Obesity in Pregnancy

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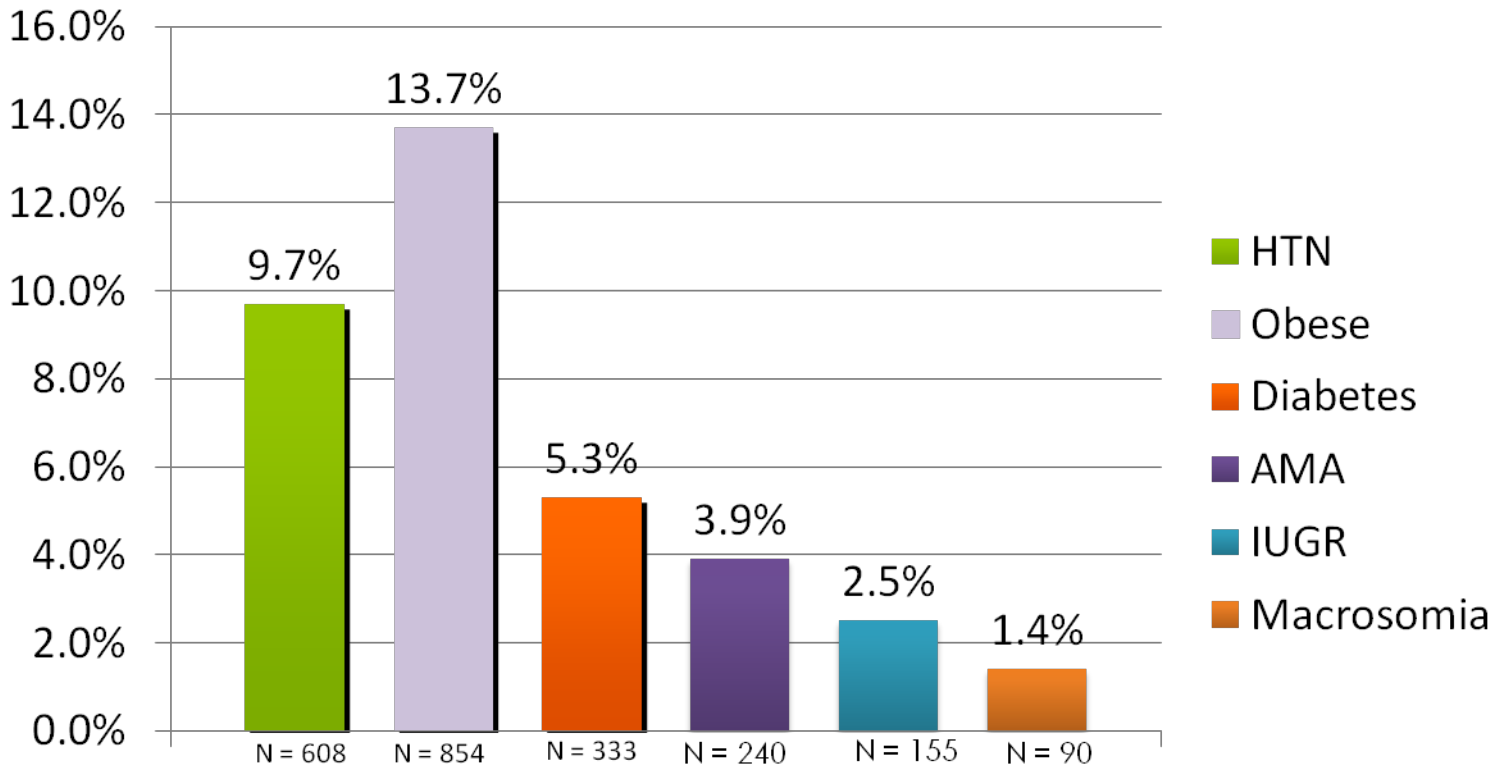
Outline

- *"We have a weight issue"*
- What is Obesity in Pregnancy?
- What is the Incidence of obesity in pregnancy?
- What are the Maternal effects of obesity?
  - First, Second, and Third trimesters
  - Labor and Delivery
  - Postpartum
- What are the Fetal effects of obesity?
  - First, Second, and Third trimesters
  - Labor and Delivery
  - Childhood
- Management strategies for obese pregnant patients
- Bottom Line

SIVB2/3

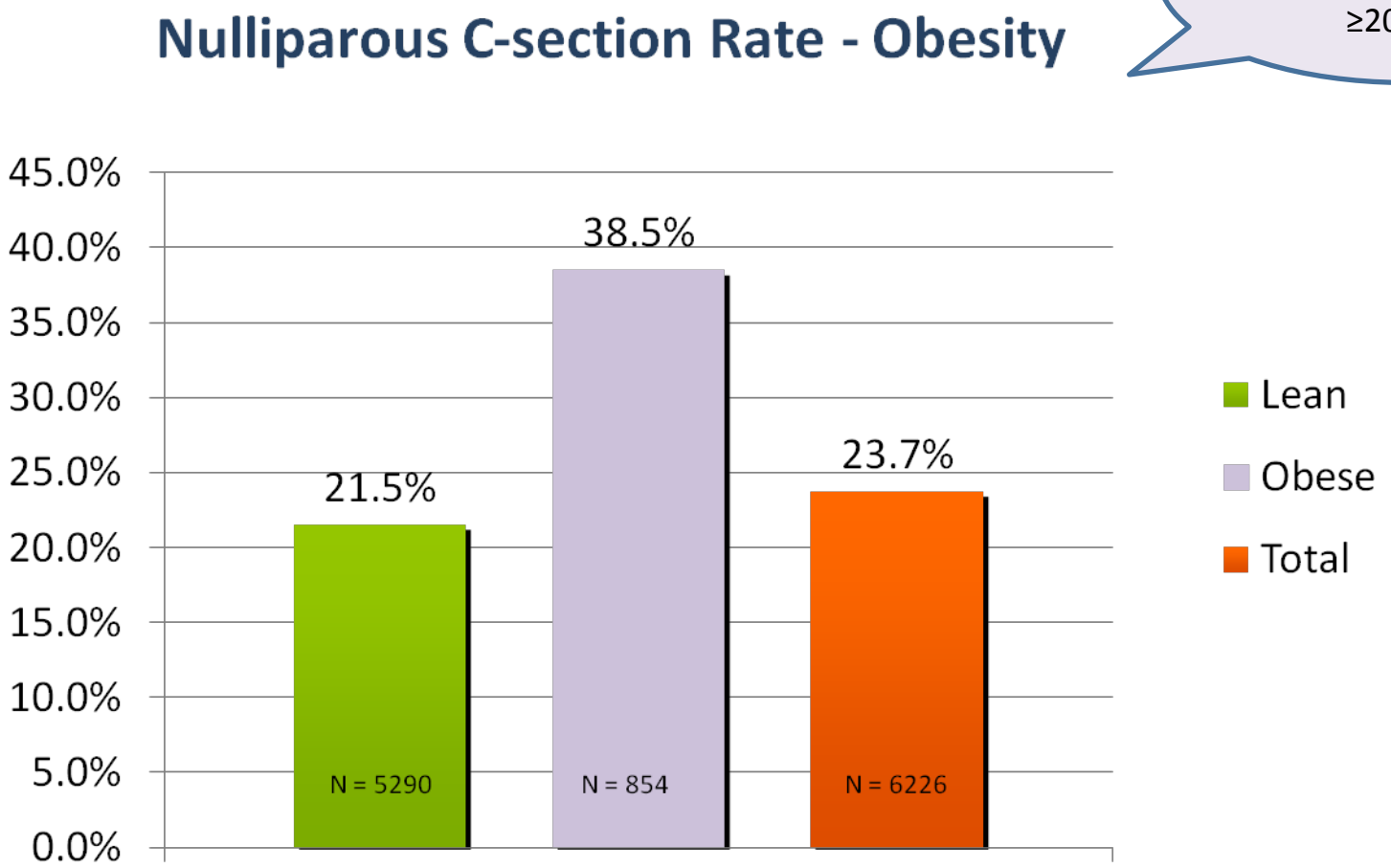
Mothers may have more than one risk factor

Maternal Risk Factors

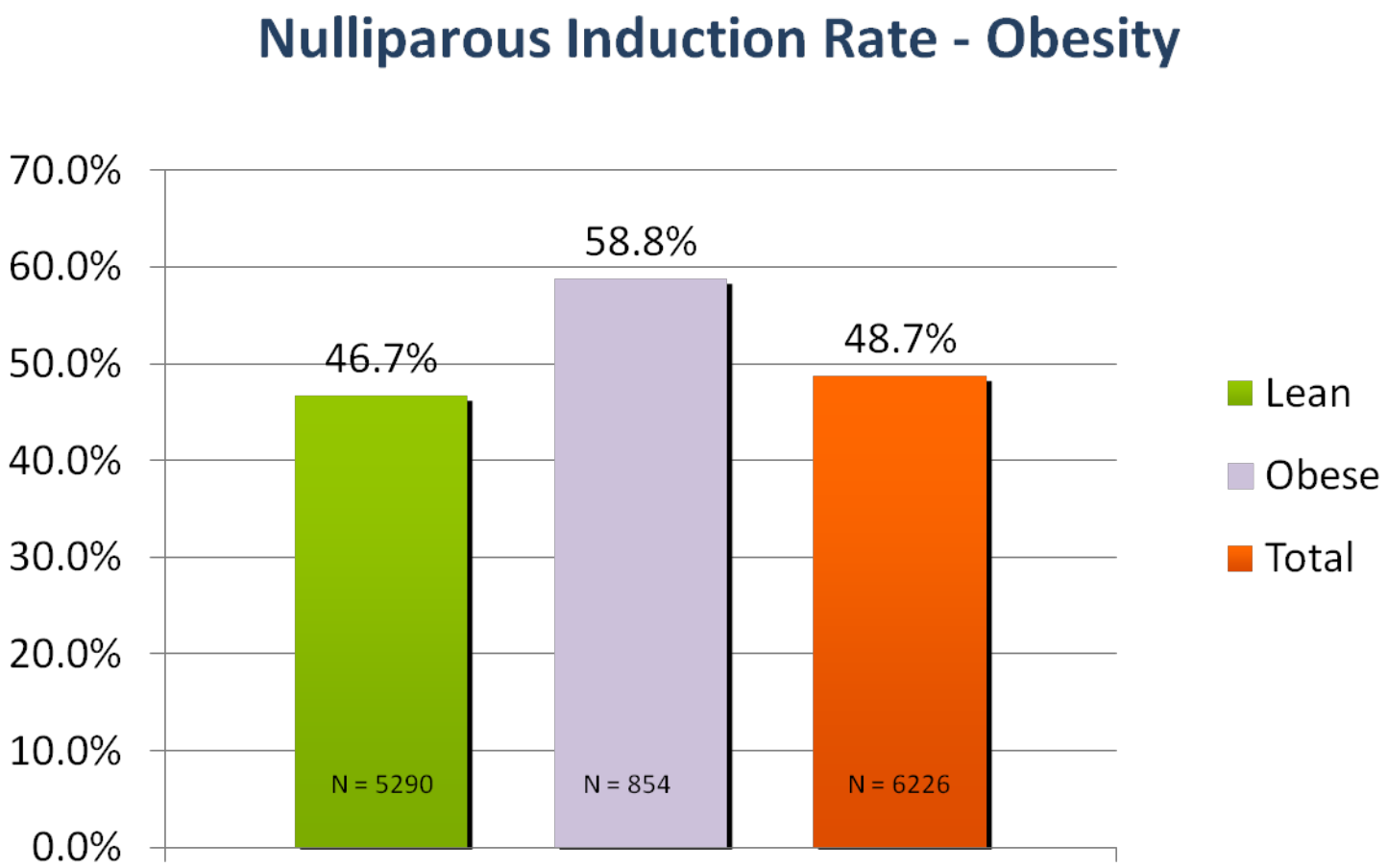


SIVB2/3

BMI ≥ 30 OR last maternal weight ≥200 lbs



SIVB2/3


Nulliparous Induction Rate - Obesity
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
46.7%
58.8%
48.7%
N = 5290
N = 854
N = 6226
Lean
Obese
Total

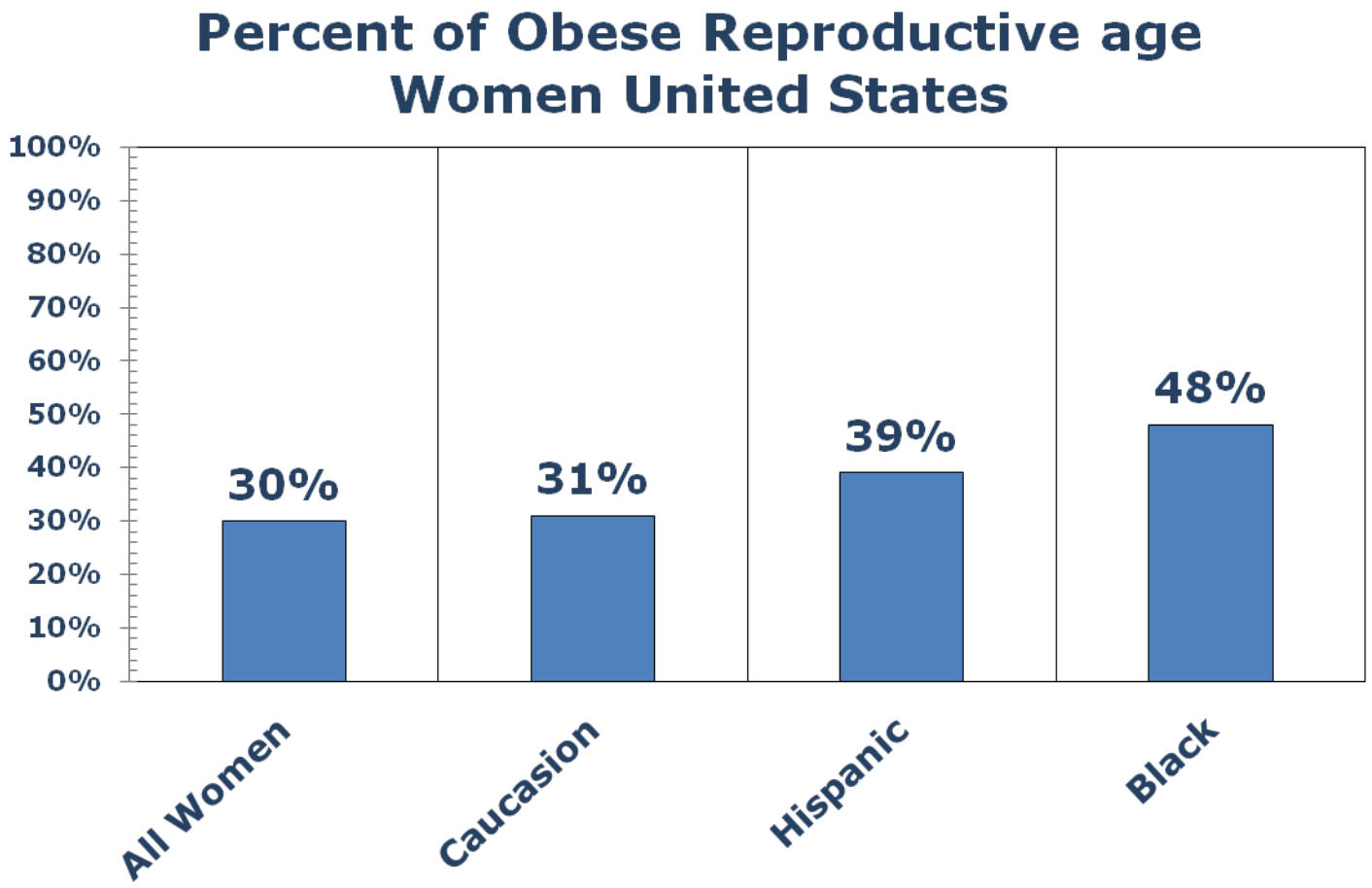
What is Obesity in Pregnancy?

- "Maternal Obesity" is defined as a pre-gravid Body Mass Index (BMI) of 30 Kg/M^2 or greater.
  (thus, a woman who is 5'4'' and 175 lbs is obese)
- BMI = weight (Kg)/ height (meters) $^{2.}$
- NIH and WHO definitions
  - Normal weight = 18.5-24.9 BMI
  - Overweight = 25-29.9 BMI
  - Obese (Class 1) = 30-34.9 BMI
  - Obese (Class 2) = 35-39.9 BMI
  - Extremely Obese (Class 3) = > 40 BMI

World Health Organization. Obesity: preventing and managing a global epidemic. World Health Organ Tech Rep Ser 2000;894:1–4.

National Heart, Lung, and Blood Institute (NHLBI) and National Institute for Diabetes and Digestive and Kidney Diseases (NIDDK). Clinical guidelines on the identification, evaluation and treatment of overweight and obesity in adults. The evidence report. Obes Res 1998;6(suppl 2):51S–210S.

Incidence of Obesity in Pregnancy



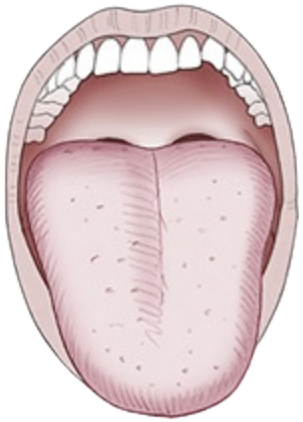
Center of Disease Control Report. 2008

Incidence of Obesity in Pregnancy

- Prevalence of Maternal Obesity ranges from 10%-36% depending on region
- There has been a 70% increase in Maternal Obesity from 1994-2003
- 28% of people in Eastern NC have a BMI greater than 30.
- 38% of African Americans in Eastern NC have a BMI greater than 30.

Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. JAMA 2006;295: 1549–55.

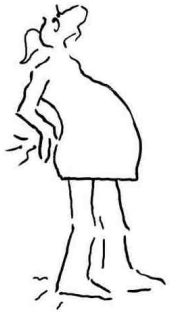
May 2008 Center for Health Services Research and Development
East Carolina University
Disparities in Health Risk Factors and Health Status in
Eastern North Carolina: Data from the Behavioral Risk Factor Surveillance Survey

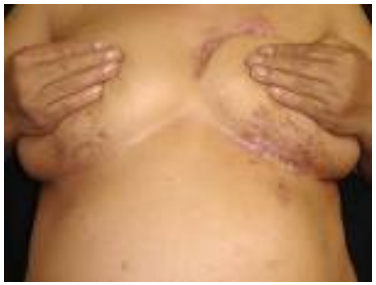


Maternal Effects of Obesity

First and Second Trimester

- **Obesity is associated with worsening of obstructive airway issues (sleep apnea)**
- **Early onset Gestational Diabetes**
- **Worsening of Musculoskeletal issues secondary to rapid changes in weight and center of gravity**
- **Worsening of subcutaneous, vaginal, and urinary tract infections form increased secretions.**





ACOG Committee Opinion No. 315 2005

Maternal Effects of Obesity

Third Trimester

- **Increased risk of Preeclampsia (almost 3 fold higher risk)**
- **Increased risk of Gestational diabetes (4-8x higher risk)**

Chun SY, et al. Maternal obesity and risk of gestational diabetes. Diabetes Care. 2007;30(8) p2070

Bodnar LM, et al. Risk of preeclampsia increases with prepregnancy BMI. Ann Epid. 2005;15(7) p475

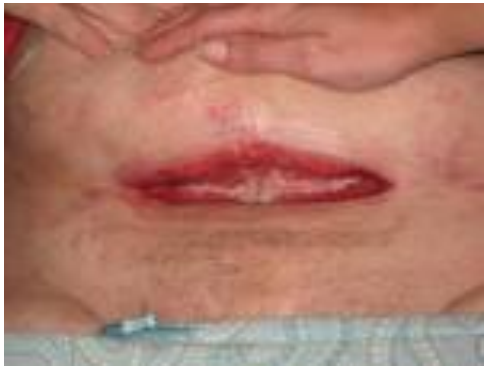
Maternal Effects of Obesity

Labor and Delivery

- **Increased risk of shoulder dystocia.**
- **Increased risk of cesarean section rate. (2 fold higher)**
- **Difficulty in estimating fetal size (even with ultrasound)**

Weiss JL et al. Obesity, obstetric complications and cesarean delivery rate – a population- based screening study. FASTER R. Consort. Am. J. OB/GYN 2004;190 p1091

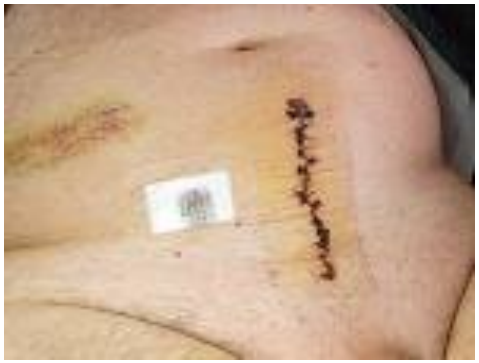
Mazouni C, et al. Maternal and anthropomorphic risk factors for shoulder dystocia. Acta Obstet Gynecol Scand. 2006;85(5) p567

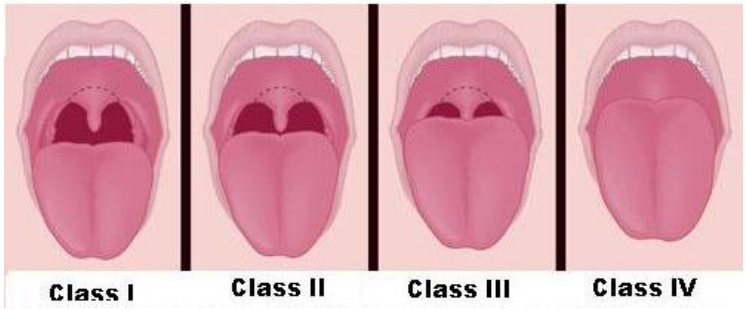


Maternal Effects of Obesity

Labor and Delivery

- **Increased operative complication (Blood loss, operative time, difficulty to execute emergent procedures, alternative surgical approaches)**
- **Difficulty with regional anesthesia and difficult airway**
- **Increased infectious morbidity**
- **Prolong Induction**



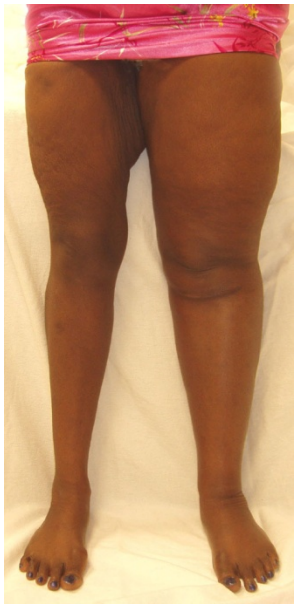


Catalono PM, Management of Obesity in Pregnancy. Obstet Gynecol. 2007;109(2) p419

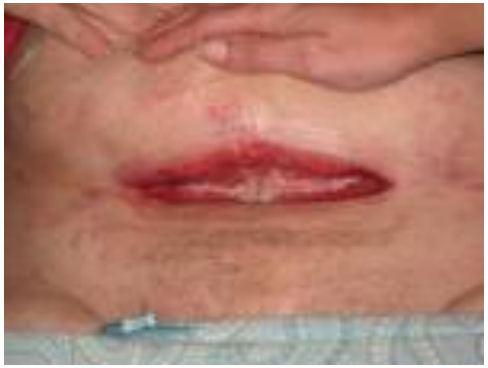
Maternal Effects of Obesity

Postpartum

- **Increased <u>thromboembolic events</u>**
- **Increased <u>wound separation and infection</u>**
- **Increased <u>endometritis</u>**



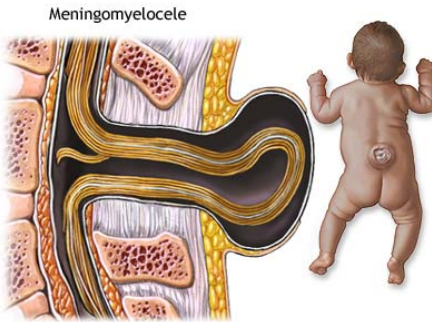
Bates SM, et al. Amer. College of Chest Physicians. Venous thromboembolism, thrombophilia, and antithrombotic therapy and pregnancy. Chest 2008;133(6)p 844s



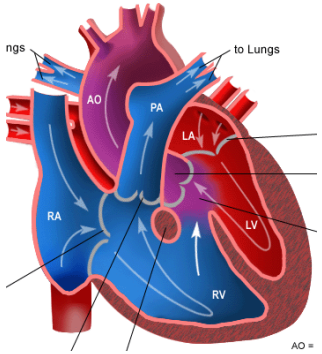
Ramsey PS, et al. Subcutaneous tissue reapproximation, alone or in combination with drain, in obese women undergoing cesarean delivery. Obstet. Gyencol. 2005;105(5) p967

Fetal Effects of Obesity

First and Second Trimester

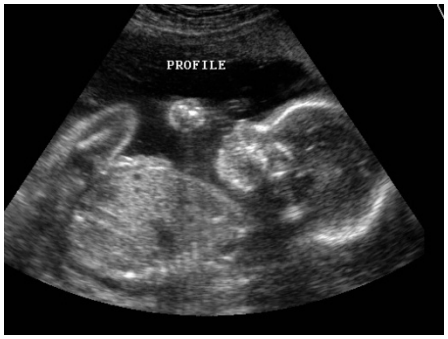


- **Obesity is an independent risk factor for <u>spontaneous abortion</u> *(almost 2x greater risk)***
- **Obesity increases the risk of several <u>congenital anomalies</u>: neural tube defect, cardiac anomalies, cleft lip and palate, and anal atresia *(almost 2x greater risk)***
- **Difficulty in <u>prenatal diagnosis</u> of anomalies secondary to decrease effectiveness of ultrasound**



Metwally M, et al. Does high BMI increase the risk of miscarriage after spontaneous and assisted conception. Fert. Steril. 2008; 90(3) p714

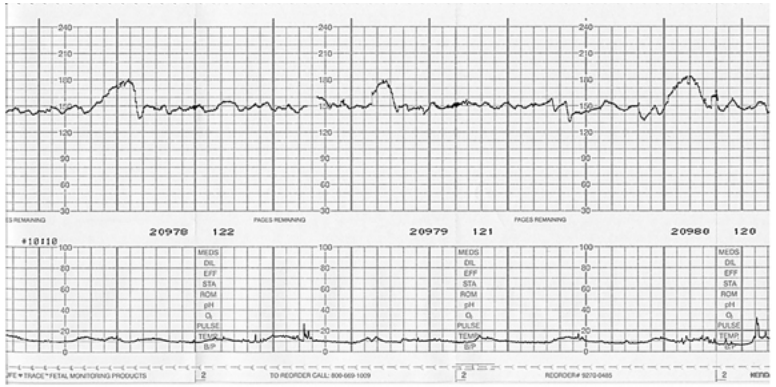
Ray JG, et al. Greater maternal weight and the ongoing risk of NTD after folic acid flour fortification. Obstet Gynecol. 2005;105(2) p261



Fetal Effects of Obesity

Third Trimester / Labor and delivery

- **Unexplained stillbirth (2 fold higher risk)**
- **Increased incidence of Preterm birth (usually for maternal or fetal indications – not spontaneous preterm labor)**
- **Difficulty in performing antenatal surveillance.**
- **Increased rate of fetal Macrosomia.**
- **Increased risk of Birth Trauma.**



Chu SY et al. Maternal obesity and the risk of stillbirth: a metaanalysis. Am. J. Of OB/Gyn 2007;197(3) p223

Management Strategies

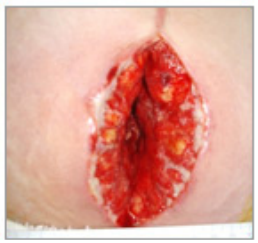
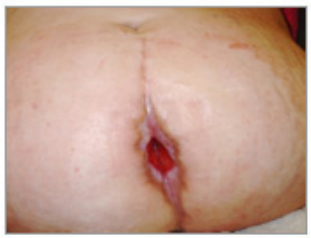
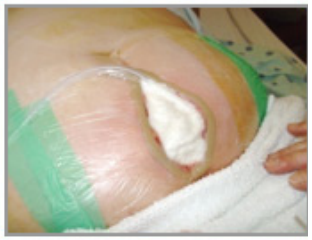
Labor and Delivery/Post-partum

- Make Delivery as planned event as possible
- Involve Anesthesia early in admission
- Assemble special equipment needed early in admission (lifts, Bari-beds, hover mats, Ect …)
- Establish regional anesthesia early in labor
- Review risks and limitations to emergent delivery with patient and team.
- Be aware and ready for dystocia
- Make Operating Room Staff aware as early as possible if surgical delivery is needed.

Management Strategies

Labor and Delivery/Post-partum

- Treat the patient with respect!
- After delivery, be keen to her risk of infection (discuss this concern with patient)
- Demonstrate proper wound care for patient
- Underscore the importance of meticulous hygiene and set realistic expectations for patient
- Ambulate!, Ambulate!, Ambulate!
- Early post-partum Appointment
- Make contraceptive plan prior to Discharge

Management Strategies

Labor and Delivery/Post-partum

- **Encourage <u>breast feeding</u>**
- **Set-up Post-partum appointment with <u>Nutrition</u>**
- **Set-up appointment with internist for regular <u>screening for DM/HTN</u> AND establish <u>weight loss plan</u>.**

Bottom Line

- **Make Pregnancy as planned as possible**
- **Assemble and Lead a multidisciplinary team (Aesthesia, Cardiology, Pulmonology, Nursing, OR-team, Nutritionist, Ultrasonographers, ect…)**
- **Share Your Concerns and Limitations with patient and family.**
- **Treat the patient with respect.**

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