MATERNITY UNIT

GUIDELINE: WOMEN WITH A BMI ≥ 35: MANAGEMENT OF PREGNANCY AND BIRTH

SCOPE: All Midwives, LMC's, Obstetricians and Anaesthetists working in Maternity Unit

AUTHOR: Midwifery Educator & Quality Coordinator

PURPOSE: To provide midwives, LMC's and obstetricians with guidance on the appropriate care for obese pregnant women in order to improve the outcome of their pregnancy. This does not address pre-conception counselling.

DEFINITIONS:
Obesity is measured by calculating the body mass index (BMI) using the formula

BMI = weight (Kg) / height (m2)	**Classification**
18.5 – 24.9	Normal weight
25 – 29.9	Over weight
30 – 34.9	Obese I
35 - 39.9	Obese II
40 or more	Obese III

- For pregnant women with a **BMI ≥35 to 40** the LMC must recommend to the woman that a consultation with an obstetrician is warranted, preferably by the second trimester, given that her pregnancy, labour, birth or puerperium is or may be affected due to her raised BMI and a plan of care will be agreed between the woman, her LMC and the specialist to improve the outcome of her pregnancy. This may take place as a virtual consult. If the woman has an increased risk of having a caesarean birth then the obstetrician will consider a referral for an anaesthetic consultation.
- Pregnant women with a **BMI ≥40** are not suitable for routine midwifery care and fall under the transfer of care referral category; the LMC must therefore recommend to the woman that the responsibility for her care be transferred to a specialist given that her pregnancy, labour, birth or puerperium is or may be affected due to her raised BMI. The decision regarding ongoing clinical roles/responsibilities will involve a 3 way conversation between the specialist, LMC and the woman and should take place prior to 20 weeks gestation, so that a plan of care can be agreed and commenced and this should include an anaesthetic referral.
- Pregnant women with a **BMI 40 to 55** should have multidisciplinary individualised assessments to ascertain the safest place for their birth; these discussions are to involve obstetric, anaesthetic and midwifery input.
- Pregnant women with a **BMI ≥55** are to be transferred antenatally to a tertiary unit to birth. Recommendation should be discussed antepartum and if the woman agrees, a referral emailed to Maternityreferrals@waikatodhb.health.nz If close to time of delivery but delivery is not imminent, transfer should be arranged by phone via the routine process.

BACKGROUND:

There is substantial evidence that obesity in pregnancy contributes to increased morbidity and mortality for both mother and baby. An increase in BMI of at least 3 units between pregnancies doubles the risk of pre-eclampsia, gestational diabetes, stillbirth and large-for-gestational-age (LGA) birth in subsequent pregnancies. In 2014, BMI data were available for 86% of mothers of perinatal related deaths. At least 49.5% of the mothers of stillborn babies and 48% of mothers of neonatal deaths were overweight or obese (PMMRC 2014). The CEMACH (2007) report indicated that more than half of the women who died from direct / indirect causes were obese.

RISKS INCREASED BY OBESITY IN PREGNANCY

Maternal

Spontaneous and recurrent miscarriage
Congenital abnormality (neural tube defects, hydrocephaly, cardiovascular, orofacial, and limb reduction anomalies)
Dizygotic twins
Increased incident of urinary tract infections
Gestational diabetes and Type 2 diabetes
Hypertension / pre-eclampsia
Cardiac dysfunction
Sleep apnoea
Fatty liver disease
Pre term labour
Postmaturity
Prolonged / dysfunctional labour
Thromboembolism
Need for induction of labour
Difficulty monitoring the fetus during the ante and intrapartum period
Caesarean / instrumental vaginal birth
Shoulder dystocia
Post-partum haemorrhage
Postpartum endometritis
Post caesarean section wound infection or wound dehiscence
Prolonged postnatal hospital stay
Intrauterine death / still birth
Increased incidence of perineal trauma
Increased incidence of genital and urinary tract infection
Reduced breast feeding rate, failure to establish lactation
VBAC less successful (Failure rate of 30% in obese women and 39% in morbidly obese compared to 15% in women of normal weight)—Up To Date
Postpartum depression

Neonatal

Early neonatal death
NICU admissions
Increased birth weight / macrosomia (large for gestational age)
Impaired or restricted growth (small for gestational age)
Neural tube defects
Hypoglycaemia

Meconium aspiration
Child adiposity and diabetes (obesity rate is doubled in children of obese mothers)
Childhood asthma
Autism spectrum disorders, developmental delay, attention-deficit/hyperactivity disorder

GUIDELINE:

Antenatal Care Pathway

Women with a BMI ≥ 35 who present for booking should:

- Be referred to the Obstetrician by the second trimester. In some instances, care at the secondary hospital up to and including birth may be appropriate.
- If the HBA1c at booking is greater than 40 mmol/mol then the woman should be referred to the obstetrician/diabetes in pregnancy team as soon as possible. If the HBA1c at booking is normal then an early GTT would be recommended. If this is normal at this stage it is recommended that it should be repeated around 26-28weeks gestation
- Be weighed at each appointment and advised of the suggested weight gain limits. **BMI should be recalculated approximately every 8 weeks throughout the pregnancy, at 34-36 weeks and on admission in labour.** Encourage adequate weight gain as well. Weight gain of less than 5 kgs has been associated with SGA.

Category	BMI	Suggested weight gain (kg
Underweight	<18.5	12.5 - 18
Normal weight	18.5 to 24.9	11.5 to 16
Overweight	25.0 to 29.9	7 to 11.5
Obese Class I	30.0 to 34.9	7
Obese Class II	35.0 to 39.9	7
Obese Class III	≥40	7

- Have an open discussion on obesity including the associated problems/risks to both the woman and the baby
- Be advised on the benefits of moderate exercise and healthy eating
- Be advised to take 5 mg/day folate supplement and 150 mcg iodine. Consider recommending testing for Vitamin D deficiency as obese women are at greater risk of Vitamin D deficiency and cord serum Vitamin D levels in babies of obese women have been found to be lower. Supplement with Vitamin D if found to be deficient.
- Be referred for an anaesthetic consultation by the obstetrician.
- Be advised that repeat scans for foetal weight and liquor volume in the third trimester (28-32-36 weeks) may be helpful to assess foetal growth. Doppler studies are recommended if infant measuring <10%ile as per IUGR guidelines. All scan request forms should have the woman's BMI clearly documented so the sonographer can prepare as more time may need to be allocated to the appointment. Counsel about the limitations of ultrasound in accurately assessing weight and in identifying structural anomalies
- Have a schedule of antenatal care to reflect the risk
- Be advised against/discouraged from having a homebirth. Birth in an obstetric unit with appropriate neonatal services is recommended
- Women with a BMI ≥35 with additional risk factors for hypertension or other significant medical history are not suitable for a virtual obstetric consultation

- Consider recommending screening by GP for sleep apnoea with the Epworth Sleepiness Scale and referring to Michelle Scott, RN, in Sleep Apnoea Clinic in Tui Te Ora for sleep apnoea concerns
- Advise that antenatal colostrum harvesting is recommended due to increased risk of breastfeeding failure
- Vaccinations should be checked and up to date as per standard, in particular for influenza

Labour and Birth

- The obstetric team should be informed when a woman with a BMI ≥ 40 arrives in labour. This is not necessary if a plan of care is pre-determined in antenatal clinic
- If the woman weighs >100kg the theatre team should be informed: on admission if there is high suspicion that the woman will need theatre in office hours, or at the time the theatre team is called in if out of office hours.
- Consider use of the hover mat
- Consider the use of a scan on admission in labour (or prior to induction) to confirm presentation, particularly if there is any uncertainty.
- Have a low threshold for the use of the fetal scalp electrode (FSE) as abdominal monitoring is likely to be technically more difficult and less reliable
- Ensure that the correct large sized blood pressure cuff is available and used, if unable to monitor BP on upper arm, use the lower arm, if still having difficulties alert the anaesthetists on call
- Be aware of the risk of difficult fetal monitoring, shoulder dystocia, difficult spinal/epidural, difficult intubation and difficulty during caesarean and post-partum haemorrhage
- Ensure there is adequate IV access. If BMI >40 consider 2 large gauge cannulae when labour establishes
- Assess pressure areas and maintain skin integrity
- Assess if manual handling equipment is available and will be used, contact Duty Manager if equipment required
- Adequate analgesia should be provided; try to encourage the woman to be active in labour but if a regional analgesia is the preferred choice of pain relief, the epidural catheter should be sited early and a hover mat placed prior to epidural insertion
- Median duration of first stage can be longer in overweight and obese women. Consider allowing a longer first stage of labour before performing a caesarean delivery for labour arrest. Second stage should be no different
- Active management of the third stage of labour is recommended

Caesarean Birth

- The BMI should be noted on the booking form of women booked for elective caesarean so that theatre and anaesthetic staff are alerted
- Measure for pneumatic compression stockings and take a pair and a pump to theatre with woman for attachment during caesarean
- Theatre staff should be given as much notice as possible in order for them to prepare appropriate equipment if the woman weighs >100kg
- Consider use of the hover mat to transfer from bed to theatre table and back

- Catheterisation should be performed prior to insertion of the epidural block and transfer to theatre as the woman will be able to assist in correct positioning for the procedure to take place
- Ensure there is adequate IV access with 2 large gauge cannulae
- Ensure that the correct large sized blood pressure cuff is available and used, if unable to monitor BP on upper arm, use the lower arm, if still having difficulties alert the anaesthetists on call
- Consider higher preoperative antibiotic dose, such as 3 g of cefazolin for patients who weigh more than 100 kg
- Avoid the use of subcutaneous drains as they are associated with increased risk of postpartum wound complications
- Suturing of the subcutaneous tissue space should be considered in order to reduce the risk of wound infection and wound separation
- Scheduled c-sections should have two O&Gs present. Emergency c-sections should also have two O&Gs present whenever possible
- Counselling about the risks of further caesarean sections for women with two or more caesarean sections should be undertaken either in the antenatal clinic or prior to discharge. The information should include the risks of operative procedures in obese women as well as the risk of placenta praevia/accreta

Postnatal

- Early mobilisation
- Adequate analgesia should be provided
- Ensure that the correct large sized blood pressure cuff is available and used, if unable to monitor BP on upper arm, use the lower arm, if still having difficulties alert the anaesthetists on call
- Complete a VTE Risk Assessment and document prophylaxis in the woman's MCIS record
- Document VTE risk on the National Medication Chart
- Venous thromboembolism (VTE) prophylaxis should be given to all obese women after a caesarean birth, and a vaginal birth if there are any other risk factors for VTE. Use weight-based (0.6 mg/kg enoxaparin daily) dosage as per VTE prevention – postnatal period guideline
- Ensure vigilance regarding signs for secondary postpartum haemorrhage
- Provide advice on the signs of deep vein thrombosis and pulmonary embolism
- Monitor for surgical site infection and treat as indicated
- Provide advice on lifestyle modifications, consider green prescription
- Formal debrief with obstetrician regarding their BMI and the implication this had for this pregnancy and birth and any future pregnancies and general wellbeing
- Women should receive appropriate midwifery and where required, lactation consultant advice and support regarding benefits and extra support to initiate and establish breastfeeding as obesity is associated with lactation difficulties
- Discuss contraception

ASSOCIATED DOCUMENTS:

Maternity – Antenatal blood glucose monitoring

Maternity – Anaesthetic consultation in pregnancy
Maternity – Preparation and care of women undergoing caesarean section, including trial of instrumental delivery in theatre
Maternity – Immediate post-operative care of women and babies following caesarean
Maternity – VTE Prevention in the Postnatal Period

REFERENCES:

Centre for Maternal and Child Enquiries (CMACE). Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer: 2006–08. The Eighth Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. *BJOG* 2011;118 (Suppl. 1):1–203.

CEMACH (2007) Saving Mothers Lives: Reviewing Maternal Deaths to Make Motherhood Safer 2003-2007. The Seventh Report on Confidential Enquiries into Maternal Deaths in the United Kingdom.

Cunningham FG, Gant NF, Leveno KJ, Gilstrap LC III, Hauth JC, Wenstrom KD. Prenatal care. In: William's Obstetrics. 21st ed. New York: Appleton and Lange;2001:232.

Ramsey, P.S. MD, MSPH; Schenken, R. S., MD (2020) Obesity in pregnancy: Complications and maternal management. Available from: https://www.uptodate.com/contents/obesity-in-pregnancy-complications-and-maternal-management?search=the-impact-of-obesity-on-fertility-and-pregnancy&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=3

Management of Pregnancy and Childbirth in Women With a Body Mass Index of Above 40 Clinical Guideline 2009, reviewed 2016. Women and Newborn Health Services, King Edward Memorial Hospital. Available from: https://www.kemh.health.wa.gov.au/~/media/Files/Hospitals/WNHS/For%20health%20professionals/Clinical%20guidelines/OG/WNHS.OG.BodyMassIndexBMImorethan40ManagementofaWomanwith.pdf

National Institute for health and Clinical Excellence (NICE) 2012. Antenatal care. Available fromhttps://www.nice.org.uk/guidance/qs22

National Institute for health and Clinical Excellence (NICE) 2015. Intrapartum care. Available from: https://www.nice.org.uk/guidance/qs105

NZCOM (2009) Consensus statement: Gestational Diabetes

Perinatal and Maternal Mortality in New Zealand 2014: Eighth Report to the Minister of Health. Reporting mortality 2008-2012. Wellington: PMMRC

CMACE/RCOG Joint Guideline: Management of Women with Obesity in Pregnancy. March 2010

Ministry of Health. 2012. Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines). Wellington: Ministry of Health.

RANZCOG College Statement: Management of Obesity in Pregnancy. September 2013

Bratzler DW, Dellinger EP, Olsen KM, Perl TM, Auwaerter PG, Bolon MK, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. American Society of Health-System Pharmacists; Infectious Disease Society of America; Surgical Infection Society; Society for Healthcare Epidemiology of America. Am J Health Syst Pharm 2013;70:195-283

ACOG Practice Bulletin: Obesity in Pregnancy. No. 156, Dec 2015

AUTHORISED BY

_____

(HOD Obstetrics)

_____

(HOD Anaesthesia)

_____

(Director of Midwifery)

Date of Approval: September 2020

Next Review Date: September 2023

Pathway for management of women with BMI ≥35

BMI 35 - 39.9

by second trimester - LMC to recommend O&G consultation

follow diabetes screening pathway

PPH risk assessment antenatally, update this on admission in labour and throughout labour and birth

O&G to consider anaesthetic referral if high risk of LSCS

BMI 40 - 54.9

at booking - LMC to reccomend transfer of care to O&G and complete referral to ANC

- supplementation with 5mg folate and 150mcg iodine daily, consider Vit D testing and supplement if deficient

-follow diabetes screening pathway

-PPH risk assessment antenatally, update this on admission in labour and throughout labour and birth

prior to 20 weeks gestation - three way conversation (woman, LMC, O&G) for decisions re ongoing clinical roles/responsibilities

plan of care discussed and agreed, should include:

-anaesthetic referral from O&G

-repeat scans for foetal weight and liquor volume in the third trimester (28-32-36 weeks)

multidisciplinary individualised assessment to ascertain the safest place for birth (midwifery, O&G and anaesthesia)

if safe to birth in gisborne - management plan to be documented in MCIS, IV access x2, continuous CTG, hovermat, if epidural desired/needed consider this early, if high risk of LSCS and weight >100Kg inform theatre, PPH risk assessment updated regularly

if not safe to birth in Gisborne: management plan to be documented in MCIS, O&G to liaise with SMO in Waikato and arrange antenatal transfer (follow Transfer out of Maternity guidelines and Midland Maternity Transfer and Repatriation Standards)

BMI ≥ 55

at booking - LMC to reccomend transfer of care to O&Gand complete referral to ANC

supplementation with 5mg folate and 150mcg iodine daily, consider Vit D testing and supplement if deficient

-follow diabetes screening pathway

prior to 20 weeks gestation - three way conversation for decisions re ongoing clinical roles/responsibilities

plan of care discussed and agreed, should include:

-anaesthetic referral from O&G

-repeat scans for foetal weight and liquor volume in the third trimester (28-32-36 weeks)

to be transferred antenatally to a tertiary unit to birth - O&G to liaise with Waikato SMO to arrange transfer of care, follow Transfer out of Maternity guideline and Midland Maternity Transfer and Repatriation Standards