Beyond BMI: Redesigning antenatal anaesthetic assessment and neuraxial safety for obese parturients

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INTRODUCTION

Obesity in the obstetric population is increasingly prevalent in the United Kingdom, with current data indicating that over 21% of pregnant women are classified as obese.[1] Maternal obesity is associated with a higher risk of complications including gestational diabetes, venous thromboembolism, pre-eclampsia, and postpartum haemorrhage, alongside adverse fetal outcomes. The 2025 MBRRACE-UK report highlighted that 376 of 643 maternal deaths occurred in women who were overweight or obese, with over half of deaths attributable to cardiac disease in this group.[2]

For the obstetric anaesthetist, obesity presents additional procedural and logistical challenges. Airway-related morbidity and mortality are more frequent in both obese and obstetric populations. Timely establishment of intravenous and neuraxial access can be difficult, and the management of complex, dynamic cardiorespiratory physiology adds further risk. Early identification of high-risk patients is therefore essential to support effective planning and the delivery of safe, efficient care - particularly in the context of rising operative delivery rates.

AIMS

The aims of this audit were:

- ❑ To evaluate current midwifery and anaesthetic antenatal assessment of high BMI patients
- ❑ To identify areas for clinical improvement and opportunities for multidisciplinary teaching
- ❑ To develop a structured pathway for anaesthetic assessment of high-BMI patients presenting to the labour ward

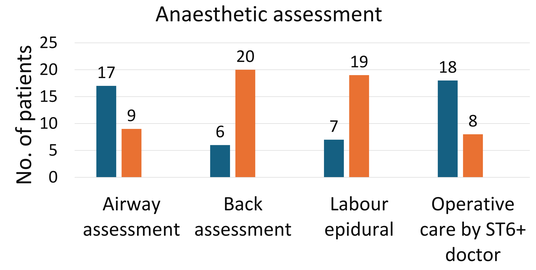
METHODS

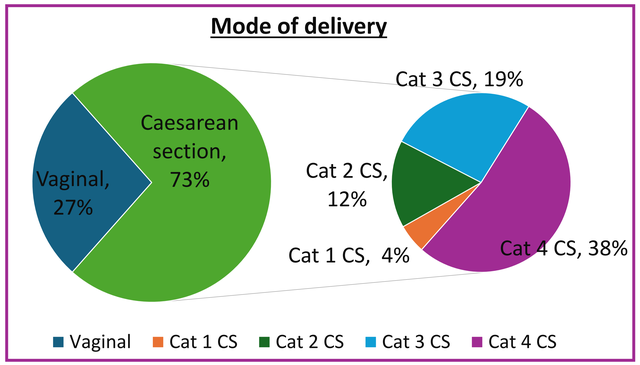
Audit standards were adapted from the RCoA *Audit Recipe Book* (obesity in obstetric anaesthesia). We retrospectively reviewed all patients with BMI >35 kg/m² from September–December 2025, including those seen in consultant-led pre-assessment.

Data collected: demographics, blood pressure, availability of appropriate equipment, documentation of airway and spinal anatomy, mode of anaesthesia (and difficulty), and anaesthetist seniority.

	No. of women (%)		No. of women (%)
BMI >35kg/m²	26	**Reweighed at third trimester**	7 (27%)
BMI >40kg/m²	23 (88%)	**Booking BP**	24 (90%)
Height, weight and BMI recorded at booking	26 (100%)	**BP cuff size documented**	6 (23%)
		BMI >40 with antenatal review by senior anaesthetist	20 (77%)

RESULTS





KEY FINDINGS & DISCUSSION

- ❑ Airway and spinal assessments were not consistently completed prior to high-BMI patients reaching labour ward or theatre
- ❑ Inappropriate blood pressure cuff sizing was occasionally used or not documented by midwives
- ❑ Third-trimester re-weighing was infrequently performed by midwifery staff
- ❑ High Caesarean section rate (**73%**) highlights the need for robust anaesthetic preparedness in neuraxial and airway management

*A multidisciplinary teaching programme has been developed to address these gaps, focusing on **accurate physiological assessment**, **appropriate equipment use**, and the development of skills including **neuraxial techniques, airway management, and obstetric risk stratification**.*

- ❑ Out of 19 LSCS:
  - ❑ 1 x GA
  - ❑ 1 x epidural top-up
  - ❑ 1 x CSE
  - ❑ 16 x spinals
- ❑ **The average no. neuraxial attempts was 2, max documented 6+**
- ❑ **Ultrasound was only used in 30% of neuraxial attempts**

PROPOSED TEACHING PROGRAMME

Core knowledge
- MBRRACE /CEMACH findings
- Guidelines

Documentation standards
- BMI thresholds
- Anaesthetic review

Practical skills
- Ramping + positioning airway trolley
- Ultrasound
- IV access and equipment

Simulation
- Failed epidural top-up
- GA conversion
- DAS guidelines in maternity
- PPH in high BMI

References: 1. 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. 2. MBRRACE-UK (2025) *Saving Lives, Improving Mothers' Care: Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2021–23*. Oxford: National Perinatal Epidemiology Unit, University of Oxford.