient has a normal FBS but elevated post-glucola values, use the following plan:
      1) If only 1 value elevated, repeat 3H-GTT in 4-6 weeks (glucose intolerance). Advise patient to reduce intake of simple sugars and fats.
      2) If 2 or 3 values elevated, refer for high risk OB care. (A1DM.)

Table 2 ADA Approved
Diabetes in Pregnancy Screening 2011

<table>
<thead>
<tr>
<th>First Prenatal Visit: HBGAIC</th>
<th>24-28 wks:</th>
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<tbody>
<tr>
<td><strong>WHO TO SCREEN:</strong> Women with ANY risk factor:</td>
<td><strong>75 gm 2hGTT test: FBG, 1 hr and 2 hr</strong></td>
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<tr>
<td>• Non-Caucasian</td>
<td><strong>Time</strong></td>
</tr>
<tr>
<td>• Obesity (BMI 29 or more)</td>
<td>Fasting</td>
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<tr>
<td>• History of GDM in previous pregnancy</td>
<td>1 hr</td>
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<tr>
<td>• Previous baby 4000 gm or more (8 lbs 12 oz)</td>
<td>2 hr</td>
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<tr>
<td>• 1st degree relative with DM</td>
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<td>• Urine dipstick glucose 1+ or more</td>
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<td>• Medications that raise glucose (e.g. steroids)</td>
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<td>• Polycystic ovarian syndrome (PCOS)</td>
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**ALTERNATIVE:** Screen everyone at the 1st visit.

**HOW TO SCREEN:**
Hemoglobin A1C drawn with the initial prenatal labs

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<thead>
<tr>
<th>HgbA1C value</th>
<th>Action Needed</th>
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<tbody>
<tr>
<td>5.6% or less</td>
<td>Normal. Order 2hGTT at 24-28 wks</td>
</tr>
<tr>
<td>5.7-6.4%</td>
<td>Suspicious. Order 2hGTT now</td>
</tr>
<tr>
<td>6.5% or more</td>
<td>Diagnosis=Diabetes (usually Type 2)</td>
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