Gestational Diabetes Teaching Guide
For Staff Use

Remember - Document each time you teach.

Resources
- Gestational Diabetes Folder
- Insulin Folder
- AADE Gestational Diabetes Video
- AADE Monitoring Video
- Glucose Meter Instructions

Safety – Survival Skills include:
- Blood Sugar Testing
- Insulin Self-injection
- Hyper-hypoglycemic Symptoms and Management
- When to call the doctor

Patient Outcomes

Define gestational diabetes.
Gestational diabetes is usually found in the 5th to 6th month of pregnancy. A special screening blood test is done at that time (1 hr glucose challenge test).
- High blood glucose level during pregnancy
- The placenta produces hormones during pregnancy that raise the mother’s blood glucose. Some women cannot produce enough extra insulin to keep the blood glucose at a normal level.
- Insulin allows glucose from foods eaten to move into the body cells for energy.
- Treatment is needed for the mother’s health and fetal growth and development.

Key facts:
- This type of diabetes appears for the first time during pregnancy.
- Women, who are over 25, have had babies weighing 9 lb or more, have a family history of DIABETES, or who are overweight are at increased risk.
- Pregnancy hormones increase as the pregnancy progresses. More insulin is needed to maintain normal glucose levels. If the pancreas is unable to produce enough insulin, gestational diabetes occurs.

State control measures for gestational diabetes.
- Maintain the balance of food and exercise. The type and intensity of exercise may be limited by other restrictions/complications during pregnancy.
- Monitor blood sugar levels.
- Give insulin injections if required. Some studies are being done regarding safety and effectiveness of oral medications in gestational diabetes. Insulin is generally used if blood glucose is not controlled by diet and exercise.
Describe hyperglycemia.

Hyperglycemia – high blood sugar
- When there is not enough insulin, glucose cannot leave the blood and enter the cells to be used for energy.
- Glucose builds up in the blood to high levels, resulting in hyperglycemia.
- Blood glucose above 95 before meals, above 120 two hours after meals.

Causes of high blood sugar
- Eating too much carbohydrate at a time
- Skipping insulin dose

Signs and Symptoms of high blood sugar
- High blood glucose
- Ketones in urine
- Increased urine output
- Increased thirst
- Fatigue, drowsiness, or lack of energy

Treatment of high blood sugar
- Call doctor if blood glucose is above 120 two hours after meals two consecutive times.
- Do not skip insulin doses.

describe hypoglycemia.

Hypoglycemia – low blood sugar
- Occurs when the glucose level in the blood drops below what the body needs to function normally - less than 60 mg/dl.

Causes of low blood sugar
- Insulin peak action
- Too much insulin
- Skipped or delayed meal or snack
- Not enough food in meal
- Prolonged exercise
- More activity than usual
- Body’s peak sensitivity to insulin between 2 AM – 4 AM

Signs and Symptoms of low blood sugar
- Sweating or shaking
- Feel confused, anxious, irritable
- Dizziness
- Rapid heartbeat
- Very Hungry
- Weakness or Fatigue
- Headache
**Treatment of low blood sugar**
1. Check blood sugar with monitor
2. If blood sugar is less than 60 mg/dl, treat with 15 gm carbohydrate by:
   - Drinking 10 oz skim milk OR
   - 4 oz juice OR
   - 6 oz regular soda OR
   - Taking 3 - 4 glucose tablets
3. Recheck blood sugar after 15 minutes.
4. If blood sugar is less than 60 mg/dl, treat with another 15 gm carbohydrate.
5. If next meal is more than 1 hour away, eat 15 gm carbohydrate plus 1 oz of protein.
6. If symptoms don’t improve, call 911 or have someone drive you to the Emergency Room.
   - Always carry something with you to treat low blood sugar episodes.
   - Never drive a car when your blood sugar is low.

**Explain the need for blood glucose testing and reporting.**

**Reasons for Testing**
- Identify blood glucose level
- Show how diet, exercise and treatment affect blood glucose levels
- Show patterns that guide treatment adjustments – always bring Blood Sugar Test Diary log book to doctor’s visits for review.

**Blood Glucose Goals**
- Fasting – 60-95 mg/dl
- 1 hour after meals – less than 140 mg/dl
- 2 Hours after meals – less than 120 mg/dl
- Bedtime – 100-140 mg/dl

**Perform blood glucose test.**

**Gather equipment:**
- Meter
- Test strips
- Lancets
- Cotton balls or tissue
- Lancet device

**Follow these steps:**
1. Wash hands with warm soapy water. Dry well.
2. Load the lancet and insert the test strip into the meter. This varies with type of meter.
3. Perform the stick on the side of the finger. May need to milk the finger before sticking to promote blood flow. Advise patient to vary fingers to reduce discomfort.
4. Touch test strip to blood drop. This varies with the type of meter.
5. Record the results in the Blood Sugar Test diary. Call your doctor if your results are outside the limits. Bring your diary to your doctor’s visits.
6. Dispose of lancet in sharps container or a hard plastic or metal container such as a detergent bottle or coffee can. Keep the container out of reach of children.
   - May use the same lancet up to 6 times in one day.
Alternate site testing:
- Use caution with alternate site testing such as the palm of hand below the thumb, forearm, upper arm or outer thigh.
- Do not use these sites:
  - after eating or exercising
  - if low blood sugar is suspected
  - when blood glucose is changing quickly
  - when first learning to do testing
  - when insulin is peaking
- To attain enough blood for testing with alternate sites:
  - Use clear cap on lancet device to do alternate site testing.
  - Adjust the lancet device to deepest setting.

Describe meal planning for diabetes control.
Nurses teaching should:
- Obtain referral to Registered Dietitian for meal planning education.
- Reinforce RD recommendations if patient has further questions or concerns.

Purpose of meal plan and counting carbohydrates
- Provide essential nutrients for mother and fetus.
- Control blood glucose levels in target range.
- Allow for adequate weight gain.
- Avoid spilling ketones.

Appropriate weight gain
- In 2nd and 3rd trimesters, weight gain should usually be ½ to 1 pound per week
- Total recommended weight gain depends upon pre-pregnancy weight.
- If pre-pregnancy weight was:
  - Normal: recommended gain is 25–35 pounds
  - Underweight: recommended gain is 28–40 pounds
  - Overweight: recommended gain is 15-25 pounds
  - Obese: recommended gain is 15 pounds
  - Twins: recommended gain is 35-45 pounds

Healthy Eating Principles
- Identify ways to reduce dietary fat if weight control is a goal.
- Explain rationale for eating on a consistent schedule.
- Review carbohydrate food groups: starch, fruit, milk, sweets.
- Define carbohydrate choice: 1 Carbohydrate choice = 15 Grams.
- Explain importance of portion size.
- Identify 3 key pieces of information on food labels: serving size, total carbohydrate, fiber
- Use food label to determine carbohydrate choices in 1 serving
- Count the carbohydrates in a simple meal.
- Describe 2 strategies for curbing hunger with raising blood glucose levels:
  - Always include protein with carbohydrate at meals and snacks.
  - Snack on high fiber non-starchy vegetables.

Note: If RN is seeing patient first, RN can give the patient a general guide of 3 small meals and 3 snacks per day with 45 gm carbohydrate with the meals and 30 gm with the snacks.
Discuss the need for exercise in self-management plan.
- Check with doctor about the need for any activity restrictions.
- Benefits of exercise – helps with:
  - Blood glucose control
  - Ease of delivery
- Set realistic plan of activity
  - types of exercise
  - frequency and duration
- Precautions to prevent hypoglycemia if on insulin:
  - snacks
  - blood glucose monitoring before and after activity

Explain insulin use and differences among various types of insulin.
Before beginning to teach this:
- Check physician’s order for prescribed insulin.
- Review type, dose and action time of insulin.
- Have patient verbalize prescribed dosage for understanding.

Review proper storage of insulin.
- Refrigerate all unopened vials, cartridges or pre-filled pens of insulin.
- Mark the date opened on the vial and dispose when past recommended use.
- Check the expiration date on vial. Never use expired insulin.
- Check each vial or cartridge before use. Do not use if insulin is clumped, frosted, or changes color or appearance.
- Keep on hand a spare vial or cartridge of every type of insulin used.
- Open insulin does not need to be refrigerated, but do not expose to temperatures over 85°.
- Open insulin storage varies for room temperature (considered 59° - 86°):
  - Insulin vials and cartridges or penfills (Humalog, Novalog, and Regular) 28 days
  - Humulin or Novolin 70/30 or NPH cartridges 10 days
  - Humulin N (NPH) pen 14 days
  - Humalog Mix 75/25, Humulin or Novolin MIX 70/30 pens 14 days

Review proper disposal of syringes
- Dispose of needles using a biohazard container or a hard plastic container with a tight cap or lid such as detergent or bleach bottle.
- The BD “SafeClip” and “Voyager” is another safe way to clip needles and contain them for storage.
- Label the container and keep it out of reach of children and pets.
- Only fill the container ¾ full.
- Put the lid on tightly and place the container in your normal trash.
- If you have questions, check with local garbage service.
Demonstrate the proper steps for insulin preparation for vial and syringe use.

When teaching this:
- Supply patient with alcohol wipe, syringe, saline, and orange or injection pillow for practice.
- Have patient inject self.

For both vial and pen preparation:
1. Wash hands with warm soapy water.
2. Check the vial/cartridge label to insure correct insulin is chosen.
3. Cloudy insulin’s (NPH or Premixed) should be mixed by rotating the vial/cartridge back and forth several times to ensure proper mixing.
4. Wipe top of vial /cartridge with alcohol swab.

For vial/syringe preparation:
1. Remove needle cover and draw air into syringe equal to dose.
2. Place needle into bottle and inject air.
3. Hold bottle in one hand, turn it upside down and slowly draw out insulin dose.
4. Check for and remove any air bubbles.
5. Double check dose and pull needle out of bottle.

For pen preparation:
1. Attach needle to pen device.
2. 2 unit “air shot” preparation.
3. Dial to turn the knob to the ordered dose of insulin.

Demonstrate mixing insulin. (If necessary.)
1. Wipe top of both bottles with alcohol.
2. Check vial label to ensure correct insulin’s are chosen.
3. Mix bottle of naturally cloudy insulin (NPH, 70/30 mix or premixed insulin) by rotating the vial back and forth several times.
4. Remove needle cover and draw air into the syringe equal to the dose of long acting insulin.
5. Inject air into the vial of long acting insulin. Do not draw up the insulin yet.
6. Draw air into the syringe equal to the dose of short acting insulin.
7. Inject air into the vial of short acting insulin.
8. Draw up dose of short acting insulin.
9. Remove needle and check for and remove air bubbles.
10. Insert needle into vial of long acting insulin and draw back to total dose, being careful to avoid getting air bubbles in syringe.
11. Remove needle from vial.
Explain proper insulin injection procedure and site rotation.

- For vial or pen use:
  1. Clean the injection site. If using alcohol, wait for area to dry before injecting.
  2. Inject insulin under the skin into the subcutaneous layer of fat (avoiding muscle) of the following areas:
     - posterior upper arm
     - front or outer thigh
     - buttocks
     - abdomen except area within 2 inches of the navel
  3. Push the plunger all the way down, count to 5 seconds before removing the needle after injection.
  4. Use disposable needle once and dispose of properly.
  5. Rotate sites to avoid developing hard callused areas and scar tissue.

Discuss special concerns such as physical activity (increased circulation to a body area increases absorption rates).

Discuss possible risks of gestational diabetes for both mother and fetus/newborn.

- The better controlled the mother keeps her blood glucose levels during pregnancy, the greater the chance for a normal pregnancy, delivery, and healthy baby.
- Risks for the mother
  - the infant being too large (birth weight above 9 pounds) leading to a difficult delivery and possible need for C-section
  - hydraminosis (too much amniotic fluid around the baby), which may cause the uterus to stretch and may lead to an early delivery
  - pre-eclampsia (a combination of high blood pressure, protein in the urine, and swelling in the hands, face, and feet)
  - increased risk of infections, including urinary tract infections and yeast infections
- Risks for the baby
  - low blood glucose in the newborn after delivery (hypoglycemia)
  - high bilirubin in the newborn, jaundice or yellowish skin in the baby 2-3 days after birth
  - respiratory distress of the newborn
  - birth defects
  - stillbirth
  - trauma to arms or shoulders could result if vaginal delivery is attempted and the baby is too large
- Although it is frightening to hear about these possible problems, it is important to understand why glucose control is so important in pregnancy.
State the need for frequent visits with the health care team.

During Pregnancy
- Visits to the doctor/nurse are essential for women with gestational diabetes.
- Frequent adjustments in insulin may be needed.
- Ultrasound, non-stress test, and other procedures may be performed to check the baby.

After pregnancy, screen routinely for diabetes
- Up to 60% of cases recur later in life as type 2 diabetes.
- Avoiding obesity and doing regular physical activity after pregnancy may prevent or delay the onset of type 2 diabetes.

Key Facts
- The purpose of treatment is to keep the blood glucose in the target range.
- Your prenatal care will probably be provided by a team of health professionals. The team includes an obstetrician, perinatalogist, nurse educator, dietitian, and perhaps a social worker.
- Test and record your blood glucose levels. Use this information to see how the food you eat, your activity, and your insulin affect your blood glucose levels. Bring your records with you to each of your appointments.

Note: Goal setting by the patient is essential and needs to be documented. For example, the patient verbalizes understanding of:
- need to perform blood glucose testing as instructed
- follow diet recommendation
- keep doctors’ appointments
- bring blood sugar test diary to each visit

Discuss psychosocial implications of gestational diabetes.
- Health beliefs, attitudes, and self-care intentions
- Current level of self-care skill
  - Acceptance and understanding of the diagnosis
- Psychosocial adjustment (coping skills and emotional well-being)
  - Belief that gestational diabetes is manageable
  - Coping with increased anxiety and the intrusion into present lifestyle
- Readiness to change
  - Barriers to learning
  - Importance of following schedule of testing blood glucose and planning appropriate meals and snacks
- Social support
  - From family and/or friends
  - Cultural and religious influences
  - Resources (classes, individual sessions, etc.)
  - Socioeconomic and organizational factors related to healthcare delivery