Lessons Learned from Michigan's Obstetric Initiative (OBI): Promoting Vaginal Birth and Birth Equity

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ILPQC
Illinois Perinatal Quality Collaborative

Obstetrics Initiative: Safe reduction of primary cesareans and improved quality of maternity care in Michigan

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Obstetrics Initiative

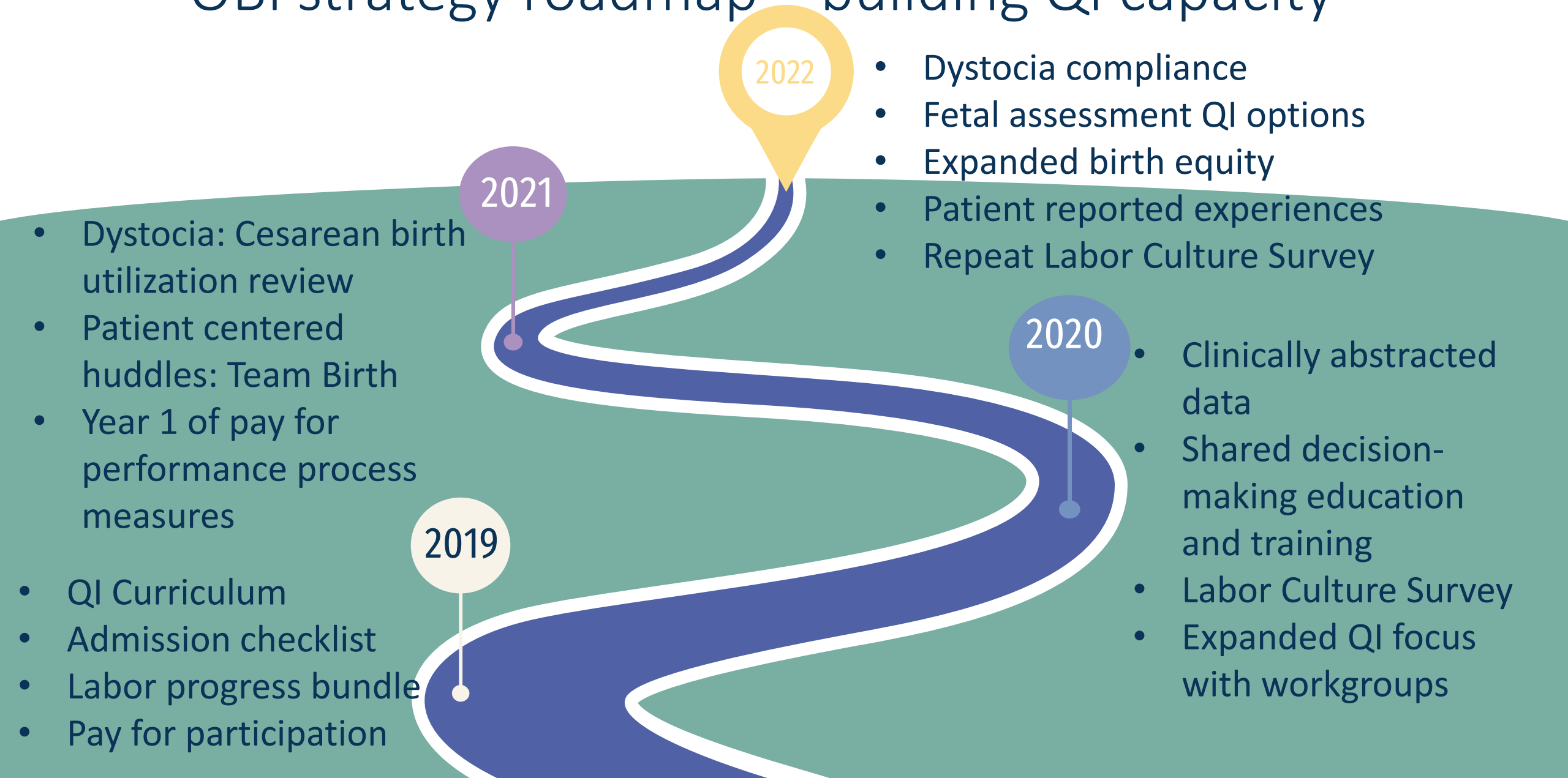
OBI Quality Improvement Pathway

Reduce variation in NTSV Cesarean Birth Rates across the Collaborative by Optimizing Evidence Based Practices:

Translating Evidence into Practice

- Stair step approach to introduce QI
  - 2020: Focus on dystocia as key literature and data based reason for NTSV Cesarean
  - 2021: Incorporated process measures to support implementation of measures to address dystocia
  - 2022: Extending the metrics to include a planned outcome measure for dystocia diagnosis

OBI strategy roadmap – building QI capacity



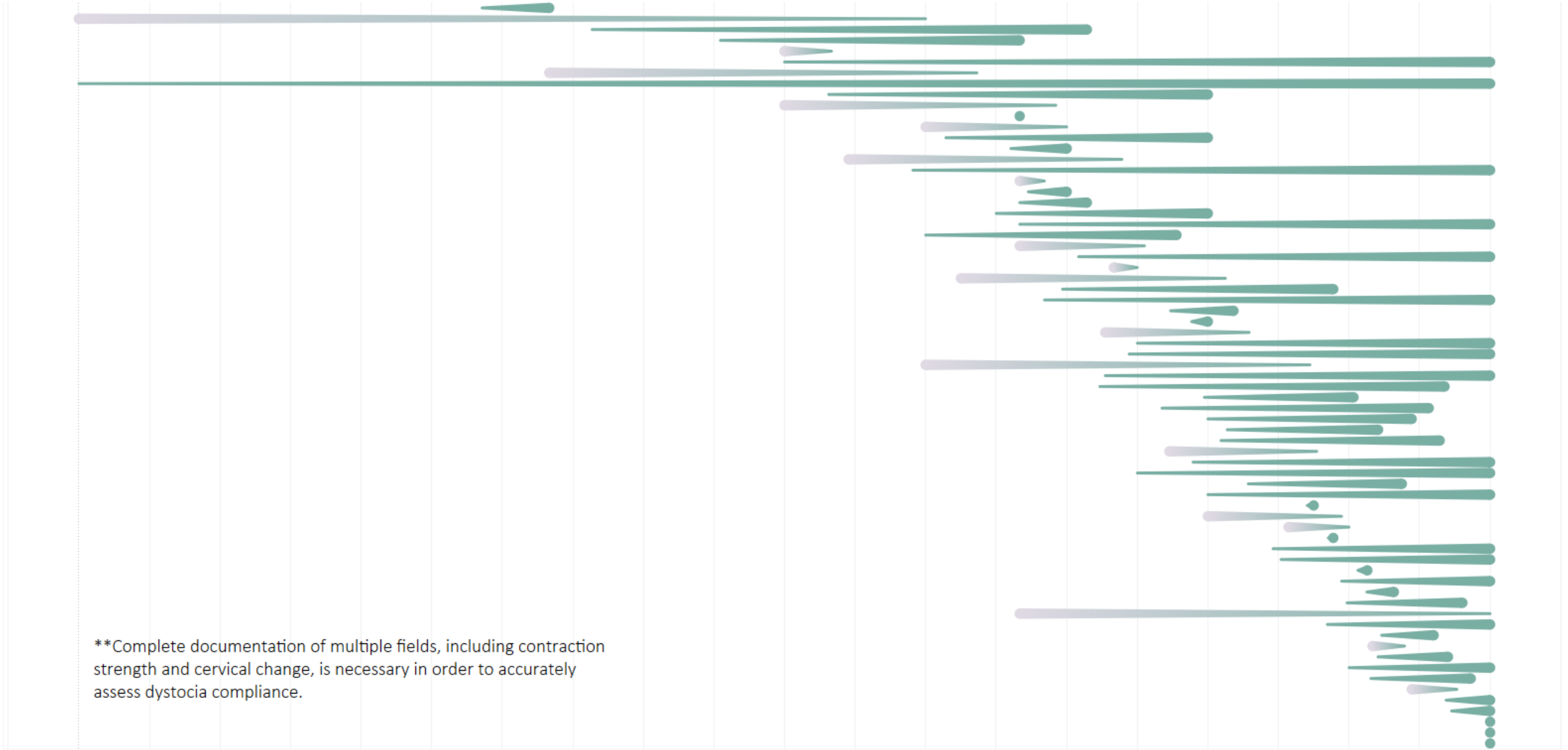
- Dystocia compliance
- Fetal assessment QI options
- Expanded birth equity
- Patient reported experiences
- Repeat Labor Culture Survey

- Dystocia: Cesarean birth utilization review
- Patient centered huddles: Team Birth
- Year 1 of pay for performance process measures

- Clinically abstracted data
- Shared decision-making education and training
- Labor Culture Survey
- Expanded QI focus with workgroups

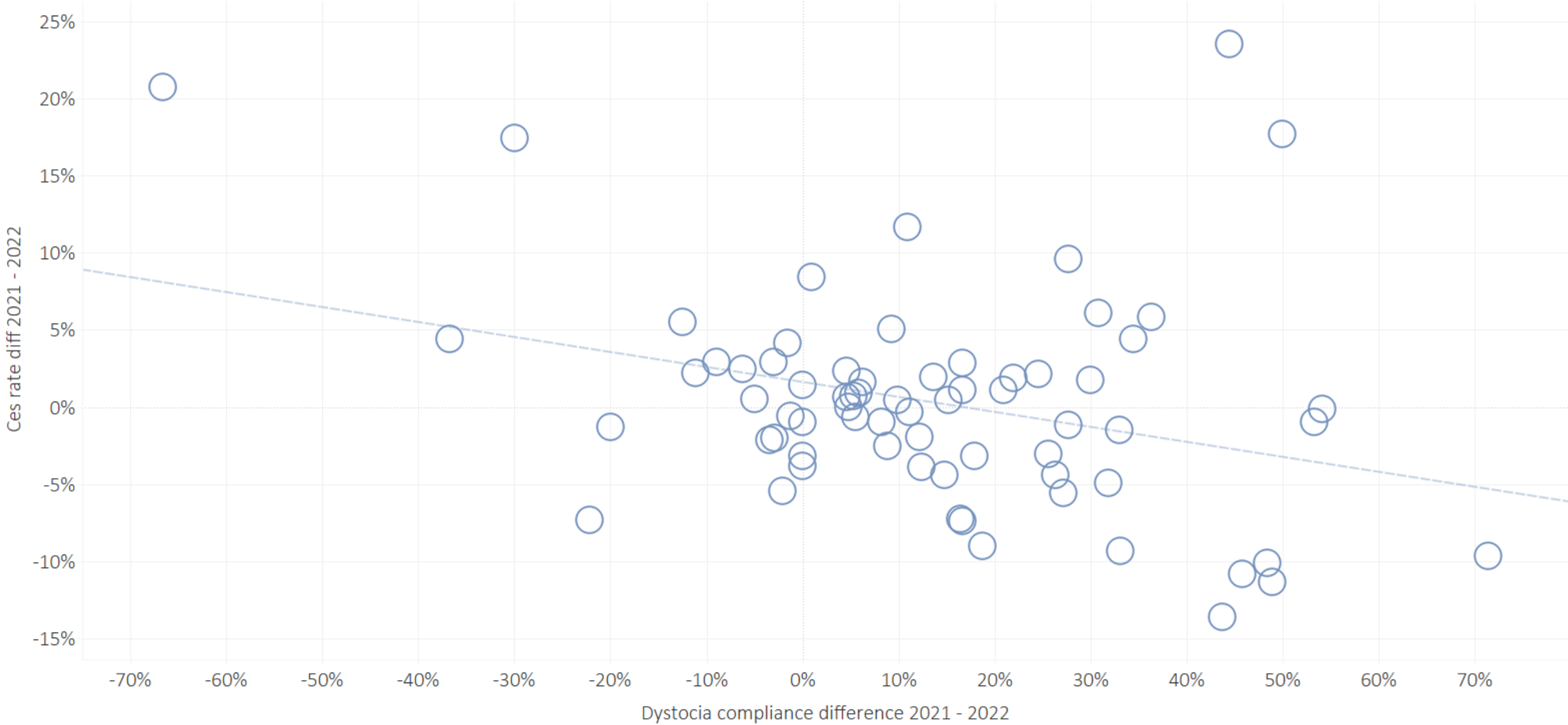
- QI Curriculum
- Admission checklist
- Labor progress bundle
- Pay for participation

The vast majority of sites improved their dystocia documentation between 2021 and 2022.



Includes complete cases 1/1/2021 - 6/17/2022

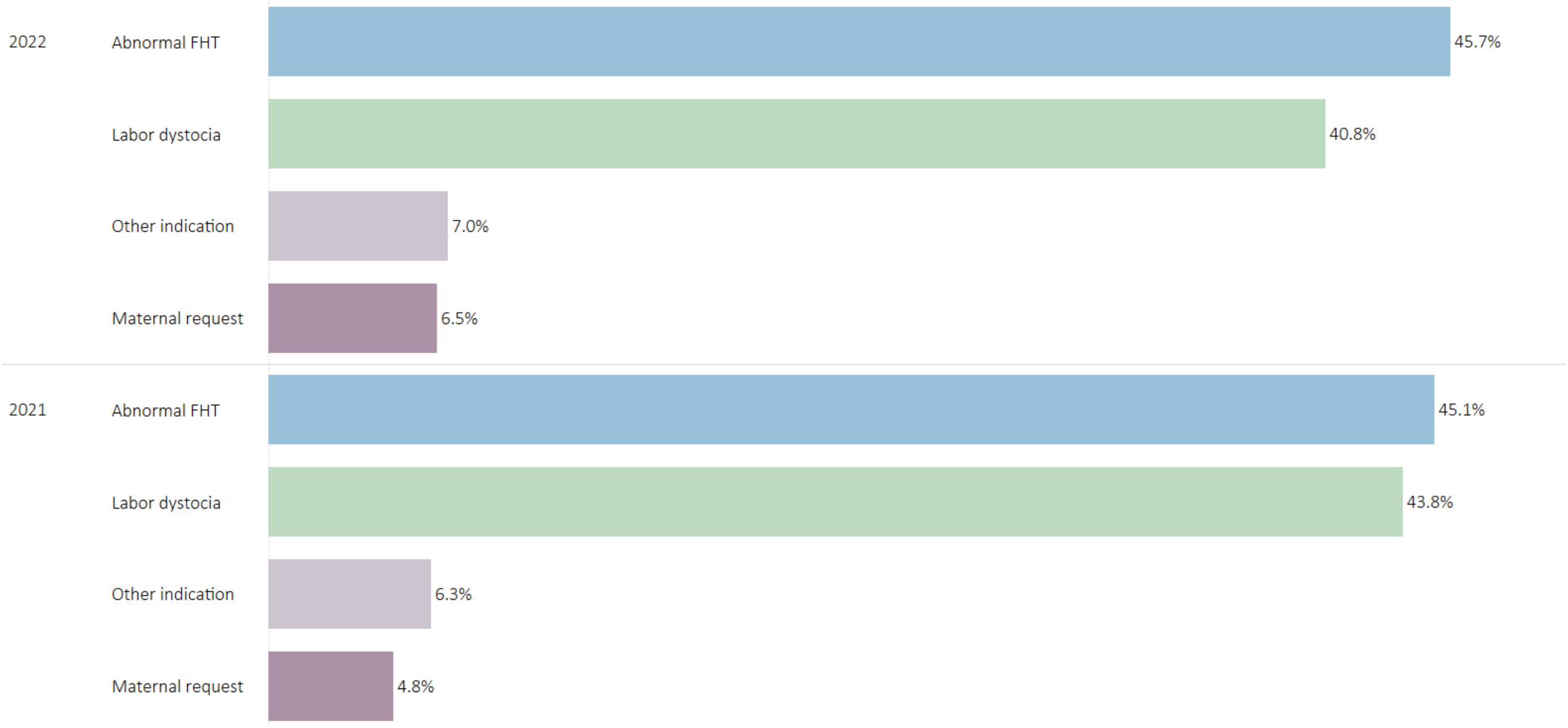
At the hospital level, an increased rate of dystocia compliance from 2021 - 2022 is associated with a significantly decreased Cesarean birthrate (p = 0.04).



*Unadjusted linear regression

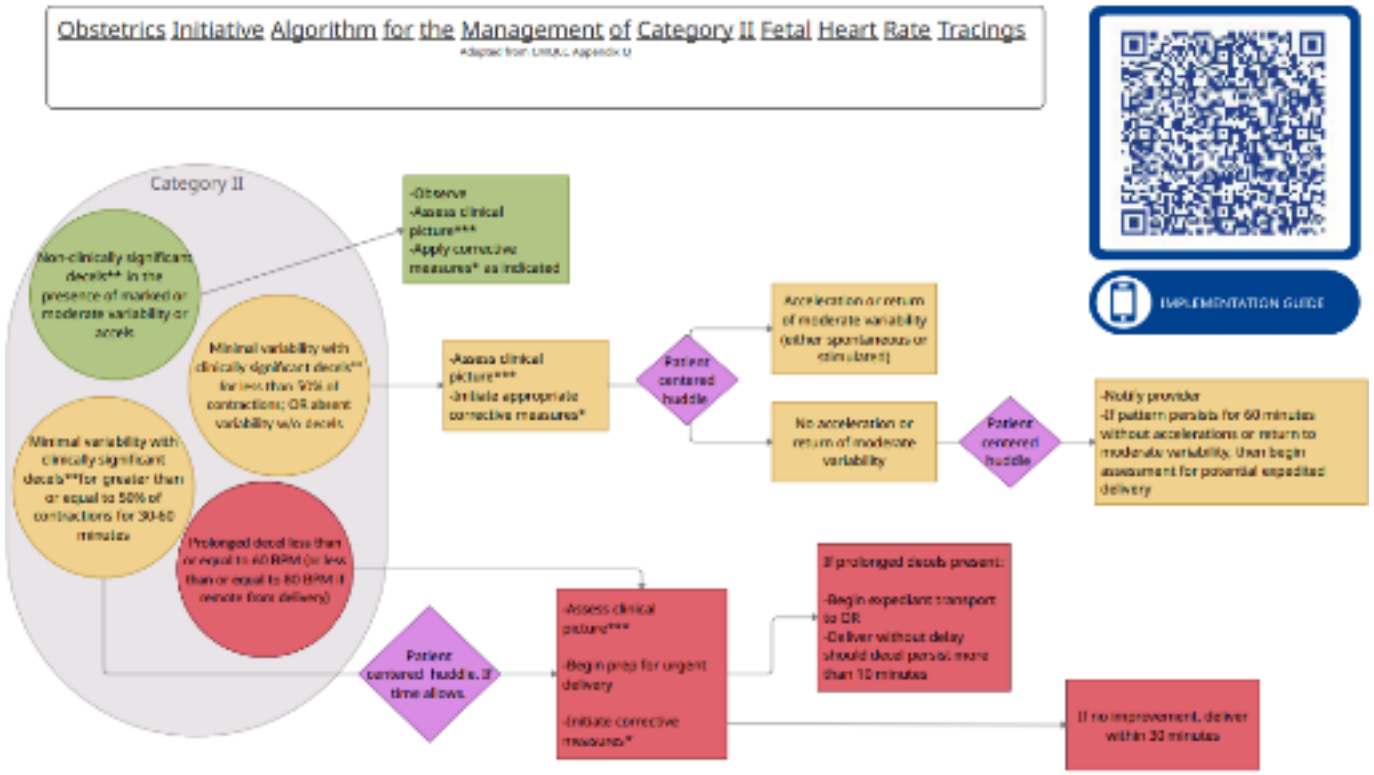
Includes complete cases 1/1/2021 - 6/17/2022

A larger proportion of Cesareans were performed for abormal or indeterminate FHT than labor dystocia in both 2021 and 2022, though the difference was larger in 2022.



Includes complete cases 1/1/2021 - 6/17/2022

Management of Category II Fetal Heart Rate Tracings Algorithm



Smart-phrase for Cat II FHTs:

Category II FHT managed following algorithm including initiation of corrective measures ***. With the persistent presence of ***, a patient-centered huddle was held and the need for an expedited delivery was discussed with the patient. It is our clinical recommendation to proceed with cesarean delivery and after questions were answered the patient agrees to proceed with recommended plan.

Intermittent Auscultation (IA) Bundle

Readiness: Every Unit

- "Promotes Shared Decision making by providing consumer education outlining evidence-based approaches to FHR assessment during labor.

Risk and Appropriateness: Every person who presents in labor

- "Participates in shared decision-making regarding approaches to FHR assessment."

Reliable Delivery of Appropriate Care: Every person eligible for IA

- "Is regularly informed of overall FHR assessment throughout labor and is provided with necessary education/information about these assessments"

Recognition and Response: Every person for whom eligibility for IA use changes

- "Will be involved in shared-decision making about method of FHR assessment if the maternal or fetal status changes"

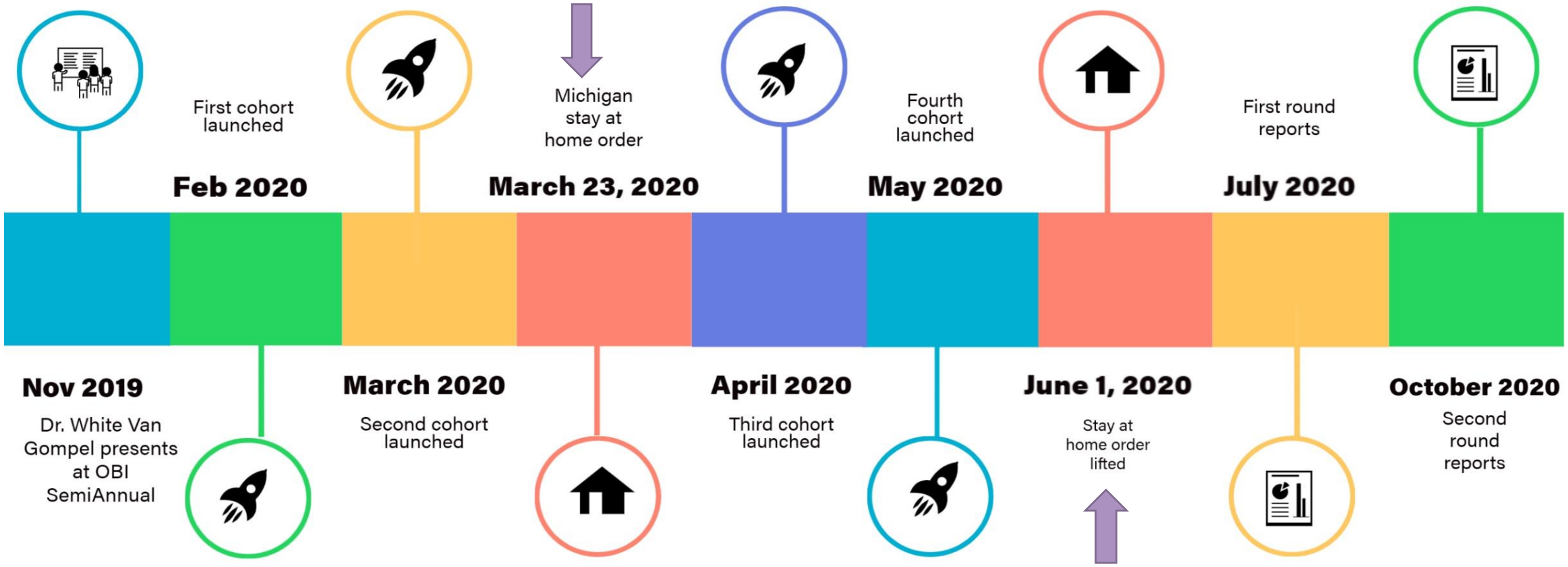
Reporting/Systems Learning: Every Unit

- Evaluates patient experiences of FHR assessment including shared decision making, comfort, and education

Measuring Labor Culture 2020 and 2022: What factors best predict NTSV CB rates in Michigan ?

- Assessed associations between each survey factor and NTSV CB rate
- Multivariate Poisson Regression
- Controlled for hospital-level covariates:
  - **Patient case-mix:** % Maternal BMI over 30, % Maternal Age over 35
  - **Hospital demographics:** % Medicaid, Nursery Acuity Level, Hospital Geographic Location (urban/rural/frontier), Annual Birth Volume
- Means at the hospital level and differences between disciplines within each hospital

OBI 2020 Labor Culture Survey Timeline



Challenges Due to COVID19: Michigan Maternity Care Professionals Perspectives

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Obstetrics Initiative

Blue Cross Blue Shield Blue Care Network of Michigan

We Dare — School of Nursing

BACKGROUND & SIGNIFICANCE

With the unfolding of a global pandemic throughout 2020, maternity care was altered in multiple ways at all levels including the individual, community and system level.

Maternity care delivery changes were implemented to reduce risks of COVID19 transmission that countered usual family centered models of maternity care

PURPOSE

It is critical to understand the influence of the pandemic on the provision of maternity care by health care professionals to avoid unintended consequences on the workforce and to support optimal care for childbearing families.

RESEARCH QUESTION

How has COVID19 impacted the work of maternity care providers (RNs, CNMs, MDs)?

METHODS

- Using a survey methodology, the question "How has COVID 19 impacted your work?" was added to an existing survey focused on maternity care unit culture[1]
- The survey was administered confidentially to maternity care professionals at hospitals participating in the Obstetrics Initiative, a quality collaborative aiming to safety reduce primary cesarean births throughout the state of Michigan.
- Open text question responses were analyzed by two independent investigators using directed content analysis to identify themes.

SAMPLE POPULATION

Nurses, physicians and midwives who work at 57 of the maternity care hospitals in the state of Michigan were participating in a survey starting February 2020; in April through June 2020, the COVID19 question was added.

1,071 surveys completed with 647 responses for the COVID question, representing 60% of the participants

RESULTS

Provider's Health

"Created some fear and anxiety when going to work to the point where I have considered medication for it." RN

"...the preparations for covid positive patients was stressful, extensive and caused a lot of confusion as information evolved continuously."

MD Anesthesia

"It has been stressful and depressing." MD

"it has decimated my private solo practice I will probably never recover." OB/GYN MD

"I hate coming here" RN

Patient Care Impact

"Purely subjectively it seems as though more women come in active labor as we have decreased elective inductions. It seems as though this has decreased the intervention rate and maybe the cesarean section rate." Resident

"I feel we are definitely doing more c/sections due to "Elective Inductions" due to Covid-19. It is unfortunate but understandable." RN

"Covid has put a hold on us using nitrous as a form of pain control, and we are not allowing women to birth in the tub currently. also before covid I felt I was more hands on where now I may choose to not be as close and personal as I would like to be." RN

Personal Protective Equipment

Wearing masks and full face shields and gowns for patients who are symptomatic but covid test results unknown is so UNFRIENDLY. Patients are being robbed of intimacy during labor and immediately after delivery..." RN

"Yes, Patients fear nurses/doctors more than ever. They fear that coming to the hospital that they will get COVID 19 despite them being negative. Wearing a mask, fearing touch, etc puts a distinct barrier up to a laboring, scared mother. A hug, smile, hand" RN

Decreased Support During Labor: Visitors positive and negative

"While most impacts from COVID-19 have been negative on all fronts, one of the rare benefits for both staff and patients have been the limitations of visitors. Increased rest for the patients and decreased stress for the staff have both been discussed." MD Anesthesia

"limited support (doulas, partners, providers) for laboring patients has created challenges for coping in labor." CNM

"It's improved the unit.. less traffic/visitors, less family drama, conflict, more relaxed patients. Patients are more rested...and better sleep." RN

Ethical Challenges and Feelings of Moral Distress: Conflict between Self Care and Patient Care

Some tension between patients and providers re: concerns re: COVID testing, separation from support/family members, overall concerns about COVID. At times (I am doing) less in person" OB/GYN MD

"The stress level of the unit has increased when worrying about PPE availability. Also the fact that we do not know if what we are doing to protect ourselves is actually working. Some actions we have been taking have been going well." RN

"This has impacted the LDR floor immensely! More focused on possibly receiving a COVID-19 patient or possibly developing s/s of COVID-19 due to a possible + patient. Nurse call ins have increased and some have resigned from their position." RN

Sparrow Hospital Lansing MI, @feathershood.com Blog working at 40wks pregnant, Credit: Noam Galai/Getty Image, first COVID19 + patient birthe at Calhoun Hospital, Marshall MI. https://www.motherhood.com/blogs/bean-to-babe/working-as-a-30-week-pregnant-labor-delivery-nurse-during-covid-19-pandemic

SUMMARY

Five major themes emerged across all types of providers:

- Providers health which includes stress, anxiety, fatigue, exhaustion and financial stress
- Perceptions of patient care impact including the use of inductions or not, more or less cesareans being performed, more admissions in active labor with less use of triage visits and reduced access to labor comfort resources
- Burdens of personal protective equipment including loss of patient face to face interactions, work flow effects, lack of needed resources and changes in policies
- Decreased support during labor with visitor restrictions described as both a positive and a negative and
- Ethical challenges with work place demands due to conflicts arising between concern for self vs executing their role in patient care creating a sense of moral distress

CONCLUSIONS

Maternity care providers in Michigan experienced a range of complexities when providing care during the pandemic, challenging many to question the balance between their role as providers with concerns for the effects of COVID19 on themselves and how they provide care. Resources are necessary to support providers who experience distress to support the wellbeing and retention of the maternity care workforce.

ACKNOWLEDGEMENTS

This study included data from the Obstetrics Initiative (OBI) which is a statewide quality improvement collaborative. Support for the Obstetrics Initiative is provided by Blue Cross Blue Shield of Michigan and Blue Care Network as part of the BCBSM Value Partnerships program; however, the opinions, beliefs, and viewpoints expressed by the author do not necessarily reflect those of BCBSM or any of its employees.

Thank you to the Michigan maternity care providers who took the time to complete the survey as part of their participation in the Obstetrics Initiative.

Emily White Van Beurden, MD, developer and consultant for use of Labor Culture Survey

Heading Image Artist: Meghan Powell University of Michigan School of Nursing

2022 SUMMARY

Excluding hospitals with no obstetricians and RR < 30%

Associations between hospital mean score on each Labor Culture Survey subscale and hospital NTSV CS 2020-2021 (N=53).

	Unadjusted		Adjusted		
Subscale	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value	RR
Best Practices	-0.25 (-0.58, 0.07)	0.126	-0.29 (-0.65, 0.08)	0.121	
Fear	-0.61 (-0.91, -0.31)	<0.0001	-0.67 (-1.01 ,- 0.33)	0.0001	0.51289
Unit Microculture	-0.20 (-0.47 , 0.06)	0.133	-0.35 (-0.70 , -0.001)	0.049	0.70357
Physician Oversight	-0.09 (-0.37 , 0.19)	0.514	-0.08 (-0.43, 0.27)	0.663	
Maternal Agency	-0.27 (-0.54, -0.004)	0.054	-0.34 (-0.67, -0.001)	0.050	
Cesarean Safety	-0.39 (-0.72, -0.06)	0.021	-0.81 (-1.23, -0.39)	0.0002	0.44532
Unit Norms	-0.07 (-0.28, 0.15)	0.545	-0.11 (-0.36, 0.14)	0.386	
Vaginal Birth Microculture	-0.10 (-0.32, 0.12)	0.361	-0.13 (-0.39, 0.13)	0.321	
Patient Safety Culture	-0.005 (-0.18, 0.17)	0.959	-0.06 (-0.29, 0.16)	0.574	

Adjusted for hospital annual birth volume, geographic location, nursery acuity level, maternal % BMI > 30, maternal % age > 35 y, and maternal % Medicaid as primary insurance.

NEW 2022 Outcomes

Excluding hospitals with no obstetricians and RR < 30%			
Associations between hospital mean score on each Labor Culture Survey subscale and hospital NTSV CS 2020-2021 (N=53).			
	Adjusted		
Subscale	**Estimate (95% CI)**	**p-value**	**RR**
Fear	-0.67 (-1.01 ,- 0.33)	0.0001	0.51289

Assume Hospital X has a baseline NTSV Cesarean rate of 30%. If staff at Hospital X focused their efforts on improving culture and decreased their score on the Fear subscale by one point, they could expect their Cesarean rate to decrease by a relative 48.7%. That is, **they would expect their Cesarean rate to decrease to 15.4%** (30% - [30% * 0.487]).

NEW 2022 Outcomes (ctd.)

Excluding hospitals with no obstetricians and RR < 30%

Associations between hospital mean score on each Labor Culture Survey subscale and hospital NTSV CS 2020-2021 (N=53).

	Adjusted		
Subscale	**Estimate (95% CI)**	**p-value**	**RR**
Unit Microculture	-0.35 (-0.70 , -0.001)	0.049	0.70357

Assume Hospital X has a baseline NTSV Cesarean rate of 30%. If staff at Hospital X focused their efforts on improving culture and increased their score on the Unit Microculture subscale by one point, they could expect their Cesarean rate to decrease by a relative 29.6%. That is, **they would expect their Cesarean rate to decrease to 21.1%** (30% - [30% * 0.296]).

NEW 2022 Outcomes (ctd.)

Excluding hospitals with no obstetricians and RR < 30%

Associations between hospital mean score on each Labor Culture Survey subscale and hospital NTSV CS 2020-2021 (N=53).

	Adjusted		
Subscale	**Estimate (95% CI)**	**p-value**	**RR**
Cesarean Safety	-0.81 (-1.23, -0.39)	0.0002	0.44532

Assume Hospital X has a baseline NTSV Cesarean rate of 30%. If staff at Hospital X focused their efforts on improving culture and decreased their score on the Cesarean Safety subscale by one point, they could expect their Cesarean rate to decrease by a relative 55.5%. That is, **they would expect their Cesarean rate to decrease to 13.4%** (30% - [30% * 0.555]).

How do different providers perceive the unit culture?

- Agreement
- Disagreement
- Agree to Disagree

Patient Safety Culture and Challenges to Labor & Delivery Teamwork Pre- and Post- ARRIVE

Emily White VanGompel, MD, MPH.[1] Lavisha Singh, MPH.[1] Francesca Carlock, MPH.[1] Jill Brown, MSN, RN [2] Emma Keer BS, Lisa Kane Low, PhD CNM[2]
[1]NorthShore University Health System, [2]The Michigan Obstetrics Initiative

Introduction and Background

- In 2018, a large randomized controlled trial (ARRIVE) found elective induction at 39 weeks gestation reduced cesarean delivery for low risk first births.
- This new practice has been endorsed by obstetric physicians but not nursing professional organizations.
- Significant concerns about the implementation of these findings have been raised.
- Hospital safety culture's focus on communication and collaboration across disciplines may play a role in facilitating effective implementation of these findings.

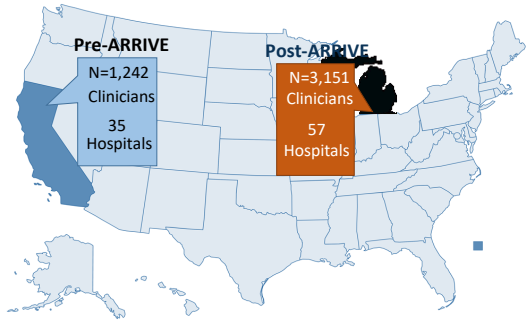
Objectives

To explore and quantify disciplinary differences in attitudes towards elective induction prior to and after the ARRIVE trial, and determine if hospital patient safety culture impacts these attitudes.

Study Design

- A mixed-methods study utilizing:
  - The **Labor Culture Survey**: a validated quantitative survey of labor unit culture.
  - **Hospital characteristics** and **cesarean delivery rates** derived from the California Maternal Data Center and Michigan Birth Certificate Data
  - Content analysis of **free text responses**
  - Population studied: Physicians, midwives, and nurses delivering intrapartum care at
  - Hospitals in **California (2017)**
  - Hospitals in **Michigan (2020)**

Principle Findings - Quantitative



- Pre- and post-ARRIVE clinician samples did not differ in terms of gender or years practicing.
- Michigan participants were more likely to be white, non-Hispanic
- Hospitals were similar across both samples for geographic designation and proportion of patients on public aid.

Principle Findings – Qualitative

- Of 377 comments mentioning induction of labor: **357** were **negative, 20** were **positive**

Timing of Induction Matters

"We are actively working on [the supporting vaginal birth] initiative. However, the ARRIVE study is contradictory to this effort."- Nurse Manager/Director

"I think if you're going to use the ARRIVE study as the basis for inductions we should follow the criteria of the study to help lower our c- section rate." – L&D Nurse

"I think the biggest area for improvement is reducing 39 week inductions pushed by the doctors." –L&D Nurse

Who Should be Offered Inductions

"Nothing points to a cesarean section like a closed cervix showing up for an induction." – L&D Nurse

"A few things I'd like to see different is not performing AROM on elective inductions with low bishop scores." - OBGYN

"I also feel that "social inductions" are done far too often with inadequate support." –L&D Nurse

Need for Protocols and Staff

I feel there are too many unnecessary inductions for non-medical reasons for primes that set them up for c-sections." L&D Nurse

"Have more strict guidelines to help with clinical decision making based on the individual patient status." –L&D Nurse

"Better adherence to to IOL protocols with respect to Pitocin titration, use of Cytotec." -CNM

"Guidelines for induction have lessened to almost none and now too many inductions are being allowed." – L&D Nurse

Ideas to Improve the Induction Process

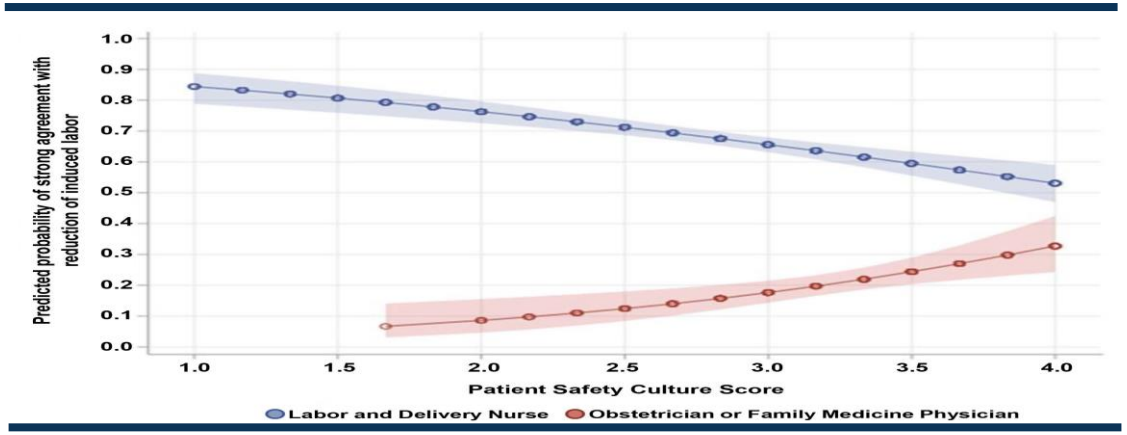
"We should encourage patients to go home and come back if an early induction is unsuccessful." –L&D Nurse

"We admit patients too early (in latent labor) and then induce /augment them too frequently."- L&D Nurse

"Providers need to educate the patients about the benefits and risks, and process of being induce, so that patient is able to jointly make an informed decision." - CNM

Principle Findings – Quantitative (cont.)

- Post-ARRIVE, disciplines' attitudes were closer in alignment at hospitals with stronger patient safety cultures.



Conclusions and Implications

- Physician attitudes differed in the pre-ARRIVE compared with the post-ARRIVE sample; however, nursing attitudes did not.
- Post-ARRIVE, nurses and physicians with higher composite safety culture scores showed similar attitudes towards reducing induction of labor.
- Hospitals incorporating ARRIVE trial findings should engage all maternity care professionals, including nurses, to create policies that address eligibility criteria and induction of labor protocols that optimize health outcomes and patient care experiences.

Funding Source and References

This study is supported by the Michigan Obstetrics Initiative which is funded by Blue Cross and Blue Shield of Michigan. The NorthShore Auxiliary supported the time of three authors. The primary author's effort was supported by the Agency for Healthcare Research and Quality (K08HS028028-01).

Summary

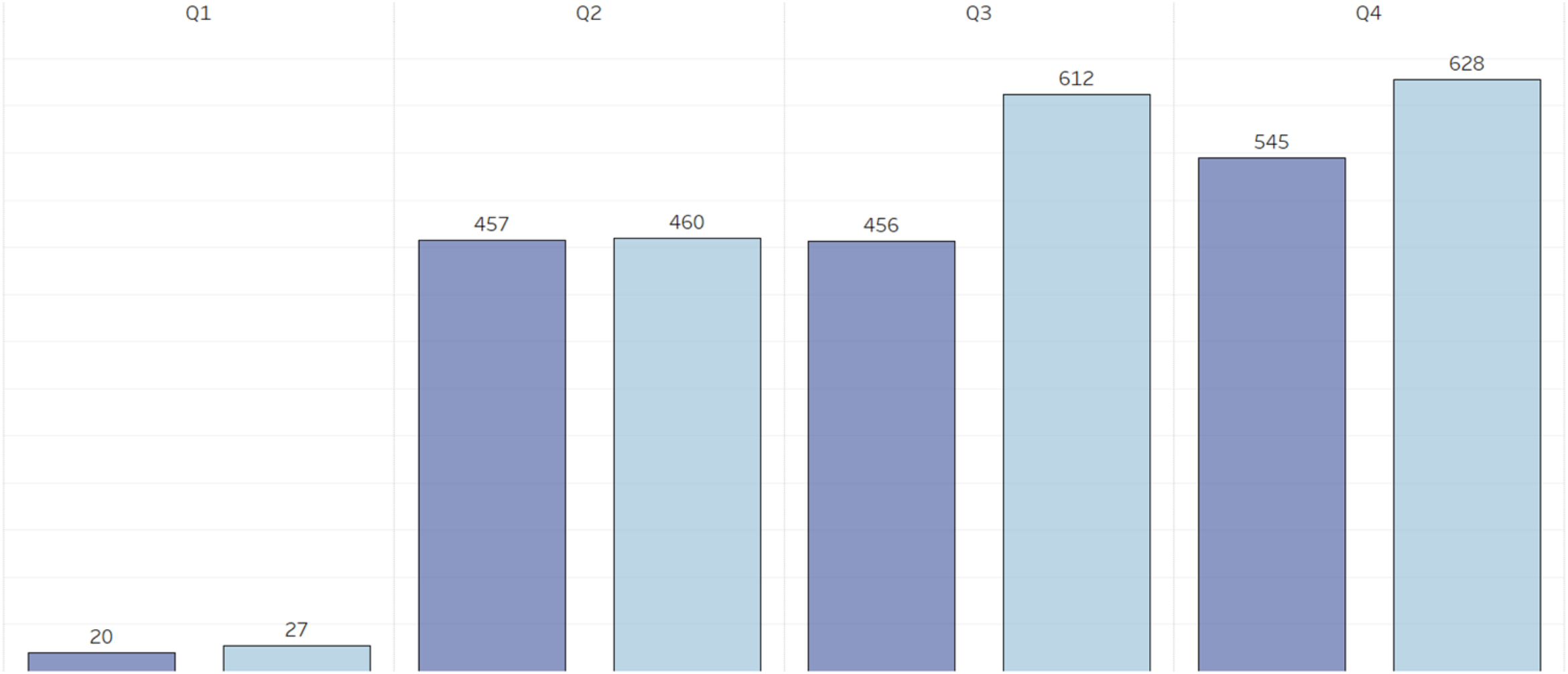
- A positive unit culture that is focused on promoting vaginal birth does make a difference in reducing NTSV cesarean birth rates
  - Belief in the value of vaginal birth short term and long term outcomes
- A culture of safety aligns with a culture that promotes vaginal birth with all team members participating in the plan of care process, in support of best practices
- Support for communication and engagement of all team members promotes a culture of safety and supports a reduction in the NTSV cesarean birth rate.
- Agreement on integration of evidence based practices between members of the maternity care team improves unit culture and decreases the NTSV cesarean birth rate.

TeamBirth Participating Hospitals 2022

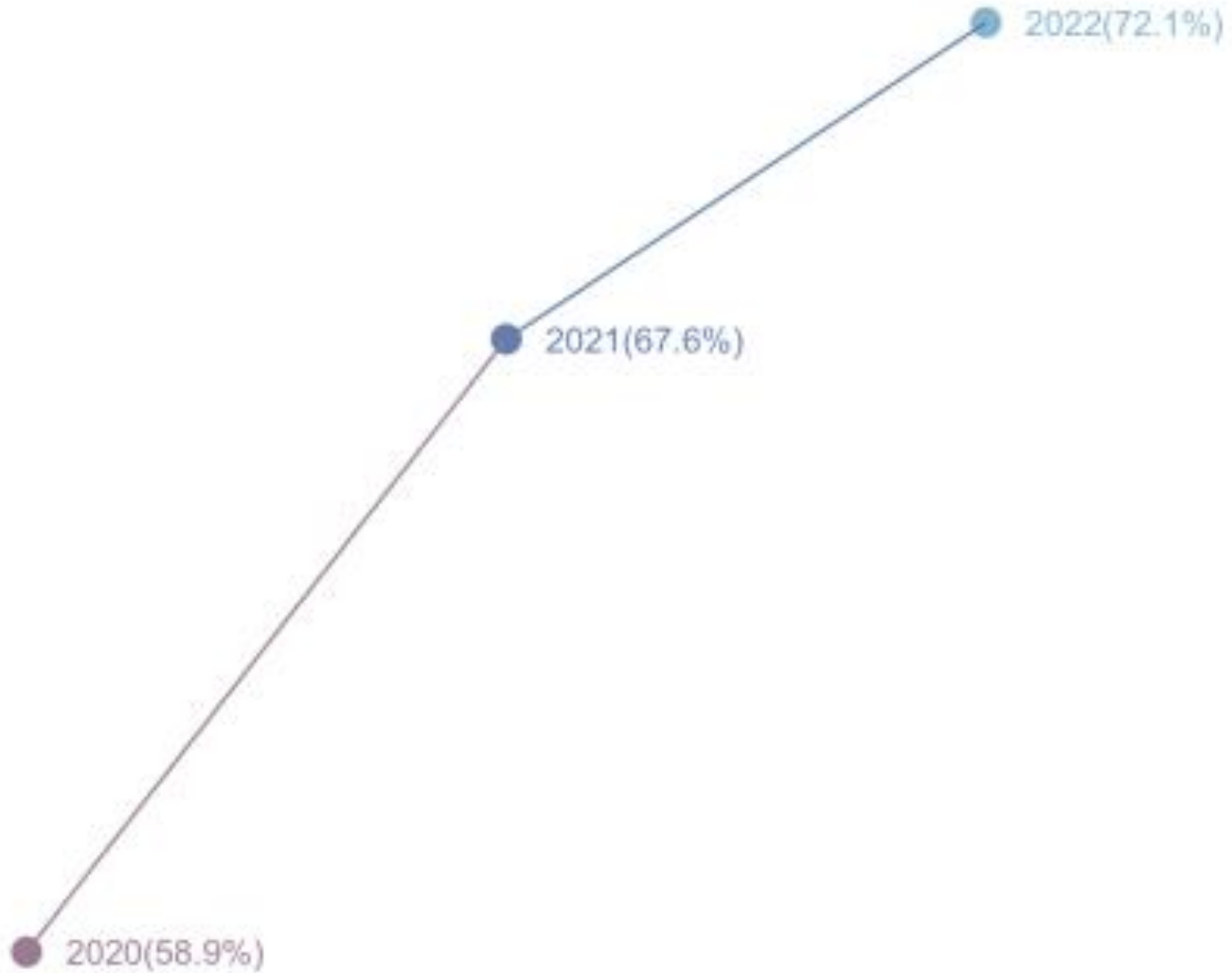
Michigan:

- Ascension St. John Hospital Detroit
- Ascension Providence Hospital Novi
- Ascension Providence Hospital Southfield
- Henry Ford Macomb Hospital
- Hillsdale Hospital
- McLaren Bay Region Family Birth Place
- Munson Healthcare Grayling Hospital
- ProMedica Charles and Virginia Hickman Hospital
- ProMedica Coldwater Regional Hospital
- ProMedica Monroe Regional Hospital
- Sparrow Hospital
- Trinity Health St. Mary Mercy Livonia Hospital
- Trinity Health St. Joseph Mercy Ann Arbor Hospital
- Trinity Health St. Joseph Mercy Oakland Hospital
- Trinity Health Mercy Health Mercy Campus
- Trinity Health Saint Mary's Grand Rapids

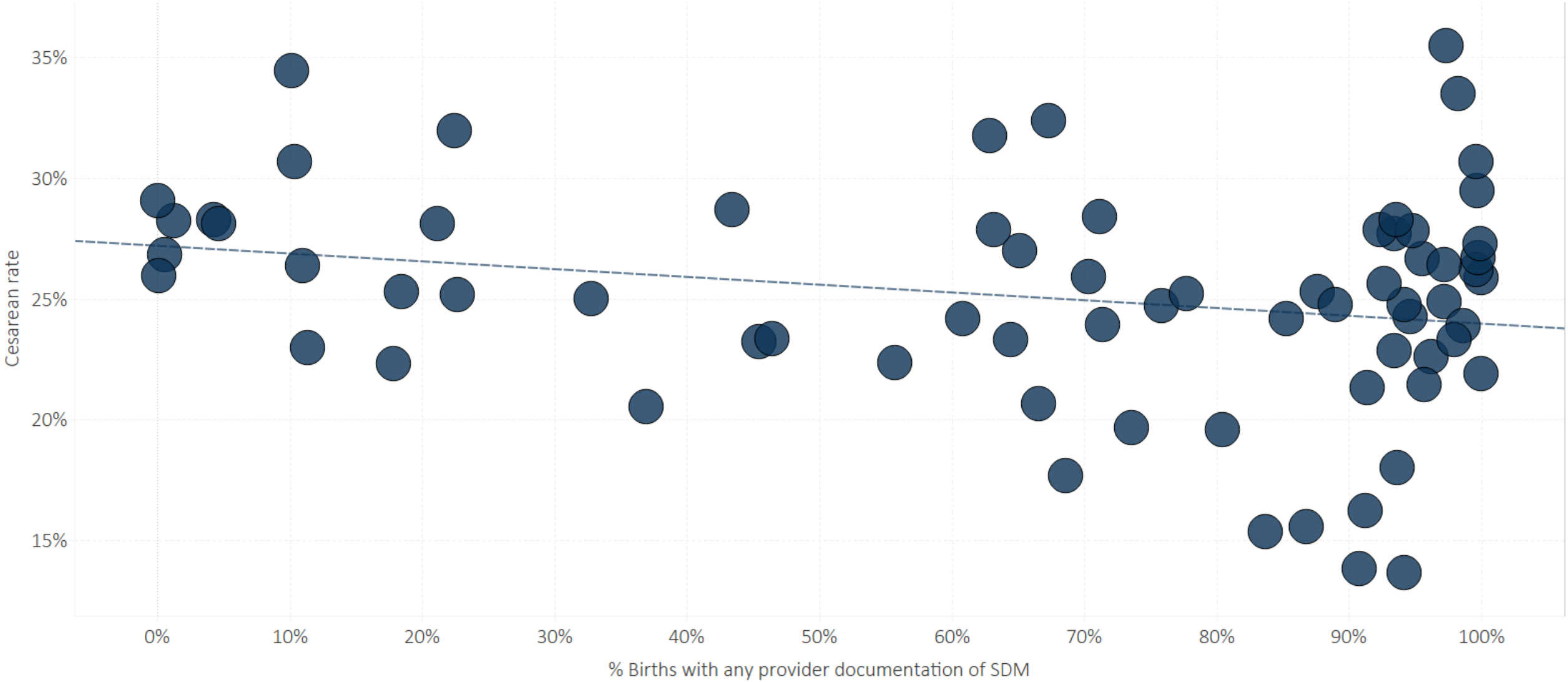
The number of staff trained on a Delivery Tool and Patient-Centered Huddles increased throughout 2021; by Q4, more than 600 staff had been trained on huddles.



SDM has increased 13.3%

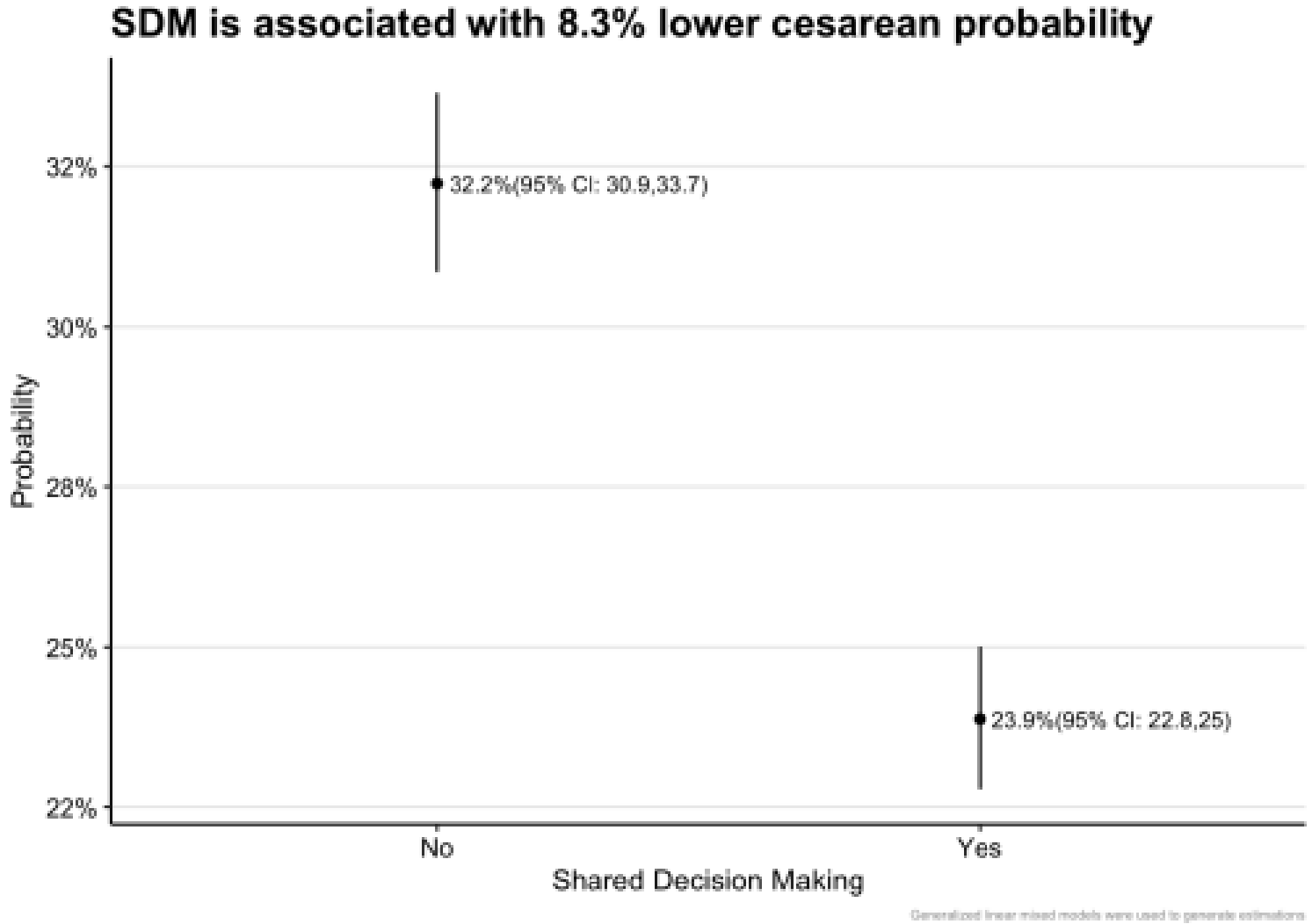


Having a higher proportion of births with any provider documentation of SDM (nurse documentation of plans, provider H&P note, or provider documentation in LPN) is associated with a decreased unplanned Cesarean rate across the collaborative (p = 0.056).



Includes complete cases 1/1/2020 - 6/17/2022

Shared Decision Making and NTSV Cesarean Births



What is Birth Equity?

"The assurance of the conditions of optimal births for all people with a willingness to address racial and social inequalities in a sustained effort.".

~Dr. Joia Crear-Perry, MD
Founder and President

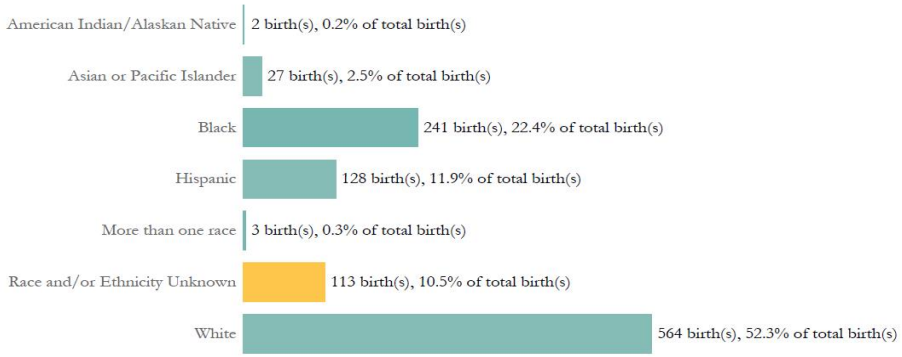
NBEC NATIONAL BIRTH EQUITY COLLABORATIVE

Obstetrics Initiative Birth Equity Report

Comparing Maternal Race/Ethnicity for NTSV births in 2020:

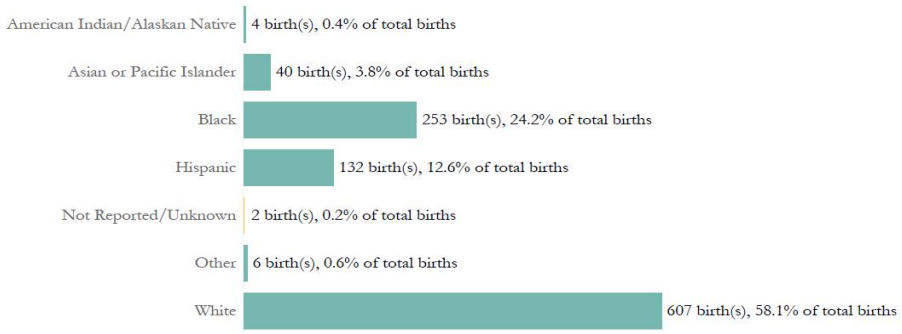
OBI Workstation Data (1,078 births)

10.5% of cases had unknown race/ethnicity



Michigan Birth Certificate Data (1,044 births)

0.2% of births had race/ethnicity not reported or unknown



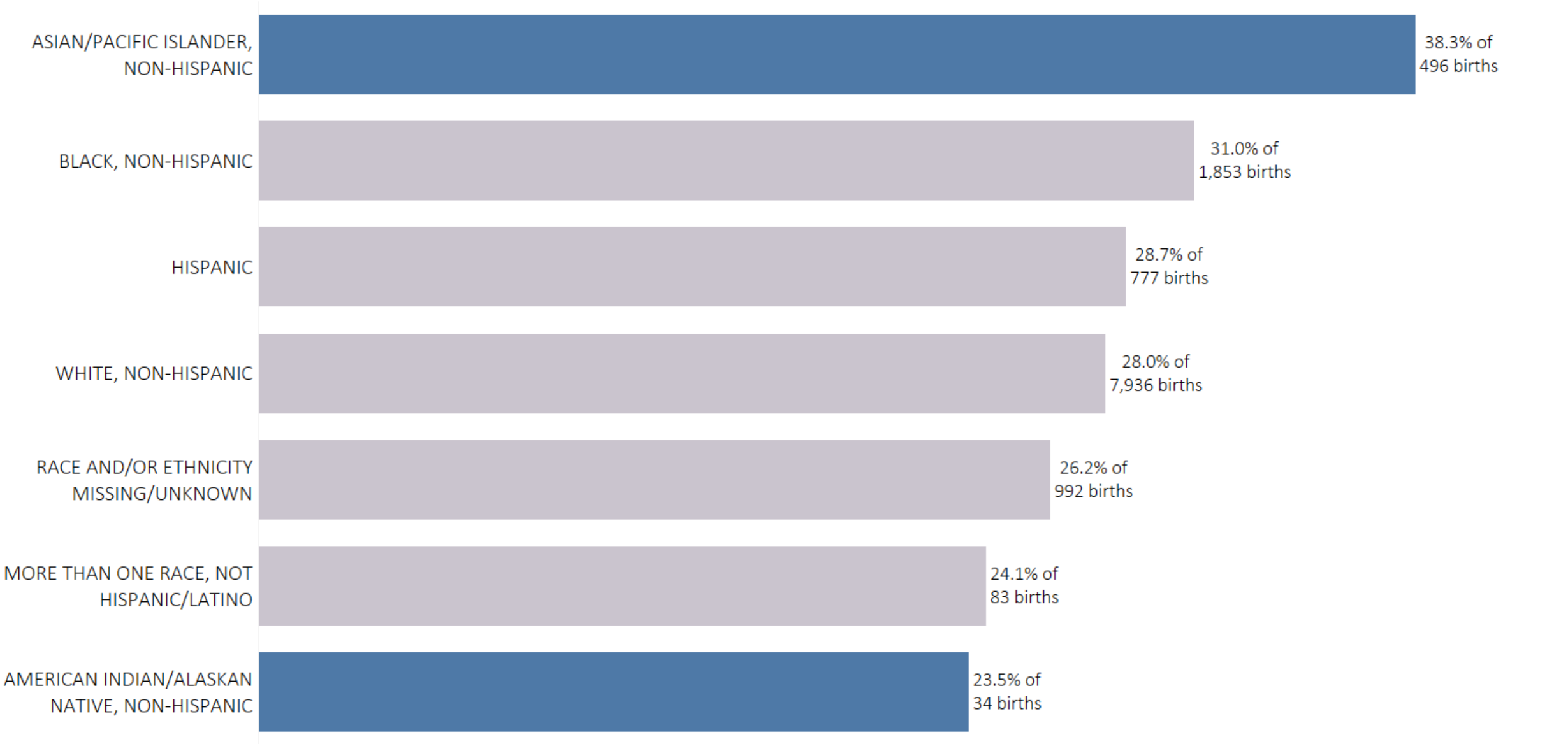
Discrepancies between the OBI Workstation and Michigan Birth Certificate data exist for a variety of reasons, including different NTSV classification and race/ethnicity reporting processes for patients. These discrepancies can result in a misclassification of data for analysis and interpretation. OBI strongly recommends that each health system ensure a consistent process that includes patient-reported race and ethnicity.

OBI's birth equity work thus far has focused on identifying discrepancies in health outcomes by race-ethnicity and insurance status across the collaborative. Differences in health outcomes including severe maternal morbidity and mortality, Cesarean birth, and others are understood to be a result of social determinants of health and discriminatory care practices rather than biological differences. In other words, this report uses race-ethnicty as a proxy for the experience of racism and insurance as a proxy for the experiences of classism and income inequality.

Obstetrics Initiative

Disparities Across The Collaborative

There is a 14.78%, statistically significant difference between the highest and lowest Cesarean rate by race ethnicity group in 2022 ($p < 0.0001$)*.

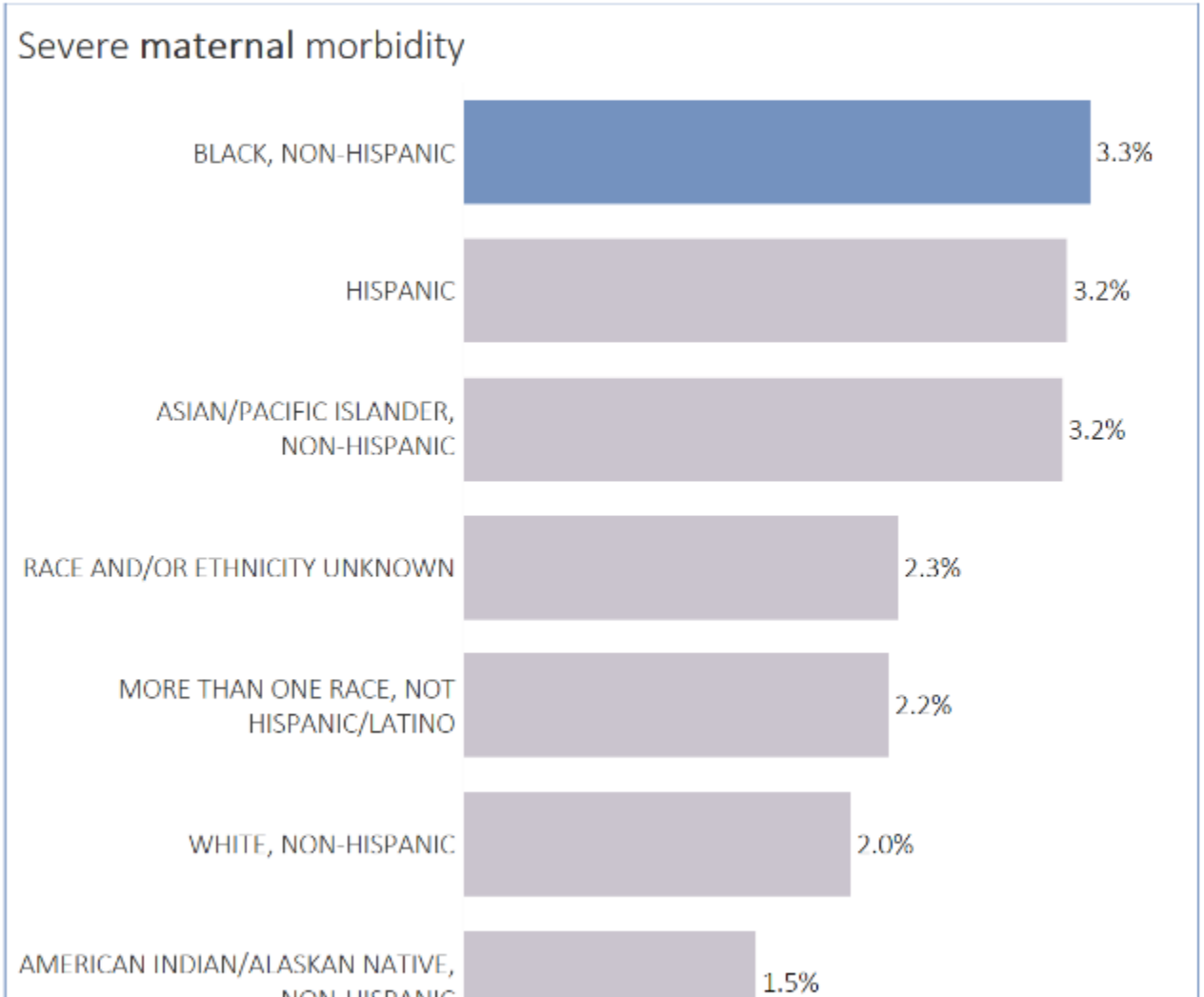


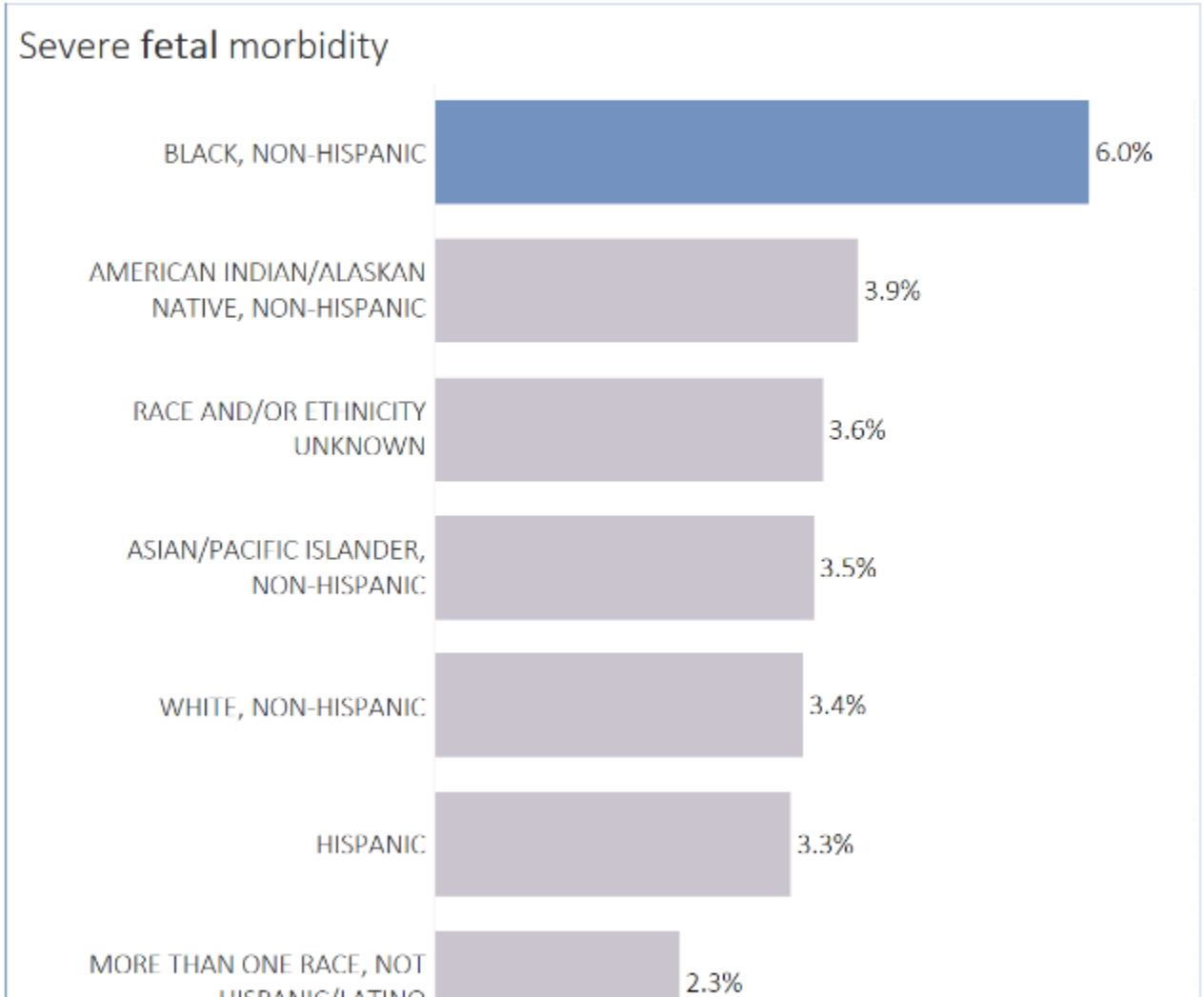
*Chi Square

Includes complete cases 1/1/2022 - 6/17/2022

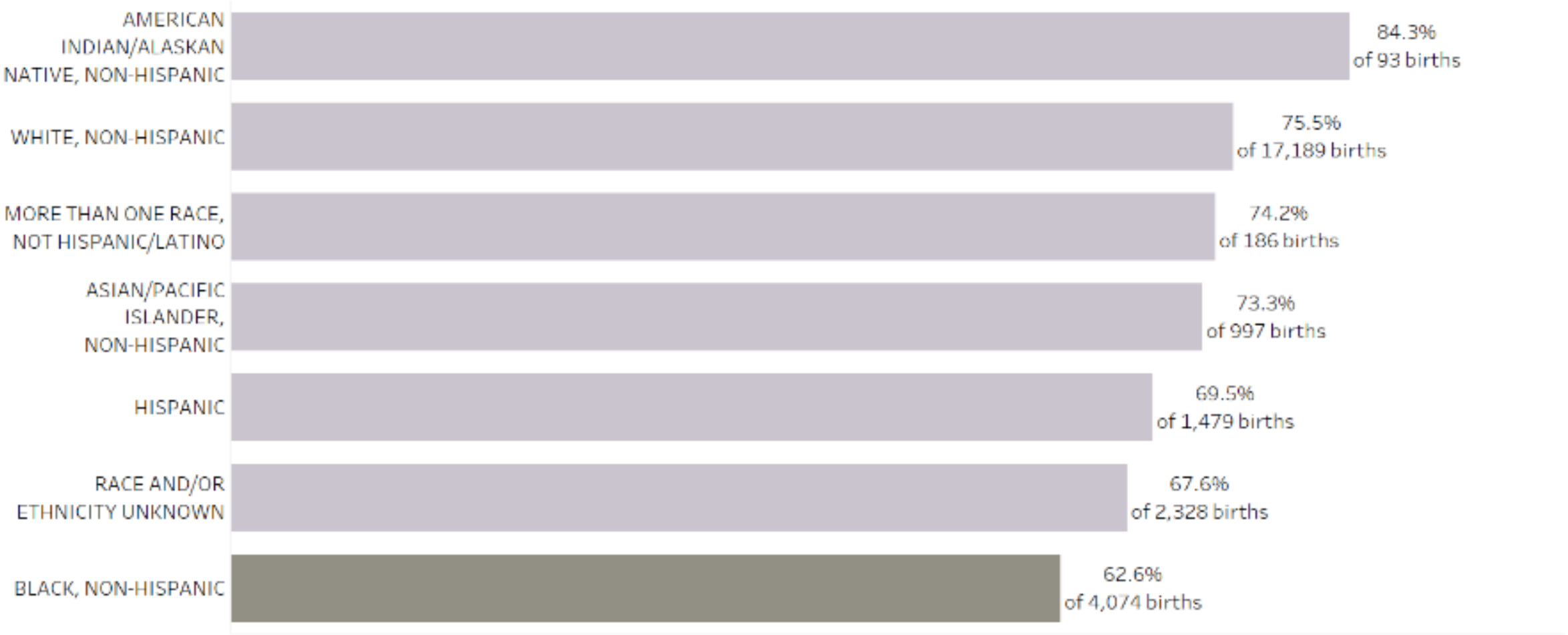
Other outcomes differed by race/ethnicity

Across the collaborative, Black patients have the highest rate of severe maternal and fetal morbidity ($p < 0.0001$)*.



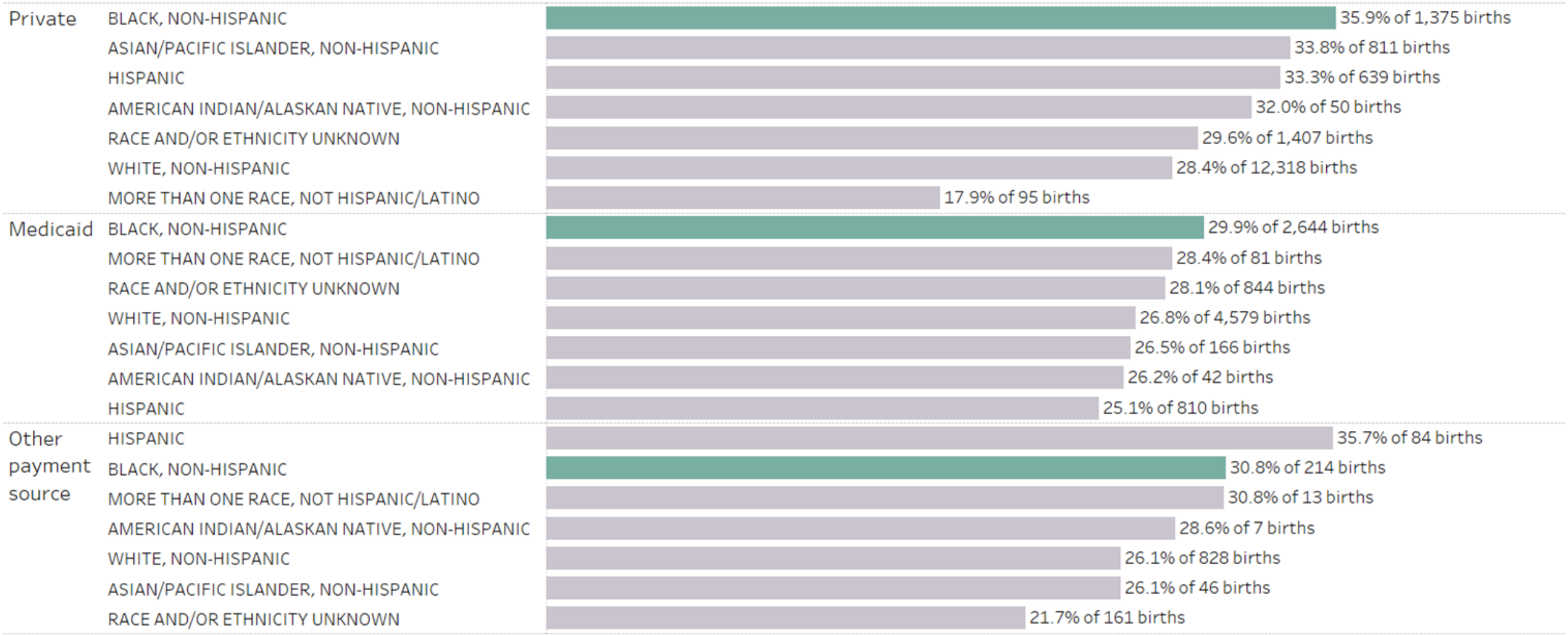


Black patients are the least likely to have any documentation of shared decision making at their birth in 2021 (p <0.0001).



Data updated 4/18/2022 to include locked cases 1/1/2021 - 12/18/2021

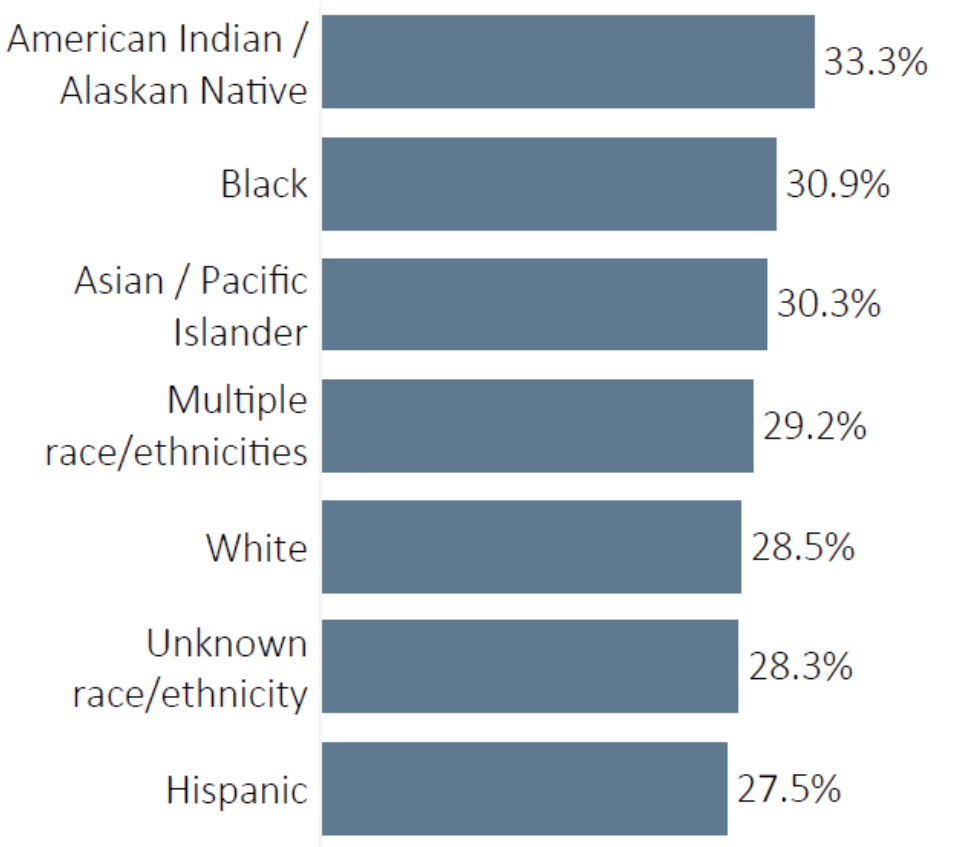
Black patients had the highest Cesarean rate among both patients paying with private insurance and patients paying with Medicaid in 2021 ($p < 0.0001$).



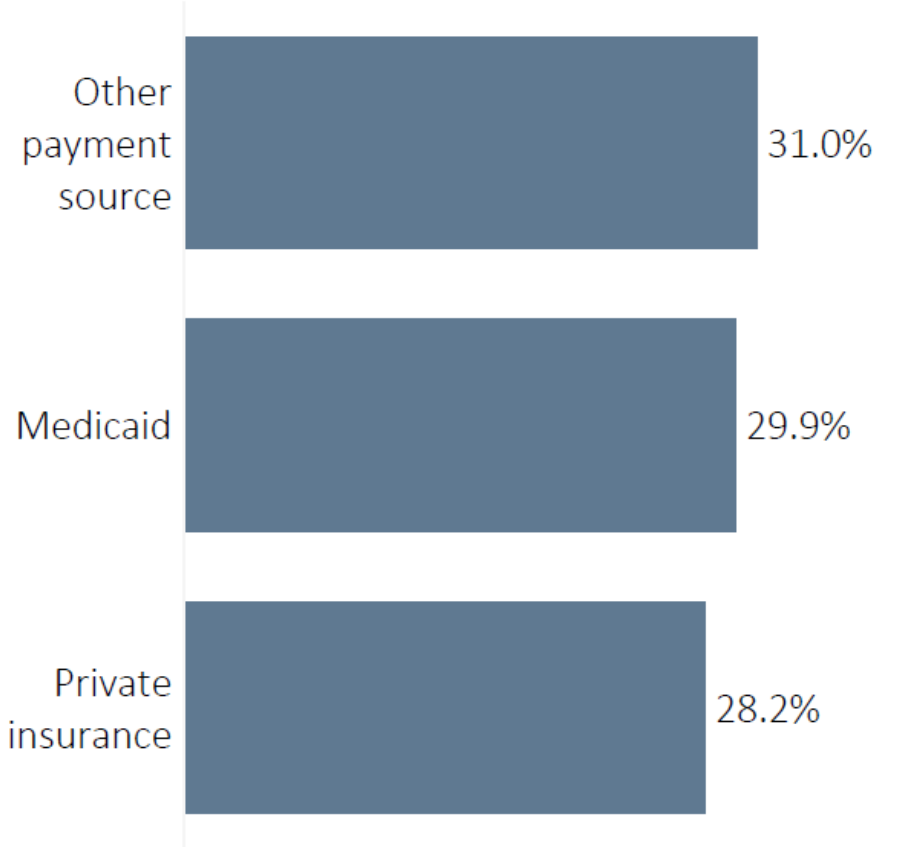
Data updated **5/1/2022** to include locked cases 1/1/2021 - **12/31/2021**

Collaborative-wide measures - Patient-centered huddles (2022 cases only)

The proportion of births with a patient-centered huddles varies 5.8% by race/ethnicity across the collaborative (p = 0.661).*



The proportion of births with a patient-centered huddles varies 2.8% by race/ethnicity across the collaborative (p = 0.142).*



*Chisq

Patient Reported Experiences

MADM

The Mothers Autonomy in Decision Making scale (MADM) is a scale developed to assess women's experiences with maternity care.

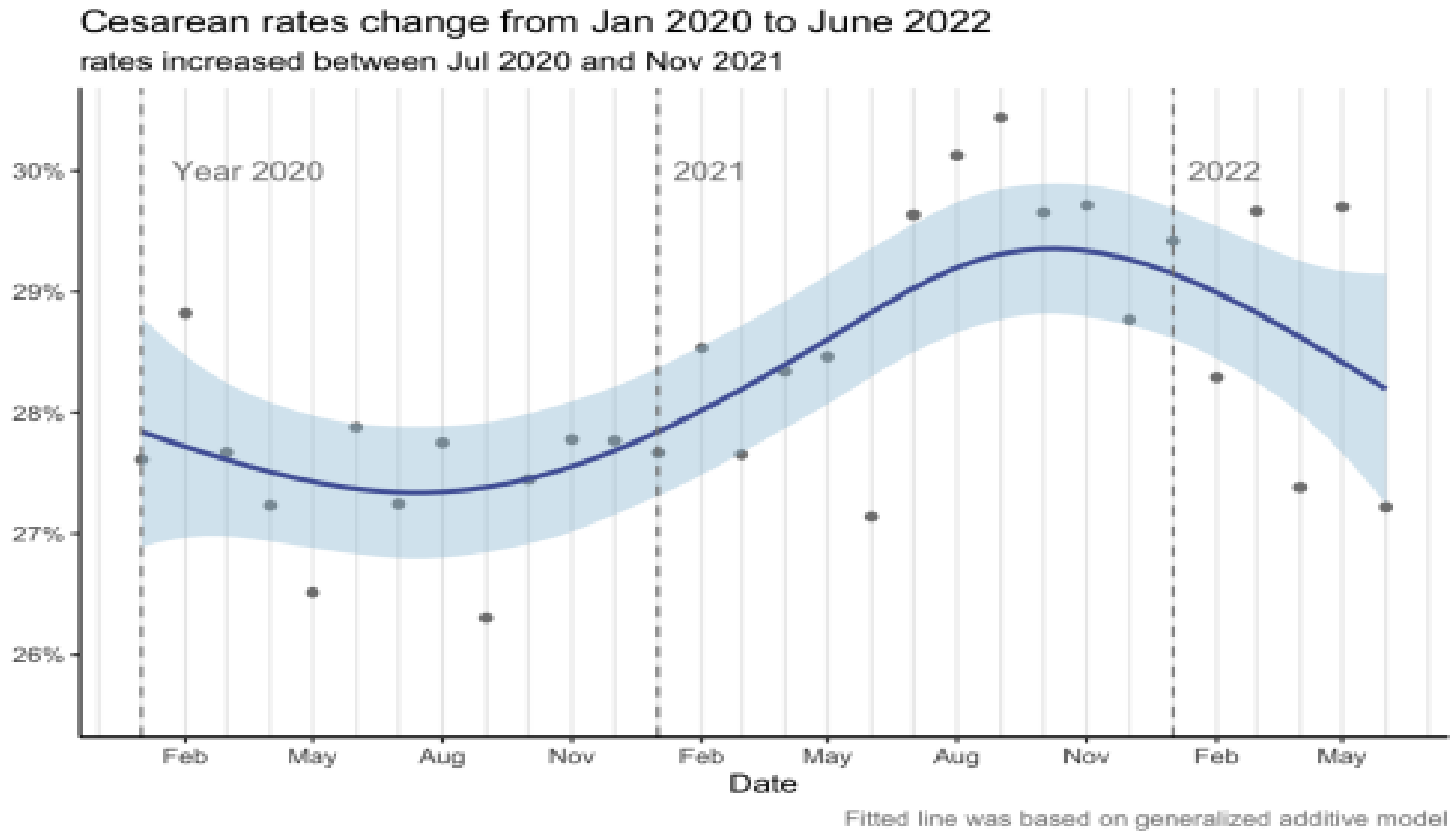
MOR

The Mothers on Respect index (MOR) is a scale developed to assess the nature of respectful patient-provider interactions and their impact on a person's sense of comfort, behavior, and perceptions of racism or discrimination.

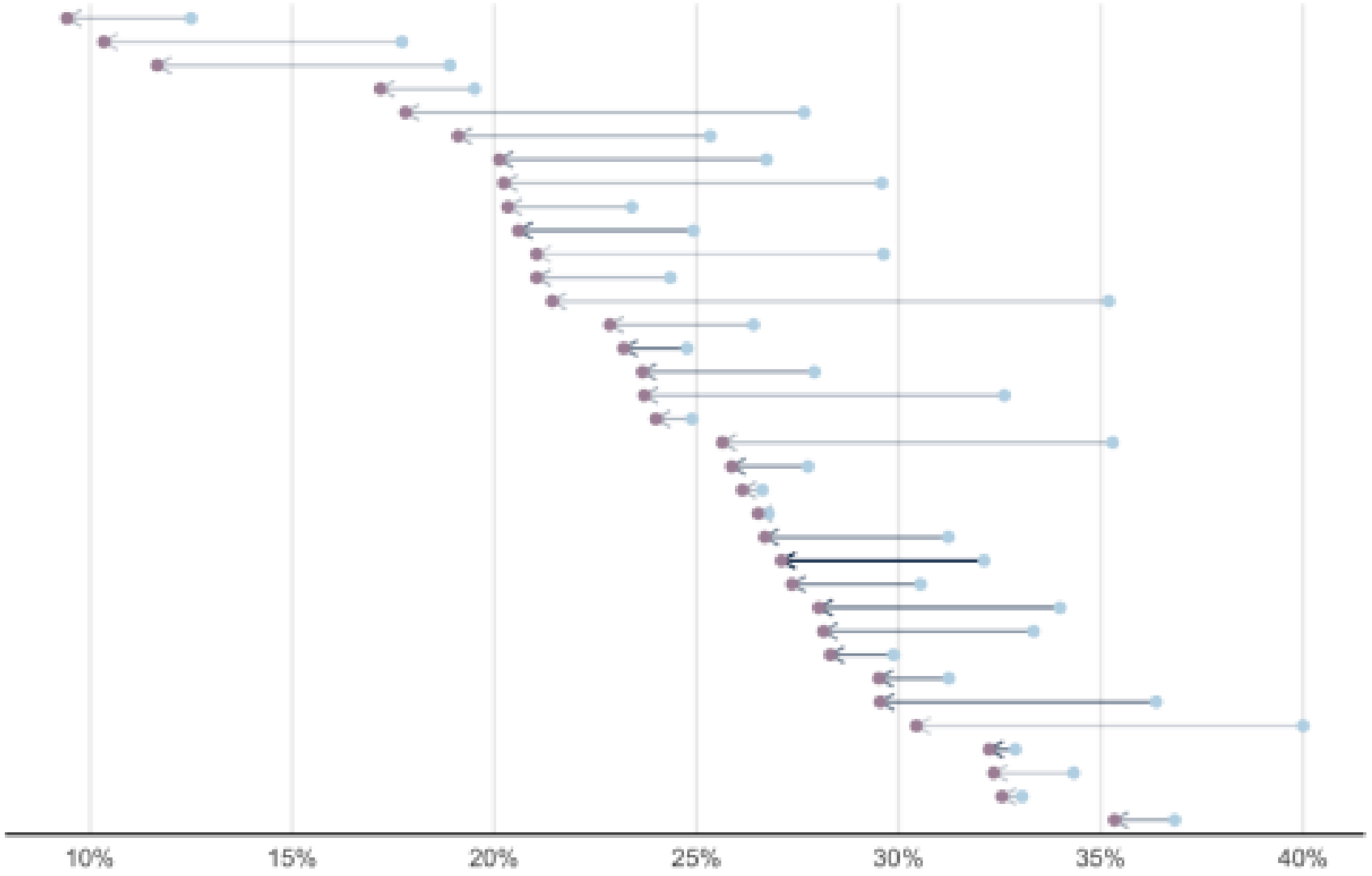
Collect Demographic data with survey (Race/Ethnicity, income, education, etc.)

Pilot testing 2022

Collaborative Wide 2023

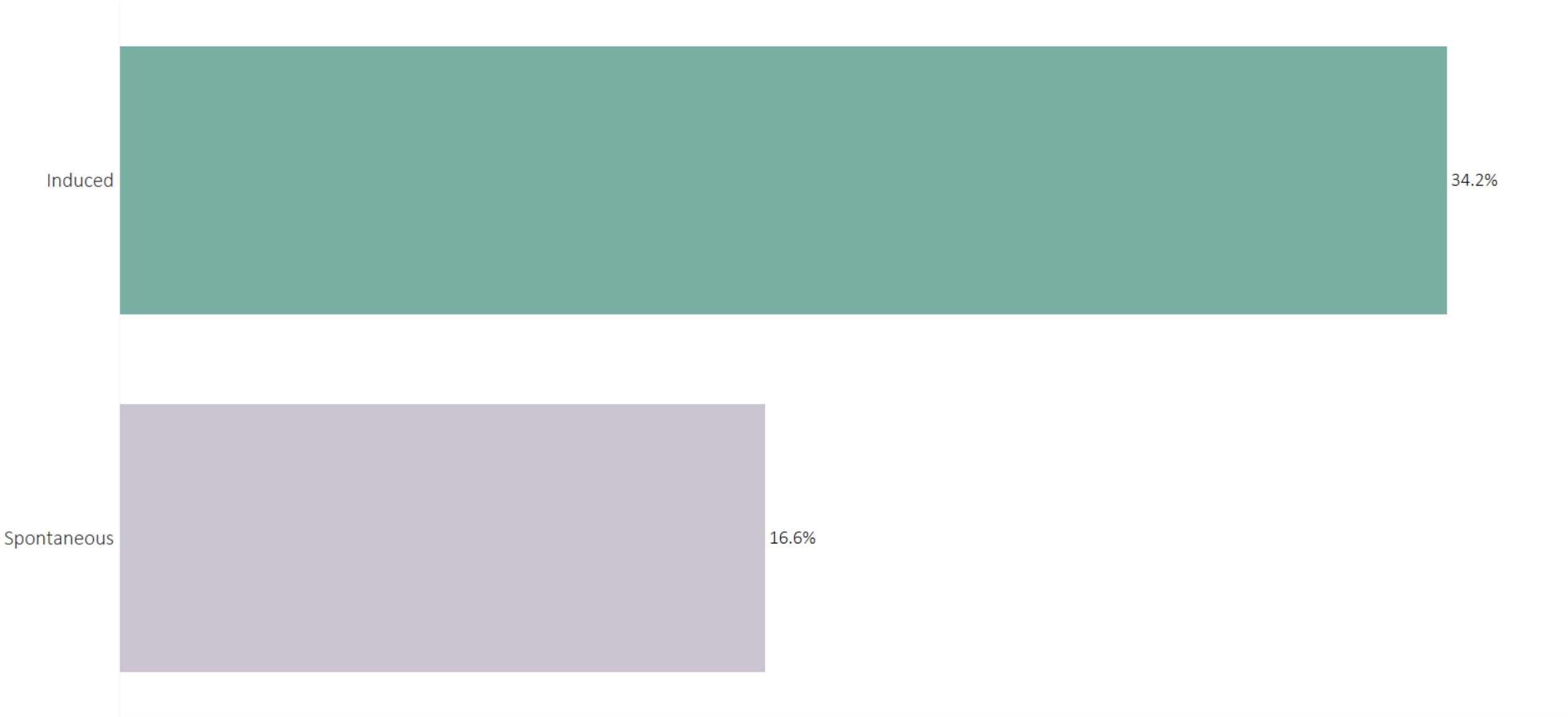

Cesarean rates change from Jan 2020 to June 2022
rates increased between Jul 2020 and Nov 2021
Year 2020
2021
2022
30%
29%
28%
27%
26%
Feb
May
Aug
Nov
Feb
May
Aug
Nov
Feb
May
Date
Fitted line was based on generalized additive model

35 hospitals decreased cesarean rates from 2021 to 2022



darker arrow color indicates higher annual case volume

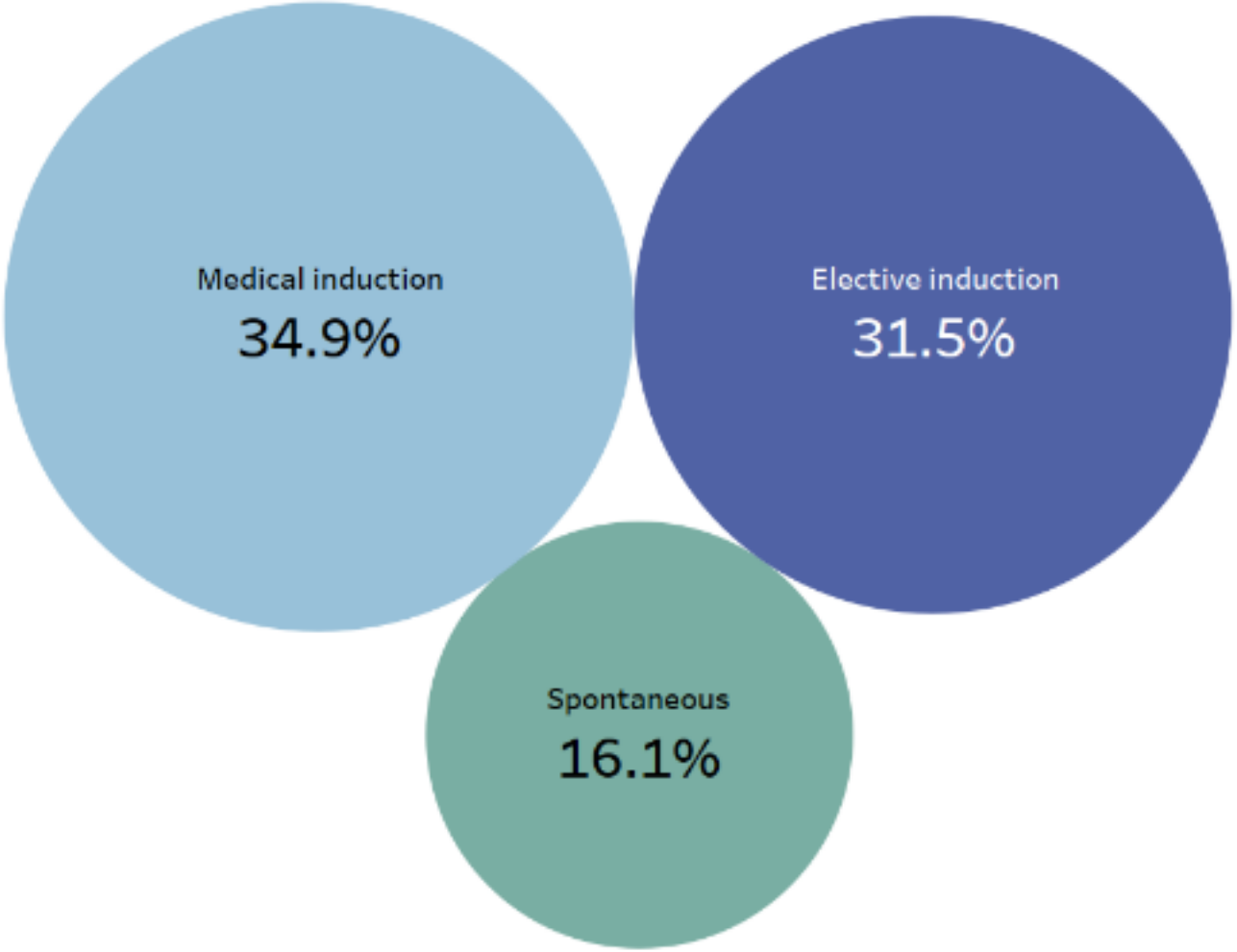
In 2022, the unplanned Cesarean rate across the collaborative is significantly higher after an induction of labor than a spontaneous labor ($p < 0.0001$)*.



*Chi Square

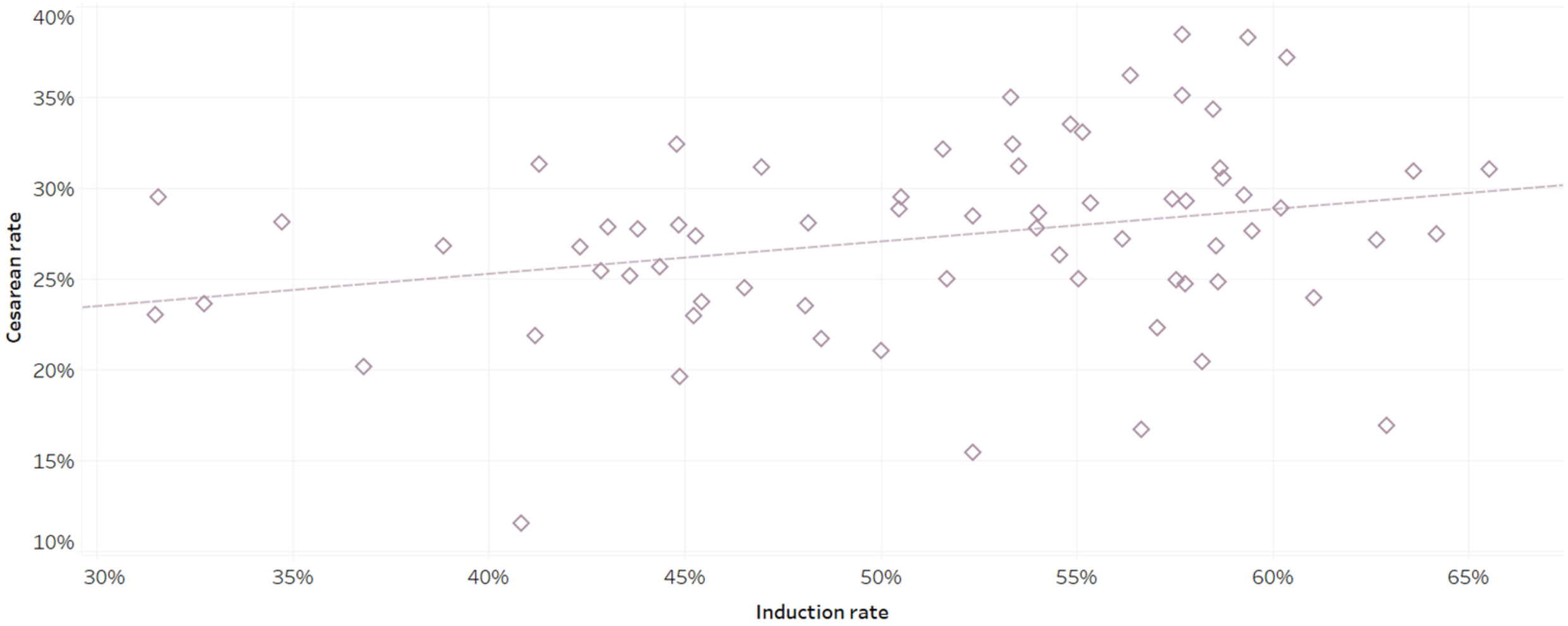
Includes complete cases 1/1/2022 - 6/17/2022

The Cesarean rate is higher among Medical and Elective inductions than Spontaneous births (P < 0.0001).

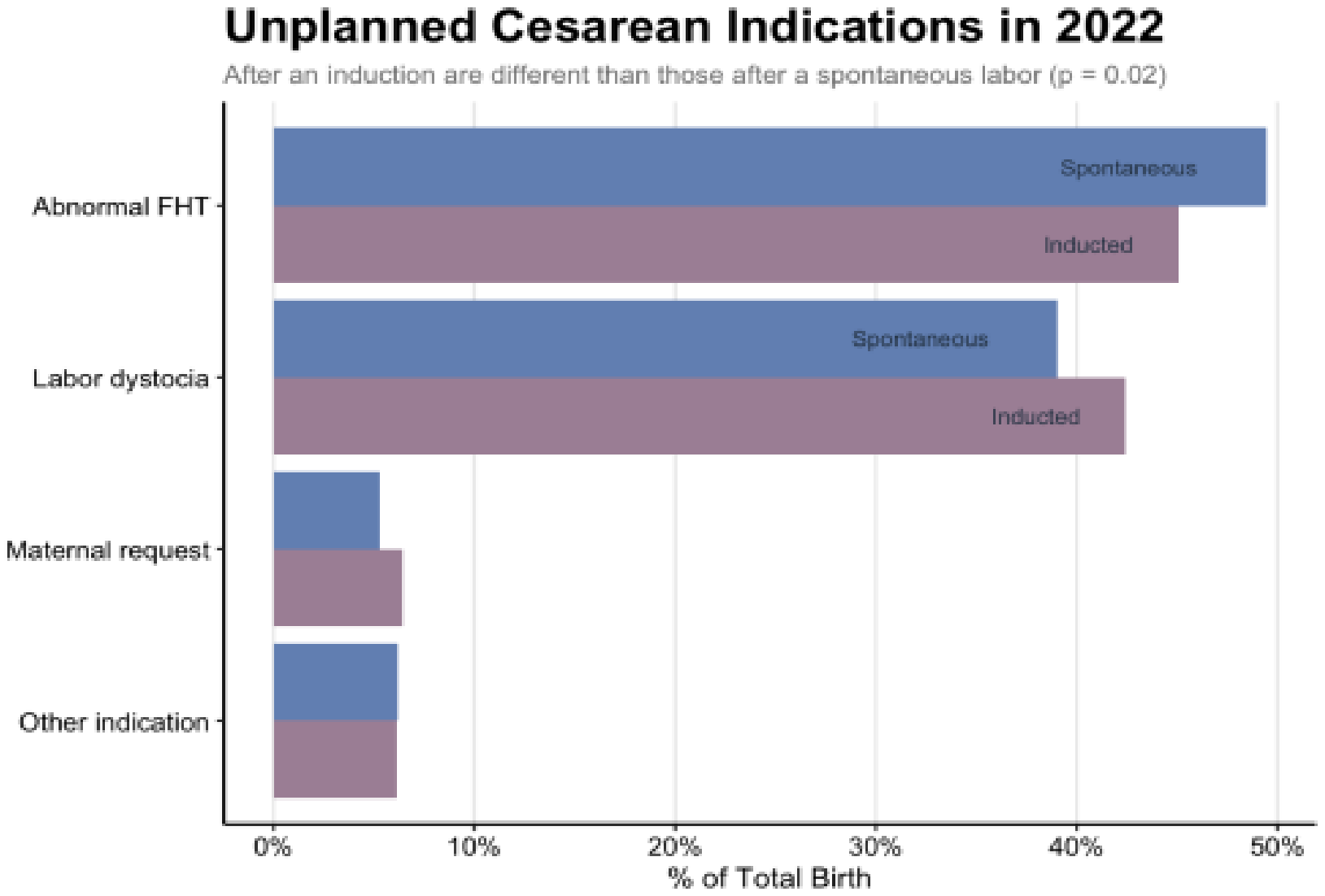


Data updated 3/28/2022 to include locked, completed cases 1/1/2020 - 11/27/2021

The proportion of births that are induced at the site level is positively associated with the site-level Cesarean rate (p = 0.02).



Data updated 5/1/2022 to include locked cases 1/1/2020 - 12/31/2021


Unplanned Cesarean Indications in 2022
After an induction are different than those after a spontaneous labor (p = 0.02)
Abnormal FHT
Spontaneous
Inducted
Labor dystocia
Spontaneous
Inducted
Maternal request
Other indication
0%
10%
20%
30%
40%
50%
% of Total Birth

Resources

- Delivery Decisions Initiative at Ariadne Labs
- Labor and Delivery Planning Board pdf
- OBI Resources and Tools: Labor Partnership Document
- OBI Option A Resource Page
- OBI Option B Resource Page
- TeamBirth Project home page
- Labor Culture Survey 2022
- OBI General website and resources

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