

Gestational Diabetes (GDM)

Purpose: Guidelines to address the screening, identification and management of women at risk or who develop gestational diabetes during pregnancy.

1. Definitions:

- a. Pre-diabetes: A1c 5.7 – 6.4% or FBS 100-125
- b. Pre-gestational: Type 1 or Type 2 diagnosed prior to a women's pregnancy.
- c. GDM: gestational diabetes mellitus. Diagnosed at any point in pregnancy with + 3-hour OGTT
- d. T2DM: type 2 diabetes. Women diagnosed with DM in the first trimester have T2DM.
- e. A1GDM: GDM controlled with diet only
- f. A2GDM: GDM controlled by medication
- g. A1c: glycosylated hemoglobin
- h. CDE: certified diabetes educator
- i. FBG: fasting blood glucose
- j. OGTT: oral glucose tolerance test (3-hour 100gm)
- k. GCT: glucose challenge test (1-hour 50gm)
- l. Hypoglycemia: <60 mg/dl

2. Screening: Consider universal versus early screening based on risk factors.

Universal Screen or "One Hour"

All women at 24-28 weeks with Two Step Method – **50 gram GCT Screen (non-fasting)**. Considered a "screen" only.
If plasma glucose at one hour after load: > 135 mg/dl

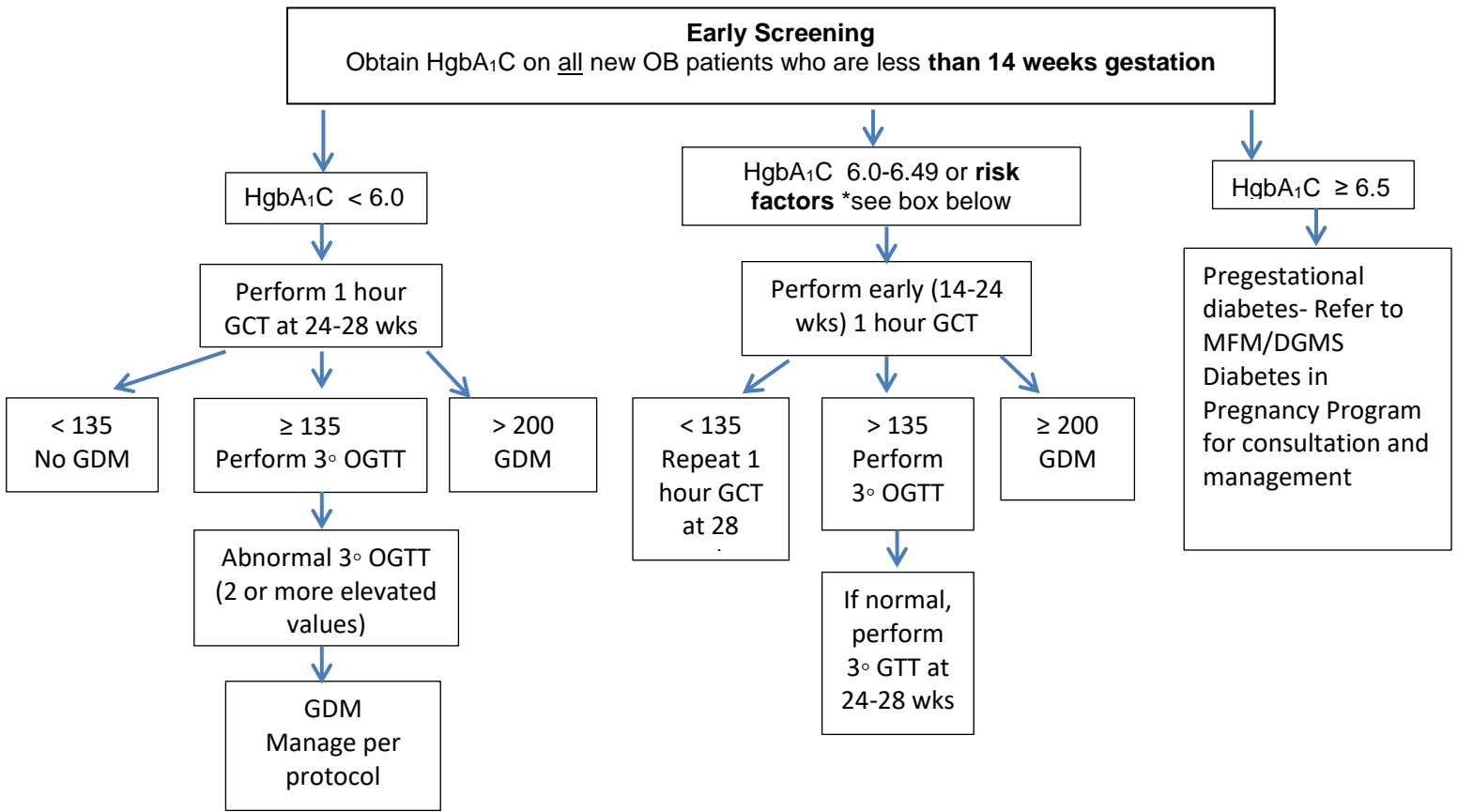


Diagnostic 100 gram OGTT (fasting) or "Three Hour." Considered diagnostic.

- FPG: ≥ 95 mg/dl
- 1 hour plasma glucose: ≥ 180
- 2 hour plasma glucose: ≥ 155
- 3 hour plasma glucose: ≥ 140

Abnormal if 2 or more values are met or exceeded.

SHMG Maternal Fetal Medicine has developed these guidelines as a reference tool to assist referring physicians. Obstetric medical needs are complex and these guidelines may not apply in every case. Treating clinicians should exercise their own professional medical judgment with regard to the appropriate treatment and management of their patients. Treating clinicians are solely responsible for confirming the accuracy, timelines, completeness, appropriateness and helpfulness of this material in making all medical, diagnostic, or prescription decisions.

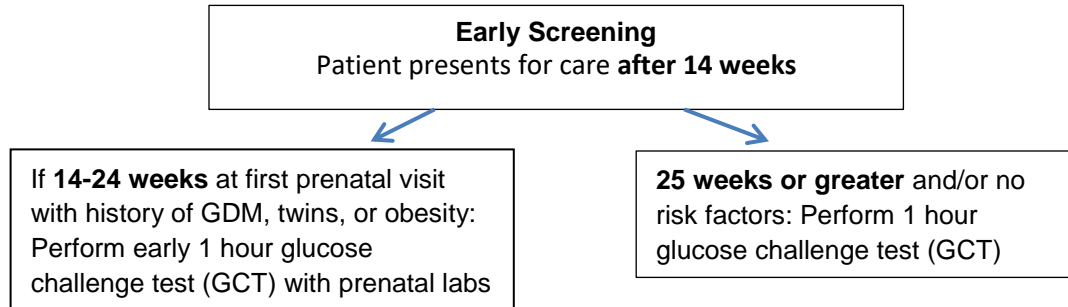


RISK FACTORS

Consider early screening in all women who are overweight or obese and have one or more of the following additional risk factors:

- Physical inactivity
- First-degree relative with diabetes
- High-risk race or ethnicity (eg, African American, Latino, Native American, Asian American, Pacific Islander)
- Have previously given birth to an infant weighing 4000g (approximately 9 lbs) or more
- Previous gestational diabetes mellitus
- Hypertension (140/90 mm Hg or on therapy for hypertension)
- High-density lipoprotein cholesterol less than 25 mg/dL, a triglyceride level great than 250 mg/dL
- Women with polycystic ovarian syndrome
- Other clinical conditions associated with insulin resistance
- History of cardiovascular disease

SHMG Maternal Fetal Medicine has developed these guidelines as a reference tool to assist referring physicians. Obstetric medical needs are complex and these guidelines may not apply in every case. Treating clinicians should exercise their own professional medical judgment with regard to the appropriate treatment and management of their patients. Treating clinicians are solely responsible for confirming the accuracy, timelines, completeness, appropriateness and helpfulness of this material in making all medical, diagnostic, or prescription decisions.



3. Management

a. Diabetes education

1. Provide education locally, if available
2. Refer to MFM

b. Blood glucose monitoring

1. Provide the patient with a glucometer and supplies.
2. Instruct the patient to collect and log blood glucose levels 4 times/day: fasting and 1 hour post-meal. Target ranges are fasting less than 95 mg/dL and 1 hour postprandial less than 140 mg/dL.
3. Review the patient's blood sugars at a regular interval (recommended weekly). Manage well-controlled diabetes and consider MFM referral if > 20% of blood glucose values are above target.

c. Medication

1. **Insulin:** Insulin is considered the standard of care, after diet and activity modification. It is the first-line treatment for management of diabetes in pregnancy as it does not cross from placenta to fetus. Once Insulin is initiated, refer to MFM for consult and CDE education for dietary education, health maintenance counseling, and glucose testing teaching.
2. **Oral Hypoglycemic Medications – Metformin and Glyburide:** Metformin and Glyburide do cross the placenta to the fetus. Neither has been approved by the U.S. Food and Drug Administration (FDA). To date, all oral agents lack long-term safety data.
3. **Metformin:** May be continued during the first trimester in patient's type 2 diabetes. Metformin should be discontinued at 12 weeks in patients with PCOS on Metformin. Early screening should be performed after 13 weeks.

If insulin is not an option, Metformin is preferred over Glyburide. Recently, Metformin has been associated with an unusual finding of increased preterm birth. A recent

finding reveals that between 26%-46% of women taking Metformin alone eventually required insulin therapy. Finally, Metformin is associated with high treatment failure rates and increased preterm delivery.

4. Glyburide: Despite the increased use of glyburide over the past decade, evidence indicates glyburide treatment should not be recommended as a first-line pharmacologic treatment as it does not appear to yield equivalent outcomes to insulin. In addition, Glyburide is associated with a 2-fold or greater increased risk of macrosomia and neonatal hypoglycemia compared with Insulin in a meta-analysis.
- d. Antenatal surveillance
1. Growth every 4 weeks to be done at MFM or with OB provider.
 2. Fetal non-stress tests (NST) depending on treatment:
 - A1GDM - Diet only: weekly NST's starting at 39-40 weeks
 - A2GDM – Medication: twice weekly starting at 32 weeks
- e. Timing of delivery:
- A1GDM – Diet only: not before 39 weeks or expectant management up to 40 6/7 weeks
 - A2GDM – Medication: if well controlled, delivery is recommended at 39 0/7 to 39 6/7 weeks or individualized based on glycemic control.
- f. Post-partum management:
1. Breastfeeding is encouraged, as hypoglycemia risk is decreased for the newborn. Health maintenance behaviors and lifestyle modifications will reduce future risk of developing overt T2DM. It is estimated that approximately 50% and 70% of women diagnosed with GDM will develop overt T2DM within 7-10 years' time. Long term diabetes care should include yearly fasting glucose or HgbA1c.
 2. Contraception: Both Depo-Provera and Progestin-only oral contraceptives may accelerate the development of T2DM. In those women with pre-existing DM, Depo-Provera may worsen glycemic control. Use of an IUD (intrauterine device) is preferred as it is metabolically neutral and highly effective.

At 6-12 weeks postpartum a 2-hour 75g OGTT should be obtained to evaluate for persistent diabetes.

Normal glucose tolerance: 2 hour OGTT <140mg/dL

Overt Diabetes: 2 hour OGTT >200mg/dL



4. ICD10 codes:

GDM	024.41
GDM – diet controlled	024.410
GDM – insulin controlled	024.414
Pre-existing DM, T2	024.11

References:

American College of Obstetrics and Gynecology: Practice Bulletin. Gestational Diabetes Mellitus. No. 180, July 2017.

American Diabetes Association. Standards of Medical Care in Diabetes - 2017. The Journal of Clinical Care and Applied Research and Education. Volume 40. Supplement 1.