

A quality improvement project to improve neuromonitoring for labour epidurals and following caesarean sections under neuraxial blocks

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INTRODUCTION

- Serious neurological complications following obstetric regional anaesthesia are rare.
- A joint guideline [1] recommends neurological monitoring with an hourly straight leg raise (SLR) during labour with an epidural for early identification of neurological complications (Figure 1).
- A further recommendation states that SLR at 4 hours, following a spinal anaesthetic or epidural top-up, should be used to screen for recovery from motor block.
- Both NICE [2] and this guideline recommend hourly sensory monitoring during labour with an epidural, which had not been occurring at our trust.
- We report the following findings after introducing several interventions to meet these standards.

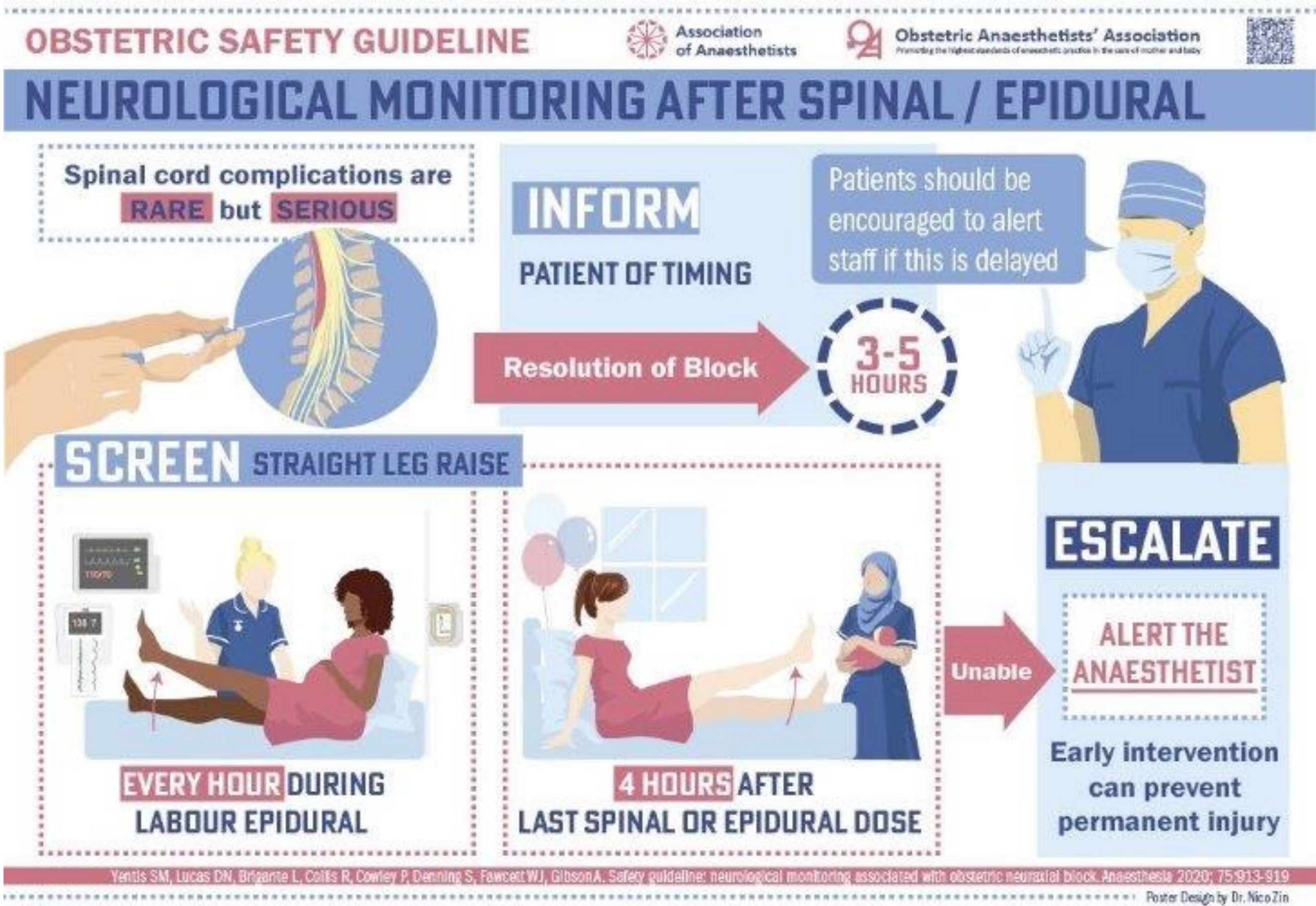


Figure 1: Association of anaesthetists and OAA safety guideline, used as part of our education drive.

METHODS

- Currently in its 5th cycle, snapshot audits were conducted before and after each intervention.
- A publicity and education drive was instituted including posters and monthly midwifery teaching.
- An hourly SLR check was introduced onto the combined intrapartum Modified Early Warning Score (MEWS) & partogram monitoring chart (Figure 3).
- A patient wristband was introduced giving the time a patient should be able to SLR following neuraxial blockade [3]. (Figure 2).
- Sensory block height assessment added to MEWS and partogram charts. SLR wristband added to maternity handover checklist (Figure 4).



Figure 2: Patient wristband giving the time a patient should be able to SLR and when to escalate to an anaesthetist

RESULTS

- 80% (n=18) of patients that received an epidural during labour had hourly SLR documented on their partogram.
- 65% (n=17) received a SLR wristband post-operatively. Of these patients, 89% were aware that they should be able to SLR at 4 hours.
- 82% (n=11) midwife respondents had received teaching on sensory block height assessments in those with labour epidurals.
- 100% (n=11) of the midwife respondents felt that the prompt on the MEWS chart was helpful in ensuring these motor and sensory assessments took place.

Temperature (°C)	36.8 - 37.2	36.2 - 36.7	35.7 - 36.1	< 35.6
Problems	0	1	2	
TOTAL MEWS SCORE				
Neuro Response	Alert (A)			
Sensory Block Height (see dermatomal map)	To cold (ice cube/pack or ethyl chloride spray)			
Straight Leg Raise	Yes (tick)			
Looks unwell	No (N)			
Refuses	Normal / Brisk / Absent			
Escalation of Care	Yes / No			
Time to next Observation	Infuse (Monitoring frequency)			
Healthcare professional concerned?	Yes / No			
Women/family concerned?	Yes / No			
FLUID INPUT (mls)	Date Time of Input/Output (4hr sections)			
	Oral			
	IV Fluids			
	IV Drugs			
	Oxytocin			
	Any other drugs			
	TOTAL			

Figure 3: Sensory block height assessment and SLR added to MEWS and partogram monitoring chart.

Handover to Maternity Close Observation Bay

- ☐ Epidural / intrathecal diamorphine at: H H M M
- ☐ Epidural catheter removed at: H H M M
- ☒ Epidural catheter blue tip visible
- ☐ SLR wrist band and instructions provided
- ☐ IV cannula flushed
- ☐ Oxygen as per chart

Figure 4: SLR wristband and instructions added to maternity handover checklist.

CONCLUSIONS

- SLR wristbands, intrapartum chart additions of sensory and motor (SLR) block assessments and regular MDT teaching has led to cost effective adherence to guidance, resulting in improved patient safety.

FUTURE INITIATIVES

- The SLR wristband will be added as a prompt on the postoperative checklist.
- A QR code on the wristband will link to a web page with information regarding neurological complications in different languages.

REFERENCES

[1] Yentis SM, Lucas DN, Brigante L, et al. Safety guideline: neurological monitoring associated with obstetric neuraxial block 2020. Anaesthesia. 2020;75:913–919.

[2] National Institute for Health and Care Excellence. (2023). Intrapartum Care. [NICE guideline NG235]. <https://www.nice.org.uk/guidance>

[3] Pitcher A, Farrant M, Mathers R, et al. EP047 Regional anaesthetic alert bracelet project: identifying neurological damage early through patient empowerment. Regional Anesthesia & Pain Medicine 2023;48:A65-A66