

## APEC Guidelines Gestational Diabetes Mellitus

### GDM Screening

- Screen all pregnant women, except those overtly diabetic, for gestational diabetes.
- Screen at 24-28 weeks gestation with a 50-gram oral glucose 1-hr loading test.
- Screen at 12-20 weeks if prior history of GDM, marked obesity, or repetitive glycosuria; if negative, re-test at 24-28 weeks.
- Positive tests  $\leq$ 20 weeks treat as type-2 diabetic.
- Administer 50-gram oral glucose load without regard to time of last meal or time of day.
- Measure venous plasma level 1 hour after the glucose. **Do not use** capillary blood (finger stick).
- 50 gram value  $>$  135 mg/dL requires a full 100-gram, 3-hr OGTT.

### Alternative GDM Screening

- Use in patients with history of gastric bypass or those who are unable to tolerate OGTT.
- Screen at 24-28 weeks gestation.
- Screen at 12-20 weeks if prior history of GDM, marked obesity, or repetitive glycosuria; if negative, re-test at 24-28 weeks.
- Instruct patient to collect blood sugars for one week: fasting and 1-or 2-hour postprandial.
- Ideal blood glucose levels: FBS  $<$ 95 mg/dL, 1-hour postprandial  $<$ 140 mg/dL, and 2-hour postprandial  $<$ 120mg/dL.
- If  $>$ 50% of blood glucose determinations are abnormal: treat as GDM.
- If 25-50% of blood glucose determinations are abnormal, provide dietary counseling and repeat another week of blood sugar measurements.

### 3 Hour Oral Glucose Tolerance Test

- Instruct patient to fast overnight.
- Measure venous plasma level, if fasting is  $\geq$ 126 mg/dL: diagnose as GDM.
- If fasting is  $<$  126 mg/dL administer 100-gram glucose solution and measure venous plasma levels at 1, 2, and 3 hours.
- Two or more of the four values above the 4<sup>th</sup> International Workshop Criteria: diagnose as GDM.

Status	4 <sup>th</sup> International Workshop Criteria (mg/dL)
Fasting	95
1 hour	180
2 hour	155
3 hour	140

### Diet & Exercise Management

- Nutritional counseling with a registered dietician or diabetic educator.
- Caloric recommendations based on pre-pregnancy weight:
  - Underweight: 35-40 kcal/kg
  - Average weight: 30-35 kcal/kg
  - Overweight: 25 kcal/kg
- 40-45% complex carbohydrates, 20-30% fat, 20-30% protein; no concentrated sweets.
- Exercise: walk 30 min per day, 5 days per week.
- Pattern blood sugar: 4 per day: fasting (AM), 1 or 2 hr postprandial (breakfast, lunch, dinner).
- $>$  50% blood sugars within normal range: may reduce PBS to one day per week (4 values) the day before her clinic appt.
- 50% fasting levels above ideal range despite compliance with diet: manage with glyburide or insulin and daily PBS.

Capillary Blood Glucose Goals	
Specimen	Level (mg/dL)
Fasting	$<$ 95
Premeal	$<$ 100
1-hr postprandial	$<$ 140
2-hr postprandial	$<$ 120

### Medical Management A1 GDM

- Diet-controlled GDM does not place the pregnancy at increased risk of stillbirth.
- Blood glucose monitoring: one day per week to monitor for worsening glycemic status and need for hypoglycemic medications.
- Weekly antenatal testing starting at 40 weeks gestation.
- Ultrasound for growth at 36-37 weeks to evaluate for macrosomia.
- Estimated fetal weight exceeds 4200-4500 grams, offer cesarean delivery.
- Delivery between 40-41 weeks of gestation.
- 6-8 weeks post-partum screen for Type 2 diabetes: 75-gram 2 hr OGTT.

#### Quality Indicators/Benchmarks

- GDM screening-all patients except overt diabetics
- Diabetic education before 32 weeks for diagnosed GDM

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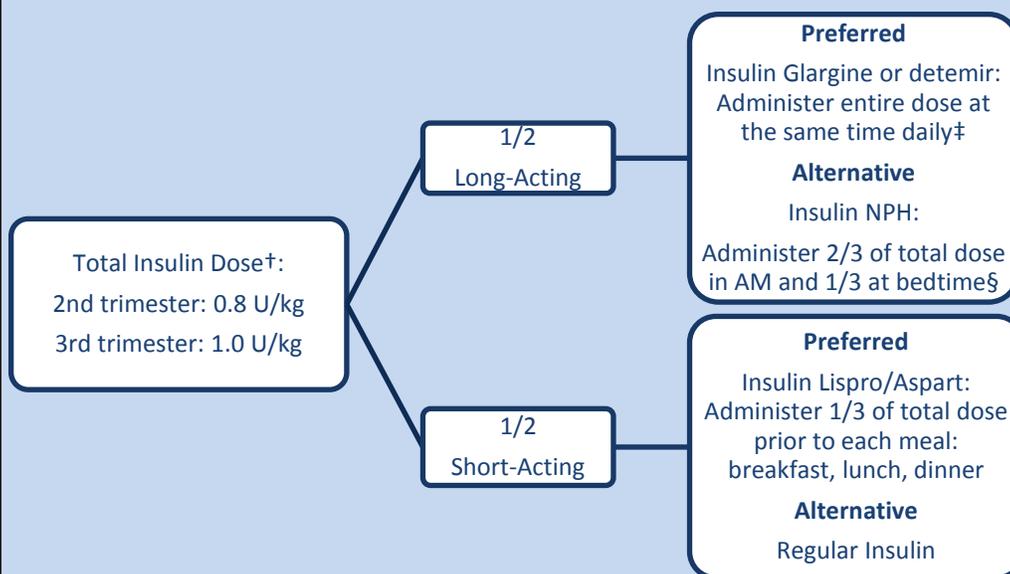
### Medical Management A2 GDM

- GDM requiring hypoglycemic agents does place the pregnancy at an increased risk of stillbirth.
- Blood glucose monitoring: 4 times daily for the remainder of pregnancy, weekly visits until meds achieve adequate control.
- Prior to 32 weeks, once adequate blood sugar control is attained, visits every 2 weeks. After 32 weeks, weekly visits.
- 32 weeks: start weekly antenatal testing. Poor glycemic control: twice weekly testing.
- Ultrasound for growth at 36-37 weeks to monitor for macrosomia.
- Estimated fetal weight exceeds 4200-4500 grams, offer cesarean delivery.
- Delivery between 39-40 weeks of gestation.
- 6-8 weeks post-partum screen for Type 2 diabetes: 75-gram 2 hour glucose tolerance test.

### Glyburide

- Starting dose: 2.5mg twice a day; increase in 2.5 mg increments to a maximum dose of 10mg twice daily.
- For patients who fail to achieve glycemic goals of <95 FBS and <120 2-hr postprandial, doses should be escalated at least weekly up to the maximum. If a majority of the PBS are suboptimal, despite the maximum dose of glyburide and diet compliance, then the patient should be switched to insulin therapy.

### Insulin



† For insulin naïve subjects, consideration may be given to reducing the starting dose by 25% with aggressive titration up after 3-7 days of blood glucose monitoring.

‡ The maximum dose of insulin glargine that should be administered in one injection is 70 units. If a patient requires more than 70 units of insulin glargine, administer as BID dosing.

§ The evening dose of NPH may be administered at dinner to reduce the number of injections; however this strategy is associated with an increased frequency of night-time hypoglycemia.

### Adjustment to Insulin

- Adjustments to long-acting insulin should not be made more frequently than every 48 hours.
- Adjust insulin when >50% of blood sugars are greater than target (FBS >95 mg/dL, 1-hour postprandial >140mg/dL, 2-hour postprandial >120mg/dL).
- Adjustments to long-acting insulin will correct fasting blood sugars.
- Adjustments to pre-meal short acting insulin will correct the postprandial blood sugar for that meal.
- Increases to insulin can be made in increments of 10%. For patients in the inpatient setting, more aggressive dose-adjustment can be performed in the face of marked hyperglycemia.

### Safety & Counseling

- Fast-acting insulin should not be injected unless the patient is planning to eat immediately.
- Any patient on insulin should receive a prescription for a glucagon kit. At least one family member or housemate should be instructed on how and when to administer glucagon.