Clinical Practice Guideline	Management of Women with a BMI ≥35 in Pregnancy
Peninsula Care Goal	Safe

Purpose
Obesity is a recognised risk factor for a range of antenatal, intrapartum and postpartum complications and poses important Occupational Health and Safety (OH&S) concerns for staff caring for obese women.
The purpose of this guideline is to outline appropriate management strategies to minimize both the clinical risk for women, their babies, and OH&S risks for staff.

This guideline is based on the Safer Care Victoria Maternity eHandbook: Obesity during Pregnancy, Birth and Postpartum which should be referenced for up to date guidance.

Scope
- Registered Midwife
- Medical Officer
- Student Midwife/ Medical Student (under direct supervision of one of the above)
- Shared Care GP

Definition of Obesity
Body mass Index (BMI) is the most acceptable approximation of total body fat at the population level and can be used to estimate relative risk of disease in most people. The standard measure for determining obesity is the classification adopted by the World Health Organisation, as shown in the table

Classification	BMI (kg/m^2)	Risk of co-morbidities
Underweight	Less than 18.5	Low (but risk of other clinical problems increased)
Normal range	18.5–24.9	Average
Overweight	25–29.9	Increased
Obese I	30–34.9	Moderate
Obese II	35–39.9	Severe
Obese III	Greater than or equal to 40.0	Very severe / extreme

For the pregnant woman, it is also important that the calculation is based on **pre pregnancy** or **early pregnancy** weight and not pregnant weight which will overestimate BMI

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Risks associated with obesity in pregnancy

Maternal	Anaesthetic	Fetal and Neonatal
Increased risk of Multiple gestation Caesarean section Chest, genital tract, and urinary infections Cholecystitis Depression Diabetes (gestational and type II) Difficult surgical access Failed attempts at vaginal birth after caesarean section Failed induction of labour Gestational hypertension Haemorrhage Maternal mortality Obstructed labour Obstructive sleep apnoea Operative and complicated vaginal birth Pre-eclampsia Preterm birth Reduced breastfeeding Surgical site infections Thromboembolic disease Induction of labour for prolonged pregnancy	Difficulty intubating and maintaining an adequate airway Difficulty with IV access Regional anaesthetic more difficult to site Difficulty with positioning Difficulty monitoring blood pressure Increased failure of epidural analgesia during labour Increased risk of regurgitation and aspiration of stomach contents Unpredictable spread of local anaesthetic Increased need for postpartum ICU/HDU admission	Suboptimal ultrasonography Increased risk of failure of NIPT Increased risk of undetected fetal structural abnormality Low Apgar score Admission to neonatal intensive care units Congenital malformations including neural tube defects, congenital heart disease, omphalocele, cleft lip and palate Macrosomia Shoulder dystocia Stillbirth Suboptimal electronic fetal monitoring

Guideline
Obesity is associated with increased risk of a range of antenatal, intrapartum, anaesthetic and postnatal complications, with the degree of relative risk being directly related to the level of obesity.

Assessment and advice regarding weight in pregnancy (all women)

- **All women should have their height and weight measured and recorded at their booking visit.** Self-reported weight should not be used to assess risk and to plan care. If the booking visit was by telehealth, the weight should be assessed at the first obstetric planning visit.

The Department of Health Pregnancy Care Guidelines recommend:

- Women should be given advice regarding appropriate weight gain during their pregnancy in relation to their pre-pregnancy or booking BMI (see below)
- Adopting a respectful, positive and supportive approach and providing information about healthy eating and physical activity in an appropriate format may assist discussion of weight management. This should be informed by appropriate education for health professionals.
- At every antenatal visit, **offer women the opportunity to be weighed** and encourage self-monitoring of weight gain, being mindful that some women may find this confronting and may prefer this to be done less frequently.
- **All women should have their weight checked between 28 and 32 weeks** (to ensure they within the safety limits outlined below)
- At every antenatal visit, discuss weight change, diet and level of physical activity with all women.

Gestational Weight Gain Targets

Pre-pregnancy BMI	Rate of gain 2nd and 3rd trimester (kg/week)*	Recommended total gain range (kg)
Less than 18.5	0.45	12.5 to 18
18.5 to 24.9	0.45	11.5 to 16
25.0 to 29.0	0.28	6.8 to 11.3
Greater than or equal to 30.0	0.22	5 to 9.1

Management of Women with a BMI ≥35

Models of Care

- The goal of the advice given below is to identify appropriate support and models of care for women, and to facilitate early transfer of care if it is required. A late transfer of care to a tertiary unit poses a significant burden on women and their families, and staff at both the referring and tertiary hospitals and should be avoided if possible.
- **Women with BMI of 43 or more**, coming from outside the catchment area of Peninsula Health should not be booked at this hospital
- Following booking, all women with a **BMI of 35 to 39** must be assessed in an obstetric planning visit. In the absence of other risk factors, their level of risk is 'Group B: Medium Risk'. This requires a clear antenatal plan to be made but women may be able to see their shared care GP or a midwife for some of the visits (see Risk Assessment for Model of Pregnancy Care)
- All women with a **BMI of 40 or more**, identified at the booking appointment, are to be seen by a consultant obstetrician for an obstetric planning visit and to confirm suitability to deliver at Frankston Hospital. If determined to be suitable, a care plan will be created and woman's care will be overseen by the obstetric team. The level of risk is 'Group C:

Higher risk' which requires full obstetric care with one midwifery visit at 34/40 for birth planning and education.

- Women with a **BMI of 40 or more** should be advised that they will need to be referred to Monash if their BMI reaches 50 prior to 32/40.
- All women with a **BMI of 50 or more**, identified at the booking appointment or prior to 32/40 must be referred to Monash Medical Centre (MMC) due to the very high morbidity associated with their weight. For women identified in the GP referral letter, the referring GP and the woman are to be notified that specialist tertiary care is required and that the GP should be asked to refer the woman to MMC.
- Women who have a **BMI under 50 at 32 weeks** should be advised to maintain a steady weight, but if their BMI increases above 50 from 32 weeks to the time of birth, they are to be offered ongoing care at Peninsula Health, unless other clinical factors require a later transfer.

Antenatal

- Obese women should be on high dose folic acid (5mg) and iodine (150mcg) supplementation before conception and at least for the first trimester of pregnancy.
- Vitamin D supplementation is advised (1000u a day) because deficiency is common, although evidence of benefit is variable. There is no evidence to support checking Vitamin D levels.
- Due to the increased risks of pre-eclampsia and fetal growth restriction: consider low dose aspirin (150 mg nocte) from <16 weeks, (eHandbook) as well as Calcium 1500-2000mg daily if they have poor calcium intake in their diet.
- Influenza vaccination is recommended when available.
- Reinforce the need to monitor and respond to decreased fetal movements.
- Consider thromboprophylaxis requirements during any period of hospitalization
- Be aware of the increased risk of peripartum depression: PANDA Anxiety and Depression in Pregnancy.
- Advise women to stop taking prescription and over-the-counter weight loss medications and complementary alternative medications.
- Recommend more frequent antenatal visits in the third trimester to monitor for complications: fortnightly visits from 28 weeks and weekly visits from 36 weeks is suggested.
- In the third trimester, consider an individual mobility assessment to identify equipment, workforce and procedural requirements for safe delivery of care.
- All women should be offered a referral to dietician.
- Consider referral to physiotherapy if any musculoskeletal issues and occupational therapy if any functional problems in the home.
- Advise women of the need to take part in at least 30 minutes of exercise 3-4 times per week that increases their heart rate and respiratory rate to a point of moderate intensity (12-14 out of maximum of 20) where they are still able to hold a brief conversation during

their activity (examples include vigorous walking, aerobic exercise, stationary cycling, dancing, swimming or water aerobics). This should be mixed with some resistance exercises (weights or elastic resistance bands)

- Medical issues related to obesity should be discussed with the woman and documented.
- Blood pressure should be checked using an appropriate sized cuff.
- Antenatal thromboprophylaxis is recommended in obese women who require bed rest for any reason
- Consider the risk of sleep apnoea using the STOP Questions

S	Do you snore loudly (louder than talking or loud enough to be heard through closed doors)?
T	Do you often feel tired, fatigued or sleepy during day time?
O	Has anyone observed you stop breathing during your sleep?
P	Do you have or are you being treated for high blood pressure?

If the answer is yes to 2 or more questions, refer for sleep studies (form via Intranet).

Investigations

- BMI 30–39: consider baseline investigations of renal function in early pregnancy, to assist in diagnosis and management later in pregnancy.
- BMI 40 or more: test for baseline renal function (presence of proteinuria, serum creatinine and urea) and liver function. This will help distinguish chronic renal dysfunction secondary to maternal chronic hypertension and/or diabetes from pregnancy associated hypertensive disorders.
- An early glucose tolerance test (GTT) for the detection of pre-existing diabetes should be arranged for 14-16 weeks. If normal or not attended all women have should have the Glucose Tolerance Test (GTT) at 26 weeks to exclude Gestational Diabetes.
- Ultrasounds where possible mid trimester fetal morphological assessment should be performed at 20-21 weeks rather than 18-20 weeks and maternal obesity should be highlighted on Ultrasound request form
- For women with a BMI 35 or more, ultrasound for fetal weight, liquor volume and umbilical artery Doppler studies in the 3rd trimester (28, 32, 36 weeks) is advised to assess fetal growth

Anaesthetic Management

- All women should be referred to anaesthetics for consultation if they have a BMI ≥35 and a relevant comorbidity such as respiratory or cardiac disease. If labour occurs or birth is indicted prior to outpatient assessment, inform the duty anaesthetist for in patient review.
- All women with a BMI of 50 or more should be referred to anaesthetics if they have refused transfer of care elsewhere.

- If a woman with a BMI of 40 or more presents in labour notify the duty anaesthetist to allow early involvement and discussion re potential anaesthesia requirements and risks.
- Obesity in pregnancy can result in difficult insertion of regional anaesthesia and difficult intubation.
- The use of intra operative pneumatic compression stockings may be considered for women with multiple risk factors for venous thromboembolism. Consider Clexane for women at high risk

Timing of Birth

- **Risk of late pregnancy stillbirth is significantly higher in obese women: some studies show a risk of stillbirth for class III obesity (BMI ≥40) more than 10 times greater than the risk for healthy women.**
- Induction of labour (IOL) may be appropriate earlier for obese women than for women with a healthy weight.
- After 39 weeks, counsel all women about the comparative risks and benefits of ongoing pregnancy versus induction around their due date.
- Benefit of induction is likely to be greatest for women with the highest levels of obesity: risk of stillbirth rises rapidly after 38 weeks for women with a BMI ≥50
- Optimal timing of delivery for obese women is also influenced by the presence of comorbidities, such as diabetes or pre-eclampsia.
- **Delivery is recommended at 38–39 weeks for women with a BMI ≥50.**

Intrapartum

- Women who are in the class of Obese II or above are at significantly higher risk of operative delivery.
- Where possible aim for these women to birth during normal working hours when maximum staff are present in the hospital (including anaesthetists).
- If Caesarean section planned, note weight on booking form to allow for bariatric equipment if necessary.
- When women present in labour or for induction of labour, the obstetric team should be aware of any documented anaesthetic plan and should contact the duty anaesthetist and theatre team should an emergency caesarean section be required.
- Consider the use of ultrasound to confirm presentation if difficult to ascertain on palpation
- Encourage women to remain active
- Ensure use of appropriate equipment for maternal weight
- Insert large bore IV cannula early and collect blood for FBE & Group/Hold.
- Continuous CTG monitoring is recommended for women with a BMI≥40
- Consider continuous CTG monitoring if BMI 30-39 if women have other risk factors (eg 41 weeks or more, hypertension)

- If there are indications for Cardiotocograph (CTG), internal Fetal Scalp Electrode (FSE) should be considered if a satisfactory trace unobtainable.
- An intrauterine pressure catheter should be considered if the assessment of uterine contractions is unsatisfactory.
- There is an increased risk of shoulder dystocia. Any mid cavity instrumental birth should be discussed with the consultant on call.
- Active management of the third stage is recommended due to a higher risk of postpartum haemorrhage. Women should be counselled about the benefits and risks of active vs physiological management.
- Women having a caesarean section are at increased risk of surgical site infection. Management should follow the Peninsula Health CPG Minimising Caesarean Section Surgical Site Infection. Pre-incision antibiotics are recommended, as well as the use of the Pico negative pressure wound dressing.
- Surgical site access can be improved by the use of additional assistance, the use of the Alexis retractor and a sheet of surgical film. The surgical film can be attached to the lower abdomen and stretched up to stick to the upper abdomen and chest to retract the pannus (see below).

Postpartum

- Increased observation, including respiratory rate, may be required due to the risk of airway compromise, obstructive sleep apnoea and aspiration, particularly following administration of narcotic and sedative medications.
- Obese women should be encouraged to breastfeed to enhance maternal weight loss.
- Women may require extra support to establish breastfeeding and breastfeeding support resources should be provided.
- Assess for risk factors of VTE and commence prophylactic Low molecular Weight heparin (LMWH) if indicated
- Encourage early mobilization
- Co-sleeping should be discouraged, and the risks of sudden unexpected death in infancy (SUDI) with co-sleeping discussed.
- Advise on benefits of weight loss before any further pregnancy, if planned.

Occupational Health & Safety Issues

- Consumers whose weight is greater than 120kg or have a BMI ≥35 should be commenced on a Bariatric Patient Pathway.
- Peninsula Health is a "No Lift" Hospital and this policy should be adhered to.

Notes for GP Shared Care Providers

- Women should be weighed at the time that a pregnancy is confirmed in order to plan appropriate initial care and initiate the referral to the antenatal clinic.
- Women with a BMI over 35 should be referred to the antenatal clinic as early as possible to facilitate early booking and a management plan to be made at a 16/40 obstetric planning visit.
- Women with a BMI between 35 and 39 may be suitable for shared care. An early referral and an obstetric planning visit at 16/40 is advised, when a shared care plan will be discussed with the woman and documented in the Victorian Maternity Record (VMR).
- Women with a BMI of 40 or more should be referred early in their pregnancy for obstetric lead care.
- GPs should be mindful of the upper limit for BMI at Peninsula Health and discuss this with women to be able to refer to an appropriate service if they are over the BMI threshold (see guideline above)
- It is appropriate to arrange routine care as well as the additional investigations such as an early GTT for women when indicated (see above).
- Appropriate supplements should be recommended according to the guidelines for women to commence immediately.
- It is appropriate for the GP to provide early advice about diet and exercise as well as optimal weight gain I the pregnancy.
- Low dose aspirin is most effective when started prior to 16 weeks gestation. It is reasonable for the GP to prescribe this if they feel comfortable doing so.

Key Aligned Clinical Guidelines

Hand Hygiene
Diabetes in Pregnancy
Normal Labour and Birth
Prolonged Pregnancy
Classification of Urgency for Caesarean Section
No Lift
Minimising Caesarean Section Surgical Site Infection

References

Safer Care Victoria Maternity eHandbook. Obesity during pregnancy, birth and post-partum.

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