

Labour Epidural Protocol Evaluation at Mater Mothers' Hospital: Transition to Programmed Intermittent Bolus and Low Concentration Local Anaesthesia

INTRODUCTION:

Epidural analgesia is the gold standard for managing labour pain¹. In 2024 Mater Mother's Hospital (MMH) transitioned from continuous epidural infusion with patient-controlled epidural analgesia (CEI + PCEA) using 0.2% ropivacaine and 2mcg/ml fentanyl, to programmed intermittent epidural bolus (PIEB + PCEA) using 0.1% ropivacaine and 2mcg/ml fentanyl. PIEB + PCEA has been shown to have several key benefits, including improved maternal satisfaction¹, particularly with lower concentrations of local anaesthetic². However, practices vary across Australia. This study evaluates the impact of transitioning to PIEB at MMH on maternal satisfaction, obstetric outcomes, and resource use.

METHODS:

Retrospective audit of MMH public patients who received labour epidurals and completed satisfaction surveys, identified from the Acute Pain Service database. Data was collected for a 3-month period before and after implementation of the PIEB + PCEA regime. Metrics included neuraxial technique (epidural vs. combined spinal-epidural), medication type and volume, pump settings (CEI vs. PIEB), pain management interventions (clinician reviews, boluses, unilateral blocks, catheter repositioning or replacement), bromage score, block height, hypotension, infusion pauses, mode of delivery (MOD) and additional analgesia during caesarean section (CS).

RESULTS:

Outcome	PIB compared with CEI (*10mL PIB, ** all PIB)	p-value
Breakthrough pain	Fewer clinician reviews (8.7%* vs 21.6%)	0.001
	Fewer clinician boluses (7.9%* vs 23.8%)	0.003
Motor block	Lower prevalence of motor block (27%* vs 43%) However paradoxically more likely to birth in recumbent position**	0.015 0.001
High block	Higher prevalence of C or high T block (37%* vs 19%) No difference in hypotension or pausing infusion due to high block	0.009 0.56, 0.44
Mode of delivery	No significant difference in mode of birth	0.50
Efficacy of top-up for CS	No significant difference in need for additional analgesia No significant difference in need for GA	0.38 0.54
Duration of epidural & labour	No significant difference in duration of epidural, 1st stage of labour or 2nd stage of labour	0.19, 0.24, 0.13
Patient satisfaction	Higher satisfaction with analgesia (97%** vs 90% satisfied+) Higher satisfaction with experience (97%** vs 91% satisfied+)	0.005 0.028

DISCUSSION:

The transition to PIEB + PCEA at MMH resulted in improved maternal satisfaction, fewer clinician interventions, and lower motor block rates, while maintaining safety. These findings support PIEB + PCEA as the preferred technique for labour analgesia.

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AUTHORS:

Dr. Sean Morrow, Staff Specialist Anaesthesia, Mater Hospital, South Brisbane, Australia. 4101
Dr. John Riordan, Staff Specialist Anaesthesia, Mater Hospital, South Brisbane, Australia. 4101
Dr. David Mc Donagh, Critical Care Senior House Officer, Mater Hospital, South Brisbane, Australia. 4101.