



Providence Inland Northwest Washington
Region

Continuous labor epidural placement trends among parturients

An evidence-based practice project

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Background

Background

Childbirth is very common

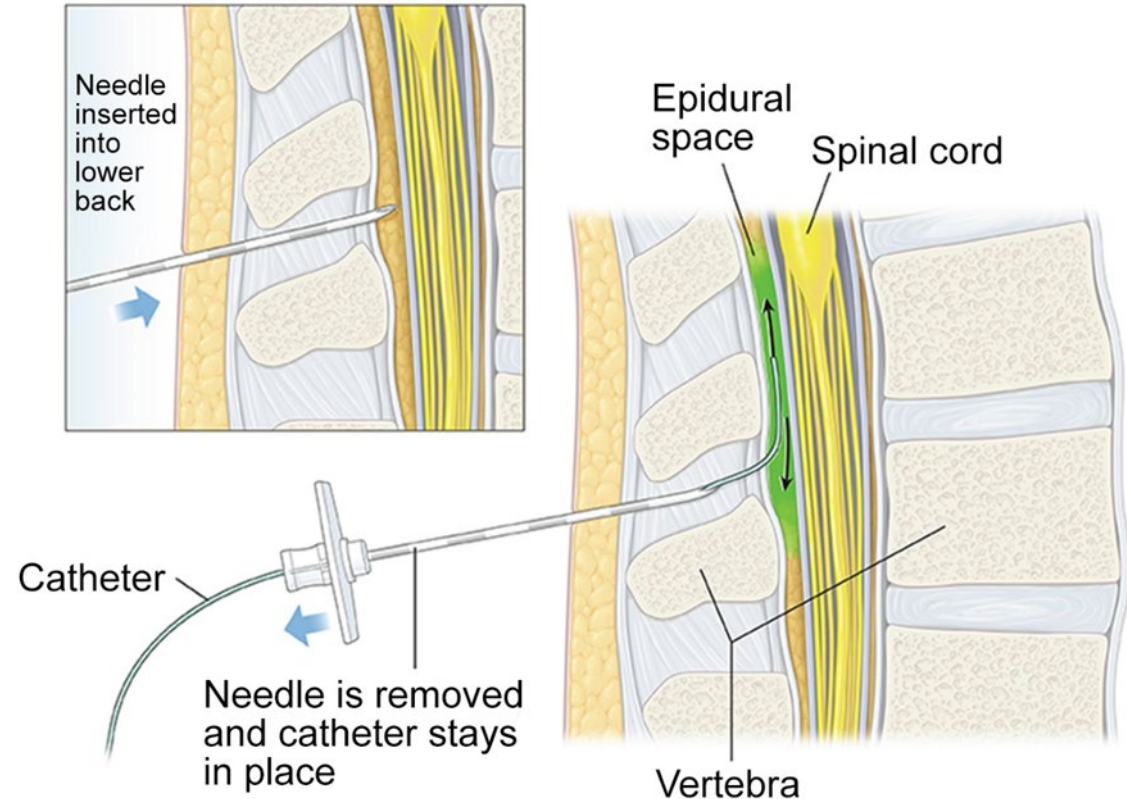
- An estimated 480 babies are born world-wide every minute!
- Woman may undergo spontaneous labor or have a scheduled induction
 - Reasons for scheduled labor include:
 - Post-term pregnancy
 - Maternal hypertension or diabetes
 - Placental abruption
 - Fetal growth restriction



Background

The laboring process is acutely painful

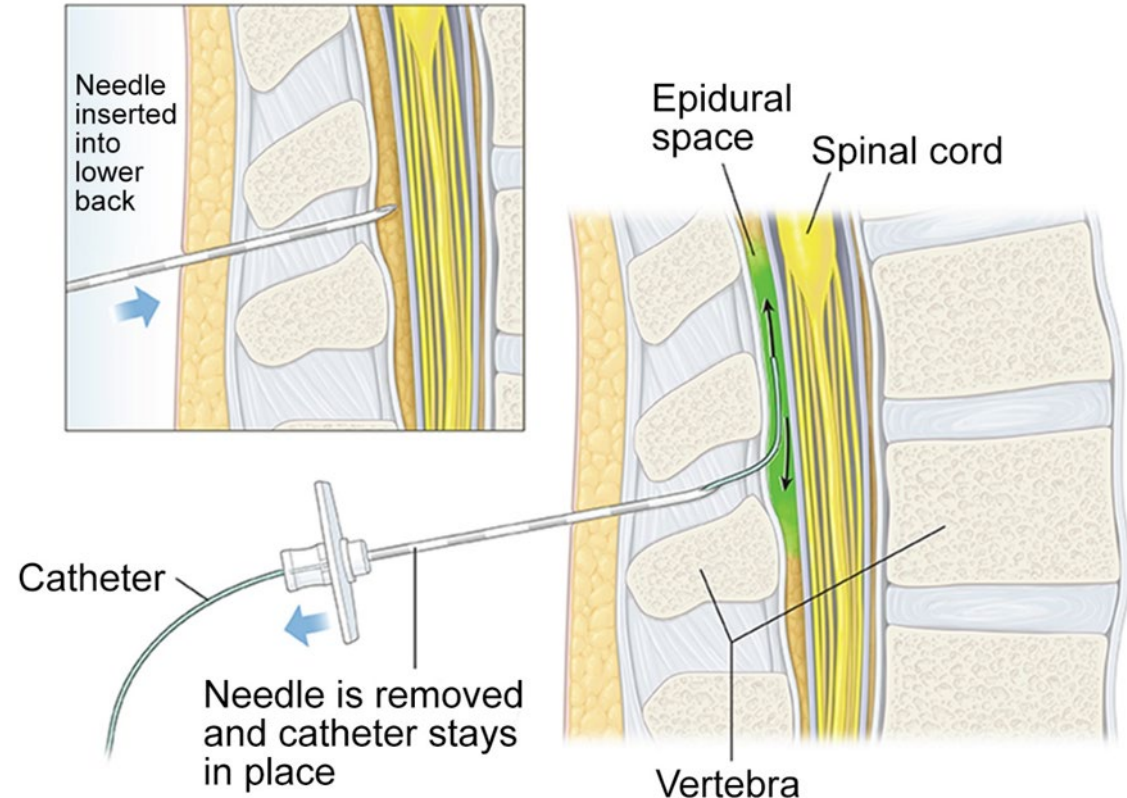
- Many options are available to alleviate suffering during labor
 - Breathing exercises, analgesics, positioning, distraction, epidural use
- Continuous Labor Epidurals (CLE) are the gold standard for pain relief and are commonly use



Background

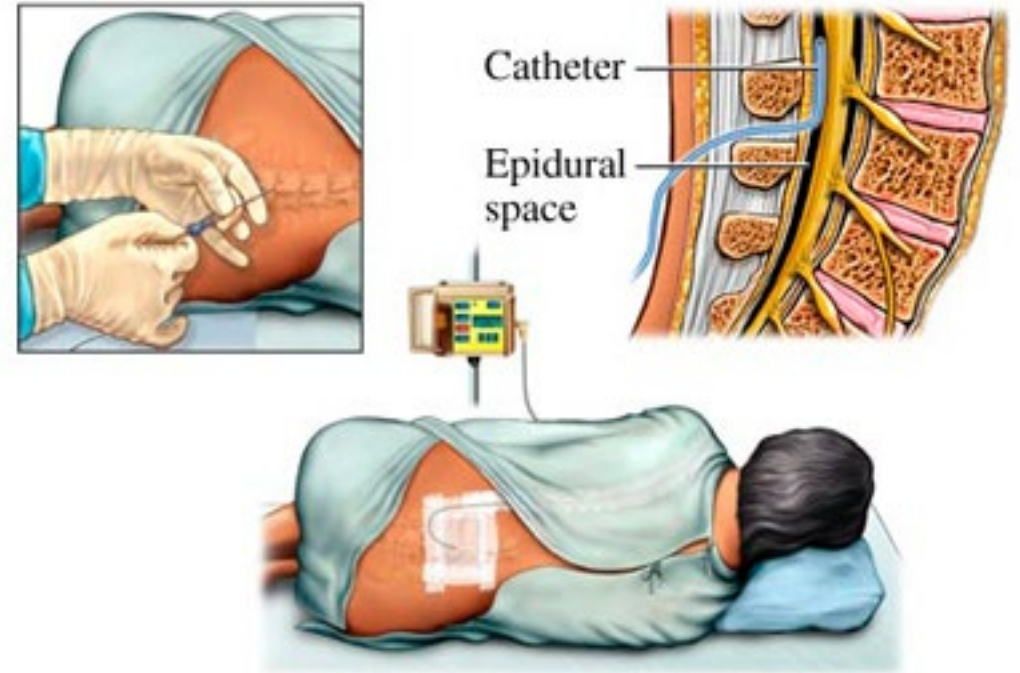
The laboring process is acutely painful

- Rate of neuraxial analgesia use among laboring women has increased to 71% in recent years (Butwick 2018)
- Best practice guidelines: a laboring woman can have an epidural placed as soon as one is requested
- The rate of CLE use, time-to-placement, and associated factors are unknown in two hospitals in Eastern Washington



Purpose

Describe labor epidural placement trends between 2014 – 2020 among women admitted for scheduled induction or spontaneous labor at two hospitals in Eastern WA



Methods

Retrospective Data Extraction

Interdisciplinary approach

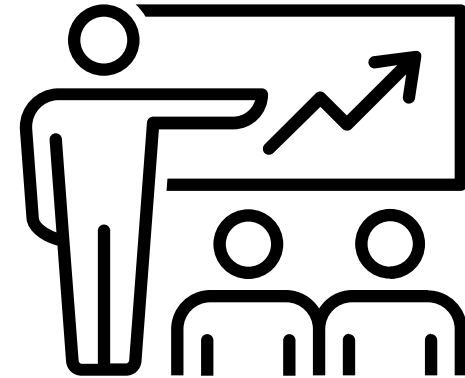
Nurse Anesthetists, Nurse Scientist, and Data Scientists formed a team to answer the question

- Data extraction from electronic health record guided by detailed, evidence-informed protocol
- Data cases were included if:
 - 18 years or older on admission
 - Admitted to one of two hospitals in E WA between 2014 – 2020 for live birth
- Excluded if:
 - Fetal demise
 - Scheduled C-section



Data Points Extracted

- Maternal Age
- Maternal BMI
- Gravida
- Parity
- Scheduled induction flag
- Gestational age
- Amniotomy
- CLE placement flag
- Time from admission to CLE placement
- Time from admission to birth
- Unscheduled C-section flag



Data Analysis

Primary Outcome

- Rate of CLE placement

Secondary Outcomes

- Time to CLE placement from admission
- Factors influencing CLE placement

Univariate

- Frequency Distributions on Categorical Variables
- Descriptive Statistics on Continuous Data

Bivariate

- T-tests
- Mann Whitney U
- Chi Tests

Multivariate

- Kaplan Meier – Time from admission to epidural placement

Results

Demographics

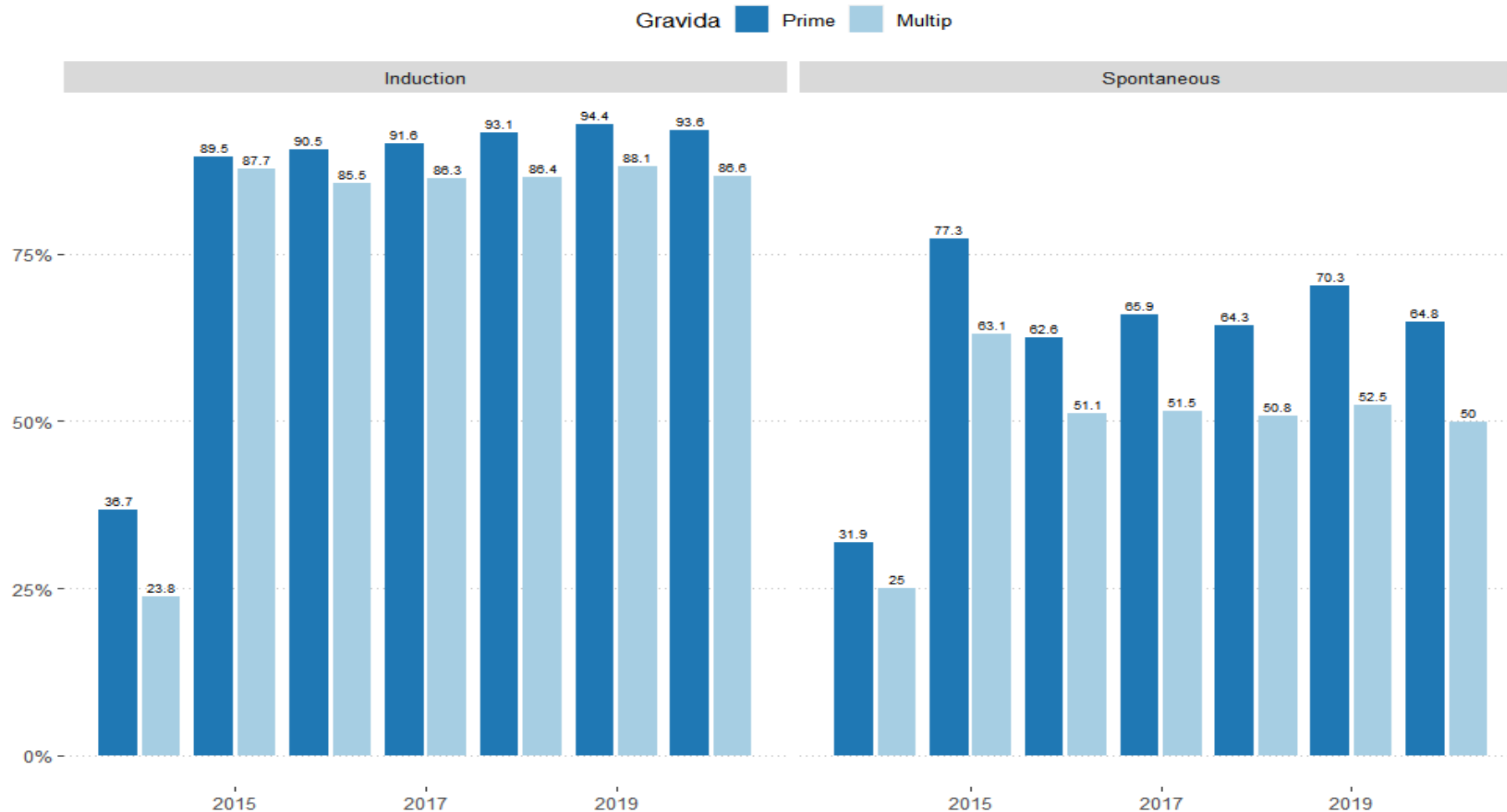
	Spontaneous Labor/Nonscheduled (n=14,229)	Scheduled Induction (n=5767)	p-value
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	
Maternal Age (years)	28.8 (5.34)	28.8 (5.32)	0.682
	<i>Median (IQR)</i>	<i>Median (IQR)</i>	
Maternal BMI (kg/m²)	30.6 (27.3 - 34.0)	30.9 (28.3 - 35.5)	<0.001
Gestation (weeks)	39.2 (38.1 - 40.0)	39.4 (39.0 - 40.1)	<0.001
Time from Admission to Birth (hours)	15.4 (11.2 - 21.8)	21.6 (17.2 - 28.4)	<0.001

Demographics Continued

	Spontaneous Labor/Nonscheduled (n=14,229) N(%)	Scheduled Induction (n=5767) N (%)	p-value
CLE placement	7,328 (51.5)	5,005 (86.8)	<0.001
Gravida			0.068
1	4,057 (28.5)	1,732 (30.0)	
2	4,057 (28.5)	1,551 (26.9)	
3	2,700 (19.0)	1,097 (19.0)	
4+	3,415 (24.0)	1,387 (24.1)	
Amniotomy	3,771 (26.5)	3,322 (57.6)	<0.001
Unscheduled C-section	2,191 (15.4)	185 (3.2)	<0.001

Percent CLE Use from 2014 through 2022 by Gravida

Percent CLE Use from 2014 through 2022 by Gravida



Time to placement for Spontaneous Labor vs Scheduled Induction

Time from admission to CLE in hours

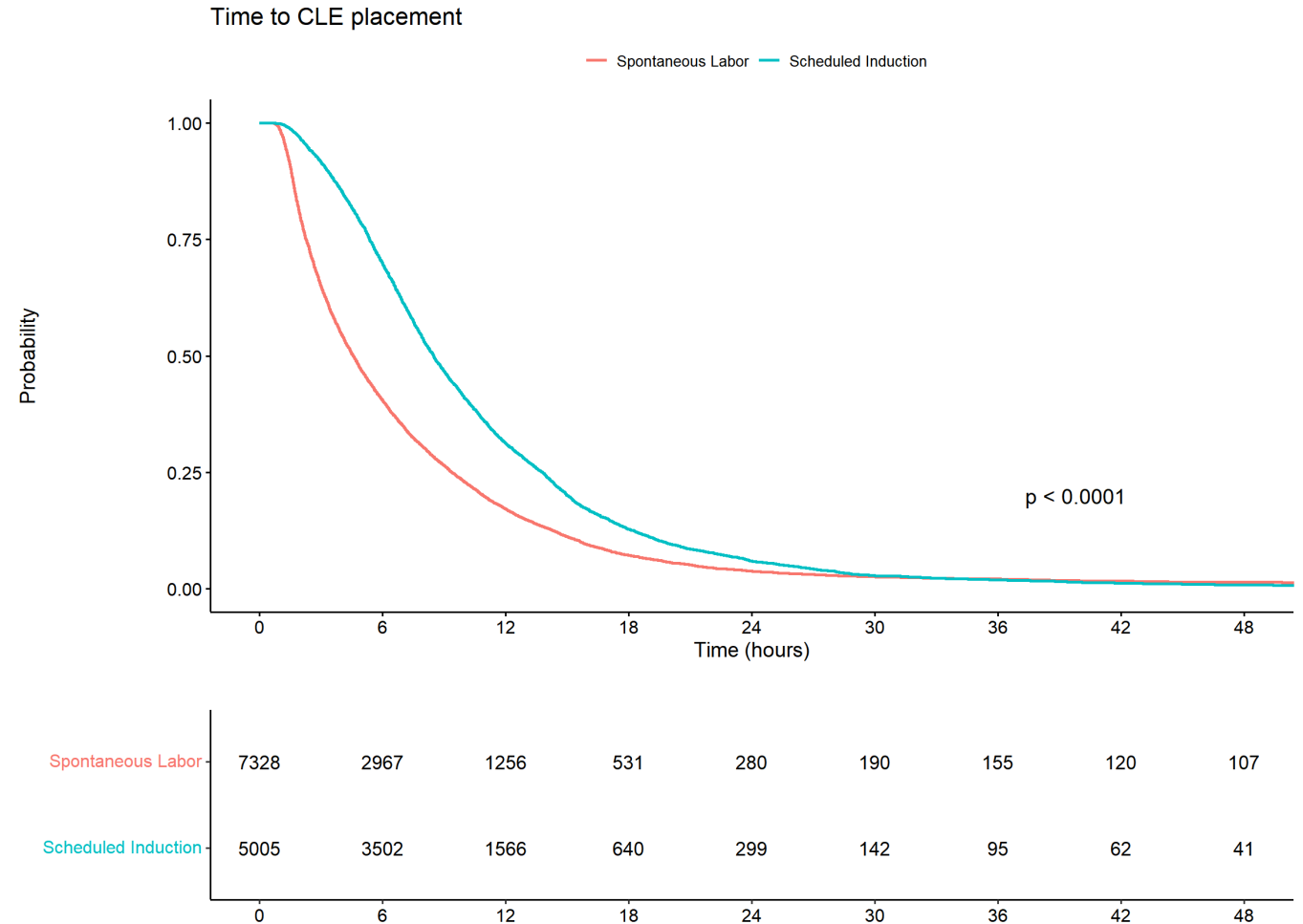
Spontaneous Labor

- **4.56 (2.27 - 9.38)**

Scheduled Induction

- **8.48 (5.37 - 13.8)**

P value <0.0001



Discussion

CLEs were prominent and placed quickly

Spontaneous labor patients received CLE more quickly

- Patients with spontaneous labor arrive in pain and are admitted if appearing to be sufficiently dilated
- Patients with scheduled induction are not likely in active labor, thus needing medical intervention to force the body into labor

CLE's placed most often during day shift hours

- Increased anesthesia provider staff on day shifts may play a role

CLE's more prevalent among primiparous versus multiparous patients

- Labor is often longer among primiparous patients
- Longer labor may contribute to more pain and more time to place a CLE if one is desired

Implications for Practice

Nurses pledge to alleviate suffering



Next Steps

Quality Improvement Projects

- Assess anesthesia provider scheduling especially when scheduled induction cases are high
- Educate nurses and anesthesia staff that patients may have an epidural as soon as requested when admitted for labor
- Implement campaign to ensure patients are offered evidence-based pain management strategies to alleviate labor-related pain
- Investigate ways to document when a patient declines to have a CLE



Continued Data Evaluation

- Extract data to ensure ongoing time-to-placement trends for CLE
- Investigate proportion of cases where epidural is requested, indicated, and delivered over time
- Assess patient-level data such as satisfaction with care as quality improvement projects are put in place

Thank you

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