

Patient Controlled Epidural Analgesia (PCEA) vs Programmed Intermittent Epidural Bolus (PIEB): A retrospective/prospective analysis of epidural analgesia in a Level IV maternal care center.

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Introduction

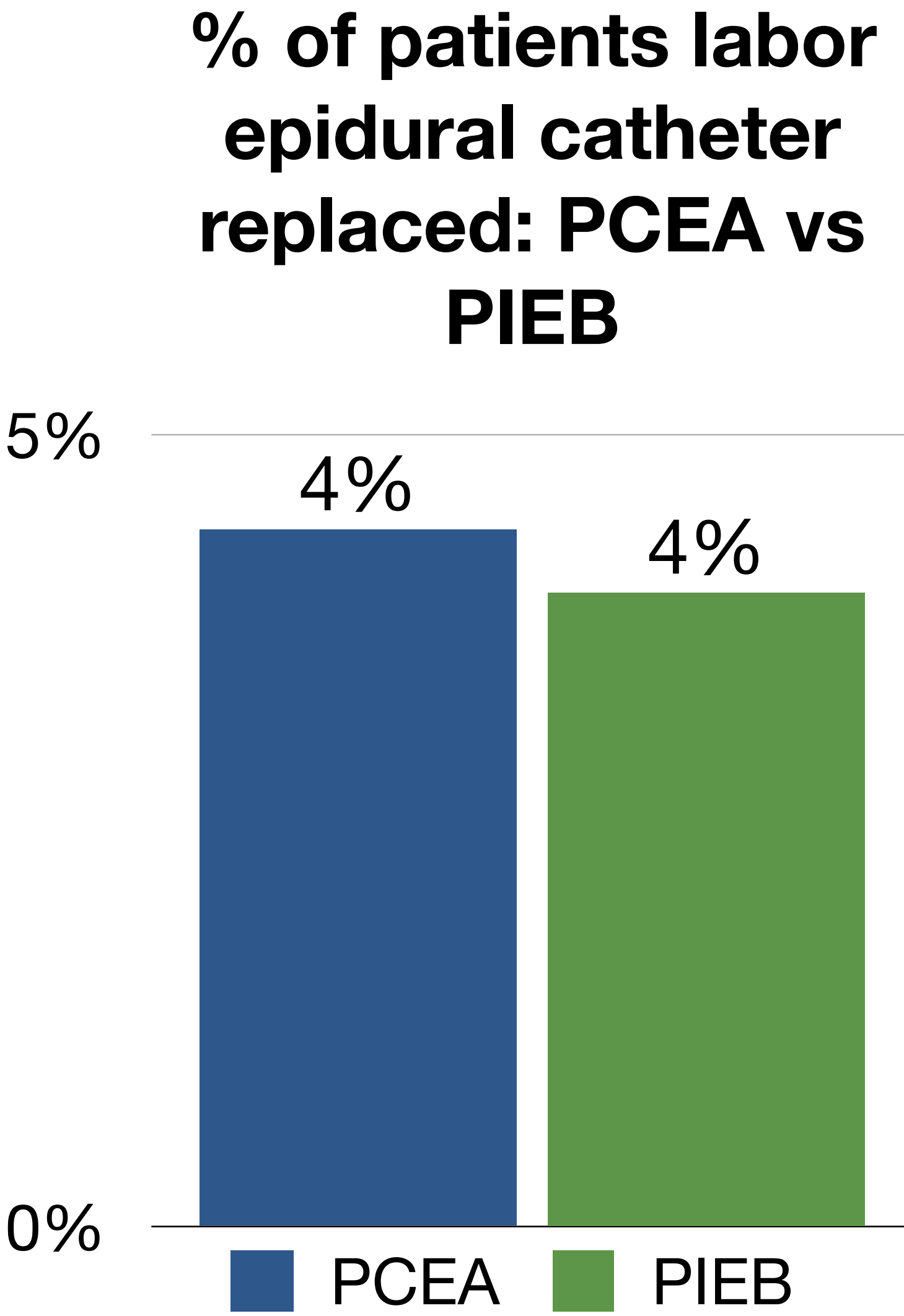
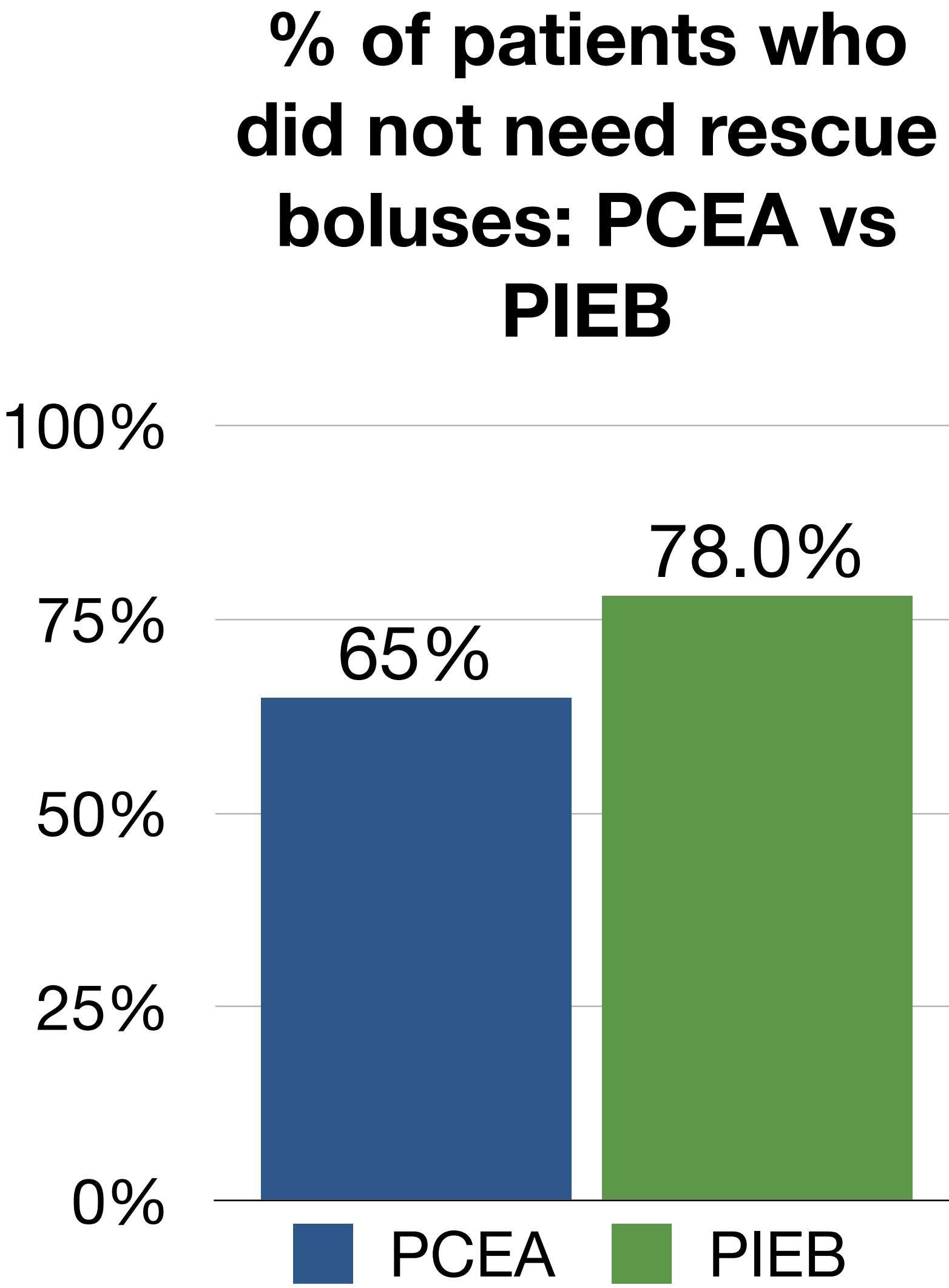
- 2 common modalities for maintenance labor epidural analgesia are PCEA and PIEB.
- PIEB allows for superior distribution of analgesic throughout the epidural space.¹
- Hypothesized patients receiving PIEB would have lower catheter replacement rate and lower number of rescue doses administered

Methods

- Searched EMR for vaginal deliveries who received PCEA between Aug 1, 2021-Dec 31, 2021.
- July 1, 2022: hospital switched from PCEA to PIEB.
- Searched EMR for vaginal deliveries who received PIEB between Aug 1, 2022-Dec 31, 2022.
- Entered demographic and clinical data into REDCap.

Results

	PCEA (N=792)	PIEB (N=665)	P value
Labor analgesic technique			<0.001*
<i>Regular epidural</i>	692 (87.4%)	534 (80.3%)	
<i>Dural puncture epidural</i>	45 (5.7%)	103 (15.5%)	
<i>Combined spinal epidural</i>	55 (6.9%)	28 (4.2%)	
Fentanyl during loading	512 (64.6%)	508 (76.4%)	<0.001*
# of rescue boluses			<0.001*
0	513 (64.8%)	519 (78.0%)	
1	183 (23.1%)	98 (14.7%)	
2	58 (7.3%)	33 (5.0%)	
3	22 (2.8%)	10 (1.5%)	
4	7 (0.9%)	3 (0.5%)	
>4	9 (1.1%)	2 (0.3%)	
Epidural catheter replaced	32 (4.0%)	29 (4.4%)	0.761



- The epidural catheter replacement rate for PCEA (4.4%) and PIEB (4.0%) were similar (p=0.761).
- The odds ratio of a PIEB patient receiving a physician administered rescue analgesia bolus compared to a continuous infusion patient: 0.517 (95% CI 0.409-0.653; p<0.001)

Discussion

- Patients who received PIEB had a 51% reduction in the odds of receiving a physician administered rescue analgesia bolus during labor compared to patients who received PCEA.
- There was no statistical difference in catheter replacement between PCEA and PIEB cohorts.
- Limitations: PIEB cohort had higher rate of labor analgesic techniques that punctured dura and had higher rate of loading with fentanyl.

References

1. Riley ET, Carvalho B. Programmed Intermittent Epidural Boluses (PIEB) for Maintenance of Labor Analgesia: A Superior Technique to Continuous Epidural Infusion? Turk J Anaesthesiol Reanim. 2017 Apr;45(2):65-66.