

## **OBESITY AND WEIGHT GAIN IN PREGNANCY, LABOUR AND POSTPARTUM**

*This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.*

### **1. AIM**

- Minimalisation of fetal and maternal morbidity and mortality related to obesity in pregnancy

### **2. PATIENT**

- Woman with a pre-pregnancy Body Mass Index (BMI)  $\geq 30$

### **3. STAFF**

- Registered Midwife
- Student Midwife
- Registered Nurse
- Medical staff
- Dietitian

### **4. EQUIPMENT**

- Scales
- Hovermatt
- Bariatric shower chair up to 175kg (normal shower chair up to 110kg)
- 200kg theatre trolley
- Large theatre table up to 300kg (normal table takes up to 138kg)
- Delivery Suite bed up to 130kg
- Manual and electric inpatient beds take up to 150kg
- Appropriate blood pressure cuff or thigh cuff (large cuff if upper arm circumference  $>34\text{cm}$ )
- Stand on Weighing scales (SWL 200kg)

### **5. CLINICAL PRACTICE**

#### **For All Women:**

- Weigh all women at booking (do not accept an estimation of the weight) and calculate their BMI using booking weight
- BMI = 
$$\frac{\text{weight in Kg}}{(\text{height in m})^2}$$
- E.g. A woman 70kg and 1.70m tall the BMI is calculated as: 
$$\frac{70}{(1.7)^2} = 24.2$$
- Document the BMI in the antenatal notes and on the yellow card
- Discuss and give women the "Weight gain in pregnancy" information sheet (see Appendix 1)

**Women with BMI  $\geq 30$  (please also read section on women with BMI  $\geq 35$  if appropriate, and table 1**

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**CLINICAL POLICIES, PROCEDURES & GUIDELINES**

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18 December 2014

**OBESITY AND WEIGHT GAIN IN PREGNANCY, LABOUR AND POSTPARTUM cont'd**

**Antenatally**

- Recommend antenatal care as per Table 1 if BMI  $\geq 30$
- Arrange doctor's visit. Obese women should have shared medical and midwifery care
- Offer weighing at each antenatal visit to monitor weight gain
- Discuss the following issues with sensitivity and document in the notes:
  - Obese women are at increased risk of gestational diabetes, hypertensive disorders of pregnancy, venous thromboembolism and possible need for operative delivery
  - There can be difficulties in assessing fetal anatomy, growth and well-being
- Recommend women have:
  - Antenatal visits scheduled at least 2 weekly from 28 weeks and weekly from 36 gestation weeks regardless of parity
  - Flu vaccination in the flu season
  - Blood pressure (using appropriate sized cuff) and urine dipstick check at each antenatal visit
  - Early GTT at 12-14 weeks and a repeat GTT at 26-28 weeks if first screening is normal
  - Ultrasound Scan at approximately 34 weeks for fetal weight, liquor volume and umbilical artery Doppler studies (and again at 38 weeks if BMI  $\geq 40$ )
- Offer referrals to :
  - Dietitian
  - Lactation consultant
- At <sup>3rd</sup> trimester visit discuss the following :
  - Recommend antenatal thromboprophylaxis during inpatient stays
  - Difficulties monitoring fetal heart and possible need for fetal scalp electrode application in labour
  - Increased risk of complications and decreased chance of success of vaginal birth after caesarean (if applicable)
  - Increased risk of postpartum haemorrhage.
  - High rates of delivery intervention including emergency caesarean section
  - Technically difficult caesarean section, with an associated increase in morbidity and mortality including wound infection
  - Sub-optimal lactation outcomes
  - Increased risk of postpartum depression
- Inform theatres if booking for an elective caesarean section and note weight of 100 Kg or more on the booking form

**Intrapartum**

- Plan timing of delivery during normal working hours where clinically appropriate
- Place a deflated hovermatt under the woman if she is immobile on the bed or has an epidural inserted
- Insert an Intravenous (IV) cannula early in labour
- Collect and send blood for Group and Hold and Full Blood Count (FBC)
- Recommend suture closure of the subcutaneous layer at caesarean delivery in obese patients if caesarean section is required as it may lead to a significant reduction in the incidence of postoperative wound disruption

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**Postpartum**

- Encourage and provide extra support to breastfeed
- Use thromboprophylaxis and adjust dose of any pharmacological agents according to patients weight
- Encourage early mobilisation
- Advise weight loss prior to next pregnancy to reduce obstetric risk
- Recommend 5mg folic acid supplementation starting at least one month prior to next pregnancy

**Women with BMI ≥35**

In addition to all of the advice above, for women with BMI ≥35:

- Advise women with BMI ≥35 that they need to deliver in the Delivery Suite (not Birth Centre)
- Discuss that there is an increased risk of stillbirth with BMI ≥30, and that this increases with increasing BMI. Offer induction of labour at 40 weeks gestation if BMI ≥40, or if there are other risk factors and BMI is 30-39.9
- Arrange additional ultrasound at 38 weeks to assess fetal growth and wellbeing if BMI ≥40
- Arrange anaesthetic review
  - BMI ≥35: Inform the anaesthetic registrar when the woman is admitted in labour and consider early epidural if woman requests one
  - BMI ≥40: Refer woman to anaesthetist for review antenatally

**6. DOCUMENTATION**

- Integrated Clinical Notes
- Antenatal Card
- ObstetriX

**7. EDUCATIONAL NOTES**

- Definition of obesity:
 

BMI (Weight in Kg)/(Height in m) <sup>2</sup> based on pre-pregnancy or early pregnancy weight			
○ 18.5 – 24.9	Normal Range		
○ 25.0 – 29.9	Overweight	No increased obstetric risk	
○ 30.0 – 34.9	Obese I	Mildly increased obstetric risk	
○ 35.0 – 39.9	Obese II	Moderately increased obstetric risk	
○ ≥ 40.0	Obese III	Significantly increased obstetric risk	
- Pre-pregnancy weight is often underreported or unknown therefore a booking BMI should be calculated and recorded as well as pre-pregnancy BMI
- Obese women have increased maternal morbidity and mortality during pregnancy and especially in labour (1)
- According to the UK Confidential Enquiry into Maternal and Child Health's report on maternal deaths (2003-2005) 28% of mothers who died were obese, whereas there was a prevalence of obesity in the maternity population of 16-19% during those same years (2)
- Excessive gestational weight gain is associated with hypertensive disorders of pregnancy, large for gestational age neonates and an increase in obstetric intervention including caesarean section (3)
- There is an increased incidence of shoulder dystocia
- Women who are obese have a greater risk of postpartum haemorrhage (8)
- Obese women are 50% less successful when attempting a vaginal birth after caesarean section(4)

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- Elevated BMI increases the risk of stillbirth at term (5,6):
  - BMI  $\geq 30$  twofold increase
  - BMI  $\geq 35$  threefold increase
  - The mechanisms to explain this are not clear. The increased risk may be related to increased incidence or missed gestational diabetes or gestation hypertension, difficulties in diagnosing growth restriction and fetal anomalies or difficulties in perceiving changes in fetal movements.
- Epidural insertion may be difficult and likely to require senior anaesthetic input therefore timely referral should be made when a woman is planning to have an epidural
- Elective surgery in the obese patient is high risk. Emergency surgery is extremely high risk
- Exclusive breastfeeding will reduce the likelihood of childhood obesity in the infant
- High pre-pregnancy BMI has been positively and significantly associated with later onset of lactogenesis 2 and decreased duration of breastfeeding (7)
- Lactogenesis 2 occurs at placental separation with the decline in progesterone levels acting in the presence of the lactogenic hormones (prolactin and glucocorticoids) to achieve the full lactogenic effect. This process takes between 30-72 hours. The delay in obese women is caused by elevated amounts of progesterone in excess adipose tissue
- Obese women are more likely to have large breasts and non-protractile nipples leading to poor breastfeeding technique that reduces breast stimulation and increases the risk of interventions
- If a woman has had bariatric surgery pre-pregnancy, referral to a dietitian should be instituted, particularly if the woman has had malabsorptive surgery, since she may require additional supplementation during pregnancy including: vitamin B12, iron, folate, vitamin D and calcium
- Maternal morbidity is increased with H1N1 influenza in pregnancy, particularly among obese women. All women should be recommended influenza vaccine, however this is particularly important for obese women(8)
- Women may start or continue exercise programs during pregnancy in line with national guidelines, and this may aid their weight maintenance and avoidance of excess gestational weight gain (8)
- Postpartum depression – this has been reported to correlate positively with BMI and can be as high as 40% in women with class III obesity

**Table 1. Antenatal and intra-partum consultation/ management for Obese women**

	<b>BMI <math>\geq 30-34.9</math></b>	<b>BMI <math>\geq 35-39.9</math></b>	<b>BMI <math>\geq 40</math></b>
Glucose Tolerance test at 12-14 weeks and at 26-28 weeks	Yes	Yes	Yes
Ultrasound at 34 weeks	Yes	Yes	Yes and at 38 weeks
Lactation antenatal review	Offer	Offer	Offer
Dietitian Review	Recommend	Recommend	Recommend
Anaesthetic review antenatal	no	no	Yes
Anaesthetic review intrapartum	no	Yes	Yes
Induction of labour at 40 weeks	Not offered unless other risk factors	Not offered unless other risk factors	Offer
Place of birth	Delivery suite or birth centre	Delivery suite	Delivery suite
Thromboprophylaxis- antenatal (if inpatient) and postpartum	Yes	Yes	Yes
Cannula and group and hold in labour	Yes	Yes	Yes

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**OBESITY AND WEIGHT GAIN IN PREGNANCY, LABOUR AND POSTPARTUM cont'd**

**8. RELATED POLICIES/ PROCEDURES/GUIDELINES**

- Thromboembolism prophylaxis and treatment
- Instrumental vaginal delivery
- Measuring blood pressure on a pregnant woman
- Shoulder Dystocia
- Diabetes in pregnancy
- Induction of labour guideline for women with a post-dates low risk pregnancy
- Hypertension in pregnancy
- Next birth after caesarean section

**9. RISK RATING**

- Low

**10. REFERENCES**

- 1 Johnson J et al Pregnancy Outcomes with Weight Gain Above or Below the 2009 IOM Guidelines. *Obstet Gynecol* 2013;121:969-75
- 2 Modder J. CMACE/RCOG Joint Guideline: Management of Women with Obesity in Pregnancy. March 2010.
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- 4 Cedergren MI. Maternal morbid obesity and the risk of adverse pregnancy outcome. *Obstet Gynecol* 2004; 1003:219-24
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- 9 Gunatilake RP, Perlow JH. Obesity and pregnancy: clinical management of the obese gravida. *American Journal of Obstetrics and Gynecology*. 2011 (February):106-18.

**REVISION & APPROVAL HISTORY**

Reviewed and Endorsed Maternity Services LOPs 2/12/14  
Approved Quality Council 18/12/06  
Maternity Services Clinical Committee 12/12/06

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## Weight gain in pregnancy

### What is a healthy weight gain?

How much weight you gain can affect the outcome of your pregnancy. We know that women who gain an excess amount of weight are more likely to develop problems with blood pressure and diabetes in the pregnancy as well as making the birth more difficult (you are more likely to need induction of labour or other interventions such as Caesarean Section). If you gain too much weight you are also less likely to lose the weight before another pregnancy, which can increase the risks in that next pregnancy as well as your risk of diseases such as diabetes, cancer and heart disease. On the other hand if you are underweight or of normal weight at the start of pregnancy, you should not restrict weight gain through insufficient diet since this can result in your baby not growing enough.

Most women gain between 11 and 16 kg in weight during pregnancy. All women are different and you may gain a little more or little less than average. The amount of weight you gain is affected by factors like your height, and whether you are pregnant with more than one baby.

### Where does the weight go?

Pregnancy is a unique time in which your body changes to meet the needs of your growing baby. Your body must store nutrients, and increase the amount of blood and other fluids it makes. Here is how much weight an average woman will gain in different parts of her body during pregnancy:

Component	Weight (kg)
Baby	3.4 - 3.8
Blood	1.8
Uterus	0.9
Breasts	0.45
Placenta and umbilical cord	0.68
Fat and protein stores	3.4
Tissue fluids	1.22
Amniotic fluid	0.8
<b>Approximate total weight gain</b>	<b>13.0</b>

### How much weight should I gain?

To find out a healthy target for weight gain in pregnancy, you will need to know your Body Mass Index (BMI) calculated on your pre-pregnancy weight. Work out your BMI and then use the table below:

Calculate the BMI as:

Weight in kg/ (height in metre) <sup>2</sup>

e.g. A woman is 60kg and 1.60m tall the BMI is calculated:  $60/1.6/1.6 = 23.4\text{kg/m}^2$  (healthy weight range)

Having a BMI from 20 to 24.9 is normal. A BMI of 25 to 29.9 means you are overweight. A person with a BMI of 30 or greater is classified as obese.

Pre-pregnancy BMI (kg/m <sup>2</sup> )	Weight gain (total) kg
<18.5	12-18
18.5-24.9	11-16
25.0-29.9	7-11
>30.0	0-6

**Is it safe to exercise in pregnancy?**

It is safe during pregnancy to continue exercise and activity as you did prior to pregnancy and this will help you to maintain a healthy weight.






**How can I gain a healthy amount of weight?**

You do need to eat extra when you are pregnant, but the amount of energy (kilojoules/calories) extra each day is quite small i.e. equivalent to a couple of slices of bread and a glass of low fat milk only! What you do need more of are nutrients- more B vitamins, folate, vitamin C, iron, protein among others, so it can take some planning to make sure that almost everything you choose to eat is giving you something worthwhile.

**What are the best foods to eat?**

One of the simplest ways of achieving a healthy diet is by thinking about your diet in terms of food groups. Our food groups exist because the foods within each group provide similar nutrients i.e. milk, cheese and yoghurt are all good providers of protein and calcium. There are guidelines to help you to choose the right number of serves from these groups each day. The benefit of this approach is also that it lets you keep track of your total intake as well as the balance in your diet. It also can help draw your attention to the frequency of those 'extra' foods in your diet- the ones that don't really fit into any of the groups very well. It's these 'extras' that can cause trouble! High energy, low nutrition = not great for you or your baby.



Bread & Cereals	Dairy or Equivalent	Meat or Alternatives	Fruit	Vegetables
				
8-9+ Serves	2-3 Serves	3-4 Serves	2 Serves	5 Serves
<b>Sample Serve</b> 1 slice bread 1/2 cup flake cereal 1/2 cup pasta or rice 2 plain biscuits	<b>Sample Serve</b> 250ml milk 40g cheese 200g yoghurt	<b>Sample Serve</b> ~100g: Meat / Fish / Chicken 2 eggs 1 cup legumes 30g nuts	<b>Sample Serve</b> 1 medium piece 1.5 tbs dried fruit Small glass juice 1/2 cup fruit salad	<b>Sample Serve</b> 1 cup salad 1/2 cup cooked vegetables 1 medium potato
<b>Nutrients</b> CHO Fibre Folate Vitamin Bs Magnesium Iron Zinc	<b>Nutrients</b> Protein Calcium, Magnesium Phosphorus Vitamins: D + A, B2, B12	<b>Nutrients</b> Protein, Iron, Zinc ω-3, Vitamins: B12, B1, B3, Iodine	<b>Nutrients</b> Fibre Vitamin C Folate Potassium	<b>Nutrients</b> Fibre Folate Potassium Magnesium Vitamins: A + C

### How do I manage my weight?

Portion size is a vital part of weight management. If you are hungrier and are already eating the recommended amounts of protein/starch already then the best way you can bulk out a meal is by adding vegetables- while the other meal components may be nutritious, if you're overdoing it you're more likely to put on too much weight. A quick way to think about it is by using the 'plate' model. Half your plate should be salad or cooked vegetables then a quarter protein (meat/chicken/fish/tofu/eggs) and a quarter starch (bread/rice/pasta/quinoa/noodles).

### Our dietitian's five top tips:

1. Choose high fibre breads and cereals
2. Choose low fat dairy products
3. Choose lean meats
4. Eat more vegetables
5. Choose your snacks wisely

### How do I manage all this?

It's all in the planning. If you are feeling sick often the last thing you feel like doing is thinking or talking about food. Spending a short time focusing on your shopping list and planning ahead will help a lot in managing your diet. Ensuring you have nutritious snacks on hand, a list of options for work lunches and a plan for quick but healthy dinners will save you from the trap of banana bread, giant sandwiches and late night laksas!

Talk with your doctor or midwife about any questions you might have about eating right during pregnancy or you may choose or be asked to see a dietitian.