Obesity in Pregnancy

Optimizing care through evidence, education and support
Interprofessional work group created guideline

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No Disclosures
Objectives

1. Define appropriate preconception and early pregnancy screening for women with obesity.
2. Identify techniques to optimize communication when discussing evidence-based recommendations for a healthy pregnancy with women with obesity.
3. List antenatal fetal screening recommendations for pregnant women with obesity.
4. Discuss evidence-based recommendations for preparation for labor and birth and timing of delivery for pregnant women with obesity.
5. Describe risks and preventative measures during the postpartum period for pregnant women with obesity.
Prevalence

- Of women aged 20-39, **40% have a BMI of > 30 in the US**
- Prevalence is higher in non-Hispanic black and Hispanic women
- Number of women with obesity has continued to rise in the US over the past 45 years
Maternal risks

Pregnancy loss
Gestational diabetes
Gestational hypertension
Preeclampsia
Anxiety
Depression
Obstructive sleep apnea
Increased gestational weight gain
Labor induction
Cesarean birth
Surgical site infections

Neonatal risks

Congenital anomalies
Stillbirth
Preterm birth
LGA
Shoulder dystocia
NICU admission
Lower breastfeeding initiation
Early breastfeeding cessation
Neonatal hypoglycemia
Increased risk of obesity in adulthood
What does maternity care look like for providers and patients with obesity?
Experiences of Pregnant Women with Obesity

- Most receive no counseling on gestational weight gain
- Desire advice on gestational weight gain
- Lack of information leads them to look to other sources for information
- Many falsely believe that there were no increased risks to pregnancy or that there was nothing they could do to minimize risks
- Contributes to disappointment in their prenatal care
- Can sense provider’s discomfort discussing topic
- Vulnerable to judgemental care from practitioners
  - 19% would avoid future appointments, 21% would seek a new provider (Puhl, 2012)
Experiences of Providers

- Typically avoid conversation about weight
- Wait for patient to bring it up or look for cues from patient
- Brought up too late after patient has already gained weight
- When it is discussed, tend to give guidelines not consistent with Institute of Medicine

Key barriers identified by providers:
- Lack of knowledge
- Negative consequence of intervening
- Lack of resources
Techniques to Optimize Communication
Person Centered Language

PEOPLE-FIRST LANGUAGE MATTERS

- The woman was obese.
- The woman was affected by obesity.
- The doctor examined an obese patient.
- The doctor examined a patient with obesity.
Open the conversation
- Ask for permission to discuss
- Let them tell their story

Use motivational interviewing
- Find out goals, motivations
- Teachable moment

Word choice
- ‘Weight’
- ‘Unhealthy weight’
- ‘BMI’

Culturally appropriate suggestions
- Consider finances, transportation, favorite foods, etc.
Be aware of your bias

- Harvard’s Project Implicit
  - https://implicit.harvard.edu/implicit/selecta
test.html
- Obesity Action Coalition
  - https://4617c1smqldcqsat27z78x17-wpengine.netdna-ssl.com/wp-content/uploads/We
ght_Bias_in_Healthcare_9_12_17-without-
bleed.pdf

Replace judgement with intellectual curiosity
Gestational Weight Gain

**Table 1. Institute of Medicine Weight Gain Recommendations for Pregnancy**

<table>
<thead>
<tr>
<th>Prepregnancy Weight Category</th>
<th>Body Mass Index*</th>
<th>Recommended Range of Total Weight (lb)</th>
<th>Recommended Rates of Weight Gain in the Second and Third Trimesters (lb) (Mean Range [lb/wk])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than 18.5</td>
<td>28–40</td>
<td>1 (1–1.3)</td>
</tr>
<tr>
<td>Normal Weight</td>
<td>18.5–24.9</td>
<td>25–35</td>
<td>1 (0.8–1)</td>
</tr>
<tr>
<td>Overweight</td>
<td>25–29.9</td>
<td>15–25</td>
<td>0.6 (0.5–0.7)</td>
</tr>
<tr>
<td><strong>Obese (includes all classes)</strong></td>
<td>30 and greater</td>
<td>11–20</td>
<td>0.5 (0.4–0.6)</td>
</tr>
</tbody>
</table>

*Body mass index is calculated as weight in kilograms divided by height in meters squared or as weight in pounds multiplied by 703 divided by height in inches.

*Calculations assume a 1.1–4.4 lb weight gain in the first trimester.


**Recommended weight gain during pregnancy should be based on weight at first visit if care is initiated during 1st trimester**
Gestational Weight Gain

- Many women exceed gestational weight gain recommendations
- New research shows lower risks for mothers and babies with these guidelines:

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI 30-34.9</td>
<td>11-20 lbs</td>
</tr>
<tr>
<td>BMI 35-39.9</td>
<td>2-11 lbs</td>
</tr>
<tr>
<td>BMI 40+</td>
<td>No weight gain is optimal</td>
</tr>
</tbody>
</table>

(Faucher & Barger, 2015)

- No association between low gestational weight gain or weight loss with low birth weight or small for gestational age neonates and NICU admissions (Bogaerts, Ameye, Martens, & Devliege, 2015)
- DIFFERENT than other previous studies showing a positive correlation between weight loss and SGA
Exercise and Diet

- Exercise is SAFE
  - No increased risk of preterm birth with vigorous exercise (Wang et al., 2017)
- Regular, vigorous exercise provides health benefits
- Does seem to be associated with decreases in GWG and lower risk of GDM, C/S, and macrosomia
- Poorly used interventions and high drop-out rates
- No specific diet shown to decrease GWG in patients with obesity
- Dietary interventions appear to benefit women with a normal or overweight BMI but might not be sufficient to prevent adverse perinatal outcomes in women with obesity
The Guideline
1st Trimester

- 1st trimester dating ultrasound recommended
- Discuss neonatal risks and genetic screening options
- Early GCT by 12 weeks
- Add Hgb A1C with new OB labs
- Refer to nutritionist or counsel on food choice
- Consider Vit D levels and supplements
- Consider 5mg dosing for folic acid
- Screen for obstructive sleep disorder, consult or referral
- CNM practice inclusion considerations
Recommendations for weight gain, healthy eating and exercise in pregnancy

Our goal is to help you have a safe pregnancy and healthy baby. Based on your current weight, you do have some increased risks for you and your baby, such as diabetes during pregnancy, high blood pressure, and delivery by cesarean section.

Your provider may recommend extra monitoring or more screening tests during your pregnancy. These may include:
- Screening for diabetes early in your pregnancy
- Screening for sleep apnea
- Ultrasounds to monitor your baby’s growth and wellbeing
- Recommendation to have your baby before your due date
- Medications to decrease the risk of developing a blood clot after you deliver your baby

Weight Gain
How much recommended weight you gain during pregnancy is based on your weight before you became pregnant. The current national recommendation is 11-20 lbs weight gain, but research is showing lower risks for you and your baby with these guidelines:
- BMI 30-34.9 = 11-20 lbs
- BMI 35-39.9 = 2-11 lbs
- BMI 40+ = no weight gain is optimal

We’d like to work with you to help you reach your goals.

Healthy Eating
- How much you need to eat does not change a lot in pregnancy. The saying “eating for two” can lead to extra weight gain.
- Continue to eat a healthy balanced diet made up of whole grains, fruits, vegetables, and lean protein.
- Make small changes to your diet by slowly replacing unhealthy snacks or drinks with healthier options. If you drink soda or juice, try a sugar free option, like flavored water or sugar-free water enhancers instead.

Exercise
- Moderate exercise will not harm your baby. If you already exercise, it is safe and good for you to continue exercising. Talk to your provider about what types of exercise you do and if any changes are needed.
- If you don’t already exercise, it is safe to begin during pregnancy. Walking is a great place to start. Research shows that walking just 15 minutes after meals helps your body control blood sugar better.
- Small changes make a big difference. Challenge yourself to take the stairs instead of the elevator.
- Prenatal yoga can increase the strength, flexibility and endurance of muscles needed for childbirth. You can even find classes on YouTube!

You can do so much to achieve a healthy pregnancy! We’re here to support you.
Sleep Apnea Evaluation

Modified STOP

BMI ≥ 30 plus one:
- Snoring
- Observed apnea
- Hypertension

Referral for sleep study: home study vs in clinic overnight

<table>
<thead>
<tr>
<th>Condition</th>
<th>Odds Ratio (95% CI) with obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDM</td>
<td>4.13 (3.54-4.82)</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>5.32 (4.43-6.37)</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>14.06 (6.10-32.4)</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>19.12 (15.12-24.18)</td>
</tr>
<tr>
<td>Hospital stay &gt; 5 days</td>
<td>3.07 (2.59-3.63)</td>
</tr>
<tr>
<td><strong>In hospital mortality</strong></td>
<td><strong>7.84 (3.28-18.74)</strong></td>
</tr>
</tbody>
</table>
2nd Trimester

- Anatomy survey
- GCT and other routine labs
- Track weight gain, review weight tracking graph in epic with patient
- Discuss and encourage exercise, yoga, walking
- Positive reinforcement!
3rd Trimester

- Return OB visits q 2wks starting at 28 wks
- Consider growth and presentation check us at 32- 36 wks
- Recommend weekly antenatal testing at 36 wks for BMI ≥ 40
- Consider Anesthesia consult BMI ≥ 35
- Discuss considerations for labor:
  - Impact for success of TOLAC
  - IV access in labor, AMTSL, increased risk for PPH
  - Intermittent Auscultation: criteria excludes IA with a BMI ≥ 35
  - Many waterbirth guideline criteria excludes BMI ≥ 35
  - Induction of labor should be offered at 39 weeks gestational age for women with a BMI ≥ 40.
  - VTE prevention plans
Labor and Birth

- Encourage upright and mobility
- Recognized possible slower progress
- EFM; Monica telemetry prefered, consider IUPC if unable to pick up contractions.
- Anesthesia early consult on admission in labor: airway evaluation and discussion for BMI ≥35
- Shoulder dystocia and PPH increased risk

Operating Room:
- Have “Traxi” (pannus retractor) available
- Ancef 3gm
- 0-PDS for fascial closure
Postpartum, 0-7 days

- Increased breastfeeding support
- VTE prevention
- Pharmacologic anticoagulation should be considered in women with BMI $\geq 30$ admitted antepartum for an expected stay of 72 hours or more.
- All women with a BMI $\geq 35$ undergoing cesarean delivery for any indication should receive pharmacologic anticoagulation within 24 hours of delivery for the course of their hospitalization.
- All women with BMI $\geq 40$ undergoing vaginal delivery with an anticipated hospital stay of 72 hours should receive pharmacologic thromboprophylaxis for the duration of their postpartum hospitalization.
Postpartum, 1-8 weeks

- 2 hr GTT as needed
- Encourage appropriate return to exercise
- Refer to weight management clinic as appropriate
- Refer to Internal Med if other comorbidities exist, i.e. hypertensive disorders
- Birth control: consider decreased efficacy of OCP
Ultrasound in Obesity
Ultrasound in obesity

- Miss rate for anomalies increases up to 20% in obesity
- Detection rate improves with gestational age (up to a point)
- Consider anatomic survey at 20 weeks to optimize detection rate
Stillbirth rates

• At all gestational ages, pregnancy loss is higher in obese women
• “Dose-dependent”
• Mechanism is not well understood
## What risk is too much?

<table>
<thead>
<tr>
<th>Period (Completed wks)</th>
<th>BMI Groups</th>
<th>Risk Time (wk)</th>
<th>Fetal Deaths (n)</th>
<th>Crude Rate*</th>
<th>Crude HR</th>
<th>Adjusted HR$^4$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>28–36</td>
<td>&lt; 18.5</td>
<td>21,291</td>
<td>2</td>
<td>0.1</td>
<td>0.9</td>
<td>0.9</td>
<td>0.2–3.6</td>
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<tr>
<td></td>
<td>18.5–24.9</td>
<td>322,811</td>
<td>36</td>
<td>0.1</td>
<td>1.0</td>
<td>1.0</td>
<td>Reference</td>
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<tr>
<td></td>
<td>25.0–29.9</td>
<td>92,935</td>
<td>21</td>
<td>0.2</td>
<td>2.0</td>
<td>1.9</td>
<td>1.1–3.3</td>
</tr>
<tr>
<td></td>
<td>≥ 30</td>
<td>38,109</td>
<td>9</td>
<td>0.2</td>
<td>2.1</td>
<td>2.1</td>
<td>1.0–4.4</td>
</tr>
<tr>
<td>37–40</td>
<td>&lt; 18.5</td>
<td>5,919</td>
<td>2</td>
<td>0.3</td>
<td>1.0</td>
<td>1.0</td>
<td>0.2–4.0</td>
</tr>
<tr>
<td></td>
<td>18.5–24.9</td>
<td>93,909</td>
<td>33</td>
<td>0.4</td>
<td>1.0</td>
<td>1.0</td>
<td>Reference</td>
</tr>
<tr>
<td></td>
<td>25.0–29.9</td>
<td>26,989</td>
<td>16</td>
<td>0.6</td>
<td>1.7</td>
<td>1.7</td>
<td>0.9–3.0</td>
</tr>
<tr>
<td></td>
<td>≥ 30</td>
<td>10,937</td>
<td>14</td>
<td>1.3</td>
<td>3.4</td>
<td>3.5</td>
<td>1.9–6.4</td>
</tr>
<tr>
<td>&gt; 40$^d$</td>
<td>&lt; 18.5</td>
<td>1,163</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>18.5–24.9</td>
<td>20,591</td>
<td>9</td>
<td>0.4</td>
<td>1.0</td>
<td>1.0</td>
<td>Reference</td>
</tr>
<tr>
<td></td>
<td>25.0–29.9</td>
<td>6,588</td>
<td>8</td>
<td>1.2</td>
<td>2.6</td>
<td>2.9</td>
<td>1.1–7.7</td>
</tr>
<tr>
<td></td>
<td>≥ 30</td>
<td>2,818</td>
<td>5</td>
<td>1.8</td>
<td>4.0</td>
<td>4.6</td>
<td>1.6–13.4</td>
</tr>
</tbody>
</table>

Nohr et al. Obstet Gynecol. 2005
To test or not to test?

- No consensus
- Does not appear to cause increased risk of iatrogenic early delivery (<39 weeks) or cesarean delivery
- No clear evidence that antenatal testing improves outcomes
Recommendation

For women with BMI $\geq 40$
- Weekly antenatal testing at 36 weeks
- Continue until delivery
- BPP or NST/AFI are reasonable choices for testing
Delivery timing

- Again.....no consensus
- Decision analyses and cost effectiveness studies recommend delivery at 39 weeks
- No randomized controlled trials for obese women to date
But....

- Increased risks exist for
  - Failed induction
  - Cesarean delivery (vs spontaneous labor)
    - Wound infection
    - Prolonged wound healing
  - VTE with prolonged hospitalization
**Recommendation**

- Women with class 3 obesity (BMI ≥ 40) should be offered induction of labor in the 39th week of gestation
  - Why?
    - Stillbirth risk begins to rapidly increase
    - Neonatal death rate falls below the stillbirth rate
- Compared with expectant management, IOL has a lower cesarean rate at 39 weeks
  - Decision analysis data
    - Improved cesarean rate, decreased health care costs with IOL at 39 weeks for obese patients

Gill et al. J Mat Fet Neonat Med. 2017
VTE Prophylaxis

- VTE risk increased 2-3 fold in obese women
- New guidelines from California recently published
  - Cesarean or
  - Vaginal delivery
<table>
<thead>
<tr>
<th>Major VTE Risk Factors</th>
<th>Minor VTE Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BMI &gt; 35 kg/m² @ delivery</td>
<td>• Multiple gestation</td>
</tr>
<tr>
<td>• Low risk thrombophilia</td>
<td>• Age &gt; 40</td>
</tr>
<tr>
<td>• Postpartum hemorrhage requiring:</td>
<td>• Postpartum hemorrhage ≥1000 ml</td>
</tr>
<tr>
<td>• Transfusion or further operation, (e.g. hysterectomy, D&amp;C) or Interventional Radiology procedure</td>
<td>• but not requiring:</td>
</tr>
<tr>
<td>• Infection requiring antibiotics</td>
<td>• Transfusion or further operation, (e.g. hysterectomy, D&amp;C) or Interventional Radiology procedure</td>
</tr>
<tr>
<td>• Antepartum hospitalization ≥ 72 hours, current or within the last month</td>
<td>• Family history of VTE (VTE occurring in a first-degree relative prior to age 50)</td>
</tr>
<tr>
<td>• Chronic medical conditions: Sickle Cell disease, Systemic Lupus Erythematosus, Significant Cardiac disease, active Inflammatory Bowel Disease, active cancer, Nephrotic syndrome</td>
<td>• Smoker</td>
</tr>
<tr>
<td></td>
<td>• Preeclampsia</td>
</tr>
</tbody>
</table>

**Women with one major or two minor risk factors should receive in-hospital post cesarean pharmacologic prophylaxis**
<table>
<thead>
<tr>
<th>Clinical History</th>
<th>Risk Level</th>
<th>Anticoagulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage ambulation and avoid dehydration at all risk levels</td>
<td>LOW</td>
<td>Mechanical prophylaxis placed prior to delivery and continued until fully ambulatory</td>
</tr>
<tr>
<td>Delivery BMI &gt; 40 kg/m²</td>
<td>MEDIUM</td>
<td>Mechanical prophylaxis placed prior to delivery and continued until fully ambulatory PLUS Prophylactic dose LMWH / UFH postpartum hospitalization BMI &gt; 40 kg/m² plus thrombophilia (consider LMWH/UFH continuation 6 weeks postpartum)</td>
</tr>
<tr>
<td>Delivery BMI &gt; 40 kg/m² PLUS Antepartum hospitalization ≥ 72 hours anticipated currently or within past month OR Delivery BMI &gt; 40 kg/m² PLUS Low Risk Thrombophilia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High risk thrombophilia with no prior VTE regardless of family history Prior provoked, idiopathic, or estrogen related VTE Low risk thrombophilia AND family history of VTE ANY single prior VTE OR Patients already receiving LMWH or UFH as outpatient Multiple prior VTE Prior VTE with High Risk or Antiphospholipid Syndrome (APS)</td>
<td>HIGH</td>
<td>Mechanical prophylaxis placed prior to delivery and continued until fully ambulatory PLUS Prophylactic dose LMWH / UFH postpartum in hospital and continued until 6 weeks from date of delivery after discharge OR Mechanical prophylaxis placed prior to delivery and continued until fully ambulatory PLUS Therapeutic dose LMWH / UFH postpartum (Postpartum dose ≥ Antepartum dose) in hospital and continued until 6 weeks from date of delivery after discharge</td>
</tr>
</tbody>
</table>
Questions
References


