University Hospitals of North Midlands NHS Trust

From retrospective audit to real-time improvement: A year of live and continuous quality improvement in obstetric anaesthesia

Gareth Byrne (ST4), Ben Rowlands (CT3), Jack Ellis (CT4), Nicholas Ronan (CT4), Elizabeth Shackel (ST4), Andrew Plews (ST5), Mina Amirhom (ST7), Sam Salib (Cons)

Introduction

Obstetric anaesthesia is delivered in a uniquely demanding clinical environment, where large case volumes, rapidly evolving clinical situations and multidisciplinary working converge. In major maternity units, frequent staff rotation, complex electronic documentation systems and sustained service pressure create undesirable conditions for variability in practice and inadvertent omissions in care. While most deviations are minor, their cumulative effect can compromise consistency, safety and patient experience.

Traditional audit cycles are often slow, retrospective and disconnected from the pace of daily clinical practice, limiting their capacity to drive meaningful behavioural change. There is often a gap between data collection and real-time improvement at the point of care.

We therefore developed a continuous, department-wide quality improvement programme at a tertiary centre, the Royal Stoke University Hospital, using monthly live data capture, regular visual feedback and targeted education. We aimed to integrate audit into routine clinical practice, reduce unwarranted variation, and deliver sustained improvements in the quality, safety and consistency of obstetric anaesthetic care, thereby enhancing both patient experience and outcomes.

Methods

All cases presenting to obstetric theatres over a 12-month period were reviewed. Data were collected monthly from hospital electronic record systems: theatre management (Bluespier), obstetric records (K2MS), anaesthetic charts (CHA-Intra anaesthesia), and pre-operative assessment (iPortal).

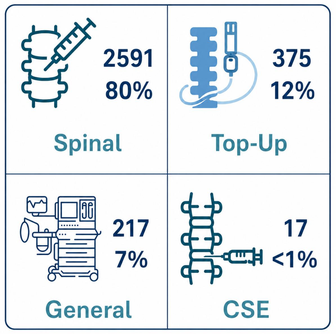
A comprehensive dataset was assembled, including procedure type and urgency, pre-operative assessment, maternal co-morbidities, anaesthetic technique, estimated blood loss, drugs administered and anaesthetist present. Additional focused datasets were generated for specific patient cohorts, such as analgesic strategies in patients undergoing general anaesthesia for caesarean section.

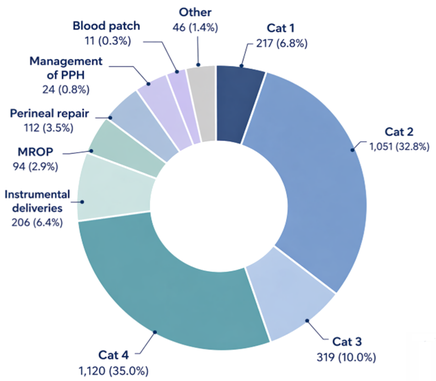
Each month, data were collated into an infographic summarising key performance metrics. These were disseminated to all anaesthetists via departmental email and secure clinician messaging groups. One priority area for improvement was identified each month, accompanied by targeted education and guidance aligned with national recommendations.

3,200 patients were reviewed across a range of procedures and anaesthetic techniques.

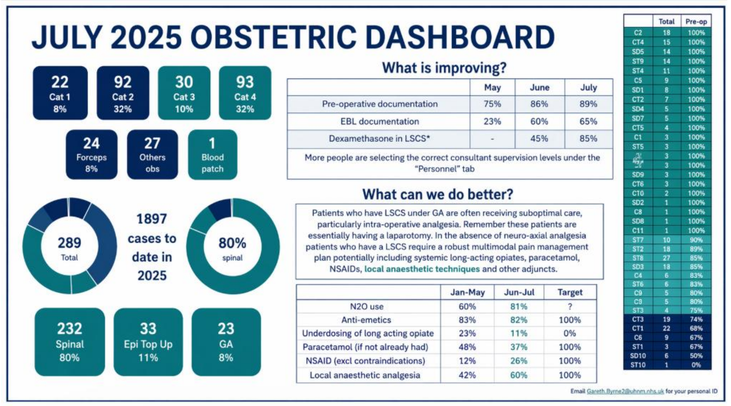
12 months

Results





For the first 3 months data was collected for observation purposes only. After this an infographic was produced each month, identifying possible areas for improvement based on observed practice. Monthly themes assessed included pre-operative assessment, emergency general anaesthesia, post-operative analgesia, management of postpartum haemorrhage, intra-operative documentation, antibiotic redosing and steroid administration at caesarean section.



PRE-OPERATIVE DOCUMENTATION

Documentation improved, supported by increased use of an obstetric-specific pre-assessment form with clearer recording of co-morbidities.

ESTIMATED BLOOD LOSS DOCUMENTATION

Just 23% of charts documented EBL. Only 57% of cases where a post partum haemorrhage occurred had EBL on the anaesthetic chart

DEXAMETHASONE USE AT CAESAREAN SECTION

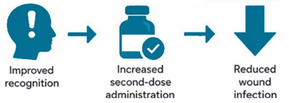
After dissemination of evidence from the PROSPECT trials, dexamethasone use in non-diabetic patients undergoing caesarean section rose from 42% to 93%.

POSTPARTUM HAEMORRHAGE

The use of viscoelastic testing in postpartum haemorrhage increased from 33% to 95%. Following education of PPH guidelines, administration of second-dose tranexamic acid in ongoing bleeding significantly improved.

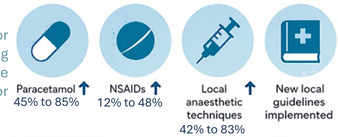
ANTIBIOTIC REDOSING IN MAJOR HAEMORRHAGE

No patient with an EBL greater than 1,500mL received repeat antibiotics. That this cohort had a threefold higher rate of wound infection. Following targeted education, 85% received a second dose, with a marked reduction in infection rates.



PRESCRIBING AFTER GENERAL ANAESTHESIA

Following emergency general anaesthesia for caesarean section, appropriate analgesia prescribing improved. These changes were accompanied by the development of robust local guidelines for emergency general anaesthesia in maternity care.



Conclusion

Integrating live audit, visual feedback and targeted education into routine departmental practice facilitates rapid learning and durable change. This approach transforms audit from a retrospective exercise into a dynamic safety tool, reducing variation, promoting excellence and embedding evidence-based practice. Continuous, transparent feedback empowers clinicians, supports a culture of shared responsibility, and enables maternity units to deliver reliable, high-quality care to every patient, every day.