

Neurological Monitoring After Obstetric Neuraxial Anaesthesia

Service Evaluation — Wexham Park Hospital, Frimley Health NHS Foundation Trust | FH1289-3b

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Frimley Health
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Background

- Obstetric neuraxial anaesthesia is common practice in maternity care
- Post-procedure neurological monitoring is essential to detect complications early
- Vertebral canal haematoma (VCH) is a rare but catastrophic complication
- VCH requires recognition, MRI, and neurosurgical decompression within 8–12 hours for optimal outcomes
- Delayed recognition risks permanent neurological injury

Audit Standards (AAGBI/OAA)

- Straight Leg Raise (SLR) documented at 4 hours post-procedure
- Escalate if SLR is not achievable
- Target: 100% compliance
- MRI within the 8–12 hour surgical intervention window

Methods

Part 1 — SLR/Mobilisation

- Approved retrospective service evaluation
- Manual review of 61 patient records over a 9-day period
- Captured: time of neuraxial procedure, time of SLR documentation, and if no SLR, time of mobilisation documentation

Part 2 — MRI Timing

- Information request: 11/06/2022 to 19/11/2025
- Patients with obstetric neuraxial procedures who subsequently underwent MRI
- Manual review of notes — 22 patients over 41 months
- Time between observation of neurological deficit and MRI scan

Results: SLR Documentation

20%

SLR Documented

Only 1 in 5 patients had straight leg raise recorded

5.5h

Median Time to SLR

IQR 3.6–6.9 hours
(Target: ≤4 hours)

Results: Mobilisation Documentation

100%

Mobilisation Documented

All patients had mobilisation noted in records

16.6h

Median Time to Mobilisation

IQR 12.5–23.4 hours

Results: MRI Timing

11.5h

Median Time to MRI

IQR 6 – 22 hours

22 patients in 41 months (≈1 MRI per 8 weeks)

4.5%

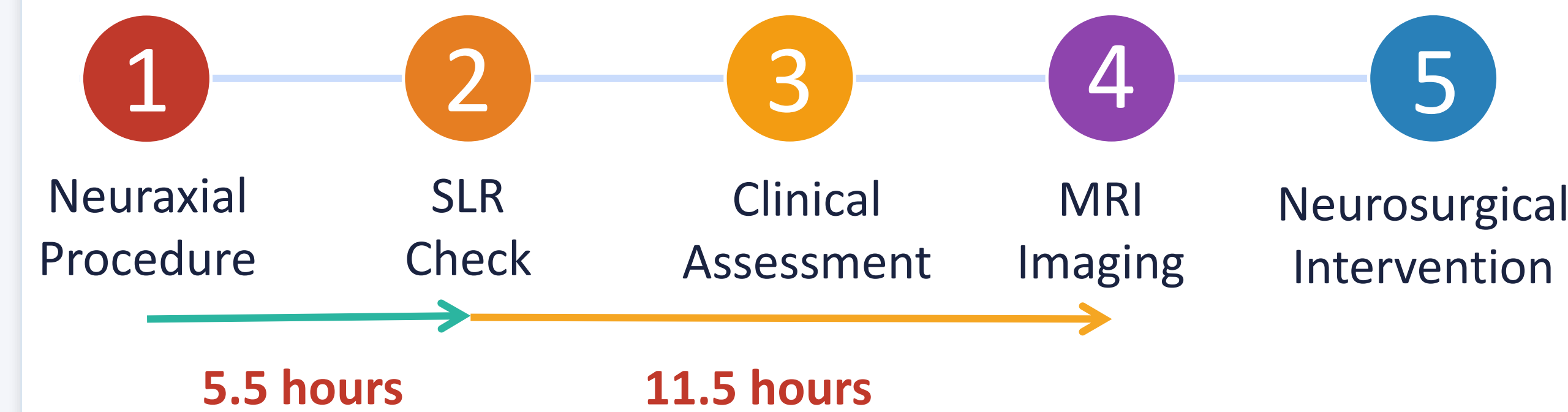
Proportion of MRIs performed out of hours

Only 1 of 22 patients imaged between 2200 and 0800

Limitations

- Reliance on documentation only — may underestimate actual clinical monitoring
- Informal engagement with midwifery team during data collection
- Not recently replicated at Frimley Park Hospital
- Small sample size and short data collection timeframe
- VCH is rare — zero cases identified in this cohort
- No direct link to clinical harm identified in this evaluation

Summary of Results — Clinical Pathway



Target: Recognition → MRI → Surgery within 8–12 hours

Current pathway exceeds the critical intervention window — placing patients at risk of irreversible neurological injury

Key Numbers at a Glance

20%

SLR Compliance

5.5h

Median SLR Time

11.5h

Median MRI Time

Conclusions

Standards not met: Post-procedure neurological assessment standards are not being met at WPH

Delayed detection: SLR is documented in only 1 in 5 patients, at a median of 5.5 hours — well beyond the 4-hour target

Delayed imaging: Median MRI time of 11.5 hours (IQR 6 – 22h) after detection frequently exceeds the critical 8 – 12 hour neurosurgical intervention window

Patient safety risk: Current delays risk missing the neurosurgical window for vertebral canal haematoma, with potential for irreversible harm

Recommendations

- Liaise with Midwifery Team**
Formalise communication with midwifery leads to embed neurological monitoring into post-natal ward routines
- Education & Signage**
Develop educational resources and bedside signage to reinforce SLR check requirements for postnatal midwifery staff
- Epic Alert / Electronic Prompt**
Implement an automated electronic alert in Epic at 4 hours post-neuraxial procedure to prompt SLR documentation
- Midwife Proforma Inclusion**
Include SLR assessment and neurological monitoring within midwifery post-natal and handover proformas as a mandatory field
- Clarify Out-of-Hours MRI Pathway**
Establish and communicate a clear out-of-hours (OOH) MRI escalation pathway to avoid delays in imaging
- Guideline Review (July 2026)**
Review the Suspected Vertebral Canal Haematoma Guideline (due July 2026), including an explicit assessment pathway when SLR is not achieved at 4 hours

References

- AAGBI / OAA. Obstetric Anaesthetists' Association and Association of Anaesthetists: Guidelines for Obstetric Anaesthetic Services. Revised 2013
- Cook TM, Counsell D, Wildsmith JAW. Major complications of central neuraxial block: Report on the Third National Audit Project of the Royal College of Anaesthetists. Br J Anaesth 2009;102:179–90
- Frimley Health NHS Foundation Trust. Suspected Vertebral Canal Haematoma Guideline (FH1289-3b). Under review July 2026