

A service evaluation of departmental compliance with obstetric neuraxial intervention follow-up

C. O'Loughlin, S. Mannion, S. Egan, M. Melvin.

Department of Anaesthesia, Mayo University Hospital, Westport Rd., Knockaphunta,
Castlebar, Co. Mayo, Ireland.

Abstract

Aims

Professional guidance recommends routine post-neuraxial follow-up to detect complications and assess patient experience. This service evaluation examined departmental compliance with a neuraxial follow-up system and described routinely collected maternal satisfaction data.

Methods

A retrospective audit was conducted of all obstetric patients receiving neuraxial intervention in 2024. Departmental compliance with obstetric neuraxial follow-up was assessed as the primary outcome. Maternal satisfaction rate data was described.

Results

Compliance with follow-up was 346 patients (78.6%) for labour epidurals and 341 (57.6%) for operative deliveries. Discharge before review was the most common reason for missed follow-ups. Maternal satisfaction in those appropriately followed up was high; 328 patients (94.7%) for labour epidurals; 336 patients (98.5%) for operative deliveries.

Conclusion

Post-neuraxial follow-up compliance was suboptimal, representing a quality gap. While reported satisfaction was high, interpretation is limited by using a non-validated tool and poor compliance with follow-up. Strengthening systematic follow-up processes may improve quality assurance and patient safety in obstetric anaesthesia.

Introduction

Neuraxial techniques are central to obstetric practice for labour analgesia and operative delivery. Their use continues to increase nationally, necessitating ongoing quality assurance and improvement¹. Quality of service monitoring in this area is best achieved with post-

neuraxial anaesthesia follow-up and accurate data recording. Departmental compliance with this process is an imperative step in the maintenance of high-quality maternal care standards.

Consistent follow-up of this patient cohort and recording of maternal satisfaction rates are internationally recognised departmental key performance indicators (KPI). Professional body guidelines recommend routine follow-up after obstetric neuraxial procedures to assess patient experience and screen for complications^{2,3}.

Following a local quality improvement initiative in 2022, our institution introduced a neuraxial follow-up register and review round. We have conducted a service evaluation primarily to examine compliance with this follow-up system. A secondary objective was to provide a descriptive analysis of routinely collected maternal satisfaction data.

Methods

This retrospective service-evaluation audit included all obstetric patients who received a neuraxial procedure between 1 January and 31 December 2024, in our department. Emergency and elective cases were included. Patients receiving postpartum neuraxial anaesthesia or general anaesthesia without a neuraxial attempt were excluded.

Data was obtained from the departmental neuraxial follow-up register, labour ward, and theatre records. These sources were cross-referenced to determine whether patients who received neuraxial techniques were entered into the follow-up register and whether documented follow-up subsequently occurred.

The primary outcome was departmental compliance with follow-up, defined as the proportion of patients who were both recorded in the follow-up register and subsequently appropriately reviewed. A secondary outcome was maternal satisfaction among those who were reviewed. Satisfaction was measured as part of routine clinical care using a 3-point Likert scale.

Audit approval was obtained from the hospital 'Research Ethics Committee' (REC); reference number 20250405.

Results

Follow-up Compliance

A total of 440 labour epidurals were recorded in the follow-up register. Of these, 346 (78.6%) patients were reviewed and 94 (21.4%) were missed.

There were a total of 580 operative deliveries involving the use of neuraxial anaesthesia, in 2024. The 399 neuraxial techniques were recorded in the follow-up register for operative delivery. Of these, 341 (85.5%) were followed up and 58 (15.5%) were missed. The 341 (57.6%) cases were appropriately recorded and followed up. The most frequently documented reason for missed review was discharge prior to the follow-up round.

Maternal Satisfaction

Among women who received labour epidural analgesia and were followed up, 94.7% (n=328) reported good satisfaction. Analgesia was rated 89.3% (n=309) as moderate or good. Following neuraxial anaesthesia for operative delivery, 98.5% (n=336) reported good satisfaction or better.

Table 1: Follow-Up Compliance for Obstetric Neuraxial Techniques (2024)

	Total Recorded in Follow-up register	Reviewed on neuraxial round (%)	Missed on neuraxial round (%)
Labour Epidurals	440	346 (78.6%)	94 (21.4%)
Neuraxial for Operative Delivery	399	341 (85.5%)	58 (15.5%)

Discussion

Delivering a high-quality obstetric anaesthesia service requires objective follow-up to maintain safety and identify complications. This service evaluation assessed departmental compliance with post-neuraxial follow-up, including a descriptive analysis of maternal satisfaction. The principal finding was suboptimal compliance, with only 57.6% of operative cases both recorded and reviewed. International guidance stipulates follow-up as a core component of safe obstetric anaesthesia practice^{2,3}, this represents a significant governance and quality gap.

Post-neuraxial review enables detection of neurological sequelae, identification of post-dural puncture headache, and patient reassurance. Incomplete follow-up therefore affects both quality monitoring and safety. Inconsistent review limits reliable surveillance and strengthening systematic processes would provide more dependable quality and safety data.

High maternal satisfaction was reported among reviewed patients. However, interpretation requires caution as satisfaction was measured using a simple, non-validated 3-point Likert scale, which may not reflect true maternal experience^{4,5}. Satisfaction is multifactorial, influenced by education, consent, procedural experience, and analgesic efficacy⁶. Our proforma captures overall neuraxial experience rather than individual elements, limiting interpretability. While detailed tools used in research may be impractical clinically, this raises the question of how best to measure maternal satisfaction in routine care.

Guidelines emphasise consistent follow-up after neuraxial techniques to monitor satisfaction and detect complications, particularly given links between unidentified maternal morbidity and psychological outcomes⁷. With over a quarter of operative patients not recorded for follow-up, departments should aim for near-complete review. Regular audit and targeted improvements may enhance quality assurance and patient safety.

Declarations of Conflicts of Interest:

None declared.

Corresponding Author:

Christopher O'Loughlin,
Department of Anaesthesia,
Mayo University Hospital,
Westport Rd.,
Knockaphunta,
Castlebar,
Co. Mayo,
Ireland.

E-Mail: oloughch@tcd.ie

References:

1. Health Service Executive (HSE). Irish Maternity Indicator System National Report 2023. National Women and Infants Health Programme, HSE; October 2024. 87 p.
2. Royal College of Anaesthetists. Guidelines for the Provision of Anaesthesia Services in an Obstetric Population. Chapter 9. London: RCoA; 2023
3. Obstetric Anaesthetists' Association, Association of Anaesthetists of Great Britain and Ireland. Guidelines for Obstetric Anaesthetic Services 2013. London: OAA/AAGBI; 2013

4. Barnett SF, Alagar RK, Grocott MPW, Giannaris S, Dick JR, Moonesinghe SR. Patient-satisfaction measures in anesthesia: qualitative systematic review. *Anesthesiology*. 2013;119(2):452-478.
5. Clivatti J, Siddiqui N, Goel A, Shaw M, Crisan I, Carvalho JCA. Quality of labour neuraxial analgesia and maternal satisfaction at a tertiary care teaching hospital: a prospective observational study. *Can J Anaesth*. 2013;60(8):787-95. doi:10.1007/s12630-013-9976-9. Epub 2013 Jun 5. PMID:23736978.
6. Sisay MM, Wassie MM, Kebede A. Assessment of maternal satisfaction and associated factors among parturients who underwent cesarean delivery under spinal anesthesia at the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia, 2019. *BMC Anesthesiol*. 2020;20(1):190.
7. Ertan D, Hingray C, Burlacu E, Sterlé A, El-Hage W. Post-traumatic stress disorder following childbirth. *BMC Psychiatry*. 2021 Mar;21(1):155.

Appendix

Table 2: *Operative Delivery Data*

	NUMBER OF PATIENTS
TOTAL OPERATIVE DELIVERIES	592
OPERATIVE DELIVERIES WITH NEURAXIAL ANAESTHESIA	580
CASES RECORDED IN FOLLOW-UP REGISTER AND APPROPRIATELY FOLLOWED UP	341
FOLLOW-UP COMPLIANCE RATE (%)	57.6%

Table 3: Maternal satisfaction following epidural labour analgesia (a selection of evidence)

Study Name	Author (Year)	Country	Number of patients	Maternal Satisfaction Rate
Maternal satisfaction with the quality of epidural analgesia for pain relief in labor	Gredilla et al (2008)	Spain	1067	91%
Assessment of maternal satisfaction with epidural analgesia during labour	Hidalgo Cabrera et al (2011)	Spain	100	92%
Labour epidural analgesia in Martinique: evaluation of quality and accessibility to epidural analgesia by the patients in level one obstetric clinic	Sandefo et al (2004)	France	134	94%
Assessment of maternal satisfaction with epidural analgesia for pain control during labour	Marenco-Arellano et al (2017)	Spain	140	84.3%
Predictors of incomplete maternal satisfaction with neuraxial labor analgesia: A nationwide study	Merrer et al (2021)	France	8538	64.8%
Quality of labour neuraxial analgesia and maternal satisfaction at a tertiary care teaching hospital: a prospective observational study	Clivatti et al (2013)	Canada	294	92%
Incidence of epidural catheter replacement in parturients: a retrospective chart review	Eappen et al (1998)	USA	4240	98%