

South Australian Perinatal Practice Guideline

Women with high body mass index (BMI)

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Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Explanation of the aboriginal artwork:

The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant women. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.



Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectively manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.

Purpose and Scope of PPG

This guideline provides clinicians with perinatal management considerations when caring for women with a high body mass index. It should be read in association with the SA Health *Standards for the Management of the Obese Obstetric Woman in SA*. The PPG has specific information on additional risks for mother and fetus/baby and includes details for pre-pregnancy counselling, care post-bariatric surgery and thromboprophylaxis.



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Summary of Practice Recommendations

All pregnant women with a BMI > 35kg/m² require a specific management plan and women with a BMI > 40kg/m² require a Specialist Obstetrician to manage their care

Management plans should include any equipment requirements

Obese pregnant women should be cared for in a health care facility capable of managing the potential complications of her obesity

Obese pregnant women should be provided with appropriate healthy lifestyle counselling (e.g. balanced diet, exercise) +/- referral to specific additional services (e.g. dietician)

Arrange antenatal anaesthetic referral / review for pregnant women with a BMI ≥ 35kg/m²

Monitor blood pressure using an appropriately sized blood pressure cuff

Consider early oral glucose challenge test (especially if estimated fetal weight > 90th centile on routine ultrasound)

Consider estimation of fetal weight by ultrasound

Consider oral Ranitidine 150 mg every 12 hours in labour

Determine risk for postpartum thromboembolic prophylaxis

Abbreviations

BMI	Body mass index
EFM	Electronic fetal monitoring
e.g.	For example
Et al.	And others
i.e.	That is
kg	Kilogram(s)
kg/m ²	Kilograms per metres squared
LMWH	Low molecular weight heparin
m ²	Metres squared
mg	Milligram(s)
mL	Millilitres(s)
PPG	Perinatal Practice Guidelines

Definitions¹

Maternal Obesity	May be defined as: > A body weight above 80 kg > A weight 50 % or more above the ideal pre-pregnancy weight for height > According to maternal body mass index (preferred method – WHO criteria) > 25kg/m ² to 29.9kg/m ² (overweight) > 30kg/m ² to 34.9kg/m ² (obese I) > 35kg/m ² to 39.9kg/m ² (obese II) > Greater or equal to 40kg/m ² (obese III or morbidly obese)
Body mass index (BMI)	> Refers to the weight in kilograms divided by the square of the height in metres (kg/m ²) > Although useful, BMI gives no indication of fat distribution (e.g. abdominal girth) or the proportion of lean tissue to fat tissue > BMI is used to define obesity as a risk factor in other parts of the Perinatal Practice Guidelines (PPG)



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Introduction

> *The Standards for the Management of the Obese Obstetric Woman in SA* (www.sahealth.sa.gov.au/perinatal) is a statewide policy presented as a DIRECTIVE for all South Australia public health units

> All pregnant women with a BMI > 35kg/m² at any time in her pregnancy requires a specific management plan and women with a BMI > 40kg/m² require a Specialist Obstetrician to manage their care (as per *The Standards for the Management of the Obese Obstetric Woman in SA*)

> This guideline is based on the statewide policy and provides a quick guide for the management of the obese obstetric woman in South Australia

Aetiology

- > Genetic predisposition
- > High caloric intake
- > Neuroendocrine disorders (e.g. polycystic ovary syndrome)
- > Steroid or antidepressant use

Pre-pregnancy counselling

> Encourage women with high BMI ($\geq 30\text{kg/m}^2$), who are planning pregnancy, to participate in weight reduction and exercise programs before becoming pregnant

> Encourage a well-balanced diet

> See 'pre-pregnancy counselling for women who have had bariatric surgery' below

Risks of obesity in pregnancy

The following pregnancy complications are increased by obesity:

Maternal²

- > Diabetes (pre-gestational and gestational)
- > Hypertension (chronic and preeclampsia)
- > Respiratory disorders (asthma and sleep apnoea)
- > Infections (urinary tract, wound, endometritis)
- > Thromboembolic disorders (link to thromboembolism in pregnancy)
- > Anaesthetic (difficult intubation, placement of epidural)
- > Caesarean section
- > Depression

Fetal and Neonatal²

- > Preterm birth
- > Higher perinatal mortality
- > Congenital malformations
- > Macrosomia

AND

- > Intensive care unit admission
- > Treatment of jaundice or hypoglycaemia
- > Later childhood obesity



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Management²

> The SA Health 2012 policy *Standards for the management of obese obstetric woman in South Australia* at www.sahealth.sa.gov.au/perinatal recommends that the level of care be determined by the woman's BMI along with any co-morbidities and risk factors:

- > BMI <35kg/m² women can plan to birth at any maternity unit in SA
- > Obese II (BMI 35kg/m² to 39.9kg/m²) women should plan to birth in a level 3, 4, 5, or 6 hospital (see levels of care in *Standards for Maternal and Neonatal Services in South Australia* available at www.sahealth.sa.gov.au/perinatal)
- > Obese III (BMI ≥ 40kg/m²) women require a specialist obstetrician to manage their care in a designated level 4, 5, or 6 hospital
- > Obese III (BMI ≥ 40kg/m²) women who reside more than 150 kilometres away from the designated (level 4, 5, or 6) hospital should be advised, at no later than 36 weeks gestation, to relocate to a residence within 150 kilometres radius of that hospital
- > Women with a BMI > 60kg/m² or weighing > 170 kg require a specialist obstetrician to manage their care and receive all their pregnancy care and birth in a public hospital with adult intensive care facilities

> It should be noted that the obese pregnant woman will require additional midwifery, physiotherapy, and occupational therapy hours of care when compared to the non-obese pregnant woman

Antenatal

> The obese pregnant woman should be cared for in a health care facility capable of managing the potential complications of her obesity. The facilities and staff needed may vary according to the woman's BMI and other complicating factors (see above)

Regular antenatal care

- > Calculate and record BMI at booking visit and on admission for all women
- > Consider estimation of fetal weight by ultrasound as growth restriction in the fetus is difficult to detect in the obese pregnant woman.
- > Accurate pregnancy dating should be performed late in the first or early in the second trimester of the pregnancy
- > Appropriate counselling as indicated (e.g. balanced diet, exercise)
- > Consider dietician review
- > Encourage screening for neural tube defects and Down syndrome
- > Careful history to identify any associated risk factors (see above)
- > Referral to Specialist Obstetrician for identified risk factors
- > Consider early oral glucose challenge test (especially if estimated fetal weight > 90th centile on routine ultrasound)
- > Individualise management according to ongoing antenatal assessment
- > Closely monitor blood pressure using an appropriately sized blood pressure cuff (if the woman's arm circumference is greater than 33 cm, use an alternate sized large adult cuff 35-44 cm or larger as required)
- > Women who present with a BMI ≥ 40kg/m² any time during their pregnancy need to have their ongoing care referred to a Specialist Obstetrician at a level 4, 5 or 6 maternity unit as per *The Standards for the Management of the Obese Obstetric Woman in SA* at www.sahealth.sa.gov.au/perinatal



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Manual handling and mobility risk assessment

Liaise with the appropriate staff to identify and document the following:

- > Any mobility limitations
- > Any special equipment requirements for lifting / transfer in labour / postnatal (e.g. slippery sam, roller board, hover matt)
- > Maternal weight to ensure that an appropriately rated bed for weight is available in the intrapartum and postnatal period and that an appropriately rated operating table is available for any operative procedure

Anaesthetic considerations

- > Arrange antenatal anaesthetic referral / review for any pregnant woman who presents with a BMI $\geq 35\text{kg/m}^2$ at any time during her pregnancy
- > Consider the level of anaesthetic service available at the planned place of birth and transfer as appropriate depending on anaesthetic review as per *The Standards for the Management of the Obese Obstetric Woman in SA* at www.sahealth.sa.gov.au/perinatal

Thromboembolic prophylaxis³

- > After previous venous thromboembolism, immobility carries the highest odds ratio of all acquired risk factors. Consider low molecular weight heparin (LMWH) for antepartum prophylaxis if the woman is admitted and immobile, with two or more risk factors as per *Thromboprophylaxis and Thromboembolic Disorders in Pregnancy* PPG available at www.sahealth.sa.gov.au/perinatal
- > Consider graduated elastic compression stockings (TEDS) if significant lower limb varicosities or inpatient admission and risk factors

Antenatal Education

- > Randomised controlled trials have found antenatal dietary and lifestyle interventions for pregnant women who are overweight or obese are effective in limiting gestational weight gain; however, further evaluation is required to detect important differences in clinical maternal and infant health outcomes⁴

Intrapartum

- > There are conflicting data on the effects of maternal obesity on labour
- > Maternal obesity has been associated with increased rates of:
 - > Induction of labour
 - > Meconium stained liquor
 - > Prolonged labour
 - > Failed induction
 - > Macrosomia
 - > Signs of fetal compromise
 - > Caesarean section
 - > Postpartum haemorrhage
 - > Wound infection/delayed healing after caesarean section
- > Where there is no medical or obstetric indication for early birth, the spontaneous onset of labour should be anticipated and the woman should be encouraged to birth vaginally¹⁶
- > Infants of women who are overweight or obese have an increased risk of macrosomia and associated complications. Ensure senior obstetric, midwifery, anaesthetic and paediatric assistance is on hand⁴



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Management of spontaneous labour

- > Routine care in labour
- > Encourage to remain active during labour
- > The obese pregnant woman with a BMI > 35 or a weight at or above 100 kg is precluded from the following:
 - > Home birth (see SA Planned Birth at Home policy at www.sahealth.sa.gov.au/perinatal)
 - > Access to the bath during labour or birth (see SA policy for first stage labour and birth in water at www.sahealth.sa.gov.au/perinatal)
- > Ensure bed in birthing room is appropriate for high maternal weight
- > Consider the load capacity of available stirrups
- > Consider continuous electronic fetal monitoring (EFM) as indicated (e.g. meconium stained liquor or signs of fetal compromise)
- > In the event of continuous EFM, consider applying fetal scalp electrode if unable to obtain continuous external tracing (exclude positive serology such as HIV, Hepatitis B or C to minimise risk of seroconversion of the infant)

Anaesthetic considerations

- > Early anaesthetic review
- > Obesity in pregnancy can result in difficult insertion of regional anaesthesia and difficult intubation
- > For further information on the management of anticoagulation around delivery and anaesthesia refer to the *Thromboprophylaxis and Thromboembolic Disorders in Pregnancy* PPG available at www.sahealth.sa.gov.au/perinatal
- > Regional anaesthesia (epidural or spinal) is contraindicated during anticoagulation treatment due to an (unquantified) increased risk of spinal haematoma
- > Consider oral Ranitidine 150 mg every 12 hours in labour for those women at relatively high risk of surgical intervention (risk of aspiration during anaesthesia)
- > If oral medication is not possible (vomiting) or surgical intervention is likely within the next two hours, Ranitidine 50 mg may be administered by slow intravenous injection (diluted in 20 mL of sodium chloride 0.9 % and given over 5 minutes)
- > Consider **postpartum** thromboembolic prophylaxis according to [risk assessment profile](#) (e.g. prophylactic low molecular weight heparin, graduated elastic compression stockings [TEDS], and / or electrical calf stimulators)

Caesarean section considerations

- > Prophylactic antibiotics decrease the risk of wound infection
- > Close observation in the early postnatal period (risk of sleep apnoea)

Occupational health and safety considerations

- > Document current maternal weight
- > Wheel chairs able to accommodate patient weight ≤ 160 kg
- > Standard labour ward bed able to accommodate patient weight ≤ 227 kg
- > Patient lifter and slings able to accommodate patient weight ≤ 200 kg
- > Notify operating room and anaesthetic staff if maternal BMI > 40 kg/m². Standard operation tables (e.g. RX500, J3) will only accommodate weight to 135 kg and this is without taking the effect of a lateral tilt into account. Alternative operation tables may take larger weights (e.g. the Macquet operation table will accommodate weight to 350 kg)
- > Use of electronic calf stimulators

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Postpartum

- > Encourage early ambulation
- > Consider referral to physiotherapist to reduce the risk of respiratory infection and thromboembolism
- > Use standard hospital electrical bed only, with electric functions to tilt, head down, head up, feet down, feet up, raise and lower bed, able to accommodate a woman weighing ≤ 267 kg. **NB** without the self-help poles attached, as these are only able to support a woman weighing ≤ 75 kg
- > Following caesarean section, encourage adequate analgesia, deep breathing, coughing and leg exercises, early ambulation and perform wound care to minimise the risk of infection

Follow up

- > Follow up oral glucose tolerance test at 6 weeks postpartum for women with gestational diabetes
- > Further advice on healthy life styles

Management of the newborn baby

- > Large size for gestation is not a risk factor for hypoglycaemia if maternal glucose challenge or tolerance tests are known to be normal. Such babies do not require routine screening (For further information refer to *Neonatal Hypoglycaemia* PPG at www.sahealth.sa.gov.au/perinatal)

Long term risks of obesity

- > Stress incontinence
- > Depression
- > Medical complications associated with obesity

Perinatal care after bariatric surgery^{5,6}

- > Many women remain obese following bariatric surgery. However, maternal outcomes and morbidity in pregnancy are better than for women who are similarly obese and are comparable with that of the general population. Long-term cardiac and metabolic outcomes for infants born following bariatric procedures are also improved
- > Perinatal birth outcomes are acceptable, provided that adequate nutrition and vitamin supplementation is maintained

Types of surgery

- > Laparoscopic adjustable gastric banding (LAGB)
 - > An adjustable silicone band is placed around the upper part of the stomach to create a small upper-stomach pouch that limits hunger and food intake while also promoting an early feeling of satiety after meals
- > Vertical banded gastroplasty (VBG)
 - > A primarily restrictive procedure in which staples are used to create a smaller stomach pouch



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- > Laparoscopic Roux-en-Y gastric bypass (RYGB)
 - > A bypass type procedure in which a small stomach pouch is isolated from the rest of the stomach and empties directly into the lower portion of the jejunum, thereby delaying mixing of food with bile and pancreatic juices. The result is an early sense of satiety which reduces the desire to continue to eat
- > Biliopancreatic diversion (BPD) and biliopancreatic diversion with duodenal switch (DS)
 - > Malabsorptive procedures which reduce nutrient absorption by bypassing a large portion of the small intestine

Pre-pregnancy counselling

- > Advise the woman to remain on life-long vitamin supplementation
- > Avoid pregnancy during the initial weight loss phase, when in a state of negative energy balance (12 to 24 months)
- > Malabsorptive bariatric procedures are associated with more adverse pregnancy outcomes than restrictive procedures e.g. fetal growth restriction, prematurity and nutritional deficiencies. Offer appropriate advice about contraception (particularly younger women due to high rates of unplanned pregnancy)
- > Advise to delay pregnancy until successful surgery is confirmed to avoid surgical complications such as suture leaks and band displacements during pregnancy

Antenatal care

- > Careful evaluation of gastrointestinal symptoms such as nausea, vomiting and abdominal pain (consult with a bariatric surgeon if abdominal pain)
- > Arrange dietician review
 - > VBG, LAGB and RYGB are not malabsorptive procedures; however, maintaining adequate nutrition during pregnancy may be influenced by the reduction in fat-soluble vitamin uptake, particularly in RYGB
- > Early consultation with a bariatric surgeon
 - > Deflation of the gastric band during pregnancy to ensure sufficient nutrition needs to be balanced against the likely regain of excess weight and subsequent renewed risk of gestational diabetes or relapse from previously improved diabetes
- > Delayed gastric emptying may disrupt the interpretation of glucose tolerance testing
 - > The diagnosis of gestational diabetes is best performed on a diurnal blood glucose profile rather than by formal glucose tolerance testing
- > Observe for signs of fetal growth restriction (see *Fetal Growth (restricted)* PPG at www.sahealth.sa.gov.au/perinatal)

Labour and birth

- > Care as for obese woman



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Useful Resources

1. Pregnancy Outcome Reports available at <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/about+us/health+statistics/pregnancy+outcome+statistics>



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