Pregnancy Guidelines for the Bariatric Patient

- **Monitor Labs Regularly** (at least initially and with every trimester):

  **Recommended Laboratory Workup**
  - Comprehensive Metabolic Panel, phosphorus, magnesium
  - CBC
  - Folate
  - Ferritin
  - Iron
  - Vitamin B12
  - Thiamine
  - Vitamin B6
  - Vitamin C
  - 25, OH Vitamin D
  - Vitamin A
  - Zinc

  *Erythrocyte folate is a better indicator of deficiency*

- **Adhere to Strict Vitamin Supplementation:**

  **Supplementation Guidelines**
  - Prenatal MVI q day
  - DHA – 300mg/day or combination with prenatal
  - Calcium Citrate with Vitamin D – 1200-1500 mg qd divided (make sure it is citrate instead of carbonate for optimal absorption).
  - B12 – 500-1000mcg Sublingual at least every other day or 1000mcg IM q month.
  - Iron – as needed based on iron studies - ferrous fumerate (instead of sulfate)

- **Meet Dietary Guidelines**

  **Dietary Goals**
  - 70-75 gms protein a day
  - 64 oz calorie-free fluids a day
  - 3 meals and 2 protein containing snacks a day
  - Never go > 4 hours without eating
  - Avoid simple carbohydrates, especially on an empty pouch.
  - Utilize protein shakes if early satiety and decreased intake an issue
  - Separate solid and liquid food intake
  - Gastric band patients - may need to completely deflate band
**Hyperemesis**
- If a bariatric patient is experiencing persistent hyperemesis, have a low threshold for initiating TPN. Pt’s protein and vitamin levels deplete quickly so routine IVF may be insufficient for repletion. Please add 100mg IV thiamine with any fluid repletion.

**Medication considerations**
- Bariatric patients often are on a PPI - we leave this to the discretion of the OB provider whether to continue (based on pregnancy class). May consider using H2 blocker first.
- Avoid use of delayed release preparations as they will not receive optimal absorption of the medication.
- Gastric bypass patients cannot use NSAIDs secondary to ulcer risk. This is avoided with any pregnancy but keep in mind for their post partum course.

**Gestational Diabetes Screening**
- Post gastric bypass patients will not tolerate the 50-100gm glucose tolerance test due to dumping syndrome. Dumping syndrome occurs because of rapid gastric emptying of hyperosmolar contents into the small bowel leading to fluid shifts into the lumen of the bowel. Patients will experience abdominal cramping, bloating, diarrhea, nausea, and vomiting. A subsequent release of excessive insulin in response to glucose spike will cause hypoglycemia.
- An alternative test to consider:
  - Obtain a fasting glucose level and a two-hour postprandial level after consuming a typical meal (preferably one reflecting the highest carbohydrate content that they would ever eat) for a week. If fasting and two-hour postprandial glucose levels are less than 95mg/dl and 120mg/dl respectively, then they are considered normal.

**Weight Gain**
- Studies indicate bariatric patients usually have a significantly lower maternal weight gain (3.7kg vs. 15.6kg - Skull et al). Ducarme, et al. reported decreased incidence of complications compared to obese controls. Some may continue to lose weight if still overweight. Close monitoring of fetal growth is recommended.

**Obstetrical Outcomes following Bariatric Surgery**
- Fetal weights were not significantly different, no difference noted in incidence of preclampsia, gestational DM, LBW, and fetal macrosomia compared to obese and non-obese controls (Skull, et al)
- Higher incidence of cesarean section was noted with post bariatric patients (Sheiner et al), however no physiologic explanation was given for this link
Bariatric Specific Complications

- Gastric Bypass patients are at risk for an internal hernia. A section of the small bowel may become herniated in a surgical defect in the mesocolon resulting in partial or complete obstruction. Pregnancy may amplify this risk due to increased intra-abdominal pressure and uterine changes. This does not occur often (review of literature indicates eight cases documented) but important to keep in mind for a differential of abdominal pain, nausea, and vomiting.

- Dumping Syndrome – Diets high in carbohydrates or fats can lead to rapid gastric emptying of hyperosmolar contents directly into the small bowel leading to fluid shifts into the lumen. Symptoms present as abdominal cramping, bloating, nausea, vomiting, and diarrhea. From there, late dumping occurs secondary to a release of excessive insulin causing subsequent hypoglycemia, tachycardia, palpitations, agitation, and diaphoresis.

- The most common complication following the band include band leakage and band migration (Dixon, et al).