MATERNAL OBESITY
Interconception & Preconception Health Summit
November 1, 2011

Presented by:
Denise C. Gee, MPH, RD
PHPE WIC

The 4 R’s of Maternal Obesity
- Rates
- Risks
- Recommendations
- Resources

U.S. Rates

2010 March of Dimes Prematurity Report Card
Nation scores a “D” One in eight babies born in our country is premature.

Obesity Trends Among U.S. Adults
BRFSS, 2010

Obesity

Obesity is the fastest-growing health problem in the U.S.
Definition of Obesity: excess adipose (fat) tissue

- Can be measured by Body Mass Index (BMI)
- BMI is a reliable, more accurate measure of total body fat compared with body weight alone.

BMI formula:
A measure of an adult’s weight in relation to his or her height, specifically the adult’s weight in pounds divided by height in inches squared multiplied by 703, or:

\[ \text{BMI} = \frac{\text{Weight in Pounds}}{(\text{Height in inches})^2} \times 703 \]
Weight Status based on BMI

<table>
<thead>
<tr>
<th>Classifications for BMI</th>
<th>BMI (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.5</td>
</tr>
<tr>
<td>Normal weight</td>
<td>18.5-24.9</td>
</tr>
<tr>
<td>Overweight</td>
<td>25-29.9</td>
</tr>
<tr>
<td>Obesity (Class 1)</td>
<td>30-34.9</td>
</tr>
<tr>
<td>Obesity (Class 2)</td>
<td>35-39.9</td>
</tr>
<tr>
<td>Extreme Obesity (Class 3)</td>
<td>&gt;40</td>
</tr>
</tbody>
</table>

*National Heart, Lung and Blood Institute (NHLBI), 1998

To estimate BMI, multiply the individual's weight (in pounds) by 703, then divide by the height (in inches) squared.

Obesity Rates

- Over 2/3 of adults in the US are overweight or obese*
- Over 1/3 are obese*


Obesity Trends Among Women

Women's weight at varying stages of life:
I. BEFORE pregnancy
II. DURING pregnancy
III. AFTER pregnancy (postpartum)

Obesity Trends Among Women

Women's weight at varying stages of life:
I. BEFORE pregnancy
II. DURING pregnancy
III. AFTER pregnancy (postpartum)
Obesity Trends Among Non-Pregnant Women 12 to 44 Years of Age

- The prevalence of obesity among women 12 to 44 years of age has more than doubled since 1976, with continued increases in overweight women.


Trends of Obesity Classes Among Non-Pregnant Women 12 to 44 Years of Age

- The prevalence of extreme obesity has increased dramatically.


Obesity (BMI 30+) Trends Among Non-Pregnant Women 12 to 44 Years of Age by Race

- Non-Hispanic Black women were significantly more obese than non-Hispanic White women.
- Mexican American women were more likely to be obese than non-Hispanic White women.


Non-Pregnant and Before Pregnancy Weight Status Among Women

Summary:
- Growing population of overweight and obese women, therefore, more women enter pregnancy overweight or obese.
- 1/5 of American women are obese at the start of pregnancy.
- Overweight and obesity increased across multiple races/ethnicities, but higher in minority women.

Obesity Trends Among Women

Women's weight at varying stages of life:

I. BEFORE pregnancy
   II. DURING pregnancy
   III. AFTER pregnancy (postpartum)

2009 IOM Pregnancy Weight Gain Guidelines

<p>| TABLE 1 NEW RECOMMENDATIONS FOR TOTAL AND RATE OF WEIGHT GAIN DURING PREGNANCY, BY PREPREGNANCY BMI |
|---------------------------------------------------|---------------------------------------------------|---------------------------------------------------|</p>
<table>
<thead>
<tr>
<th>Prepregnancy BMI (kg/m²)</th>
<th>Total Weight Gain Range (lbs)</th>
<th>Rate of Weight Gain* (2nd and 3rd Trimester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight &lt; 18.5</td>
<td>28-40</td>
<td>(1-1.3)</td>
</tr>
<tr>
<td>Normal 18.5-24.9</td>
<td>25-35</td>
<td>(1.5-1)</td>
</tr>
<tr>
<td>Overweight 25.0-29.9</td>
<td>15-25</td>
<td>(0.5-0.7)</td>
</tr>
<tr>
<td>Obese (includes all classes) ≥ 30.0</td>
<td>11-20</td>
<td>0.5</td>
</tr>
</tbody>
</table>

* To calculate BMI go to www.whihelpsupport.com/bmi

* Calculations assume a 0.5-2 lb (1-4 kg) weight gain in the first trimester based on Vargo-Rit et al., 1994; Abrams et al., 1993; Carerras-Cal et al., 1997
**Gestational Weight Gain (GWG) Patterns**

- **Birth certificate data**
  - GWG of >40 lbs. increased from 1990 to 2005.
  - *Singleton, term deliveries of US women

**High GWG (>40 lbs.) by Race/Ethnicity**

- **Birth certificate data**
  - By race/ethnicity, Non-Hispanic White women represented the largest percentage of women with high GWG.
  - *Singleton, term deliveries

**Gestational Weight Gain by Pre-Pregnant BMI**

- **PRAMS data**
  - PRAMS Data from 8 states. Data presented as percents.

**Pre-Pregnant Weight Status and GWG**

- **PMFE WIC data**
  - *Based on 2009 IOM pregnancy weight gain recommendations
  - *Singleton, term deliveries

**GWG Among Pregnant Women**

- Summary:
  - Women are gaining more weight during their pregnancies than is recommended
  - Overweight and obese pregnant women have the highest rate of excessive GWG

**Obesity Trends Among Women**

- Women’s weight at varying stages of life:
  1. BEFORE pregnancy
  2. DURING pregnancy
  3. AFTER pregnancy (postpartum)
Postpartum Weight Retention (PPWR) by Pre-Pregnant Weight Status at >24 Weeks Postpartum

- Higher GWG is associated with greater PPWR.
- Black women retained more weight than White or Hispanic women.

Postpartum Weight Retention (PPWR) of Pre-Pregnant Obese Women

- Obese women who gained within or below the IOM recommended weight range maintained a postpartum weight BELOW their pre-pregnant weight.

PPWR Among Pregnant Women

Summary:
- GWG will influence PPWR --- high GWG → increased PPWR
- Women are likely to become pregnant again without taking off all of the weight gained in their previous pregnancy
- PPWR will lead to obesity or worsen a women’s weight status

Obesity and Disease Risks

- Obesity is a risk factor for many chronic conditions and health problems:
  - Diabetes
  - Hypertension
  - High cholesterol
  - Stroke
  - Heart disease
  - Osteoarthritis
  - Menstrual irregularities
  - Certain cancers (kidney, endometrial, colorectal, gallbladder, thyroid)
  - Sleep apnea
  - Non-alcoholic fatty liver disease
  - Gallbladder disease

Obesity and Risks of Pregnancy Complications

- Obesity increases the risk of pregnancy complications which can include:
  - Infertility
  - Gestational diabetes
  - Pre-eclampsia
  - Miscarriage/fetal death
  - Prolonged labor
  - Caesarean delivery

Risks to Infant and Children

- Infants and children are adversely affected by maternal obesity
  - Shoulder dystocia
  - Macrosomia
  - Possible birth defects
  - Preterm birth
  - Childhood obesity
The 4 R’s of Maternal Obesity

- Rates
- Risks
- Recommendations
- Resources

Recommendations

- Women should work towards achieving and/or maintaining a healthy weight preconceptually/interconceptually
- Discuss the importance of returning to pre-pregnant weight, then healthy weight (if overweight/obese)
- Requires a combination of a healthy diet, physical activity and behavior modification

Recommendations for the Healthcare Provider

- Talk with women about their weight and weight status
- If a woman is overweight or obese, she needs to be aware of it and her risks
  - Calculate her BMI
  - Share what is a healthy weight range
- Monitor weight regularly
- If pregnant, discuss recommended weight gain range
  - Refer to WIC (if eligible)

Resources

ACOG’s Healthy Weight: After Pregnancy

www.nhlbi.nih.gov
www.cdc.gov/obesity/
Case Scenarios

1) 8 week postpartum, breastfeeding mother is highly motivated to lose weight. She began her pregnancy with a BMI of 30 and gained 30 lbs. during her pregnancy. Receives Medi-Cal.

2) 6 week postpartum mother gained 45 lbs. during her pregnancy. She had a pre-pregnancy BMI of 24, was gestational diabetic and has ongoing health care coverage (insurance).

How would you serve these moms?
What additional information would you obtain?
What follow-up would you prescribe?

Contact Info

PHFE WIC  
Denise Gee  
www.phfewic.org  
denise@phfewic.org