

SPRING-LOADED VS GLASS EPIDURAL SYRINGE: IMPACT ON LEARNING CURVE AND COMPLICATIONS AMONG NOVICE RESIDENTS

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Introduction

- Proficiency of labor epidural analgesia is a core competency for residents on the obstetric anesthesia rotation
- The learning curve is variable and may be associated with procedural failure and complications

Hypothesis: the use of a spring-loaded epidural syringe, EpiFaith[®], may expedite the learning curve and lower complication rates for epidural placements among novice residents on their first obstetric anesthesia rotation.



Methods

Residents on their first OB Anesthesia rotation with ≤ 5 prior epidural placements

17



17



Structured training using video instruction and hands-on practice

Data collected from 20 sequential epidural placements

Optional survey & gift card

Primary Outcome

Composite Measure of Success:



≤ 3 attempts

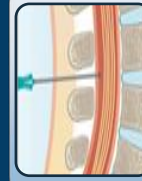


No staff intervention



NRS ≤ 3 at 30 minutes

Secondary Outcomes



Inadvertent dural puncture



Postdural puncture headache

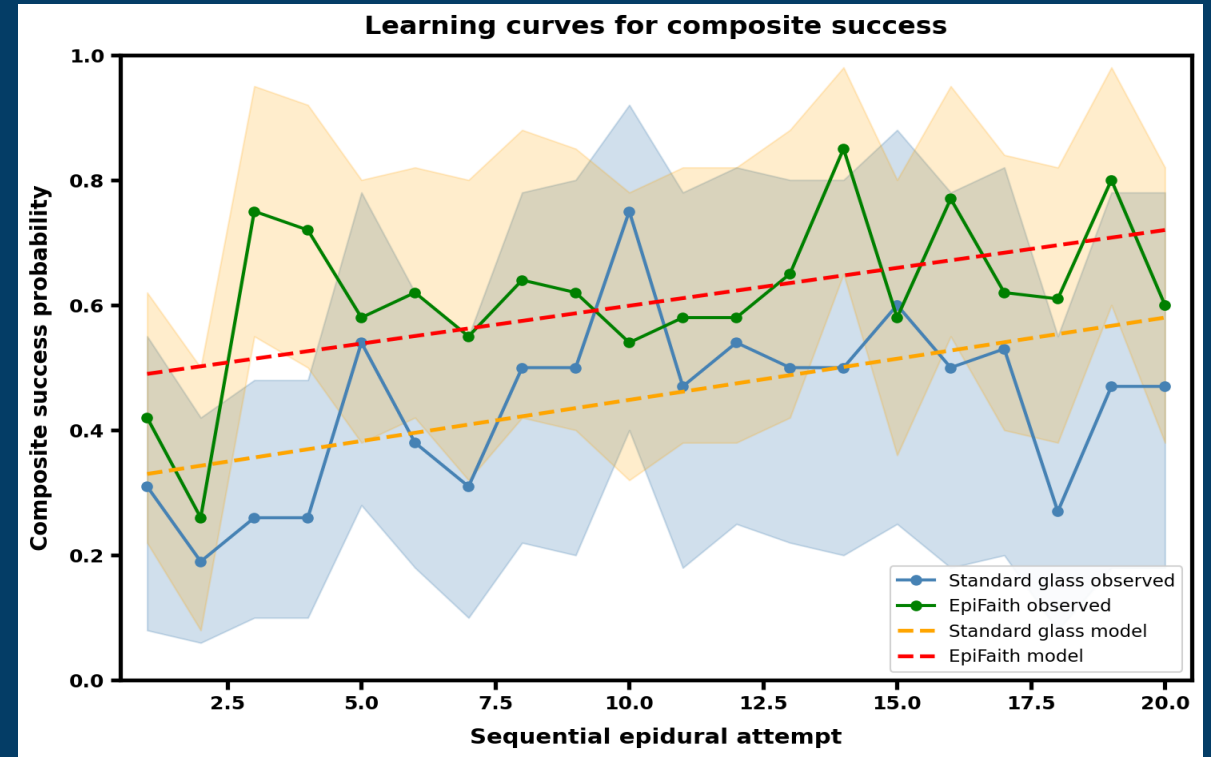


Epidural catheter replacement

Results

Group	Total Placements	Composite Success n(%)	Attempts≤3 n(%)	No Staff Assistance n(%)	Pain≤3 at 30 min n(%)
Glass Syringe (n=16)	323	148 (47.3%)	302 (95.6%)	185 (57.3%)	270 (84.4%)
EpiFaith Syringe (n=13)	261	154 (60.4%)	254 (97.3%)	185 (70.9%)	217 (85.1%)

Group	Total Placements	Composite Success n(%)	IDP n(%)	PDPH n(%)	Catheter Replacement n(%)
Glass Syringe (n=16)	323	304 (94.1%)	11 (3.4%)	5 (1.5%)	9 (2.8%)
EpiFaith Syringe (n=13)	261	248 (95%)	4 (1.5%)	3 (1.1%)	7 (2.7%)



Resident survey comments

"I think that the EpiFaith was a great way to learn how to do epidurals because the loss of resistance is visual and the observer can clearly see if you have loss."

"All in all, I greatly enjoyed using the EpiFaith and feel that it is a superior way to learn how to do epidurals because the feedback that you are in the epidural space is obvious and visual."

"I found that the false loss was more annoying in large patients where it was more likely to still be in adipose tissue instead of ligament, because continually losing small volumes of saline into the subcutaneous tissue means that you have to more frequently refill the EpiFaith syringe with saline..."

Conclusions



Compared to a standard glass epidural syringe, the EpiFaith[®] syringe was associated with higher composite success and lower IDP rates among novice trainees performing labor epidurals.



While the CUSUM analysis of the learning curve demonstrated better overall performance with the EpiFaith[®] syringe, there was less impact on the rate of learning over time.



Residents reported confidence and efficiency when using the EpiFaith[®], with possible reduced utility if multiple needle redirections were needed in patients with higher BMIs.