302 Gestational Diabetes

Definition/Cut-off Value

Gestational diabetes mellitus (GDM) is defined as any degree of glucose/carbohydrate intolerance with onset or first recognition during pregnancy (1, 2).

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician’s orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

<table>
<thead>
<tr>
<th>Category</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant Women</td>
<td>1</td>
</tr>
</tbody>
</table>

Justification

The definition of GDM applies regardless of whether insulin or only diet modification is used for treatment, or whether the condition persists after pregnancy. Included in this classification are women who may have had undiagnosed diabetes prior to pregnancy but who are first diagnosed during pregnancy (1, 2). Pregnant women requiring the use of exogenous steroids, tocolytics, or other medications, or who have medical conditions that alter glucose tolerance, may develop GDM (2). GDM represents nearly 90% of all pregnancies complicated by diabetes (1). The criteria for the diagnosis of GDM (3) are shown in Table 1 (see Clarification).

Pregnancy is an insulin-resistant and diabetogenic state (2). Deterioration of glucose tolerance occurs normally during pregnancy, particularly in the 3rd trimester (1, 2). Untreated or poorly treated GDM results in a higher risk of morbidity and mortality for both the mother and the fetus (2).

Established risk factors for GDM are advanced maternal age, obesity, and family history of diabetes (4). Risk assessment for GDM should be undertaken at the first prenatal visit. Women with clinical characteristics consistent with a high risk for GDM (e.g., those with marked obesity, personal history of GDM or delivery of a previous large-for-gestation-age infant, glycosuria, polycystic ovary syndrome, or a strong family history of diabetes) should undergo glucose testing as soon as possible (5). Unquestionably, there are also ethnic differences in the prevalence of GDM. In the U.S., Native Americans, Asians, Hispanics, and African American women are at a higher risk for GDM than non-Hispanic White women. Besides obesity, there is a suggestion that physical inactivity, diets high in saturated fat and smoking are associated with increasing risk for GDM or recurrent GDM (4).

Infants of women with GDM are at an increased risk of developing obesity, impaired glucose tolerance or diabetes as children or young adults (4). GDM is associated with a higher incidence of maternal and fetal complications. Maternal complications include polycythemia, respiratory distress syndrome, and increased rate of stillbirth (6). Although rarely seen in GDM, congenital anomalies, neural tube defects, cardiac abnormalities and/or caudal regression may occur if a woman has GDM in the early first trimester (6, 7).

Since GDM is a risk factor for subsequent type 2 diabetes after delivery, lifestyle modifications aimed at reducing weight and increasing physical activity are recommended (8). The National Diabetes Education
Program (NDEP) is currently promoting a GDM Prevention Initiative, targeting both providers and women with a GDM history (9). Key messages are illustrated in Table 2 (see Clarification).

Medical Nutrition Therapy (MNT) is the primary treatment for the management of GDM (7). MNT for GDM primarily involves a carbohydrate-controlled meal plan that promotes optimal nutrition for maternal and fetal health with adequate energy for appropriate gestational weight gain, achievement and maintenance of normoglycemia, and absence of ketosis (7, 8). Breastfeeding should be strongly encouraged as it is associated with maternal weight loss and reduced insulin resistance for both mother and offspring (10). WIC nutrition services can reinforce and support the medical and diet therapies (such as MNT) that participants with GDM receive from their health care providers.

References


Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.
Women at high risk for GDM who have tested negative at the initial screening, and women at average risk for GDM should be tested by a licensed medical provider, between 24 and 28 weeks of gestation. Women of average risk should be tested at 24-28 weeks of gestation. Testing should follow one of two approaches:

1. One-step approach: perform a diagnostic 100-g OGTT (Oral Glucose Tolerance Test).

2. Two-step approach:
   - A screening test (glucose challenge test) that measures plasma or serum glucose is done 1 hour after a 50-g oral glucose load without regard for time of day or time of last meal. If a plasma or serum glucose level meets or exceeds the threshold (≥ 130 mg/dl [7.2 mmol/L] or ≥ 140 mg/dl [7.8 mmol/L], respectively), an OGTT is performed (3).
   
   - A diagnosis of GDM is made with a 100-g oral glucose load after an overnight fast. Using a 3-hour test, if two or more plasma or serum glucose levels meet or exceed the threshold, a diagnosis of GDM is made. Alternatively, the diagnosis can be made using a 75-g oral glucose load. The glucose threshold values for both tests are listed in Table 1 (10). The 75-g glucose load test is not as well validated as the 100-g OGTT.

With either the 75-g OGTT or the 100-g OGTT, it is recommended that the test be performed after an overnight fast of at least 8 hours but no longer than 14 hours. For 3 days prior to the test the woman should consume an unrestricted diet (≥ 150 g carbohydrate per day) and maintain unrestricted physical activity. Women need to remain seated and not smoke during the test. (1, 2).

### Table 1. Diagnosis of Gestational Diabetes Mellitus with a 100-g or 75-g Oral Glucose Load

<table>
<thead>
<tr>
<th>Time (h)</th>
<th>100-g Oral Glucose Load</th>
<th>75-g Oral Glucose Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting</td>
<td>95 mg/dL (5.3 mmol/L)</td>
<td>95 mg/dL (5.3 mmol/L)</td>
</tr>
<tr>
<td>1</td>
<td>180 mg/dL (10.0 mmol/L)</td>
<td>180 mg/dL (10.0 mmol/L)</td>
</tr>
<tr>
<td>2</td>
<td>155 mg/dL (8.6 mmol/L)</td>
<td>155 mg/dL (8.6 mmol/L)</td>
</tr>
<tr>
<td>3</td>
<td>140 mg/dL (7.8 mmol/L)</td>
<td></td>
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</tbody>
</table>

* Two or more of the venous plasma concentrations must be met or exceeded for a positive diagnosis.

Source: American Diabetes Association (3).

### Table 2. Gestational Diabetes Mellitus (GDM) Prevention Initiative from the National Diabetes Education Program

- GDM imparts lifelong risk for diabetes, mostly type 2.
- Modest weight loss and physical activity can delay or prevent type 2 diabetes.
- Offspring can lower risk of diabetes by eating healthy foods, being active, and not becoming overweight.

Conservative recommendations to patients include:

- Let health care practitioners know of any history of GDM.
• Get glucose testing at 6 to 12 weeks postpartum, then every 1-2 years.
• Reach pre-pregnancy weight 6 to 12 months postpartum.
• If still overweight, lose at least 5 to 7% of weight slowly, over time, and keep it off. Adapted from the National Diabetes Education Program (9).
Implications for Minnesota WIC Services

Clarification:
Dietary instruction for Gestational Diabetes Mellitus (GDM) should be provided by *health care providers (HCP)* *with expertise in gestational diabetes* at the participant’s medical facility. WIC’s role is to assure the participant is receiving specialized nutrition care, and to support HCP recommendations.

The objectives and intervention strategies are:
- Assure participant receives specialized diet instruction and frequent blood glucose monitoring by HCP.
- Support dietary and physical activity recommendations made by the dietitian and HCP.
- Tailor the WIC food package to meet dietary needs in accordance with her meal plan.
- Encourage the participant to call diabetes professionals with questions.

Assessment for Risk Code 302

Participants with GDM should be seen by high-risk CPAs with education and training to assess the participant’s understanding of dietary recommendations or meal plans (preferable a nutrition professional). The focus of the assessment is to assure the participant has had diet instruction, understands the meal plan and follows HCP guidance and recommendations. Use open-ended questions to gather additional information specific to this risk code. Consider these specific factors whether the assessment is at a certification or at a subsequent WIC visit following a diagnosis of GDM:

- **Assessment of care provided by specialists:**
  - Is she seeing health care professionals who specialize in gestational diabetes?
  - Is she on any medications – including insulin?
  - Has she been instructed to test blood glucose levels?
    - What has the HCP said about these levels? High/Low/OK?
  - Has the doctor or diabetes educator made recommendations about weight gain?
  - Has the doctor or diabetes educator made recommendations about exercise?
  - How often is she in contact with the diabetes educator or dietitian?
  - Does she know whom to contact if she has questions?

- **Assessment of diet and her understanding of the dietary recommendations:**
  - Has she received a meal plan and/or diet instruction from a diabetes educator?
    - Can she describe the meal plan and does she feel she understands it?
    - Can she manage to eat a variety of foods within the meal plan?
    - Has the diabetes educator/dietitian give her any advice about juice intake and other beverages?
  - Is she consuming regular meals and snacks?
  - Does she have questions about diet recommendations and know whom to call?
Nutrition counseling for Risk Code 302:

Nutrition counseling should support the recommendations of the diabetes specialists.
- Reinforce positive changes the participant has already made.
- Explain the appropriate pattern of weight gain.
  - The weight gain goals for women with GDM are the same as for pregnant women without GDM, but the CPA should support HCP recommendations.
  - Explain any plans for future weight checks.
- Encourage compliance with dietary instructions.
  - Encourage her to follow prescribed meal plan.
    - The type, amount, and spacing of carbohydrates are important.
    - Meal plans are individualized. For example, carbohydrate intakes may be limited in the morning when insulin resistance may be higher.
  - General recommendations include:
    - Eating should be regularly spaced; typically 3 meals and 2 to 3 snacks per day.
    - Watch portion sizes carefully. Check portions with measuring cups.
    - Aim for foods with fiber.
    - Encourage drinking water.
- Discuss WIC foods that may affect blood glucose levels.
  - Many women with GDM are advised not to drink juice or to limit it to very small amounts.
    - Consider tailoring food package to eliminate or reduce juice if she was advised to avoid it.
    - Encourage her to call the diabetes educator/dietitian if she has questions about this.
  - Discuss food options in the WIC food package that may fit into the participant's meal plan.
    - Unsweetened cereals high in fiber (caution to watch portion sizes).
    - Non-starchy vegetables are usually good choices.
    - Low-fat milk instead of yogurt.
    - Tomato or V-8 vegetable juice instead of fruit juice.
- Help her identify any questions or confusion that she may have about her meal plan or blood glucose levels. Encourage her to call her diabetes educator with questions.
- Reinforce and praise positive changes she has already made.
- Reinforce keeping all medical appointments.
- Support recommendations of HCP regarding physical activity.
  - Light to moderate activity is beneficial in maintaining blood glucose control.
- Encourage her to discuss breastfeeding plans with HCP.
- Provide referrals as needed.
If participant has not received diet instruction or dietary guidance for GDM, refer her to HCP to ask for a referral to a diabetes educator/dietitian with expertise in GDM.

- Refer to other food assistance programs if needed.
- Refer to Public Health Nursing Program and other referrals as needed.

**Guidance about documentation and follow-up for Risk Code 302:**

- **Initial High Risk Care Plan note:**
  - Document that nutrition support and education is provided elsewhere (example: She seeing staff at Diabetes Center every 2 weeks.).
  - Document and reinforce medical/nutritional recommendations from her HCP.
  - Document if you have any concerns about participant’s understanding of diet recommendations for GDM.
  - Document what you want to follow-up on at the next visit.

- **At Follow-Up appointment:**
  - Weigh the participant if indicated by the plan or if you have any concerns about her weight gain. Document your assessment of her weight gain.
  - Follow-up on any action steps identified at the previous visit.
  - Refine or add new action steps if appropriate.
  - Educate about breastfeeding and Baby Behaviors.

**Postpartum considerations for women who recently had GDM:**

Gestational diabetes during the most recent pregnancy is not considered a high-risk condition for postpartum and breastfeeding women; however, best practice is to continue to follow-up on diet, exercise and a lifestyle during the postpartum certification period.

- The HCP usually recommends postpartum screening for impaired glucose tolerance by 6 to 12 weeks following delivery.
- Women with prior history of GDM are predisposed for reoccurrence of GDM in a subsequent pregnancy.
- GDM is associated with an increased risk of Type 2 Diabetes.
  - This may occur within a few years or years later.
  - Diet, exercise and lifestyle counseling may reduce risk.
    - Even losing a little weight and making healthy food choices can help to lower the risk of developing Type 2 Diabetes.
  - Diabetes screening every 1 to 3 years is often recommended for women at risk.

**References:**

- National Institutes of Health NIDDK Gestational Diabetes. Gestational Diabetes