


# Obesity in Pregnancy: Outpatient Management

**Goal: “Every encounter should provide safety, privacy, and dignity.”**

## World Health Organization Body Mass Index (BMI) Categories

Category	BMI (kg/m <sup>2</sup> )
Underweight	<18.5
Normal Weight	18.5-24.9
Overweight	25.0-29.9
Obesity class I	30.0-34.9
Obesity class II	35.0-39.9
Obesity class III	40 or greater
Superobesity	50 or greater

**Table 2. Increases In Congenital Anomalies in Obese Versus Nonobese Gravidas** 

Congenital Anomaly	Increased Risk
Neural tube defects	OR, 1.87; 95% CI, 1.62-2.15
Spina bifida	OR, 2.24; 95% CI, 1.86-2.69
Cardiovascular anomalies	OR, 1.30; 95% CI, 1.12-1.51
Septal anomalies	OR, 1.20; 95% CI, 1.09-1.31
Cleft palate	OR, 1.23; 95% CI, 1.03-1.47
Cleft lip and palate	OR, 1.20; 95% CI, 1.03-1.40
Anorectal atresia	OR, 1.48; 95% CI, 1.12-1.97
Hydrocephaly	OR, 1.68; 95% CI, 1.19-2.36
Limb reduction anomalies	OR, 1.34; 95% CI, 1.03-1.73

Abbreviations: CI, confidence interval; OR odds ratio

Data from Stothard KI, Tennant PW, Bell R, Rankin J. Maternal overweight and obesity and the risk of congenital anomalies: a systematic review and meta-analysis. *JAMA* 2009;301:636-50.

**Table 3. Absolute Risks Per 10,000 Pregnancies for Body Mass Index Categories 20, 25, and 30** 

	Maternal BMI		
	20	25	30
Fetal death	76	82 (95% CI, 76-88)	102 (95% CI, 93-112)
Stillbirth	40	48 (95% CI, 46-51)	59 (95% CI, 55-63)
Perinatal death	66	73 (95% CI, 67-81)	86 (95% CI, 76-98)
Neonatal death	20	21 (95% CI, 19-23)	24 (95% CI, 22-27)
Infant death	33	37 (95% CI, 34-39)	43 (95% CI, 40-47)

Abbreviations: BMI, body mass index; CI, confidence interval.

Data from Aune D, Saugstad OD, Henriksen T, Tonstad S. Maternal body mass index and the risk of fetal death, stillbirth, and infant death: a systematic review and meta-analysis. *JAMA* 2014;311:1536-46.

## Preconception

Obtain weight, height, and calculate pre-pregnancy BMI for accurate counseling.

Review medications and counsel on pregnancy considerations (i.e. weight loss medications or oral antihyperglycemic agents).

Counsel patient on obesity related pregnancy risks including increased risk of congenital anomalies and adverse perinatal outcomes.

Screen for additional pre-pregnancy cardiometabolic risk factors (HTN, dyslipidemia, elevated triglycerides, impaired glucose metabolism or diabetes mellitus, obstructive sleep apnea, tobacco use) and counsel as appropriate.

Screen for obstructive sleep apnea and refer to sleep medicine as indicated.

Referral to obesity medicine or bariatric surgery\* if patient desires -any weight loss prior to pregnancy will help to decrease risk of adverse outcomes

Begin a prenatal vitamin and 1-4mg of folic acid daily prior to conception

\*Candidates for bariatric surgery include adolescents and adults with a BMI  $\geq 40$  kg/m<sup>2</sup>, or a BMI of 35 to 39.9 kg/m<sup>2</sup> with at least one serious comorbidity, who have not met weight loss goals with diet, exercise, and drug therapy.

# Obesity in Pregnancy: Outpatient Management

## First Trimester

- Baseline HELL P labs and urine protein/creatinine ratio
- 1hr GTT
- Baseline TSH
- Screen for additional cardiometabolic risk factors (HTN, impaired glucose metabolism or diabetes mellitus, obstructive sleep apnea, tobacco use)
- Screen for OSA > refer to sleep medicine as indicated
- Consider Baseline EKG BMI $\geq$ 40kg/m<sup>2</sup>
- Echocardiogram if abnormal EKG, chronic hypertension, or signs/symptoms of suspected cardiac etiology (chest pain, SOB, palpitations, etc...)
- Nutrition consultation
- Review total weight gain goal 11-20lbs in pregnancy - approximately .51bs (.4-.6) per week in 2nd and 3rd trimesters
- Offer aneuploidy screening, discuss limitations of NIPT for patients with obesity
- Consider collecting a maternal serum AFP in conjunction with US for screening of neural tube defects

## Second + Third Trimester

- Targeted US (BMI >35kg/m<sup>2</sup>) - patient should be counseled on limitations of US in identifying structural anomalies
- Third trimester growth ultrasound for BMI  $\geq$ 35-39kg/m<sup>2</sup>
- Monthly growth ultrasound for BMI  $\geq$ 40kg/m<sup>2</sup> or if cannot accurately measure fundal height
- NST weekly for BMI $\geq$ 40kg/m<sup>2</sup> starting 34w0d-34w6d weeks
- Anesthesia consult for any of the following:
  1. Cannot walk 2 blocks without stopping or cannot do light housework without stopping
  2. Cannot lie flat.
  3. Currently on anticoagulants or will be on anticoagulants
- Contraception counseling
- BMI $\geq$ 40kg/m<sup>2</sup> Delivery by EDD in the absence of other obstetric indications

## Postpartum:

- Breastfeeding support
- Consider lovenox x6 weeks for BMI >50\* after cesarean delivery
  - BMI 40-59.9kg/m<sup>2</sup>: 40mg q12hr
  - BMI  $\geq$ 60kg/m<sup>2</sup>: 60mg q12hr
- Transition care to PCP and obesitymedicine

# Obesity in Pregnancy: Management Inpatient

## **Labor and Delivery Unit Readiness:**

- Huddle with OB attending, charge RN, and anesthesia to determine best unit for patient's care
- Confirm bariatric bed availability in labor and in OR

## **On Admission**

- Notify anesthesia team
- 2 IVs
- Perform postpartum hemorrhage risk assessment
- SCDs

## **Intrapartum:**

- Considerations for intrauterine fetal and tocometry monitoring
- Review patient positioning and staff needs for intrauterine resuscitation, pushing, and possible shoulder dystocia

## **If cesarean delivery: (See Operative Considerations on page 4)**

- Assessment of optimal skin incision preoperatively - paraumbilical may improve visualization and decrease risk of surgical site infection
- Antibiotic prophylaxis:
  - 2gm cefazolin for >80kg
  - 3gm cefazolin for >120kg

## **Postpartum Unit:**

- VTE prophylaxis
- Lactation support

## Operative Considerations for Cesarean for BMI >50 Planning

- Anesthesia:
  - Consider arterial line and general anesthesia preparation
- Bed placement postop
- Nursing awareness when scheduling
- Bed with weight preparation
- Anticoagulants- holding 24 hours before

### Supplies

- Bariatric bed
- Hover mat
- Deep Deevers
- Deep retractors
- Deep gyn oncology instrument tray
- Consider Prevena wound vac (call main OR to obtain)

### Intraoperative

- Examine uterine anatomy distortion
- Low suspicion for hernia
- Consider interrupted Prolene to reinforce fascia
- Consider Prevena wound vac

### Postoperative

- Consider telemetry and continuous pulsox depending on comorbidities
- Bariatric bedside commode if needed
- Lovenox dosing
  - Adjust weight-based dosing if greater than 10 % different postpartum
  - Consider anti 10 A level - 4-6 hours post subQ injection after 3 doses
- PT for ambulation POD#1
- Consider lift if needed
- Refer bariatric surgery if patient amenable

Sources:

Stothard KJ, Tennant PW, Bell R, Rankin J. Maternal overweight and obesity and the risk of congenital anomalies: a systematic review and meta-analysis. JAMA. 2009 Feb 11;301(6):636-50. doi: 10.1001/jama.2009.113. PMID: 19211471.

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*These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina at Chapel Hill School of Medicine. They cannot be reproduced in whole or in part without the expressed written permission of the school. www.mombaby.org*