

Frequency of Adherence to Obstetric Anesthesia Best Practices for Cesarean Delivery: *A Multicenter Retrospective Cohort Analysis*

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*No disclosures

Background

PRACTICE PARAMETERS

Practice Guidelines for Obstetric Anesthesia

An Updated Report by the American Society of Anesthesiologists Task Force on Obstetric Anesthesia and the Society for Obstetric Anesthesia and Perinatology



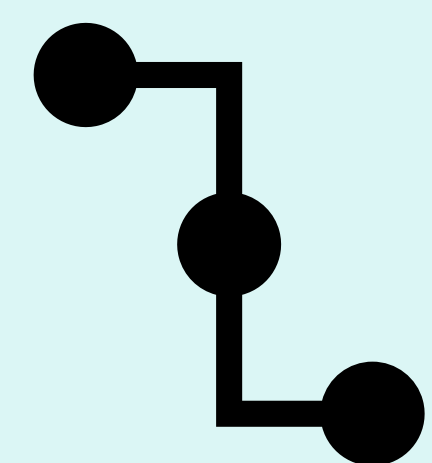
SOCIETY FOR OBSTETRIC
ANESTHESIA AND PERINATOLOGY

**CENTER of
EXCELLENCE**

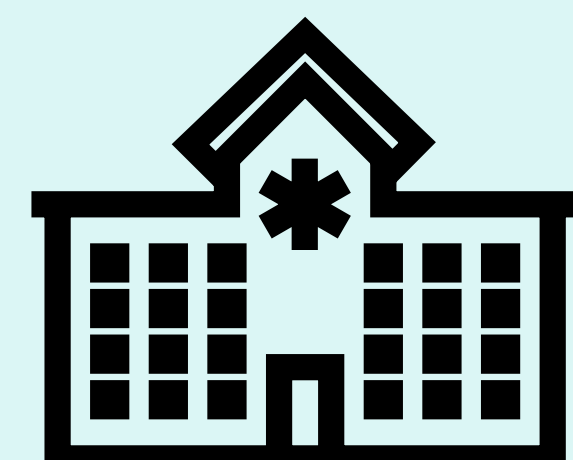
Aims:



Estimate **adherence** to guidelines for cesarean delivery






Estimate **association** with case- and hospital-level factors



Estimate **variability** due to case, anesthesiologist, and hospital

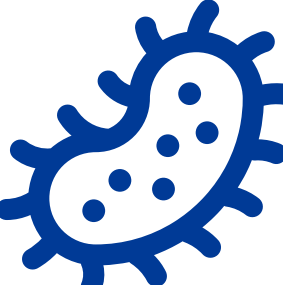
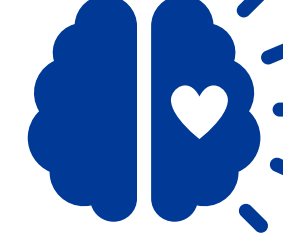

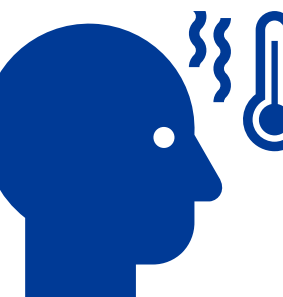

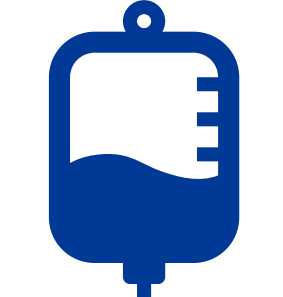

Methods

Inclusion Criteria

-  All cesarean deliveries at MPOG sites
-  January 2015 to December 2022
-  Ages 15 to 44



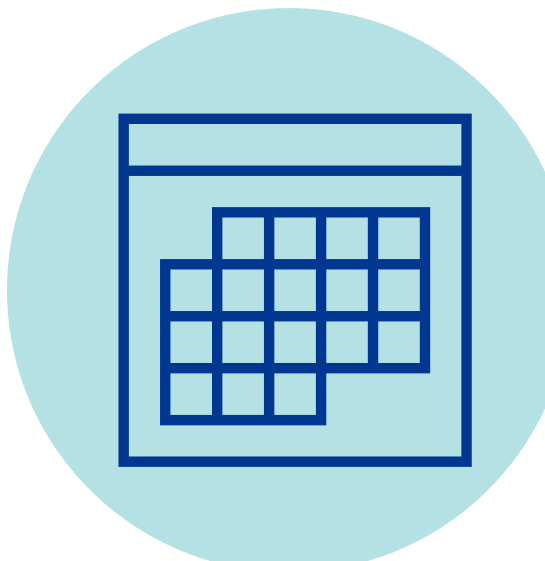
“Best Practices”

-  Timely antibiotic administration
-  Maintenance of SBP > 90 mmHg
-  Avoidance of general anesthesia
-  Hypothermia prevention
-  Low-dose neuraxial morphine
-  Post-spinal phenylephrine infusion
-  Use of 25G (or smaller) spinal needle

Results



Total CDs: **289,047**



Average Age: **31**



Average Deliveries: **1,377**

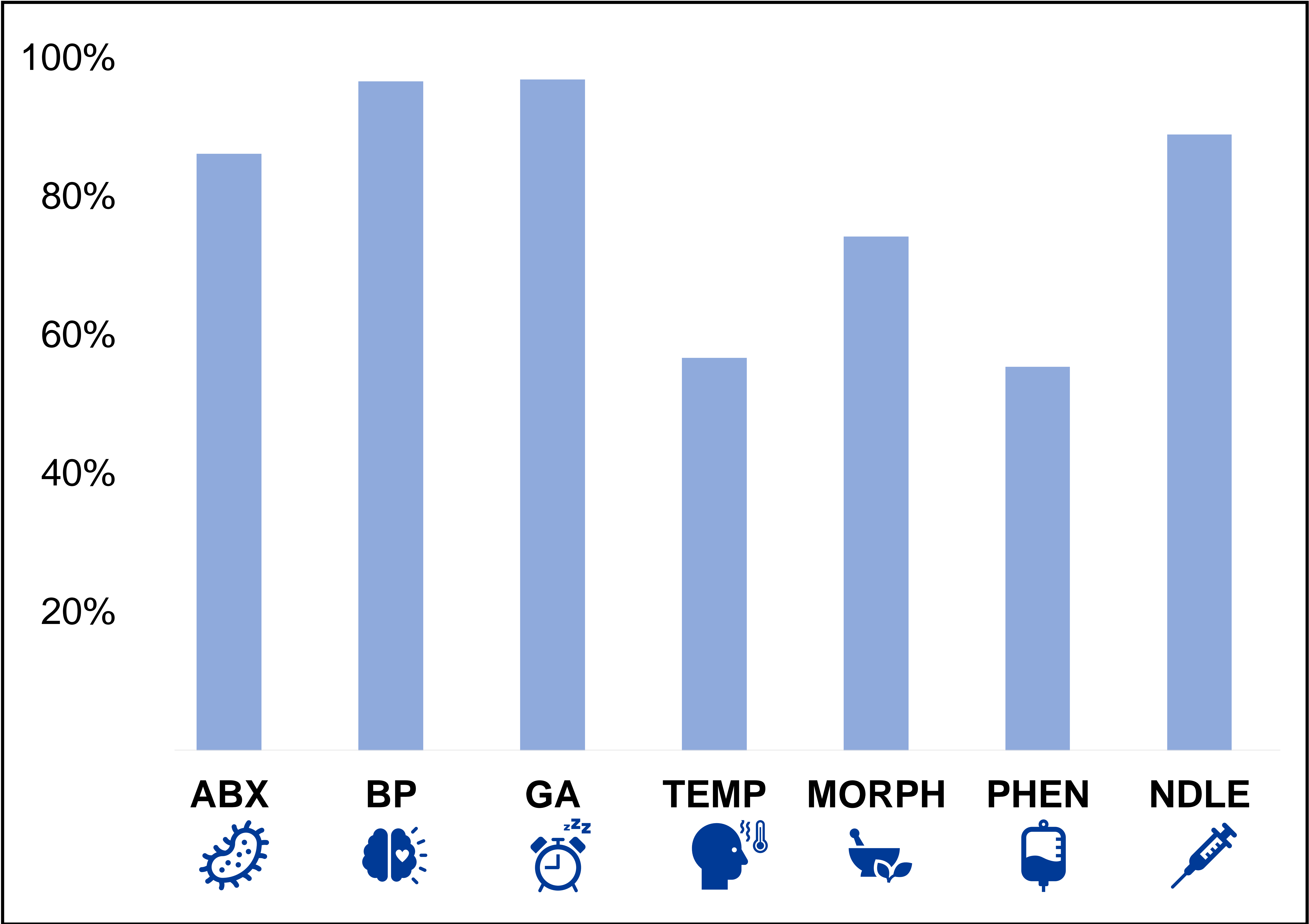


CDs at Hospitals with
OB Anes Fellowship: **86,713**



CDs at Hospitals with
COE Status: **141,455**

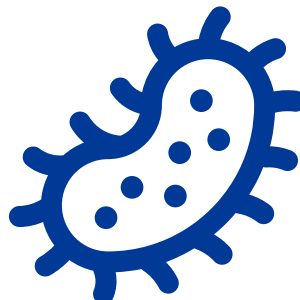


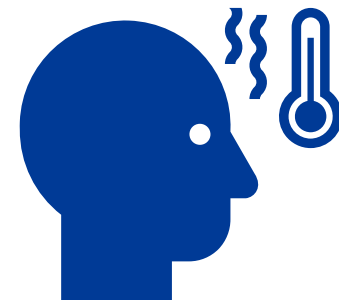



Rates of Adherence



Abbreviations: CD: Cesarean delivery; OB: Obstetric; COE: Centers of Excellence; ABX: Timely antibiotics; BP: Hypotension avoidance; GA: General anesthesia avoidance; TEMP: Hypothermia avoidance; MORPH: Low-dose neuraxial morphine; PHEN: Post-spinal phenylephrine infusion; NDLE: Spinal needle ≥ 25 gauge

Results

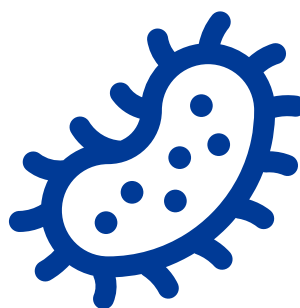


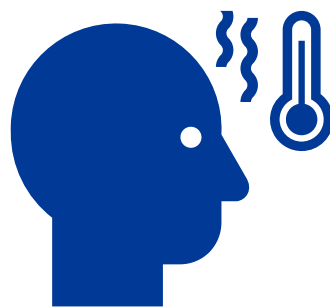




Adherence Odds Ratios

	 ABX	 BP	 GA	 TEMP	 MORPH	 PHEN	 NDLE
Race (Reference White)							
Black	0.99	<u>0.85</u>	<u>0.85</u>	<u>0.88</u>	1.03	1.03	0.90
Asian and PI	1.04	0.95	1.14	1.04	<u>1.22</u>	<u>1.09</u>	1.02
Body Mass Index (Reference BMI < 30 kg/m ²)							
BMI 35-40	<u>1.10</u>	<u>0.90</u>	<u>1.28</u>	<u>1.09</u>	0.98	0.98	0.86
BMI 40+	<u>1.08</u>	<u>0.70</u>	<u>1.37</u>	<u>1.12</u>	0.96	1.01	<u>0.37</u>
American Society of Anesthesiologists Physical Status (Reference ASA PS 2)							
ASA PS 3	0.97	1.01	<u>0.77</u>	<u>0.95</u>	0.99	<u>1.15</u>	0.86
ASA PS 4+	<u>0.59</u>	0.78	<u>0.39</u>	<u>0.77</u>	0.97	<u>1.41</u>	<u>0.39</u>

**** Underlined values are statistically significant**

Results

Adherence Odds Ratios

	 ABX	 BP	 GA	 TEMP	 MORPH	 PHEN	 NDLE
Time of Day (Reference Day Cases)							
Evening	<u>0.87</u>	<u>1.12</u>	<u>0.81</u>	1.01	<u>1.08</u>	<u>0.60</u>	0.94
Overnight	<u>0.82</u>	<u>1.14</u>	<u>0.78</u>	1.01	<u>1.10</u>	<u>0.44</u>	<u>0.80</u>
Annual Volume (Per 1,000 Additional Patients who Delivered)							
Annual Volume	<u>1.49</u>	1.00	<u>1.35</u>	<u>0.38</u>	<u>2.00</u>	<u>2.70</u>	<u>4.90</u>
Institution Characteristics (Reference “No”)							
OB Fellowship	1.00	<u>1.26</u>	0.84	1.15	<u>1.49</u>	<u>4.40</u>	<u>7.10</u>
 COE Status	<u>1.18</u>	<u>1.19</u>	<u>1.45</u>	1.00	<u>4.89</u>	0.78	<u>0.14</u>

**** Underlined values are statistically significant**




Image created with Google AI, Gemini 2.0



Full Results

Results

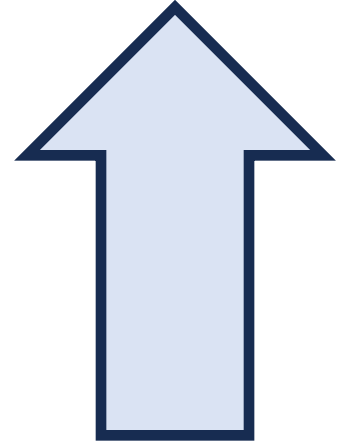
“Perfect” Adherence

Characteristic	7 out of 7 Adherence
BMI 40+	<u>0.73</u>
Black Race	<u>0.68</u>
Evening Case	<u>0.63</u>
Overnight Case	<u>0.42</u>
Annual Volume	2.70
OB Fellowship	24.2
 COE Status*	<u>10.1</u>

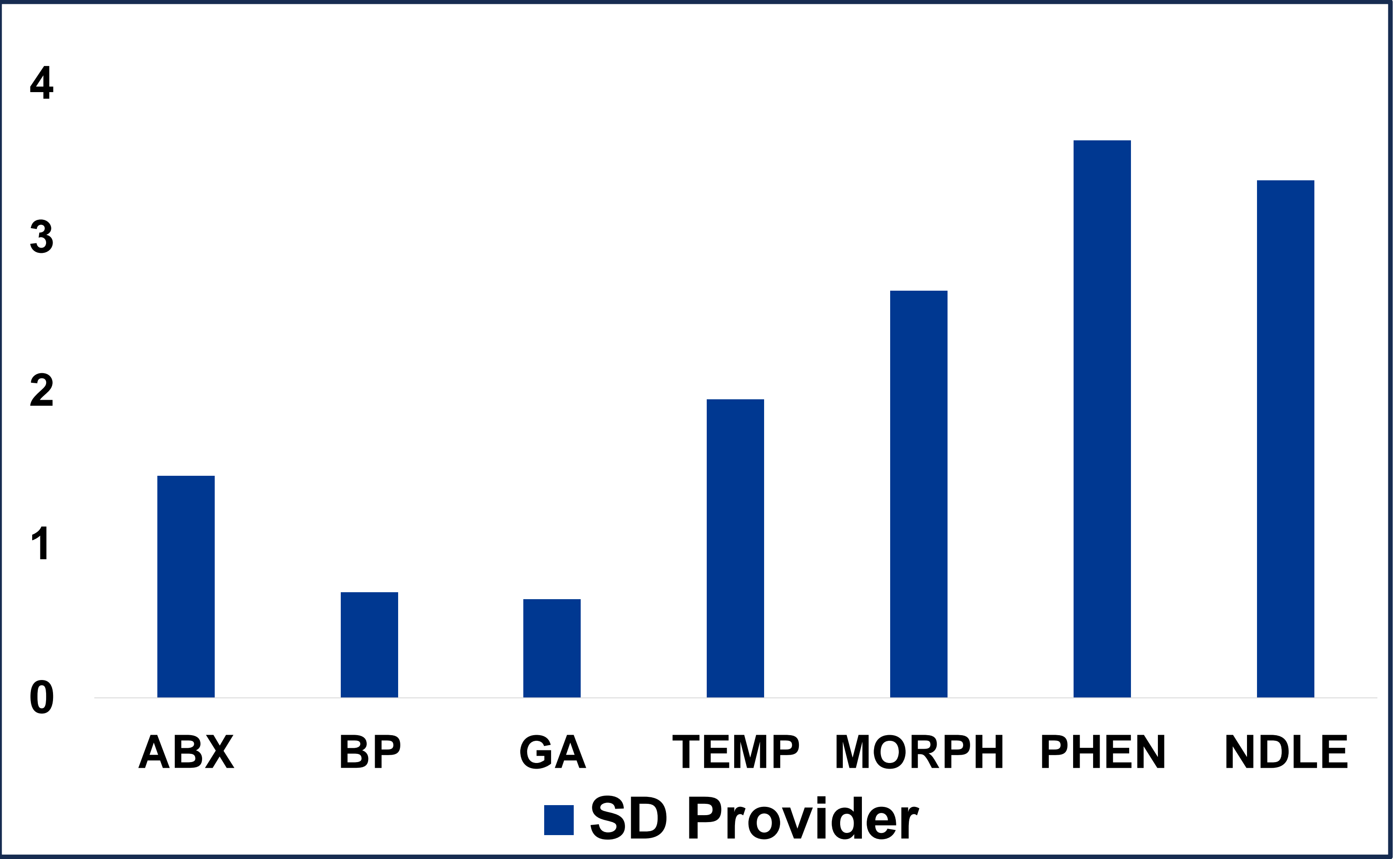
* Out of 3,541 total CDs

Model Goodness of Fit

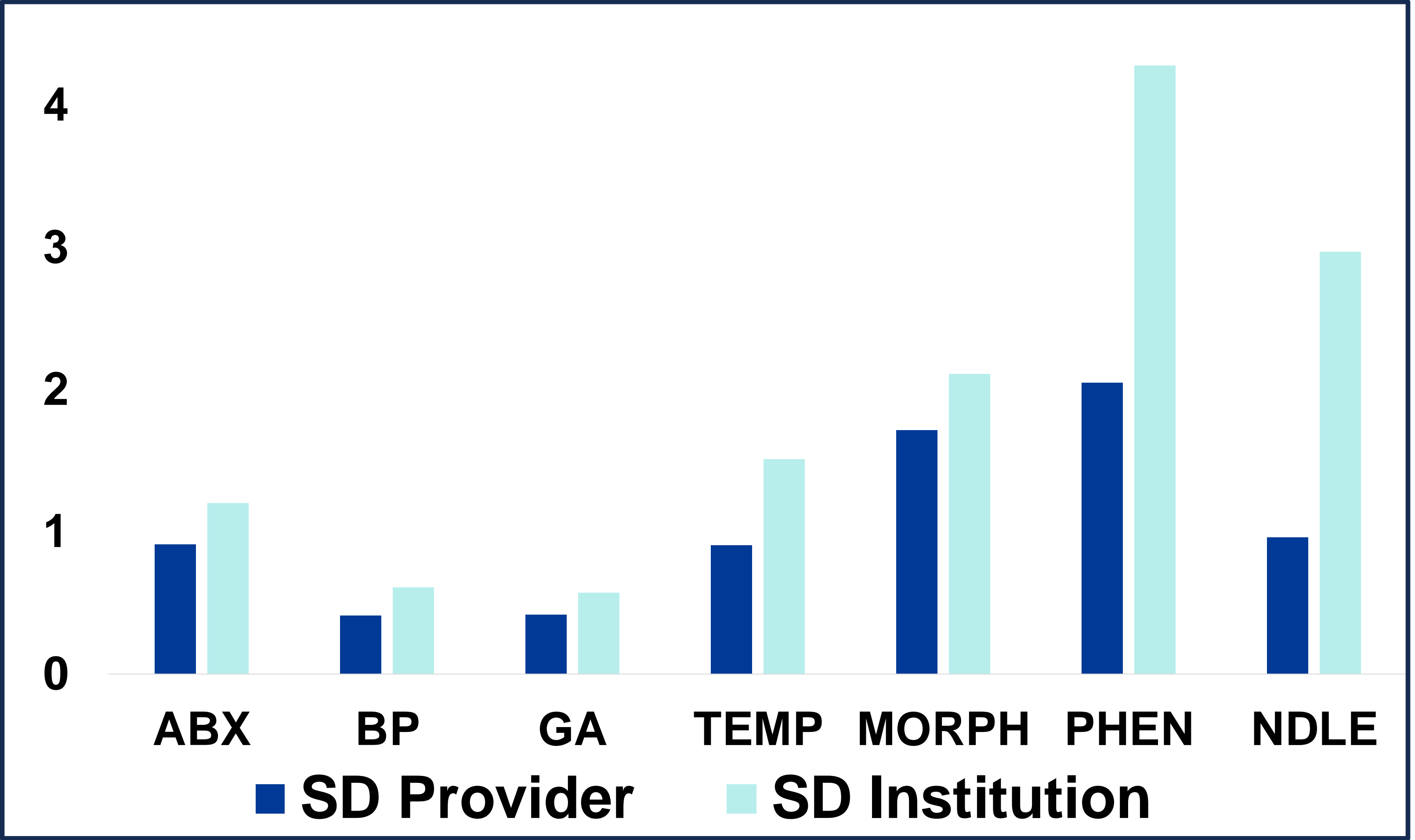
Best Practice	Fixed Effects R ²	Provider Nested R ²	Full Nested R ²
ABX	0.08	0.44	0.45
BP	0.02	0.16	0.17
GA	0.06	0.20	0.22
TEMP	0.18	0.60	0.54
MORPH	0.22	0.74	0.75
PHEN	0.25	0.83	0.89
NDLE	0.14	0.80	0.77



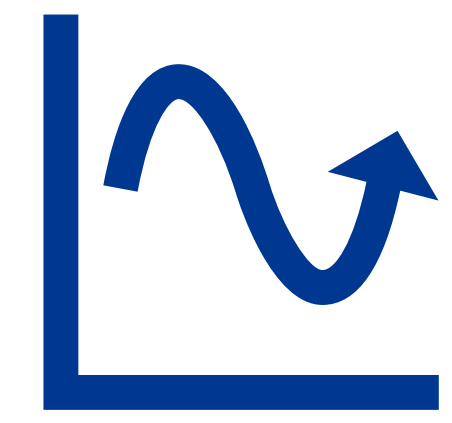
Provider-Nested Model



Full-Nested Model



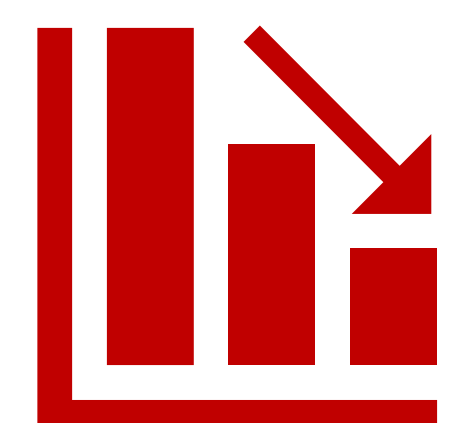
Conclusions



Overall adherence to obstetric anesthesia “best practices” was variable



Factors associated with **improved adherence**: higher volume, OB fellowships, and COE status



Factors associated with **decreased adherence**: race, ASA physical status, and time of cesarean delivery

Future Directions

- Mixed effects model with fellowship-trained anesthesiologists
- Additional cesarean delivery “best practices”
- Vaginal delivery “best practices”

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References

