Worcestershire Acute Hospitals NHS Trust

Obesity or Previous Bariatric Surgery in Pregnancy (Management of)

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

This document outlines the agreed policy and service description for the management of women with a Body mass index (BMI) ≥30kg/m2, and those who have had previous bariatric surgery, with the aim to reduce morbidity and mortality risk in both mothers and babies. It has been written in conjunction with RCOG (2018), NICE(2010), CEMACH (2018-2020) and Saving babies lives (SBLCBV2, 2019), and covers before, during and after pregnancy.

Where the word 'women' or 'woman' is used it is intended to include all people who may not identify as a woman but intend to become or are pregnant.

This guideline is for use by the following staff groups: All health care professionals involved in Women's health including, but not limited to, Obstetricians, Midwives, MSW's, EPAU, Fertility clinic Nurses, Sonographers, and Physiotherapists.

Lead Clinician(s)

Laura Veal	Consultant Obstetrician
Héloise Doherty	Public Health Midwife , Maternity
Approved by *Maternity Governance Meeting* on:	17th February 2023
Approved by Medicines Safety Committee on:	8th March 2023
Review Date: This is the most current document and should be used until a revised version is in place	8th March 2026

Key amendments to this guideline

Date	Amendment	Approved by:
17/02/2023	New Document approved. Full Guideline Review in line with RCOG (2018). Tissue viability included and PH Initiative.	MGM

The Key points of this Guidelines:

- Pregnant women should be informed of the risks that obesity poses to themselves and their baby.

- BMI must be calculated for all pregnant women at booking, or at the earliest opportunity, and recorded on Badgernet, ensuring the customised antenatal growth chart is created

- At booking and throughout the pregnancy advice re healthy eating and the benefits of physical activity should be discussed in a sensitive manner, and signposted on Badgernet to RCOG leaflet 'Being overweight in pregnancy and after birth'

- At booking and throughout the pregnancy all women with a BMI over 30 will receive advice about healthy eating and physical activity in a personal and sensitive manner. Women will be directed to the RCOG leaflet 'Being overweight in pregnancy and after birth'

- Referral made to 'Blooming Healthy' Midwife (Obesity specialist Lead) at booking for healthy lifestyle support offer. This will be an 'opt-out' service at point of contact from Blooming Healthy lead Midwife.

- Commence care following the appropriate care pathway in Appendix 1

- Women advised to take 5mg Folic Acid up to 12 weeks of pregnancy and Vitamin D (Cholecalciferol) 10 micrograms daily for the duration of pregnancy and breastfeeding.

- A Pre-eclampsia risk assessment to be performed at booking.

- A Venous Thromboembolism risk assessment to be performed at booking.

- Blood Pressure monitoring should be carried out at each maternity appointment using the appropriate sized cuff.

- Screen for mental health problems at every contact.

- Offer screening for gestational diabetes at 28 weeks.

- Serial growth ultrasound scans 4 weekly from 32 weeks.

- Pregnant women with a BMI ≥45 should be offered an anaesthetic review and referral sent by CMW as soon as BMI calculated to enable timely anaesthetic assessment

- Labour and birth Choices should be discussed at booking and 34/40 and the woman should be supported to make an informed decision with a personalised care plan (PCP) regarding planned place of birth.

- There is no evidence to support continuous electronic fetal monitoring during labour in the absence of other comorbidities, or medical or obstetric complications.

- The duty Anaesthetist and Obstetric Registrar should be informed when a woman with a BMI ≥40 is admitted to labour ward.

- All women with a BMI ≥30 should be recommended to have active management of the third stage of labour.

- Pregnant women with a BMI ≥40 should have IV access early in labour with FBC and group and save taken.

Introduction

21.3% of pregnant women are now classed as obese (RCOG, 2018). Pregnant women who are obese are at greater risk of pregnancy-related complications, including thrombosis, gestational diabetes, high blood pressure and pre-eclampsia, stillbirth and miscarriage. This increases the maternal morbidity and mortality compared with women of a normal BMI. The 2022 MBRACE-UK report "Saving Lives, Improving Mothers' Care; lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and morbidity 2018-2020" reported that 27% of women who died were obese and 24% were overweight. In 30% of these Women, obesity was the direct cause of death.

The body mass index (BMI) is the most commonly used measure of obesity It looks at weight in relation to height, and is defined as weight in kilograms divided by height in metres. Adults with a BMI of between 25 and 30 inclusive are classed as overweight and those with a BMI over 30 are classed as obese. The WHO has classified obesity according to BMI into classes I-III.

BMI Classification
<18.5 Underweight
18.5 – 24.99 Normal range
25 – 29.99 Overweight
30 – 34.99 Class I Obesity
35 – 39.99 Class II Obesity
>40 Class III Obesity

Preconception:

Women of childbearing age with a BMI ≥30 kg/m2 should receive information and advice about the risks of obesity during pregnancy and childbirth, and be supported to lose weight before conception and between pregnancies in line with National Institute for Health and Care Excellence (NICE) Clinical guideline (CG) 189. This information should be offered by GPs, Practice Nurses, Sexual Health clinics when opportunity arises.

A 5-10% weight loss can have significant health benefits and increase the chance of conception. These women should be offered a weight loss programme involving diet and physical activity prior to conception. Weight loss programmes during pregnancy are not advised and women with obesity should be advised regarding healthy eating and physical activity to reduce the risk of excessive weight gain.

Women should be advised weight loss before and in between pregnancies can reduce the risk of stillbirth, hypertensive complications, gestational diabetes, and fetal macrosomia. Weight loss also increases the chance of a successful vaginal delivery following caesarean Section.

Women with BMI ≥30kg/m2 should be advised to take 5mg folic acid supplement daily at least 1 month pre conception to continue through the first trimester of pregnancy.

Advise Women with obesity they are at high risk of vitamin D deficiency and should take a vitamin D (Cholecalciferol) 10microgram supplementation in pregnancy.

Advise women who have undergone bariatric surgery to wait 12-18 months before conception to allow identification and treatment of any nutritional deficiencies. All women who have undergone bariatric surgery should be booked under consultant led care in pregnancy regardless of current BMI.

Antenatal Care

All pregnant women must have their height and weight measured and BMI calculated at first point of contact/booking, or at the earliest opportunity and recorded on the Badgernet record, ensuring the customised antenatal growth chart is created.
Clearly explain why this information is needed and how it will be used to plan her care. Self-reported weights and heights must not be used as a substitute for accurate weight and assessment of BMI**.**

All pregnant women with a BMI of ≥35 must be booked for shared antenatal care under an Obstetric Consultant. A referral should be sent via Badgernet referrals. See Appendix 1 for care pathway for pregnant women with BMI ≥30 kg/m2 and ≥35 kg/m2

Community Midwives should open a discussion with the woman about their current eating habits and physical activity. Dietary and physical activity advice should be offered using the 'Eatwell' guide and Chief Medical officers (CMO) infographic on physical activity in pregnancy. (see CMO infographic https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1054538/physical-activity-for-pregnant-women.pdf)

150mins/week of moderate exercise is advised for all women (unless there are other medical conditions that may contraindicate this) and how they can fit physical activity into their day to day life. Explain to women who may find this level of activity difficult how adding gradual increases in physical activity in their day to day life can be beneficial.

For women with a BMI ≥30kg/m a referral to Trust in house pregnancy healthy lifestyle service 'Blooming Healthy', should be made via Badgernet. The 'Blooming Healthy' lead Midwife receiving this referral will contact the pregnant woman and offer them a 1:1 face to face appointment at the next available clinic. This appointment will include a discussion as to how minimising weight gain in pregnancy can be beneficial, although there is a lack of consensus on optimal gestational weight gain and continued support throughout pregnancy via the 'Blooming Healthy' group and Facebook page will be offered.
If this offer of support is declined a referral to the Worcestershire Lifestyle Advisors will be offered. If any of these offers of support are declined this should be accepted in a non-judgemental way but make the patient aware that this offer of support is available at any time should they change their mind.

Women with obesity should be advised to take 5mg folic acid supplementation daily, starting at least 1 month before conception and continuing during the first trimester of pregnancy. At first point of contact/booking the CMW should ensure that women with a BMI of ≥30 are taking this recommended dose, if not then CMW should send a prescription request to the woman's GP.

Pre pregnancy BMI is inversely associated with serum vitamin D concentrations in pregnancy, therefore pregnant women with a BMI of ≥30 are at higher risk of Vitamin D deficiency compared to pregnant women with a healthy weight. CMW should discuss the importance of taking vitamin D supplements (Cholecalciferol) 10microgram at first point of contact/booking.(CMACE/RCOG joint guideline 2010).

Healthy start vitamins and where to purchase or claim for free (if eligible) should be discussed and the Healthy Start information published to the woman's Badgernet records.

Pregnant women with a BMI ≥30 should be informed of the risks/co-morbidities that are associated with obesity (see below) and this discussion should be documented in the patient notes. RCOG leaflet 'Being overweight in pregnancy and after birth' should be discussed and published to the woman's Badgernet electronic maternity notes. being-overweight-in-pregnancy-patient-information-leaflet.pdf (rcog.org.uk)

Maternal weight should be taken and recorded by Health care professional (HCP) again in the third trimester (34-36 weeks) as it will allow appropriate plans to be made for equipment and personnel required during labour and delivery. There is no recommendation to weigh more frequently in pregnancy unless requested by the woman.

All women should receive information in early pregnancy from their CMW on the protective effects of breastfeeding for their babies. These conversations should be repeated at least twice during the pregnancy as recommended by the Unicef baby Friendly Initiative. This is especially important for women with a BMI ≥30 as Maternal obesity is associated with delayed onset of lactation, physical difficulties with positioning the baby at the breast, reduced breastfeeding rates and shorter breastfeeding duration [34]. Infants of mothers who are obese have an increased risk of becoming obese in childhood and breastfeeding protects against obesity. A World Health Organisation (WHO) meta-analysis found that breastfeeding was associated with a reduction in the chances of a child becoming obese by up to 25% [28].
Antenatal colostrum harvesting should be discussed with benefits and encouraged after 36/40. This will also be included as part of the 'Blooming Healthy' initiative.

Antenatal Counselling

The following risks / co-morbidities are associated with obesity (BMI≥30 kg/m2) and they should be discussed with the pregnant woman in the antenatal period by either the obstetrician or community midwife and this should be documented in the electronic maternity notes.

Fetal Risk Factors: [6-12]

- Miscarriage
- Stillbirth
- IUGR
- Macrosomia
- Pre term labour
- Intrauterine exposure to maternal obesity is also associated with an increased risk of developing obesity and metabolic disorders in childhood

Maternal Risk Factors: [6-12]

- Hypertensive disorders (pre-existing and pregnancy induced hypertension)
- Gestational diabetes
- Urinary tract infections
- Venous thromboembolism

Intrapartum Risks:

- Increased incidence of induction of labour and augmentation of labour
- Increased risk of failure to progress of labour
- Difficulty in undertaking fetal monitoring by cardiotocograph (CTG) and intermittent auscultation (IA); a fetal scalp electrode (FSE) for fetal heart monitoring may be required
- Increased risk of instrumental or caesarean delivery
- Increased risk of repeat caesarean section as the chance of successful VBAC is less
- Shoulder dystocia
- Increased risks associated with anaesthetic, both general and local

Postpartum risks

- Postpartum haemorrhage
- Less likely to initiate and maintain breastfeeding
- Wound infection (CS/perineal wound)

It is important to ensure that any discussions are sensitive and empowering, allowing the woman to actively engage with health professionals and the services available to them. The use of language in such conversations is an important factor that contributes to the holistic and family centred approach to care, and the experience pregnant women will have of maternity care.

Antenatal Risk Assessment

Risk assessments should be carried out at booking and appropriate subsequent Antenatal community/ANC follow ups. These should be correctly documented on badger and reviewed throughout the perinatal period.

There is a new recommendation to improve care:
Health Professionals should be aware of the common risk factors for heart disease and venous thromboembolism, such as extreme obesity, and consider on an individual basis whether women should be made aware of the symptoms and signs of heart disease as well as those of venous thromboembolism *(***MBRRACE-UK Report 2022)**

VTE

- All women with a BMI ≥ 30 are classed as obese and have a higher risk of VTE.
- Risk assessment for VTE should be undertaken at the booking visit.
    - I. A pregnant woman with BMI more than 30 get a risk score of 1.
    - II. A pregnant woman with BMI ≥40 get a risk score of 2 during booking assessment.
- If the total score is 3 based on the presence of other risk factors for VTE, commence LMWH from 28weeks.If the VTE score is 4 or more, LMWH should be commenced as early as possible once the pregnancy is confirmed.
- All women receiving antenatal LMWH should receive LMWH for 6 weeks postnatal
- Women with BMI≥40 (VTE score of 2) should receive 10days of LMWH postnatal
- Women with a booking BMI ≥30 requiring pharmacological thromboprophylaxis should be prescribed doses appropriate for maternal weight, in accordance with the RCOG Clinical Green Top Guideline No. 37a

Hypertensive disorders of pregnancy

In pregnancy women with obesity have increased risk of pre-eclampsia and eclampsia, it is important to correctly risk assess and screen throughout pregnancy.

- Women with Obesity (with a BMI≥35kg/m2) with one additional moderate risk factor for pre-eclampsia should be prescribed 150mg Aspirin daily from 12 weeks of pregnancy until delivery or until admission for induction of labour. (RCOG,2018 Green Top guidelines) as per Aspirin Guideline.

Moderate risk factors for PET	High risk factors for PET
First pregnancy	Hypertensive disease in previous pregnancy
Pregnancy interval of more than 10yrs	Chronic kidney disease
Family history of PET	Autoimmune diseases e.g. SLE, APS
Multiple pregnancy	Type 1 or Type 2 diabetes
BMI >35	Chronic hypertension

- An appropriate size of cuff should be used for blood pressure measurements taken at the booking visit and all subsequent antenatal consultations (document cuff size used).

Gestational Diabetes

Women with a BMI ≥30kg/m2 BMI have approximately double the incidence of GDM compared to non-obese women (11.5 vs 4.8%) [15]
A referral should be made for an Oral Glucose tolerance test to be performed at 28 weeks' gestation.

An early glucose tolerance test should be requested if there is a clinical indication to do so (see Gestational Diabetes Guideline).

Anaesthetic assessment

People with obesity are at higher risk of anaesthesia-related complications (risk of aspiration of gastric contents under general anaesthesia, difficult endotracheal intubation and postoperative atelectasis) than people with a healthy BMI, and obesity has been identified as a significant risk factor for anaesthesia-related maternal mortality. Therefore;

A badgernet referral form should be completed as early in pregnancy as possible, once viability by scan has been confirmed, and sent via the Badgernet referral link. This enables timely anaesthetic assessment.

- Pregnant women with class III obesity are at highest risk, anyone with a booking BMI ≥45 should be referred to obstetric anaesthetist to have an antenatal consultation for assessment of potential difficulties with venous access, regional or general anaesthesia
- In certain cases, some pregnant women may need to be referred where BMI may be <45 i.e. when there is marked central obesity, or short neck or small chin and in presence of co-morbidity.

An anaesthetic management plan for labour and delivery should be documented in the Badgernet record.

Tissue viability

BMI greater than 40 kg/m2 is a risk factor for developing pressure sores, therefore:

- A documented assessment of pressure ulcer risk should be performed, using a Plymouth Score at booking and at 36 weeks. (Appendix 2) The assessment should be repeated on any antenatal admission, in labour and admission to postnatal ward
- Tissue viability issues/concerns should also be assessed during antenatal consultation by addressing following:
    - Are there any problem skin areas?
    - Is there any history of previous wound infection?
- If any tissue viability issues/ concerns for poor would healing are identified, the Tissue Viability Team should be contacted for advice.

Women should be made aware of their risk and how other factors could increase this e.g epidural in labour, prolonged labour, caesarean section. A review of the risk assessment should take place at the point of any changes to situation.

Moving and handling (Appendix 3)

Women with a booking ≥BMI 45 kg/m2 for whom moving and handling are likely to be difficult should have a moving and handling risk assessment carried out in the third trimester of pregnancy to determine any manual handling requirements for labour and birth. Assessments should be undertaken sensitively advising the woman it is in the interest of their safety and comfort**.**

Manual handling requirements include;

- Consideration of safe working loads of beds and theatre tables
- The provision of appropriate lateral transfer equipment
- Hoists
- Appropriately sized thromboembolic deterrent stockings (TEDS).

Necessary special Bariatric equipment's/arrangements and a planning meeting may be arranged with the bariatric team on individual basis.

If an individual plan of care is done with the bariatric team it should be documented in the woman's Badgernet maternity records. Bariatric equipment can be deployed to the unit if necessary e.g. special profile beds, chairs etc.

Nutritional assessment and requirements

Women with obesity are at high risk of vitamin D deficiency as Pre pregnancy BMI is inversely associated with serum vitamin D concentrations among pregnant women. Women with obesity (BMI ≥30) are at increased risk of vitamin D deficiency compared to women with a healthy weight.

Pre pregnancy vitamin supplements should be replaced by pregnancy supplements

Women with obesity (BMI ≥30 kg/m2) should be advised to take:

- 5 mg folic acid supplementation daily, starting at least 1 month before conception and continuing during the first trimester of pregnancy
- 10microgram Vitamin D (Cholecalciferol) supplementation daily during pregnancy and while breastfeeding (CMACE/RCOG Joint Guideline 2010)

Continued advice and support should be offered throughout pregnancy. Limited weight gain of around 7-10kg should be encouraged, although there is a lack of consensus on optimal gestational weight gain. Weight loss in pregnancy is not recommended.

Anti-obesity or weight loss drugs are <u>not</u> recommended for use in pregnancy.

Previous Bariatric Surgery

Pregnant women with previous bariatric surgery regardless of BMI should be under Obstetric Consultant led care. women who have undergone malabsorptive procedures involving anatomical changes in the gastrointestinal tract are at high risk of micro nutritional deficiencies (including vitamin B12, iron, folate and fat-soluble vitamins) and macronutritional deficiencies (mainly fat and protein).
Non pregnancy vitamin supplements should be replaced by a pregnancy specific supplement as soon as possible. Vitamin A maybe replaced by retinol or a beta carotene form

These women should receive nutritional screening during each trimester. This should include;

- Ferritin
- Folate
- Vitamin B12, Vit D, Vit A; Vitamin E and K should be monitored if clinically indicated.
- Calcium

Women having a GTT who have had bariatric surgery other than adjustable gastric balloon may find this induces dumping syndrome or be difficult to tolerate, meaning results may not be as accurate. Advice would be to perform continuous glucose monitoring for 1 week between 24 and 28 weeks gestation, if 2 or more high readings treat as GDM. Discuss with Bariatric Dietitian if further advice needed.

See Surgical Guideline for management following bariatric surgery, including Pregnancy post-surgery: Guidelines for medicines management following bariatric surgery WAHT-PHA-019.PDF

Mental health

Women with BMI ≥30 kg/m2 are at increased risk of low self-esteem and mental health problems, therefore a conversation and assessment of mental health should be offered at each visit in the antenatal and postnatal periods. Refer for appropriate support as needed.

Screening for chromosomal and congenital anomalies

A detailed anomaly scan and serum screening for congenital abnormality should be offered to all pregnant women who are obese. The image quality of Ultrasound can be reduced with maternal obesity and therefore can be more difficult to detect fetal anomalies, this should be

discussed with women during counselling for screening. The following should be discussed and considered in the case of raised maternal BMI affecting ultrasound Imaging;

- Maternal BMI can have a significant impact on the success of obtaining accurate NT measurements for first trimester screening.
- Consider the use of transvaginal ultrasound in women in whom it is difficult to obtain nuchal translucency (NT) measurements trans abdominally.
- Those with unsuccessful first trimester screening should be offered second trimester screening with serum markers (QUAD Test), and should be counselled appropriately.
- Results of screening for chromosomal disorders with Non-invasive prenatal testing (NIPT) may be less effective for pregnant people with obesity as detecting free fetal DNA fractions in the maternal serum have been shown to decrease with increasing maternal weight.
- Pregnant women should be informed obesity-specific tests are not available.
- Women should be informed that invasive testing may be more difficult with Obesity.

Maternal and fetal antenatal surveillance /management

Maternal
At each antenatal assessment, record BP (with appropriately sized cuff, documented in electronic maternity notes) and perform urine analysis for signs of PIH/PET or asymptomatic bacteriuria.

Fetal
- Assessment of fetal growth (EFW liquor volumes and umbilical artery Doppler if growth tailed off or under the 10th centile) by ultrasound scan should be arranged from 32/40 every 4 weeks until 40/40 of pregnancy. (locally agreed USS growth surveillance frequency) in women with BMI >35kg/m2. (SBLV2, 2019).
- SFH measurements are unreliable in most people with BMI >35.
- Further ultrasound scans can be requested on an individual basis if clinically indicated.

Planning labour and delivery

In the third trimester a multidisciplinary plan for labour and delivery must be made and documented clearly in the patients notes. This must be comprehensive enough to be used in an emergency.

NICE CG6258 recommends that healthcare providers should discuss labour and birth with pregnant women before **36 weeks** of gestation. This discussion should include the labour plan, pain management and management of prolonged pregnancy.

Place of birth

NICE CG190127 recommends that people women with a booking BMI ≥35 kg/m2 have planned labour and birth in an obstetric unit.

A secondary analysis of the Birthplace study looking at the impact of maternal obesity on intrapartum outcomes in otherwise low-risk pregnancies concluded that the intrapartum risks may be lower than previously anticipated (adjusted RR 1.12, 95% CI 1.02–1.23 for BMI greater than 35 kg/m2 relative to low risk pregnant women of normal weight). Class I and II obesity is not in itself therefore an indication for Consultant led unit (CLU) at Delivery. [31]

- Potential intrapartum complications including potential anaesthetic and obstetric complications
- Availability of senior obstetrician and anaesthetist
- Facilities for pain management (higher prevalence of requesting additional analgesia in people with obesity)
- Immediate access to theatre (in view of higher instrumental and caesarean section rates and PPH amongst pregnant women with obesity)
- Neonatal resuscitation facilities in an obstetric unit

After discussion of the above intrapartum information the woman will be supported to make an informed decision with a personalised care plan (PCP) regarding planned place of birth.

Timing of birth/induction of labour

Perinatal mortality and Fetal compromise increase progressively beyond 37 weeks of gestation and women with obesity are at increased risk of stillbirth (BMI greater than 35 kg/m2 versus 20–25 kg/m2; OR 3.9, 95% CI 2.44–6.22). [10,11]

However, women with obesity are also at increased risk of prolonged pregnancy and induction of labour. Therefore, the decision to induce women with BMI ≥40 should be discussed with the consultant due to increased risk of induction of labour with delay and increased risk of operative complications. [11]

Mode of delivery –VBAC

Deciding the planned mode of delivery following previous caesarean section requires consideration of the circumstances surrounding the previous caesarean and the current clinical situation, with full involvement of the pregnant person

Each woman must be reviewed on an individual basis by the named obstetric consultant or ST6 and above to make individualised decision for VBAC following informed discussion and consideration of all relevant clinical factors

The following should also be taken into account when discussing the risks and benefits of VBAC:

- For women with obesity who have had a previous LSCS, review notes to assess if VBAC is appropriate
- Obesity is a risk factor for unsuccessful VBAC and Class III obesity is associated with increased risk of scar rupture and neonatal injury during trial of labour.
- Emergency caesarean section in women with obesity is associated with an increased risk of serious maternal morbidity because anaesthetic and operative difficulties are more prevalent in this group of people than those with a healthy BMI

- Increased difficulties in monitoring in labour and manual handling concerns if emergency delivery is required

The discussion and individualised care plan should be clearly documented in the notes

Antenatal considerations for women having an elective C/S

Women with obesity who require birth by emergency caesarean section are at increased risk of significant morbidity and mortality and this should be taken into consideration when planning labour and mode of birth

- Elective lower segment caesarean section should be planned for obstetric indications only

The decision for a woman with maternal obesity to give birth by planned caesarean section should involve a multidisciplinary approach, taking into consideration the individual woman's comorbidities, antenatal complications and wishes (RCOG 2018)

- The following women undergoing a planned elective C/S should be referred to tissue viability as early on in the pregnancy as possible and at least by 36 weeks for consideration of a VAC dressing (They should be referred using the e mail **wah-tr.tissueviability@nhs.net**):
    - BMI ≥45 at booking +/-
        i. Previous wound infection
        ii. History of ≥3 C/S
        iii. Pendulous abdomen
    - (Consideration should also be given to referring poorly controlled diabetics)
    -
- If the BMI is ≥45 the woman should be booked onto an elective consultant C/S list on a Tuesday or Thursday morning. If the BMI is ≥50 a double slot should be booked. Consider the use of an additional experienced assistant during the surgical procedure.

- A swab from under the panniculus should be taken at 36 weeks to assess the need for anti-fungal medications prior to the procedure or prior to this if earlier delivery is planned.
- At the pre-assessment visit the woman should be given Hibiscrub to wash in the night before and the morning of her caesarean section.

- An appropriately trained and competency assessed anaesthetist should be available for abdominal or operative vaginal delivery in a woman with BMI 45 and above

Surgical Planning

For women with BMI ≥45 and above requiring an unplanned caesarean section, the consultant on-call for labour ward and anaesthetist should attend in person.

- Surgical access to the uterus can be very challenging in some women with obesity due to the presence of a large panniculus
- Several different surgical approaches have been described in obese women, including vertical and transverse suprapannus skin incisions to avoid pannus retraction
- Compared with transverse infrapanniculus incisions, vertical suprapanniculus incisions are associated with increased operative morbidity, including bleeding and classical hysterotomy, and prolonged postoperative hypoxaemia and respiratory compromise
- The alternative is to use a transverse suprapanniculus approach as opposed to a vertical skin incision but there is a paucity of evidence on clinical outcomes following this approach
- Obese women have an increased risk of postoperative wound infection, urinary tract infections and endometritis, hence should receive prophylactic antibiotics at the time of surgery, as recommended by the NICE Clinical Guideline No. 13 (Caesarean Section, April 2004).
- Consideration should be given to the use of the Traxi and Alexis retractors.
- There is a lack of good-quality evidence to recommend the routine use of barrier retractors and insertion of subcutaneous drains to reduce the risk of wound infection in obese women requiring caesarean sections
- Due to risk of poor wound healing, especially if BMI ≥40, consider the use of delayed absorbable suture e.g. PDS for rectus sheath closure
- As recommended by the NICE Clinical Guideline No. 13 (Caesarean Section, April 2004), women undergoing caesarean section who have more than 2cm subcutaneous fat, should have suturing of the subcutaneous tissue space in order to reduce the risk of wound infection and wound separation
- Interrupted sutures should be considered for skin to reduce seroma formation
- NICE recommend the use of Leukomed Sorbact dressings for preventing surgical site infection in women who have had a caesarean section (MTG 55 Feb 2021).
- PICO negative pressure wound dressings and VAC are associated with lower rates of surgical site infections in people with closed surgical incisions compared with standard dressings. Hence NICE Medical technologies guidance [MTG43] 2019 recommends PICO negative pressure wound dressings for those who are at high risk of developing surgical site infections
- Therefore for women with BMI ≤ 45 Leukomed Sorbact dressing should be applied
- For women > 45 and without the risk factors below a PICO dressing should be applied
- VAC dressings should be used for women with the following risk factors:
    - BMI ≥45 at booking +/-
        i. Previous wound infection
        ii. History of ≥3 C/S
        iii. Pendulous abdomen
    - (Consideration should also be given to uncontrolled diabetics)
- See Appendix 4 for further information

Intrapartum care

The on-duty anaesthetist covering the labour ward should be informed of all women with class III obesity (BMI > 40) admitted to the labour ward for birth. This communication should be documented by the attending midwife in the notes. Early assessment will allow the on-duty anaesthetist to review documentation of the antenatal anaesthetic consultation, identify potential difficulties with regional and/or general anaesthesia, and alert senior colleagues if necessary. An early epidural may be advisable, depending on the clinical scenario. (RCOG 2018).

- Consider early intravenous access with a wide bore cannula (consideration should be given to the siting of a second cannula) for people with BMI >40 as the IV access can be challenging in an obstetric emergency.
- Bloods for FBC and group and save should be obtained due to a higher risk of operative delivery and PPH.
- Although active management of the third stage of labour is advised for all women, the increased risk of PPH in those with a BMI≥30kg/m2 makes this even more important.
- Antacid (e.g. Omeprazole) prophylaxis is indicated in women with BMI≥40 in labour due to higher risk of general anaesthesia (see Antacid prophylaxis in Obstetrics).

There is no evidence to support continuous fetal monitoring during labour in the absence of other comorbidities, or medical or obstetric complications. Therefore, intrapartum fetal monitoring for people with obesity in labour should be provided in accordance with NICE Fetal monitoring in Labour guideline.

Antacid (e.g. Omeprazole) prophylaxis is indicated in women with BMI≥40 in labour 6 hrly, and clear fluids only during labour due to higher risk of general anaesthesia (see Antacid prophylaxis in Obstetrics). [36]

Operative vaginal delivery can often be technically difficult and carries a higher failure rate in women with morbid obesity; Therefore, appropriately experienced clinicians should be present to perform or supervise delivery and trial in theatre may be considered.

Postnatal care

All women should have their VTE risk assessed following birth and thrombo-prophylaxis prescribed as appropriate (See VTE Guideline)

Obesity carries increased risk of postnatal wound and genital tract infection. Encourage good hygiene and monitor for signs of infection.

Low breastfeeding initiation and maintenance rates occur in women with obesity. Women with a booking BMI ≥30 kg/m2 should receive targeted breastfeeding advice and support from Midwives, breast feeding support workers and Health Visitors, during the postnatal period for initiation and maintenance of breastfeeding and counselling regarding the benefits.

Women with obesity should be advised that even a modest postpartum weight retention is associated with a heightened risk of adverse outcomes in subsequent pregnancies, including hypertensive disease, diabetes and stillbirth.

Women who have had CS and wish vaginal birth after caesarean (VBAC) section

should be informed that weight loss increases the chances of successful VBAC

Advise on weight reduction and make aware of any support in the community Continue to encourage healthy eating and exercise, signpost to services/activities to be supported to lose weight postpartum. If pregnancy and delivery are uncomplicated, a mild exercise programme consisting of walking, pelvic floor exercises and stretching may begin immediately. But women should not resume high-impact activity too soon after giving birth. Share and discuss the CMO infographic on Badgernet 'postnatal physical activity' with the woman.

After complicated deliveries, or lower segment caesareans, women should be advised to consult a GP before resuming pre-pregnancy levels of physical activity, usually after the first check-up at 6–8 weeks after giving birth.

Mental Health should be assessed at each postnatal review.

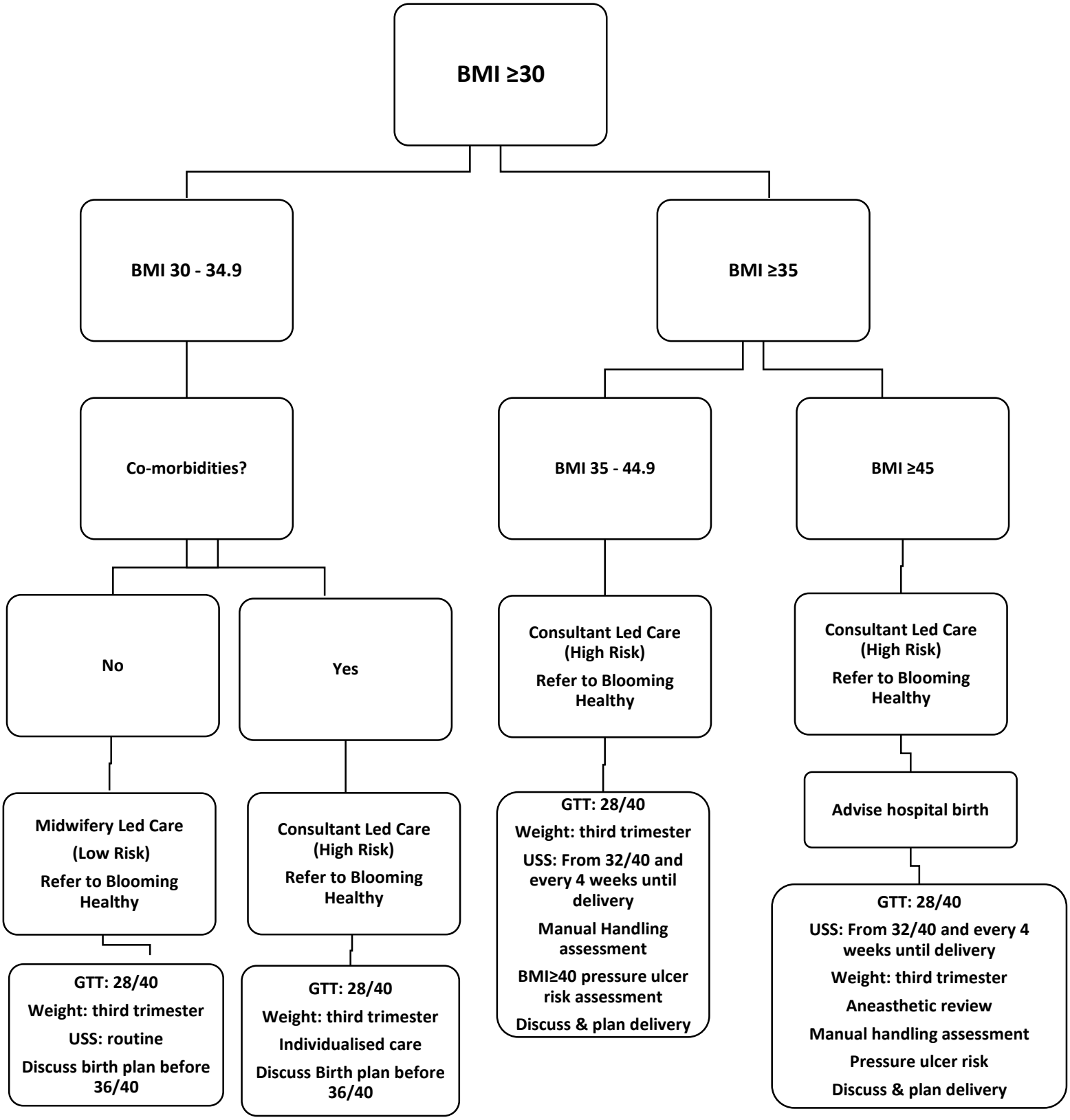
Training and Implementation

All clinical staff involved in the care of women with obesity should have yearly manual handling training which should include training on the use of specialist equipment for pregnant women with obesity.

All health professionals involved should receive education about maternal nutrition and physical activity in pregnancy and its impact on maternal, fetal and child health, and how to deliver this information in an effective way.

Worcestershire Acute Hospitals NHS Trust

Appendix 1: Pathway of care if BMI 30 or greater.



Pregnant women with BMI ≥35

Gestation (weeks)	**Purpose of visit Location**	**Clinician**
6-10	Routine Booking Appointment - Calculate BMI - VTE assessment - PET risk assessment (See Aspirin Guideline - CO monitoring - Refer for GTT at 28weeks - Refer anaesthetic review if BMI>45 - Refer to CLC and for serial growth USS (see FGR guideline) Discuss healthy diet and moderate exercise and refer to 'Blooming Healthy' Lifestyle programme Publish to patient Badgernet records 'RCOG being-overweight in pregnancy' patient information leaflet. Ensure on 5mg folic acid and 10microgram Vitamin D Offer Healthy Start Vitamins Apply for digital maternity exemption certificate Refer to HV	CMW
16	Routine AN Check	CMW

	Ensure has Cons appointment Co testing if applicable Feeding conversation and give 'Mothers and others guide' Discuss antenatal classes and options Second trimester biochemical screening if applicable	ANC
20-22	Obstetric review Arrange growth scans at 32,36 and 40 weeks Mat B1	Consultant ANC
25 (First pregnancy only)	Antenatal assessment Ensure GTT appointment in place for 28 weeks CO monitoring if applicable	CMW
28	• Check VTE assessment • Repeat bloods • CO monitoring if applicable • Anti D if required • check GTT results/test in place ANC/USS Review risks and management plan Complete Feeding conversations	CMW
32	Growth Scan & Obstetric review Antenatal assessment Review risks and management plan	Consultant ANC

	ensure GTT and 28 week blood results documented and actioned Refer to tissue viability if for planned C/S and BMI ≥ 45 CO monitoring if applicable	
34	Antenatal assessment Review risks and management plan CO monitoring if applicable • Document birth Plan (timing, place and mode of delivery, intrapartum/postpartum care)	CMW
36	• Growth scan • Obstetric Review • Antenatal assessment - review risks and management plan • CO monitoring • Check weight and VTE assessment • Manual handling and equipment needs assessment if BMI≥40 • Waterlow score to identify tissue viability issues if BMI≥40 • Document birth Plan (timing, place and mode of delivery, intrapartum/postpartum care) Complete feeding conversations including colostrum harvesting	Consultant ANC

38	Refer to tissue viability if for planned C/S and BMI ≥ 45 if not previously done. Antenatal assessment Review risks and management plan CO monitoring if applicable	CMW
40 **41+**	Growth scan • Obstetric Review • Revisit birth plan and discuss IP/PP risks • CO monitoring if applicable • Offer membrane sweep Discuss postdates IOL as per Trust guideline. Antenatal assessment Review risks and management plan CO monitoring if applicable Offer membrane sweep Discuss postdates IOL as per Trust guideline.	Consultant ANC CMW

APPENDIX 2 – THIS IS ON BADGER

Affix Patient Label here or record

NAME: .....

NHS NO:

HOSP NO:

D.O.B: D D / M M / Y Y Y Y FEMALE ☐

WARD:.....CONS:.....

Worcestershire NHS
Acute Hospitals NHS Trust

PLYMOUTH MATERNITY PRESSURE ULCER RISK ASSESSMENT SCALE

Category and Score All Women Score 3		Date				
Skin Type/Visual Risk Areas						
Dry	1					
Oedematous	1					
Clammy, Pyrexia	1					
Discoloured - Grade 1	2					
Broken Spots - 2 - 4	3					
Mobility						
Restless/Fidgety	1					
Apathetic	2					
Restricted	3					
Inert	4					
Chair Bound	5					
Continence						
Incontinent	1					
Appetite						
Poor	1					
Fluids only	2					
Anorexic	3					
BMI						
Above normal >25	1					
Obese 35+	2					
Below normal <18	3					
Neurological Deficit						
Motor/Sensory e.g. Paraplegia, epidural analgesia	4 6					
Peripheral Neuropathy, MS	2 6					
Tissue Malnutrition						
Anaemia	2					
Smoking	1					
Unstable Diabetes	2					
Surgery (previous or current)	1					
Total 3+						
Name (Print)						

TO BE FILED IN INPATIENT - MATERNITY

PF WR1991 Plymouth Maternity Pressure Ulcer Risk Assessment Version 2 Page 1 of 2

Affix Patient Label here or record

NAME: .....

NHS NO: | | | | | | | | | | |

HOSP NO: | | | | | | | | | | |

D.O.B: D D / M M / Y Y Y Y FEMALE ☐

WARD:..... CONS:.....

PLYMOUTH MATERNITY PRESSURE ULCER RISK ASSESSMENT SCALE

All women score 3 **3-14 Low Risk** **15+ At Risk**

Risk Status	Action
Low Risk (Plymouth score 3 - 14)	Advise woman re mobilisation and hydration. Will be re-assessed when their condition changes e.g. if she has an epidural or requires surgery, of if her condition deteriorates.
At Risk (Plymouth score 15+)	If woman's condition necessitates staying in bed ensure position is changed at least 2 hourly. Help given to move up in bed, use of easiglide sheets etc., regular change of pad and incontinence pads etc. If postnatal, use an appropriate profile bed. Skin integrity should be re-assessed as condition requires at least daily.
Plans should include: • Repositioning schedule • Frequency of re-assessment of skin integrity. • Fluid management. • Use of appropriate equipment e.g. profile bed, bariatric equipment. • Treatment where pressure ulcer is indentified. • If pressure ulcer is identified (report as a clinical incidient on DATIX).	

For women who have been asssessed and are at high risk of pressure ulcer development they should be transferred onto a HIll Rom - PRIMO Mattresss (during office hours WRH Ext. 30251 Bleep 155 - Alex Ext. 44510 Bleep 0222 - Out of hours contact the helpdesk or portering service.

Further information and support is available from the Tissue Viability Team Ext. 33177 or mobile phone number available via switchboard.

Appendix 3

Manual Handling Plan of Care for the Bariatric Pregnant Women/Mother
Purpose of the following manual handling plan of care is to reduce the risk of injury to the women and
clinical staff for the women with increased BMI. Some women may require individual assessment by the
bariatric service. If an individual plan of care is done it should be kept in woman's health records.

Antenatal care - If a woman is admitted to hospital for antenatal care the safe working load (SWL) of the ward bed, chair and commode must be check. If the woman's weight is higher than the SWL, the following action must be taken:

- Hospital bed - King Fund manual bed SWL is 184 kgs (29 stone) if the patient needs assistance in/out of bed or manual handling in bed a electric profiling bed must be obtained. If a profiling bed is not available a profiling bed must be hired.

- Patient Chair - The SWL of the chair must be checked if the patient exceeds the SWL a Bariatric chair must be obtained. If a bariatric chair is not available a chair must be hired.

- Commode - If the women weight exceeds the SWL of the commodes a bariatric commode must be obtained.

For Labour/Delivery

Delivery bed - The safe working load of the delivery bed must be checked prior to the delivery date, the SWL will be written on the delivery bed. If the woman exceeds the SWL a delivery bed must be obtained.

Postnatal bed - Please follow the instructions in antenatal care for hospital bed, patient chair and commode.

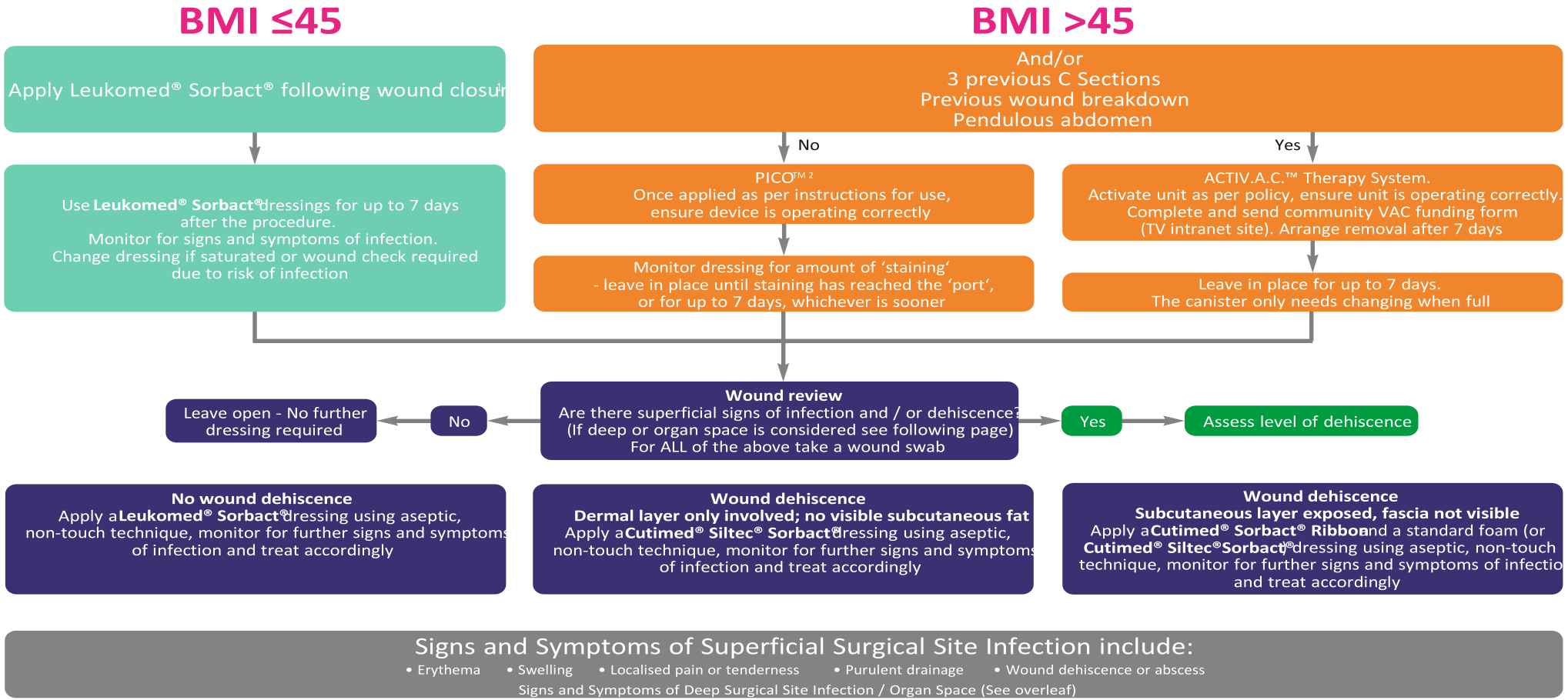
The size and shape of the women must be considered prior to the woman's caesarean date. If the woman's size and shape exceeds the theatre table, extensions for the theatre table must be used to reduce the risk of injury to the women and clinical staff.

Lateral transfer

The Hovermatt must be used to laterally transfer the women weighing more than 105kg from the theatre table to the profiling bed, see Hospital bed (Antenatal care). The Hovermatt must be placed on the theatre table prior to the women being transferred on to table, the Hovermatt must only be operated by staff who received training in the uses of the Hovermatt. If the weight or conditions of the women does not require the Hovermatt, a Pat-slide must be used for the transfer. Slide sheets must be used with the Pat-slide. Staff must be trained in the use of Pat-sliding with slide.

Postnatal care following a caesarean - Please follow the instructions in the Antenatal care above -
hospital bed, patient's chair, commode

Appendix 4: Wound Dressing risk assessment



1 https://www.nice.org.uk/guidance/mtg55
2. http://www.nice.org.uk/guidance/mtg43
Created in partnership with: Maria Pearman (Maternity Matron Inpatients WVT), Kate Horton (Matron for Intrapartum Care WAHT) and the Local Maternity and Neonatal System (LMNS) with input from Lead Tissue Viability Clinical Nurse Specialists.
Printed with support from Essity.

References

1. National Institute for Health and Care Excellence (2010) Weight management before, during and after pregnancy. London: NICE
2. Royal College of Obstetricians and Gynaecologists, (2018) Care of Women with Obesity in Pregnancy (Green-top Guideline No. 72)
3. MBRRACE-UK: Saving Lives, Improving Mothers' Care 2022 Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2018-20
4. National Institute for Health and Care Excellence (2014) Obesity: identification, assessment and management. London: NICE
5. Lim CC, Mahmood T. Obesity in pregnancy. Best practice & research Clinical obstetrics & gynaecology. 2015;29(3):309-19.
6. Lutsiv O, Mah J, Beyene J, McDonald SD. The effects of morbid obesity on maternal and neonatal health outcomes: a systematic review and meta-analyses. Obesity reviews : an official journal of the International Association for the Study of Obesity. 2015;16(7):531-46.
7. Mamun, A. A., Mannan, M. and Doi, S. A. R. (2014), Gestational weight gain in relation to offspring obesity over the life course: a systematic review and bias-adjusted meta-analysis. Obes Rev, 15: 338–347. doi:10.1111/obr.12132.
8. Louis J, Auckley D, Miladinovic B, Shepherd A, Mencin P, Kumar D, et al. Perinatal Outcomes Associated With Obstructive Sleep Apnea in Obese Pregnant Women. Obstetrics and gynecology. 2012;120(5):http://10.1097/AOG.0b013e31826eb9d8.
9. Marchi, J., Berg, M., Dencker, A., Olander, E. K. and Begley, C. (2015), Risks associated with obesity in pregnancy, for the mother and baby: a systematic review of reviews. Obes Rev, 16: 621–638. doi:10.1111/obr.12288.
10. Smith GC. Life-table analysis of the risk of perinatal death at term and post term in singleton pregnancies.Am J Obstet Gynecol2001;184:489–96
11. Denison FC, Price J, Graham C, Wild S, Liston WA.Maternal obesity, length of gestation, risk of post datesp regnancy and spontaneous onset of labour at term.BJOG2008;115:720–5
12. Usha Kiran TS, Hemmadi S, Bethel J, Evans J. Outcome of pregnancy in a woman with an increased body mass index. BJOG : an international journal of obstetrics and gynaecology. 2005;112(6):768-72.
13. Dresner M, Brocklesby J, Bamber J. Audit of the influence of body mass index on the performance of epidural analgesia in labour and the subsequent mode of delivery. BJOG : an international journal of obstetrics and gynaecology. 2006;113(10):1178-81
14. Saravanakumar K, Rao SG, Cooper GM. The challenges of obesity and obstetric anaesthesia. Curr Opin Obstet Gynecol. 2006;18(6):631-5.

15. Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, et al. Maternal obesity and pregnancy outcome: a study of 287,213 pregnancies in London. International journal of obesity and related metabolic disorders : journal of the International Association for the Study of Obesity. 2001;25(8):1175-82.
16. Amir LH, Donath S. A systematic review of maternal obesity and breastfeeding intention, initiation and duration. BMC pregnancy and childbirth. 2007;7:9.
17. Meehan S, Beck CR, Mair-Jenkins J, Leonardi-Bee J, Puleston R. Maternal obesity and infant mortality: a meta-analysis. Pediatrics. 2014;133(5):863-71.
18. Gaudet L, Ferraro ZM, Wen SW, Walker M. Maternal obesity and occurrence of fetal macrosomia: a systematic review and meta-analysis. BioMed research international. 2014;2014:640291.
19. Boney CM, Verma A, Tucker R, Vohr BR. Metabolic syndrome in childhood: association with birth weight, maternal obesity, and gestational diabetes mellitus. Pediatrics. 2005;115(3):e290-6.
20. Gaillard R. Maternal obesity during pregnancy and cardiovascular development and disease in the offspring. European Journal of Epidemiology. 2015;30:1141-52.
21. National Institute for Health and Care excellence, (2019) Hypertension in pregnancy: diagnosis and management. London: NICE
22. Martin LF, Finigan KM, Nolan TE. Pregnancy after adjustable gastric banding. Obstetrics and gynecology. 2000;95(6 Pt 1):927-30.
23. Wittgrove AC, Jester L, Wittgrove P, Clark GW. Pregnancy following gastric bypass for morbid obesity. Obesity surgery. 1998;8(4):461-4; discussion 5-6.
24. Kjaer MM, Nilas L. Pregnancy after bariatric surgery--a review of benefits and risks. Acta obstetricia et gynecologica Scandinavica. 2013;92(3):264-71.
25. (Association between characteristics at birth, breastfeeding and obesity in 22 countries: The WHO European Childhood Obesity Surveillance Initiative COSI 2015/2017)
26. (Spatz DL, Preventing obesity starts with breastfeeding. J Perinatal Neonatal Nursing 2014;28(1):41-50)
27. (Horta BL, Victora CG. Geneva: World Health Organization; 2013. Long-term effects of breastfeeding - A Systematic Review).
28. (Ramussen K Chapter 20: Maternal obesity and the outcome of breastfeeding. In Hale T, Hartman P. Hale and Hartmans textbook of Human Lactation. Amarillo, TX:Hale Publishing,2007b:387-402)
29. Denison, F., Aedla, N., Keag, O., Hor, K., Reynolds, R.,Milne, A and Diamond, A., (2018). Care of Women with Obesity in Pregnancy. BJOG: An International Journal of Obstetrics & Gynaecology, 126(3), ppe62-e106

30. Royal College of Obstetricians and Gynaecologists, (2015), Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium No. 37a. London:RCOG, p. 24 and p. 26
31. National Institute for Health and Care Excellence, (2015). Diabetes in pregnancy: management from preconception to the postnatal period. London: NICE.
32. Slater, C., Morris, L., Ellison, J and Syed, A., (2017). Nutrition in pregnancy following Bariatric surgery. Nutrients, 9 (12)
33. Hollowell, J., Rowe, D., Linsell, R., Knight, M., and Brockelhurst, P., (2013). The impact of maternal obesity on intrapartum outcomes in otherwise low risk women: secondary analysis of the Birthplace national prospective cohort study. BJOG An International Journal of Obstetrics & Gynaecology, 121(3), pp343-pp355.
34. National Institute for Health and Care Excellence, (2022). Fetal monitoring in labour. London: NICE.
35. British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery—2020 update
36. National Institute for Health and Care Excellence, (2017). Dyspepsia – pregnancy-associated: Omeperazole. London: NICE.

Monitoring Tool
This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:			How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**			**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	These are the 'key' parts of the process that we are relying on to manage risk. We may not be able to monitor every part of the process, but we MUST monitor the key elements, otherwise we won't know whether we are keeping patients, visitors and/or staff safe.	What are we going to do to make sure the key parts of the process we have identified are being followed? (Some techniques to consider are; audits, spot-checks, analysis of incident trends, monitoring of attendance at training.)			Be realistic. Set achievable frequencies. Use terms such as '10 times a year' instead of 'monthly'.	Who is responsible for the check? Is it listed in the 'duties' section of the policy? Is it in the job description?	Who will receive the monitoring results? Where this is a committee the committee's specific responsibility for monitoring the process must be described within its terms of reference.	Use terms such as '10 times a year' instead of 'monthly'.

References

All references should be 'Harvard' referenced, eg,

Denison FC, Aedla NR, Keag O, Hor K, Reynolds RM, Milne A, Diamond A; Royal College of Obstetricians and Gynaecologists. Care of Women with Obesity in Pregnancy: Green-top Guideline No. 72. BJOG. 2019 Feb;126(3): E62-E106. doi: 10.1111/1471-0528.15386. 2018

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	
2.	Does the implementation of this document require additional revenue	
3.	Does the implementation of this document require additional manpower	
4.	Does the implementation of this document release any manpower costs through a change in practice	
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval