NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Obesity management in pregnancy

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The online version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Greater Glasgow & Clyde

Obstetric Guidelines

Obesity – Management of women with a BMI ≥ 40 in pregnancy

Severe obesity in pregnancy increases the risk of complications for pregnant women. National audits of maternal mortality in the UK have emphasised the importance of obesity as a risk factor for serious complications throughout pregnancy and the puerperium.

Women with severe obesity, defined as a BMI ≥ 40**,** represent a relatively small percentage of the obstetric population (3%); however, they make up a disproportionately large number of cases featured in maternal morbidity and mortality reports. This guideline aims to reduce the risks associated with severe obesity in pregnancy.

Key Points

- All women must have their height and weight measured at their booking visit and again at 36 weeks, and this must be used to calculate their BMI.
- All women should receive a sensitive discussion on the risk of severe obesity in pregnancy and be advised to maintain weight in pregnancy.
- Women should be offered 150 mg of aspirin daily from 12 weeks in the presence of co-existing risk factors for pre-eclampsia:
    - A family history of pre-eclampsia,
    - An interpregnancy interval of over 10 years
    - First pregnancy
    - Multiple pregnancy
    - Age over 40
- Women should be offered screening for gestational diabetes at 24 - 28 weeks of gestation.
- Women should be offered fetal growth scans in the third trimester.
- Women should be offered an anaesthetic review in the third trimester as per local policy.
- Pregnancy is safer following bariatric surgery than with a high BMI. However, pregnancy should be deferred for 12-24 months post-surgery and women remain at higher risk of fetal growth restriction.

Pre-pregnancy

Women should be advised to aim for, and preferably achieve, a BMI ≤ 30. They should be advised as to the increased risks in pregnancy with increasing BMI.

Women should be referred for surgical management of severe obesity in line with existing GG&C guidance, prior to pregnancy.

Women with severe obesity should be advised to commence 5mg folic acid daily, from 1 month prior to pregnancy, and this should continue until 12 weeks to provide adequate prophylaxis against neural tube defects.

Women with pre-existing diabetes should be referred to tertiary care for pre-pregnancy counselling, regardless of BMI.

Booking

Women with severe obesity are considered high-risk in pregnancy and should be reviewed at a consultant clinic at 16-20 weeks, and a plan made for antenatal care.

Women with BMI >30 should be referred to weight management via Badgernet.

Women should be counseled regarding the increased risks of severe obesity in pregnancy:

Maternal	**Fetal**
Gestational Diabetes	Fetal anomaly
Hypertension / Pre-eclampsia	SCBU admission
Caesarean birth	Macrosomia & growth restriction
Post-partum haemorrhage	Shoulder dystocia
Venous thrombo-embolism	Stillbirth
Post-dates induction of labour	Neonatal death

Women should be advised that weight loss is not recommended in pregnancy, and that they should aim to maintain their current weight.

Women should be advised to cease orlistat, given the limited evidence for its safety in pregnancy.

Women should be advised to avoid pregnancy whilst on Semaglutide (Wegovy / Ozempic) and for at least 2 months after ceasing. If they conceive on Semaglutide it should be stopped as animal studies suggest toxicity and should also be avoided in breastfeeding.

Women should be advised that calorie requirements do not increase in pregnancy until the 3rd trimester, and that this increase is approximately 200kcl/day.

Women should be advised that mild to moderate physical activity (e.g. walking

or swimming) will not harm their fetus, and that at least 30 minutes of moderate activity is recommended per day.

Height and weight must be measured. Recall estimates by women themselves should not be accepted. This should be documented in Badgernet.

If a woman's weight exceeds the maximum safe load for routinely-used hospital beds, the antenatal ward manager should be informed. If a woman's weight exceeds the maximum safe load for routinely-used operating tables (standard is 300kg), the obstetric theatre coordinator should be informed.

Please refer to appendix 1 for bariatric air ambulance transfer.

Women should be offered 150mg of aspirin daily from 12 weeks' gestation in presence of co- existing risk factors for pre-eclampsia:

- A family history of pre-eclampsia
- An interpregnancy interval of over 10 years
- First pregnancy
- Multiple pregnancy
- Age over 40

Women should be advised to take 10 micrograms of vitamin D supplementation daily e.g. cholecalciferol 400u.

Women should be recommended to give birth in hospital and advised that access to pools may not be feasible. GGC guidance recommends water birth is suitable if BMI is <35, but it is important to consider personalized care. The "care outside guidance' document is helpful is such incidences:

https://rcm.org.uk/publications/care-outside-guidance/

Antenatal Care

Although these women are considered high risk it is entirely possible to remain well throughout pregnancy. They should be reviewed at 16-20 weeks at a consultant clinic and a plan made. Review of scans may need to be at a consultant clinic and they should be reviewed again at the consultant clinic at about 36 weeks to discuss and plan birth.

Women should have their blood pressure measured with an appropriately-sized cuff at each booking appointment.

Risk factors for thromboembolism should be assessed formally at booking and at 28 weeks' gestation.

Women should be offered a screening test for gestational diabetes at 24-28 weeks.

Women should have a repeat measurement of their weight at 28 weeks and this should be documented in Badgernet.

Women should be offered a minimum of two scans to assess fetal growth in the third trimester.

36 Week Visit

Women should be reviewed by senior medical staff at the clinic to complete plans regarding birth.

Women should receive an ultrasound scan to assess fetal size, wellbeing and presentation.

Women should have received an anaesthetic review in the third trimester. If this has not been completed, the on-call anaesthetic team should be contacted to review the woman at the clinic on the same day.

Women booking for caesarean birth should be booked onto a list with a consultant present. Extra time required for the CS should be highlighted on the elective list.

Women should be offered induction of labour in line with routine policy. Women should be booked for induction of labour from Monday-Thursday where possible.

Labour and Birth

The obstetric and anaesthetic middle-grade staff should be informed if a woman admitted to labour ward has a BMI ≥ 40.

The obstetric and anaesthetic consultants should be informed if a woman admitted to labour ward has a BMI ≥ 50

All women with a BMI ≥ 40 should have IV access established.

Continuous CTG monitoring should be established. If an acceptable CTG can be achieved through an abdominal transducer, it may not be necessary to attach a fetal scalp electrode.

All women with BMI ≥ 40 should be offered early epidural if wished. Obstetric patients are at high risk of failed intubation, and severe obesity further increases this risk. A good quality epidural block can be topped up for operative birth more quickly than siting a spinal anaesthetic and may avoid general anaesthesia in an emergency.

All women with BMI ≥ 40 should receive 20mg Omeprazole orally, every 12 hours whilst in labour.

Severe obesity is a risk factor for post-partum haemorrhage. Consideration of other risk factors will determine if additional uterotonics are required.

All women with BMI ≥ 40 should have appropriate thromboembolic prophylaxis

prescribed prior to leaving labour ward.

Instrumental Birth

Operative vaginal deliveries can be technically difficult in women with morbid obesity. If there are any concerns then the on-call consultant should be contacted.

Caesarean Birth

A significant number of women with BMI ≥ 40section, whether elective or emergency. These points apply to both groups.

- Where the BMI is ≥40-49, the operation should be supervised or performed by a middle-grade obstetrician equivalent to ST6 or higher, a staff grade/specialty doctor, or a consultant. The anaesthetic should be performed or supervised by a senior trainee anaesthetist (ST4 or above), a staff grade/specialty doctor or a consultant.
- Where the BMI is ≥ 50, the operation should be supervised or performed by a consultant obstetrician. All these cases should be discussed with the on-call consultant anaesthetist and they will decide on a case-by-case basis whether their attendance is required.
- There is no specific evidence to advise the optimum location of the surgical incision in relation to the abdominal apron.
- Routine skin preparation should be performed with chlorhexidine, in line with local policy, ensuring adequate coverage beneath any overhanging apron.
- The use of additional abdominal traction straps, or additional retraction devices can be used at the discretion of the operating surgeon.
- Prophylactic antibiotics should be administered as per hospital policy, with an additional 1g of amoxicillin if the last weight is >100kg and the patient is not allergic to penicillin.
- After the birth of the placenta, routine third stage management should be given. These women however are at increased risk of post-partum haemorrhage and other risk factors should be considered for PPH prophylaxis.
- The use of 2.0 looped PDS to close the rectus sheath is recommended if the BMI is ≥ 50 but can be considered if the BMI is 40-49.
- The subcutaneous fat should be closed with interrupted sutures if > 2cm depth.
- There is limited evidence to support routine use of PICO dressings, however they may be considered.
- All women with BMI ≥ 40 should have appropriate VTE prophylaxis prescribed prior to leaving labour ward.

Postnatal Care

These women are at increased risk of all postnatal complications including

PPH, sepsis, VTE and wound breakdown.

- **ALL women** with BMI ≥ 40 should receive prophylactic enoxaparin: the dose should be based on weight as per hospital protocol and be given for a minimum of 10 days.
- Early mobilisation should be encouraged.

Bariatric Surgery

Bariatric surgery is becoming increasingly common. According to NICE guidelines, bariatric surgery may be offered to patients with class III obesity (BMI ≥40) where lifestyle and/or medications have been ineffective at achieving weight reduction; or class II obesity (BMI 35 – 40) with associated co-morbidities (NICE, 2014 Obesity: identification, assessment and management).Bariatric surgery may be restrictive, aiming to reduce calorie intake by reducing gastric capacity, and/or malabsorptive. Restrictive procedures include laparoscopic adjustable gastric banding and laparoscopic sleeve gastrectomy. Laparoscopic Roux-en-Y gastric bypass is both a restrictive and malabsorptive procedure.

In the MBRRACE 2020 report, two women who died had perforations of their bowel at the site of the anastomosis from a gastric bypass (Knight et al., 2020). Correct diagnosis can be difficult as the symptoms of epigastric pain and vomiting can be common in pregnant women. However, a careful history and examination must be carried out for any woman attending with abdominal pain and a history of bariatric surgery

Although rare, maternal bariatric post-operative complications can occur during pregnancy and include:

- Malabsorption syndromes
- Gastric dumping
- Bowel obstruction due to internal herniation
- Anastomotic ulceration and breakdown
- Gastric band slippage and migration
- Gastric band leakage

Fetal risks include:

- Small for gestational age (SGA) and fetal growth restriction
- Preterm birth
- Congenital abnormalities
- Perinatal mortality

Pre-pregnancy counselling

- Advise to defer to pregnancy for 12-24 months after bariatric surgery
- Prep-pregnancy evaluation of any nutritional deficiencies
- Prescribe 5mg / day folic acid pre-conceptually and should be continued until

12 weeks of pregnancy

- Consider referral to dietician

First visit to consultant antenatal clinic

- Confirm type of bariatric surgery
- Check serum iron, ferritin, folate, vitamin B12, calcium and vitamin D
- Consider referral to dietician if any deficiencies
- Prescribe 10 micrograms vitamin D once daily throughout pregnancy and breastfeeding
- If severe hyperemesis gravidarum, may need to consider temporary deflation of gastric band
- If BMI is still >35, arrange OGTT 26-28 weeks. Be aware that clinically significant dumping syndrome occurs in approximately 10% of patients after any type of gastric surgery and may be classed as "early" or "late." Late dumping occurs 1-3 hours after a meal and may be diagnosed by a characteristic hyperinsulinaemic (reactive) hypoglycaemia upon OGTT. Referral to dieticians is appropriate for advice regarding low glycaemic index foods. An alternative test is fasting and 2-hour postprandial glucose monitoring for a week to detect gestational diabetes mellitus.

Remainder of pregnancy

- Perform at least 2 growth scans in the 3rd trimester (e.g. 32 and 36 weeks), even if now normal BMI
- Repeat serum iron, ferritin, folate, vitamin B12, vitamin D and calcium levels at 28 and 34 weeks
- Refer to general surgery if suspecting any complication of bariatric surgery

Labour, birth and postpartum

- No change in management is required for just previous bariatric surgery. It is not an indication for planned caesarean birth or early induction of labour unless for other obstetric indications
- Encourage breastfeeding
- Discuss contraception

BMI Body Mass Index, calculated by dividing weight in kilograms by the square of the height in metres. E.g. woman weighing 140kg who is 160cm tall:

160cm = 1.6 metres; 1.6 x 1.6 = 2.56

140/2.56 = **54.7**

Appendix 1

Scottish Ambulance Service

Standard Operating Guidelines AA/C04

Transfer of Bariatric Patients (by air).

Aim

- To offer transport guidance for bariatric patients travelling by Air Ambulance.
- Also to ensure there is a jointly agreed procedure which promotes non-discrimination, Equality, and Respect for Diversity for this cohort of patients.

Application

SAS Flight Paramedics	Specialist Services Desk	Operational Managers
GAMA & BABCOCK	SAS Clinical Directorate	ScotSTAR

Background

The Scottish Ambulance Service (SAS) has a responsibility to provide transport for patients that require admission to hospital or transfer between health care facilities for acute medical treatment. This includes bariatric patients from remote or rural areas of Scotland.

Historically, there has been very little consistency in relation to the transportation of bariatric patients. As such, we have worked closely and collaboratively with our aircraft operators (*GAMA & Babcock*) to ensure the weight and dimensions provided in the table below are evidence based (*where applicable*), and are agreed jointly as an accurate safe working practise.

Policy

Air travel should not be discounted for the majority of patients who fall within the bariatric category. It is, however, essential for flight planning purposes that the patient's weight and width is assessed prior to transfer.

The majority of air ambulance requests for this cohort of patients will generally have a degree of prior planning and referral between health care establishments, it must however be recognised that an air ambulance resource can be deployed as an emergency to any patient that may fall within this category to provide clinical assistance for any medical condition they might be suffering which necessitated the request for an air ambulance (*such as a HEMS response*). The attendance of an air ambulance asset to these calls does not, and should not always assume transport. Patients who cannot be transported should be provided with appropriate clinical treatment until a safe and suitable mode of transport to an appropriate medical facility is arranged.

The Commander (Captain) of the aircraft is responsible for the safe conduct of the flight and will always retain the right to refuse any passenger if s/he is concerned for flight safety or the safety of his/her crew.

Procedure (SSD)

- It should be confirmed that the patient's measurements have been taken prior to transfer using the guidance tool below. Patients who have not been appropriately measured may not be accepted for transfer by air.

- The SSD should record, without exception, the following details within the Sequence of Events (SOE) and prior to passing the mission detail to GAMA:

- Name of the assessing & referring Clinician(s)
- Referring Clinician Contact telephone number(s).
- Details of the patient – specifically weight and width of the patient.

It should be appreciated that bariatric patients may present differently, not all will require a stretcher for transport. Some patients may be able to walk onto the aircraft and remain seated for transfer, or thereafter, transfer to a stretcher for comfort.

In general, patient widths (*including equipment such as vacuum mattresses*) **MUST** fall to within the agreed parameters as per the table(s) below. To allow for error, an additional 3 to 4cm tolerance may be accepted.

KINGAIR	Loading System	Max Patient Weight: 152kgs (336lbs)
		Max Patient Width: 68cms
	Aircraft Stretcher	Max Patient Weight: *No Manufacturer Recommendations*
		Max Patient Width: 68cms
	Aircraft Seats	Max Patient Weight: *No Manufacturer Recommendations*
		Max Patient Width: 65cms
	Aircraft Steps	Height from ground: 38cms
		Max Patient Width: 42cms

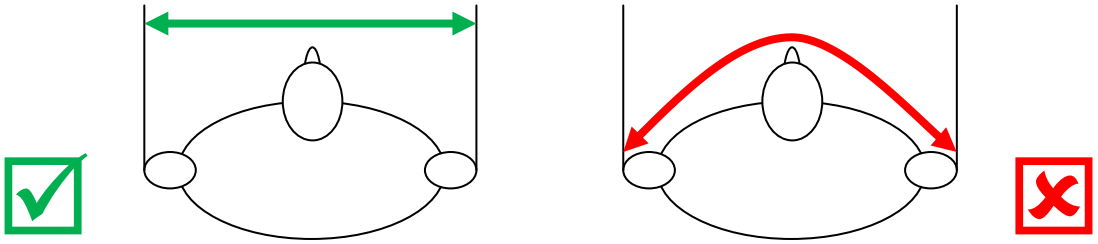
H145	Aircraft Stretcher	Max Patient Weight: 220kgs (484lbs)
		Max Patient Width: 68cms
	Aircraft Seats	Max Patient Weight: *No Manufacturer Recommendations*
		Max Patient Width: 50cms
	Aircraft Steps	Height from ground: 55cms
		Max Patient Weight: 450kgs

EC135	Aircraft Stretcher	Max Patient Weight: 150kgs (330lbs)
		Max Patient Width: 68cms
	Aircraft Seats	Max Patient Weight: *No Manufacturer Recommendations*
		Max Patient Width: 50cms
	Aircraft Steps	Height from ground: 53cms
		Max Patient Weight: *No Manufacturer Recommendations*

Guidance tool for measuring bariatric patients:

Referring centres should be requested to measure their patients WIDTH (*not girth*) using the following procedure:

- Patients should be laid flat on their back with their elbows tucked snugly by their side
- An accurate `mid-air` measurement should be taken between elbow and elbow as per the picture below (not around the circumference of the patients girth)



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Equality & Diversity Impact Assessment - Complete - No adverse impact has been detected.			
Printed versions of this document are uncontrolled and may not be extant – check with the Service intranet/ document author. The Scottish Ambulance Service title, crest, uniform & vehicle design are variously protected in European, UK & Scottish law.			

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