Increased maternal body mass index is associated with prolonged anaesthetic and surgical times for caesarean delivery but may be partially offset by clinician seniority and established epidural analgesia.

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**Aim:** To investigate associations between maternal body mass index (BMI) and the in-theatre time taken to produce an anaesthesia or to perform caesarean delivery.

**Methods:** Using the STROBE guidelines, prospectively collected data arising from routine care for all women who underwent caesarean section at a single institution (2009 – 2015) was analysed. Generalised linear regression was then used to examine associations between maternal BMI and the time taken to anaesthetise the mother and the duration of surgery.

**Results:** Of a total of 24,761 caesarean deliveries, 5,607 (22.7%) women were obese at antenatal registration. The in-theatre anaesthetic preparation (18 vs 32 minutes, \( p<0.001 \)) and surgical duration (38 vs 52 minutes, \( p<0.001 \)) were longer in women with BMI ≥ 50 kg m\(^{-2} \) than those with normal BMI. This difference remained significant after controlling for antenatal, intra-operative and immediate postoperative variables. Variables identified that may mitigate the effects of severe obesity were: *Senior anaesthetic and obstetric care* - significant reduction in mean in-theatre anaesthetic preparation time and surgical duration, by 3 and 11 minutes respectively (\( p<0.001 \)), and *Epidural top-up anaesthesia* - mean anaesthetic in-theatre preparation duration was lessened by 7 minutes (\( p<0.001 \)).

**Conclusions:** Obese women had greater anaesthesia and surgery time, but the effect may potentially be mitigated by provision of care by experienced staff and prior establishment of epidural analgesia.