

January 5, 2023

3:00 PM ET

AIM TAP WEBINAR:

**Safe Reduction of Primary
Cesarean Birth: Keys to
Implementation Success**

with Dr. Stephanie Radke, MD, MPH, FACOG





ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH

The Alliance for Innovation on Maternal Health is a national, cross-sector commitment designed to support best practices that **make birth safer, improve maternal health outcomes, and save lives.**

This program is supported by a cooperative agreement with the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number UC4MC28042, Alliance for Innovation on Maternal Health. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.



Before we get started

**AIM TAP
Webinars
are
recorded**

**Resources
discussed are not
vetted or
endorsed by AIM
or ACOG and are
provided for your
convenience**

**Resources
should be
used at
your
discretion**

**If you need
help during
the call,
please chat
an AIM staff
member**



Safe Reduction of Primary Cesarean Birth: Keys to Implementation Success



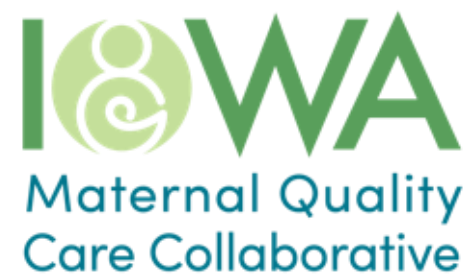
Dr. Stephanie Radke
MD, MPH, FACOG



AIM TAP Webinar: Safe Reduction of Primary Cesarean Birth, Pearls from Iowa

Stephanie Radke, MD, MPH, FACOG

January 5, 2023



Support acknowledgement: HRSA State Maternal Health Innovation Program & ACOG Alliance for Innovation on Maternal Health Program

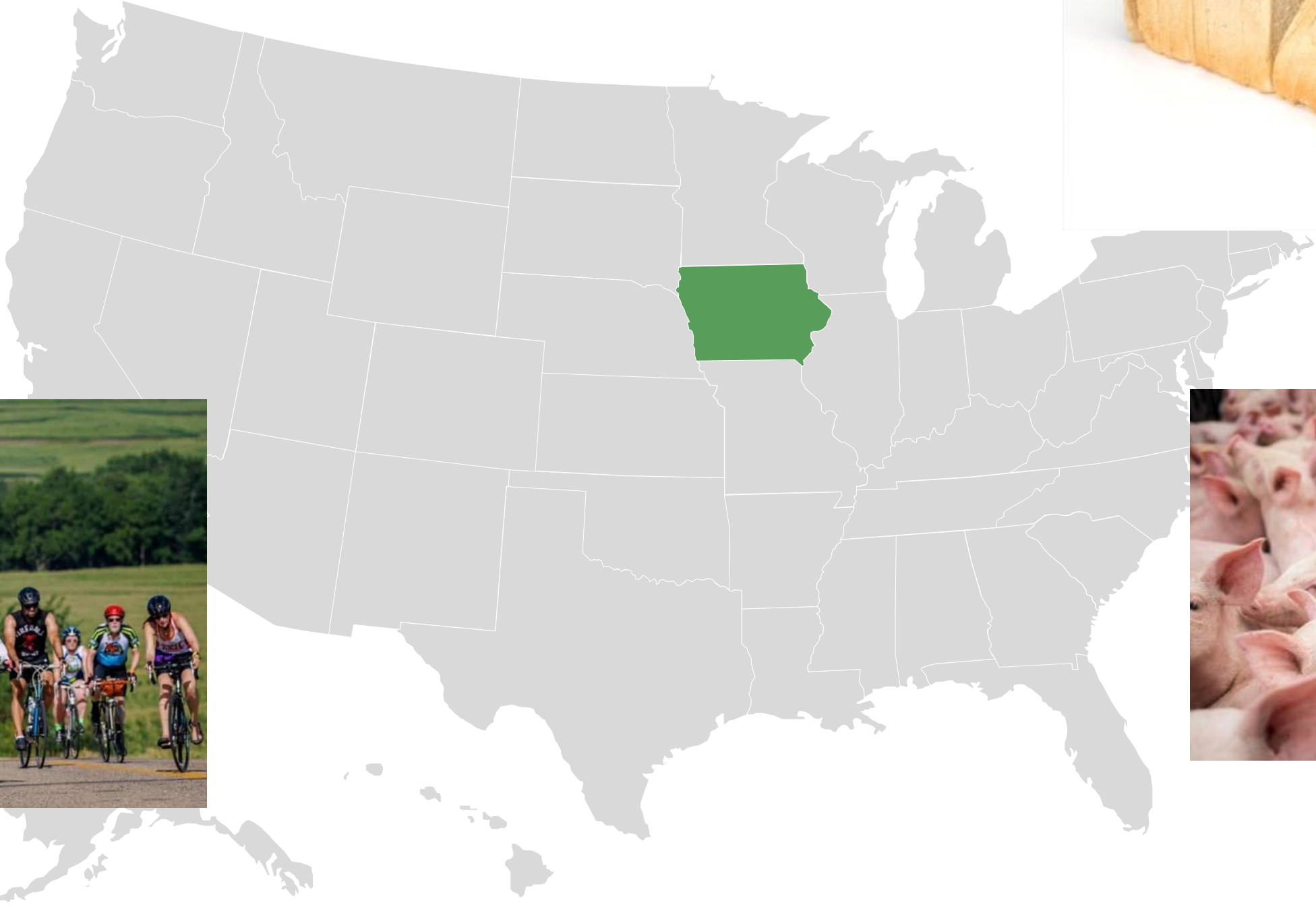
This presentation was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.

The AIM program is supported by a cooperative agreement with the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number UC4MC28042, Alliance for Innovation on Maternal Health. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

My background and perspectives

- Academic General OB/GYN at the University of Iowa Hospitals & Clinics
- Direct the AIM program in Iowa
- Led my own facility's effort to reduce our NTSV CS rate from 28% to under 23%
- Trained in collaborative improvement and improvement coaching by IHI
- Experience in community private practice prior to moving to academic medicine
- Exclusively trained and worked in multidisciplinary obstetrical practices with midwives, family physicians, and obstetrician-gynecologists

Here is Iowa



Intended Audience



- State AIM leaders
- Facility leaders and QI champions
- Maternal health stakeholders
- Patient partners

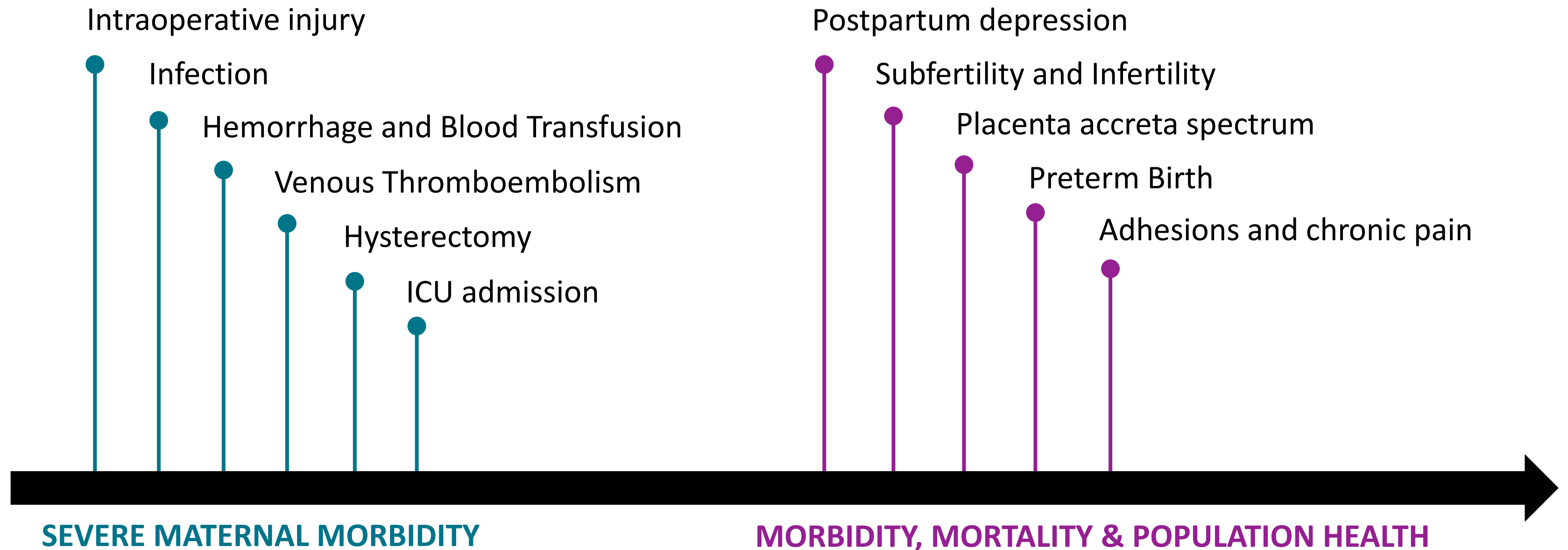
A Disclaimer from the WHO

Cesarean sections are effective in saving maternal and infant lives when required for medically-indicated reasons

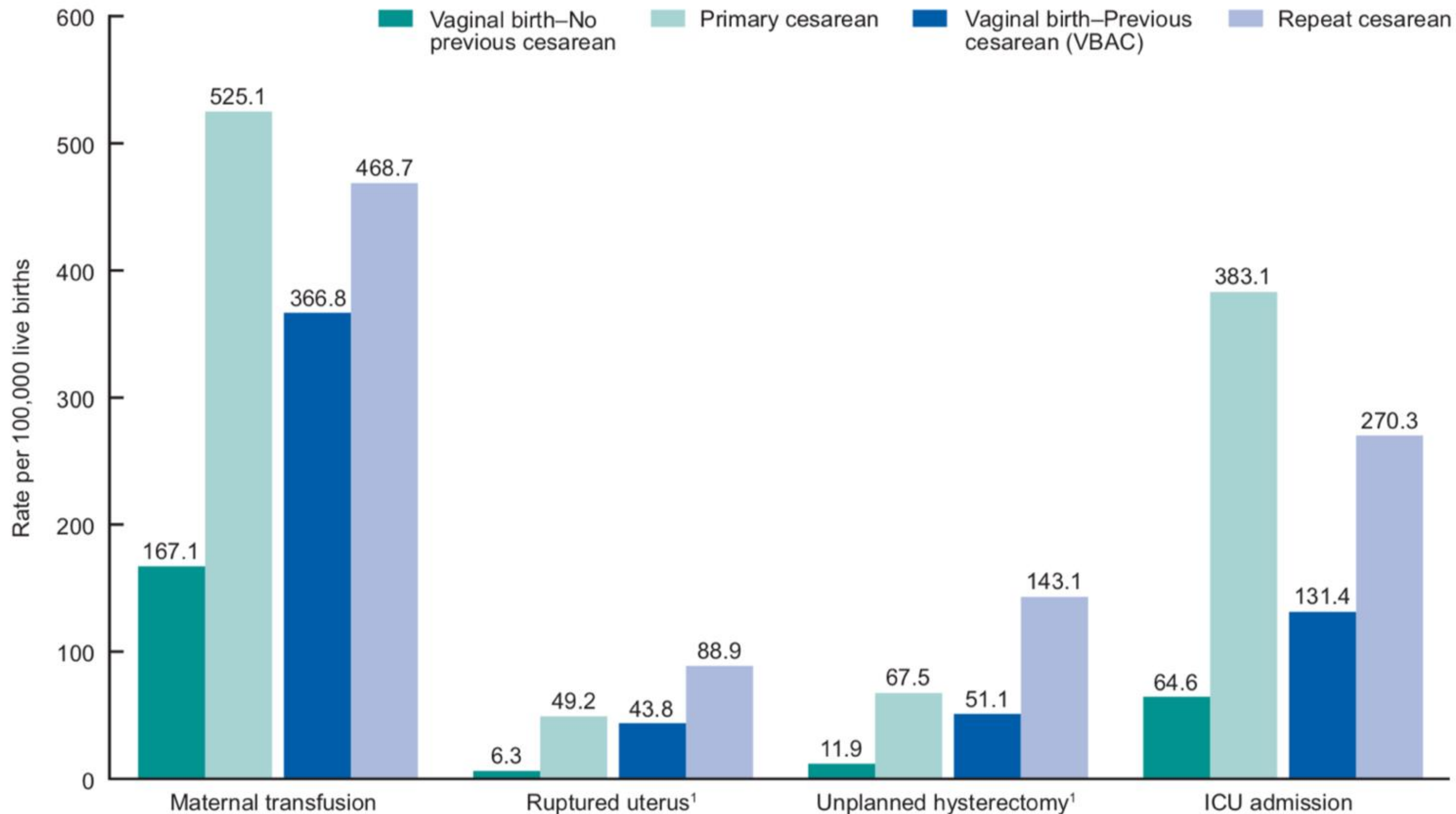
Every effort should be made to provide cesarean sections to people in need, rather than striving to achieve a specific rate



What is the population impact of excess cesarean delivery?



Nisenblat V, Barak S, Griness OB, Degani S, Ohel G, Gonen R. Maternal complications associated with multiple cesarean deliveries. *Obstet Gynecol.* 2006;108(1):21-26.
Clark EA, Silver RM. Long-term maternal morbidity associated with repeat cesarean delivery. *Am J Obstet Gynecol.* 2011;205(6 Suppl):S2-S10.
Xu H, Ding Y, Ma Y, Xin X, Zhang D. Cesarean section and risk of postpartum depression: A meta-analysis. *J Psychosom Res.* 2017;97:118-126.



Severe Maternal Morbidity (SMM) by delivery type:
 There is greater morbidity associated with all deliveries after a primary cesarean

¹Difference in rates between primary cesarean and VBAC is not statistically significant.
 NOTES: The birth certificate reporting area represented 90% of all U.S. births in 2013. ICU is intensive care unit.
 SOURCE: CDC/NCHS, National Vital Statistics System.



Identifying an Optimal Population Cesarean Rate

2005-2012 Cesarean delivery rates for 194 WHO member states

- Relationship between Cesarean delivery rate, maternal mortality ratio and neonatal mortality rates
- Adjusted for per-capita health expenditure, population, % urban, fertility rate, and region

Cesarean delivery rate of approximately 19% was associated with the lowest maternal and neonatal mortality rates

What is the best measure of cesareans for improvement work?

Nulliparous Term Singleton Vertex Cesarean Rate

- First birth
- Focus on generally low-risk pregnancies

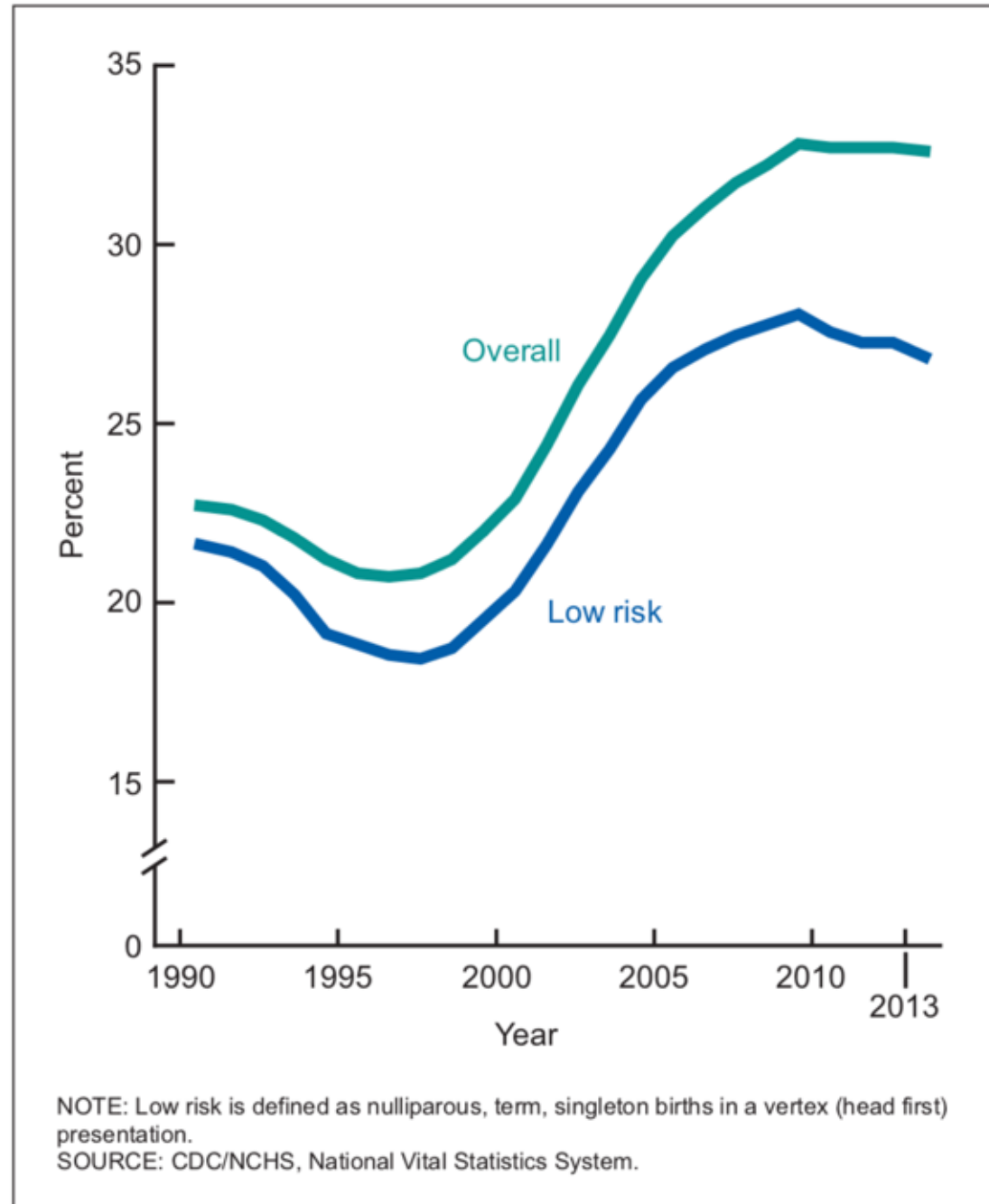


Figure 1. Overall cesarean delivery and low-risk cesarean delivery: United States, final 1990–2012 and preliminary 2013

Population Targets for NTSV CS:



15%



24.7%

(10% reduction from 2007 rate)



23.6%

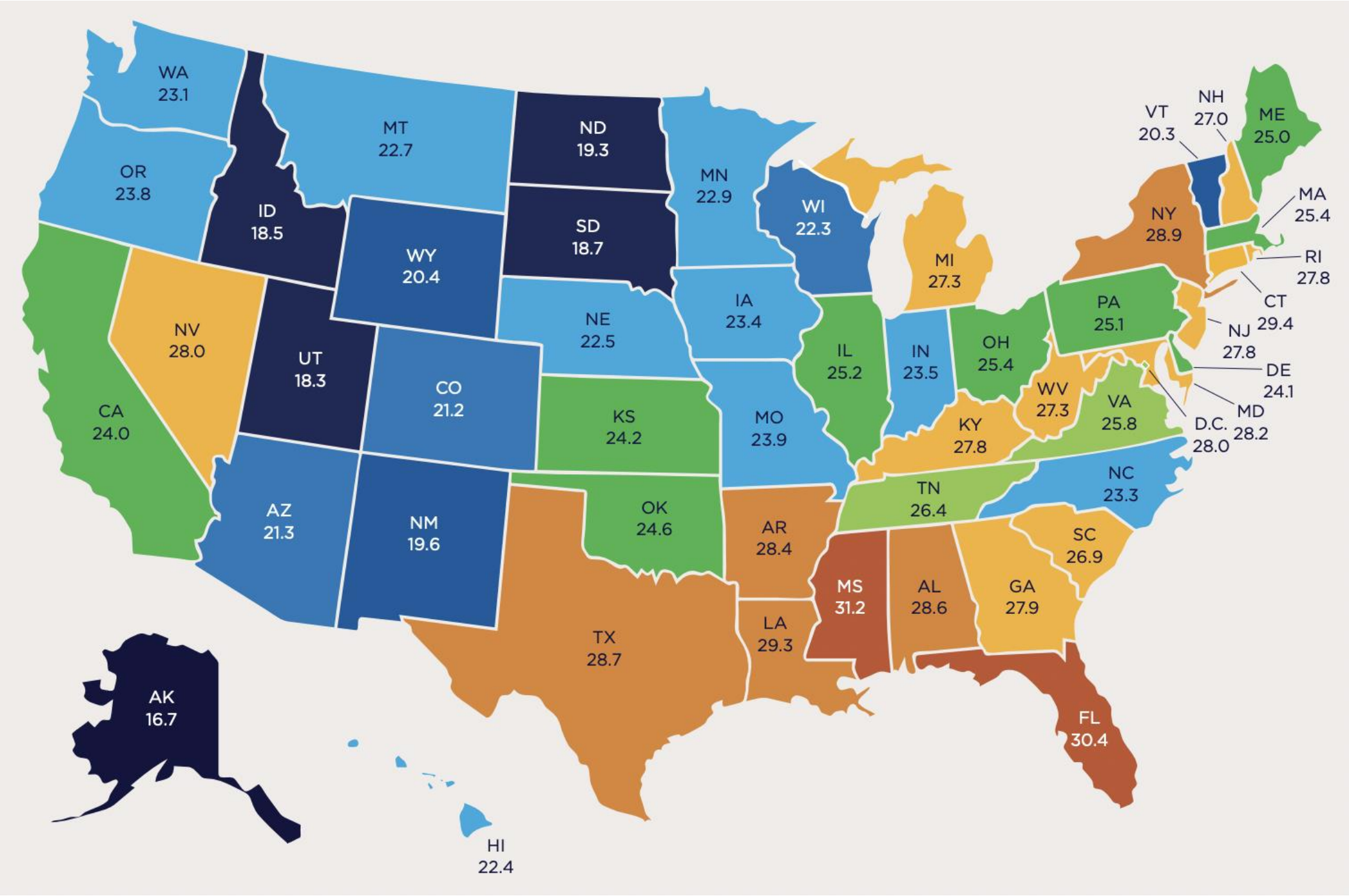
(10% reduction from 2018 rate)

https://www.healthypeople.gov/node/4900/data_details

<https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth/reduce-cesarean-births-among-low-risk-women-no-prior-births-mich-06>



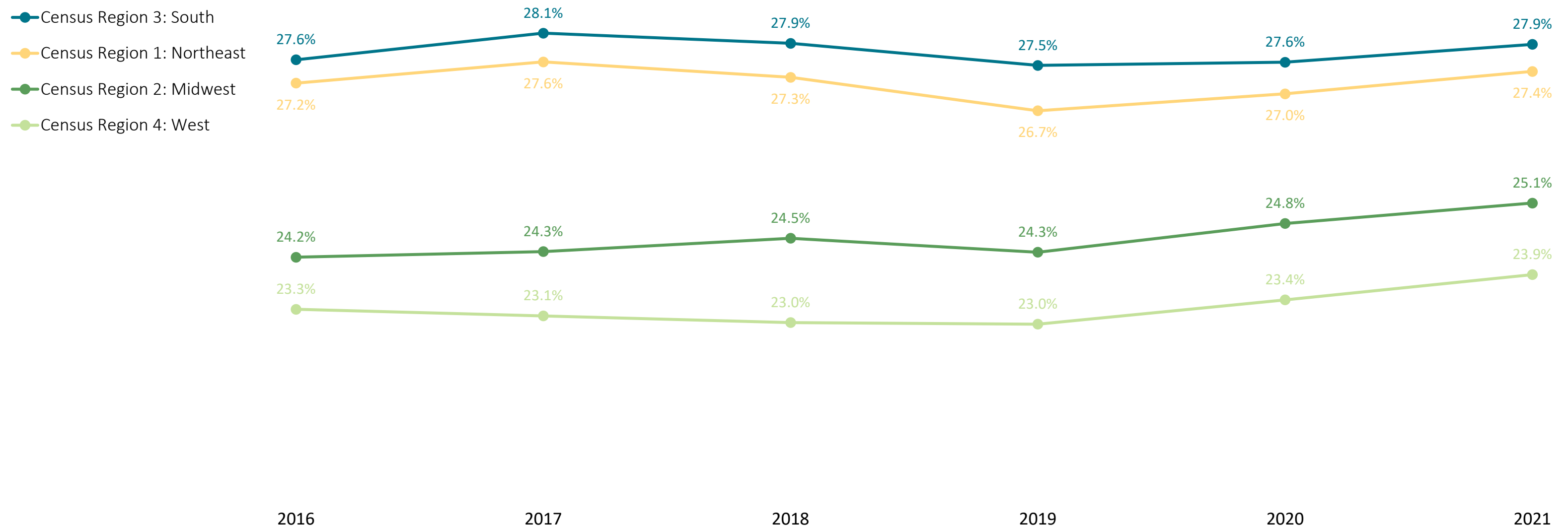
Cesarean rates (NTSV) by state demonstrate significant regional variation



<https://aspe.hhs.gov/sites/default/files/private/aspe-files/264076/hhs-maternal-health-action-plan-summary.pdf>



Trends over time show regional variation and recently increasing NTSV CS rates (%)



Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Natality on CDC WONDER Online Database. Data are from the Natality Records 2016-2021, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/natality-expanded-current.html> on Dec 29, 2022 1:12:08 PM



Structure of an AIM bundle



Safe Reduction of
Primary Cesarean Birth

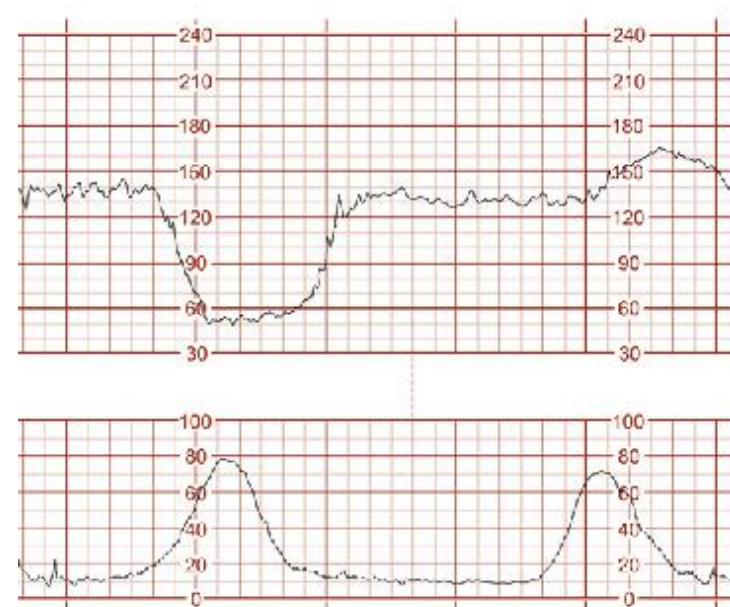
- Readiness:** every unit, every team
- Recognition:** every patient
- Response:** every event
- Reporting:** every unit
- Respectful care:** integrated 

How to improve: Outline for the rest of the session



READINESS

Building systems to support physiologic birth: everyone has a role to play



RECOGNITION & RESPONSE

Important opportunities:
Labor inductions,
equivocal FHR patterns,
and slow labor



REPORTING

Using data to guide improvement efforts



RESOURCES

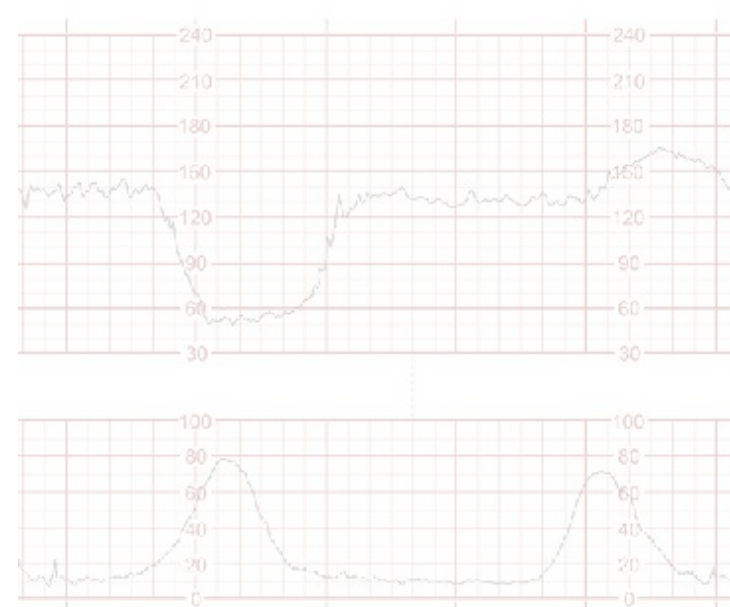
Available resources from AIM and others

How to improve: Outline for the rest of the session



READINESS

Building systems to support physiologic birth: everyone has a role to play



RECOGNITION & RESPONSE

Important opportunities: Labor inductions, equivocal FHR patterns, and slow labor



REPORTING

Using data to guide improvement efforts



RESOURCES

Available resources from AIM and others

Payors and policy solutions



- Fee for service model favors more interventions, including cesareans
- Value-based payment programs that reward by quality metrics will motivate systems to improve
- Coverage for doula services
- Public reporting of facility cesarean rates
- Incentivization of facility participation in quality collaboratives

Community resources


- Normalization of physiologic birth
- Community support and connection to resources to promote health before, during, and after pregnancy
- Group prenatal care
- Prenatal education
- Doula services



Unit culture

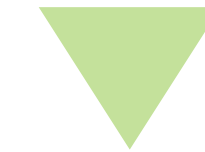


- Hire midwives
- Collaborative practice models (shared RVUs, cross-coverage)
- Shift-based coverage vs solo practitioner (avoid the 5pm CS)
- Ask: do nurses and providers value physiologic birth?
 - Knowledge
 - Attitudes
 - Beliefs

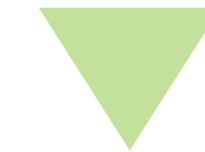


Provider concerns: Is this all just about when to “call it”?

Interpretation of FHR



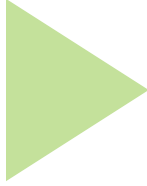
Assessment of labor
progression



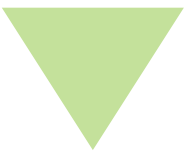
Consideration
for primary CS

Prenatal education

Intrauterine resuscitation



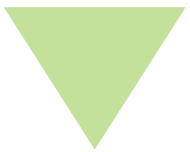
Interpretation of FHR



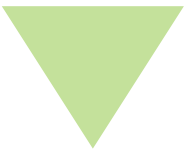
Latent labor care



Positioning and movement



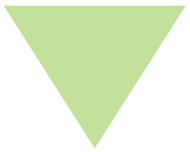
Assessment of labor progression



Timing of labor admission



Labor support



Consideration for primary CS

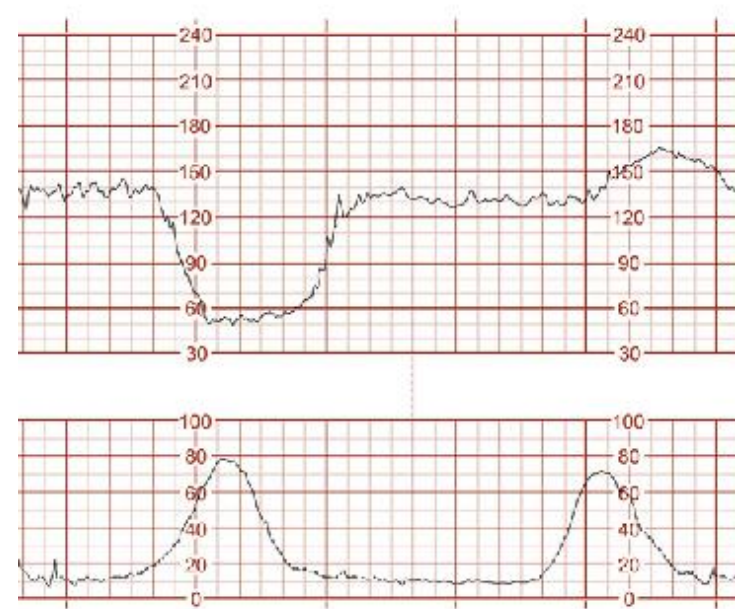


How to improve: Outline for the rest of the session



READINESS

Building systems to support physiologic birth: everyone has a role to play



RECOGNITION & RESPONSE

Important opportunities: Labor inductions, equivocal FHR patterns, and slow labor



REPORTING

Using data to guide improvement efforts



RESOURCES

Available resources from AIM and others

Labor induction

- Is labor induction a standardized process or is there variation based on individual provider or group preferences?
- Is there a standard assessment of Bishop score and protocol to perform cervical ripening if unfavorable?
- Is there a process to consider abandoning an induction if cervical ripening is unsuccessful?
- Consider the impact the ARRIVE trial may have had on your facility.
- How are patients counseled about planned labor inductions?



Medically-Indicated Late Preterm and Early Term Deliveries

INTERIM UPDATE

- Comprehensive recommendations for delivery timing by maternal and fetal indications
- Definitions:
 - Late preterm = 34w0d-36w6d
 - Early term = 37w0d-38w6d
 - Full term = 39w0d-40w6d



ACOG COMMITTEE OPINION

Number 831

(Replaces Committee Opinion Number 818, February 2021)

Committee on Obstetric Practice Society for Maternal-Fetal Medicine

This Committee Opinion was developed by the Committee on Obstetric Practice in collaboration with Society for Maternal-Fetal Medicine liaison member Cynthia Gyamfi-Bannerman, MD, MS, committee members Angela B. Gantt, MD, MPH and Russell S. Miller, MD, and the Society for Maternal-Fetal Medicine.

INTERIM UPDATE: The content in this Committee Opinion has been updated as highlighted (or removed as necessary) to reflect a limited, focused change in delivery timing recommendations around preterm prelabor rupture of membranes.

Medically Indicated Late-Preterm and Early-Term Deliveries

IOWA
HHS



NTSV Elective Labor Induction in 39th Week: Revising the ARRIVE Trial

	Primary Outcome: Neonatal death or composite morbidity	Secondary Outcome: Cesarean delivery rate	Hypertensive Disorder	Length of stay on L&D
Intervention group: eIOL 39w0d-39w4d (n=3062)	4.3%	18.6%	9.1%	20 hours
Expectant group: no eIOL until 40w5d (n=3044)	5.4%	22.2%	14.1%	14 hours

- Intention to treat analysis (144 in intervention group and 135 in expectant group did not adhere to protocol)
- Expectant group protocol included medically-indicated IOL prior to 40w5d (“usual care”)
- Mean age 23-24 years (<5% were >35)
- Mean BMI at enrollment (38w) 30
- Median Bishop score of 4 (over 60% with Bishop <5)

National trends in practice and outcomes post-ARRIVE

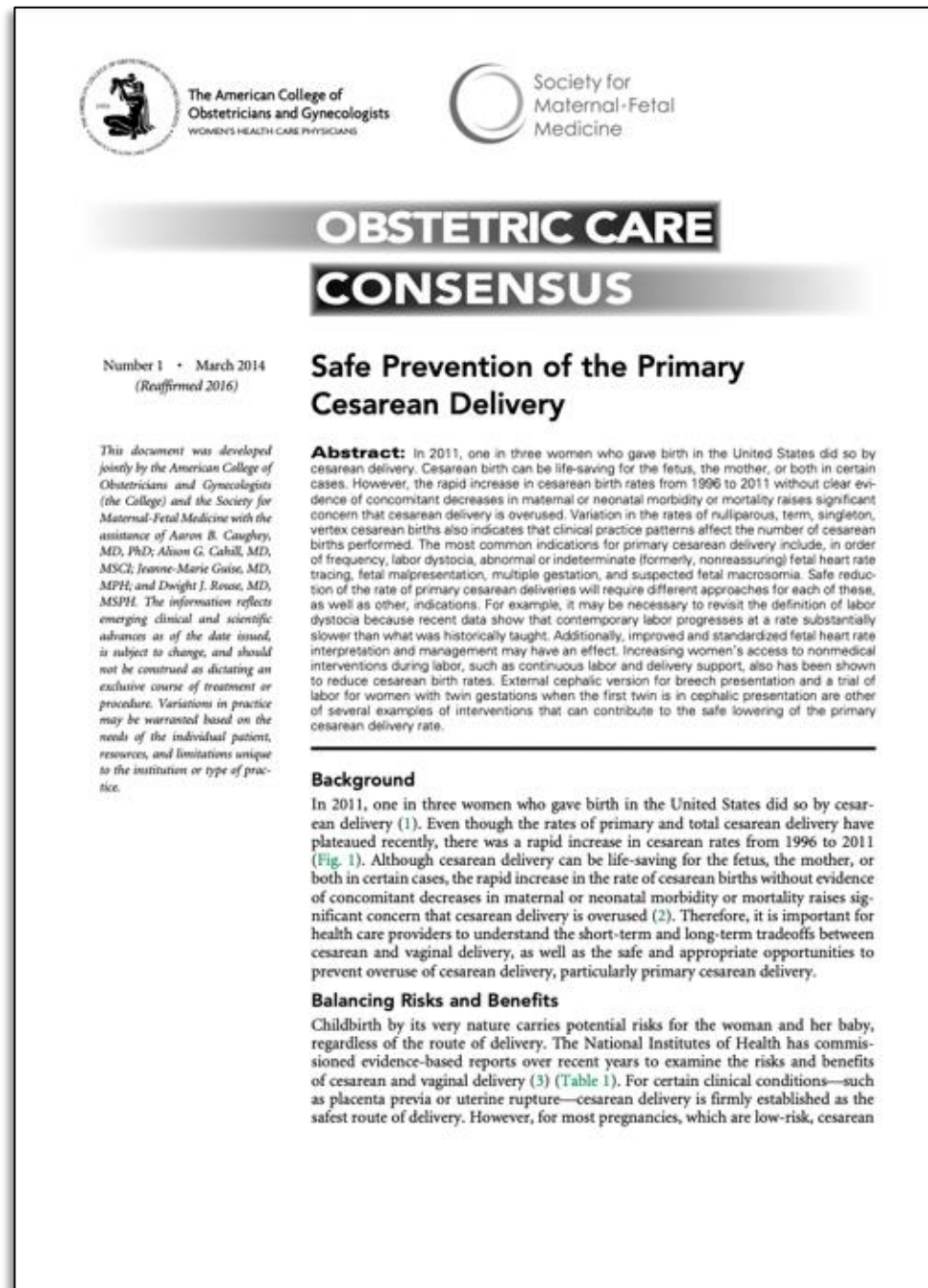
- Population-based retrospective cohort study of low-risk NTSV patients who delivered at 39w or greater
 - Pre-ARRIVE cohort delivered between January 1, 2015 – December 31, 2017 (n=1,966,870)
 - Post-ARRIVE cohort delivered between January 1, 2019 – December 31, 2019 (n=609,322)
- Adjusted for differences in age, race, BMI, marital status, infertility treatment, and smoking status

National trends in practice and outcomes post-ARRIVE trial

	Post-ARRIVE compared to Pre-ARRIVE
Labor induction	More likely (36.1% vs 30.2%, aOR 1.36)
Deliver by 39w6d	More likely (42.8% vs 39.9%, aOR 1.14)
Cesarean delivery	Less likely (27.3% vs 27.9%, aOR 0.94)
Receive a blood transfusion	More likely (0.4% vs 0.3%, aOR 1.43)
Require ICU admission	More likely (0.09% vs 0.08%, aOR 1.20)
Baby needs assisted ventilation	More likely (3.5% vs 2.8%, aOR 1.28)
Baby has low 5-minute APGAR	More likely (0.4% vs 0.3%, aOR 0.9)
Baby is admitted to NICU	No difference

ARRIVE trial eIOL
NTSV CS rate =
18.6% vs 22.2% in
non-induction group

Defining slow or absent labor progress: ACOG/SMFM OB Care Consensus



- Classification of the phase and stage of labor
 - First stage – latent: less than 6cm
 - First stage – active: 6cm or greater
 - Second stage: 10cm
- Standard criteria for diagnosing an arrest of labor in each of the three groups

Arrest of labor per ACOG/SMFM

Failed Induction of Labor (or arrest of latent phase labor):

- Current dilation is <6cm
- Membranes ruptured
- Oxytocin administered for at least 12-18 hours *after* membrane rupture, or longer if maternal and fetal status allow

Arrest of Dilation:

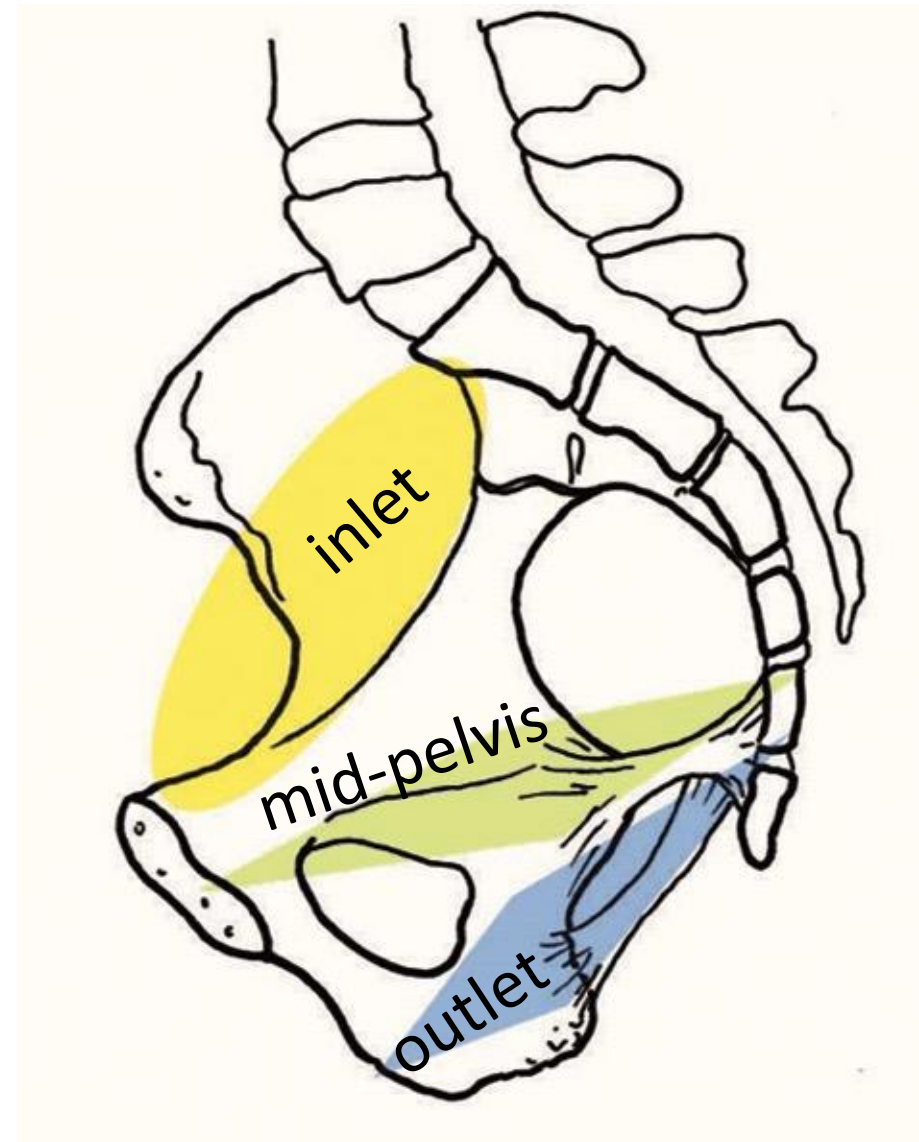
- Current dilation is 6cm or greater
- Oxytocin administration
- At least 4 hours of adequate uterine contractions (200 MVUs / strong to palpation) *or* at least 6 hours of inadequate uterine contractions (<200 MVUs)

Arrest of Descent:

- Full cervical dilation achieved (10cm)
- Membranes ruptured
- Active maternal pushing *nulliparas* for 4 hours with an epidural *or* 3 hours without an epidural. Active maternal pushing *multiparas* 3 hours with an epidural *or* 2 hours without an epidural
- Assessed or attempted operative vaginal delivery (if fetal station is +2 or lower)

Approach to slow labor: positioning

- Power, position, pelvis
- Utilize maternal positions that align with where baby is in the pelvis
- Resources:
 - Peanut balls and staff education on use
 - Spinning Babies education
 - Bundle Birth position guides



<https://mandyirby.com/peanut-balls-labor/>

<https://www.spinningbabies.com/solutions-for-dystocia-in-the-levels-of-the-pelvis/>

<https://www.bundlebirth.com/product-page/bundle-birth-position-guide>

IOWA
HHS



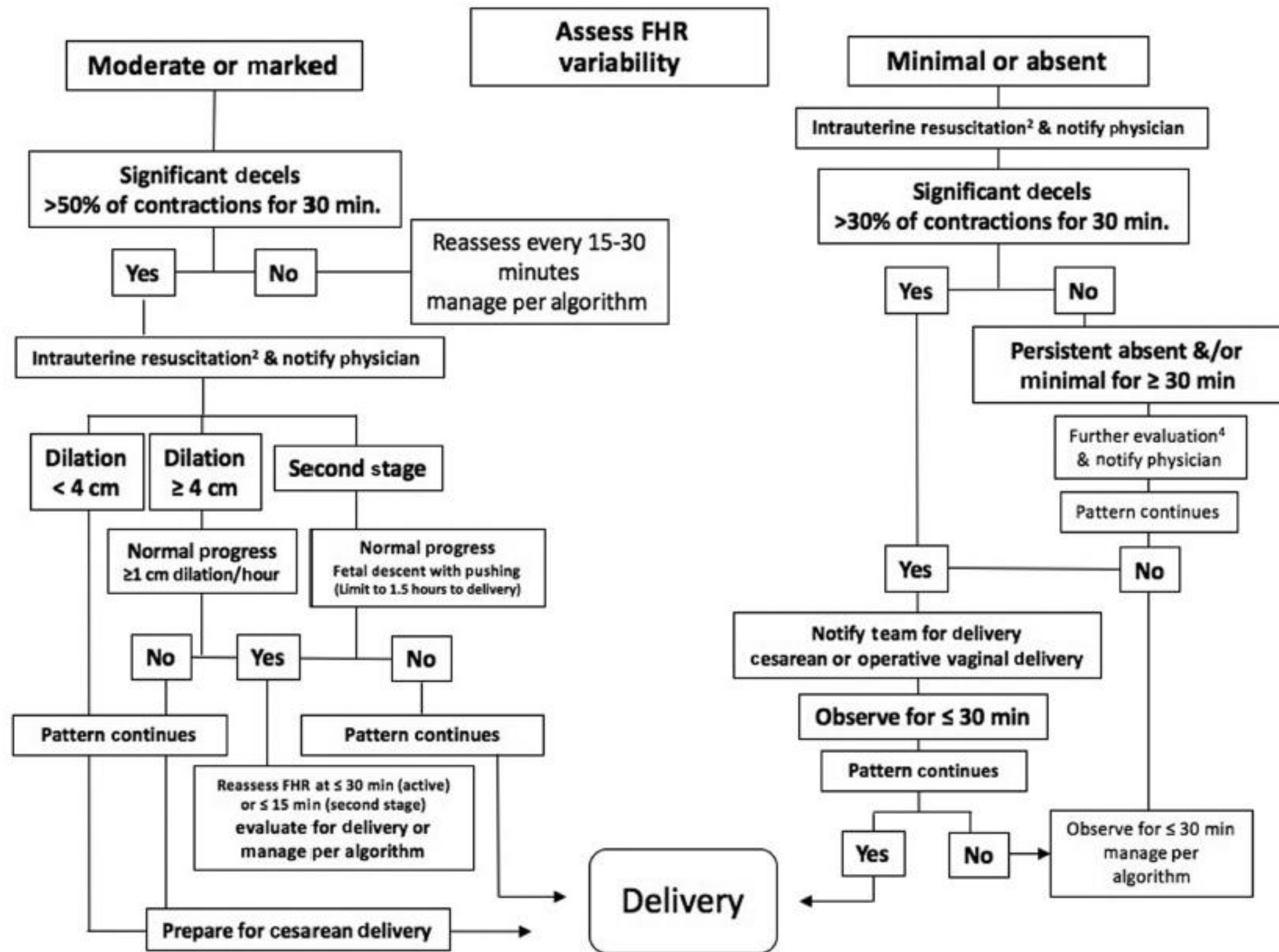
Non-reassuring fetal status / fetal intolerance to labor

Consistency across and between providers and nurses in EFM description, interpretation, and response is the goal.

- NICHD standards
 - Baseline
 - Variability
 - Presence or absence of accelerations
 - Presence or absence of decelerations and type, if present
- Standardize and broaden the description of variable and late decelerations
 - Length (onset to return to baseline)
 - Depth (BPM at nadir and difference between baseline and nadir)
 - Frequency (ie. with 100%, 50%, 30%, 10% of contractions)

Utilize an algorithm to approach equivocal EFM patterns (Category II)

- Initial algorithm by Clark et al offered response to decelerations in the presence of moderate variability
- Shields et al expanded on this by offering an expert consensus on response to decelerations in the presence of minimal or absent variability
 - Developed and implemented this algorithm across the Dignity Health network of hospitals in California and Arizona
 - Goal was not to reduce cesareans, but to reduce unexpected term newborn outcomes
 - In Iowa, we have found success in reduction of cesareans using this tool as a strategy to avoid over treatment of equivocal tracings



Shields LE, Wiesner S, Klein C, Pelletreau B, Hedriana HL. A Standardized Approach for Category II Fetal Heart Rate with Significant Decelerations: Maternal and Neonatal Outcomes. *Am J Perinatol.* 2018;35(14):1405-1410. doi:10.1055/s-0038-1660459

Fig. 1 Management outline for patients with Category II fetal heart rates associated with “significant decelerations” and normal fetal heart rate variability (moderate or marked) and abnormal variability (minimal or absent). FHR, fetal heart rate. Notes: 1. Resuscitative Measures may include: repositioning, O₂ (10L via mask), IV bolus, correction of hypotension. 2. Additional Interventions: consider amnioinfusion for variable decels. 3. Scalp stimulation and/or vibroacoustic stimulation.

Decelerations: what is significant?

- Prolonged decelerations
- Late decelerations
- Severe variable decelerations
 - 60 seconds long
 - 60 beats below baseline
 - 60 BMP at the nadir



When a cesarean is needed, optimize the experience



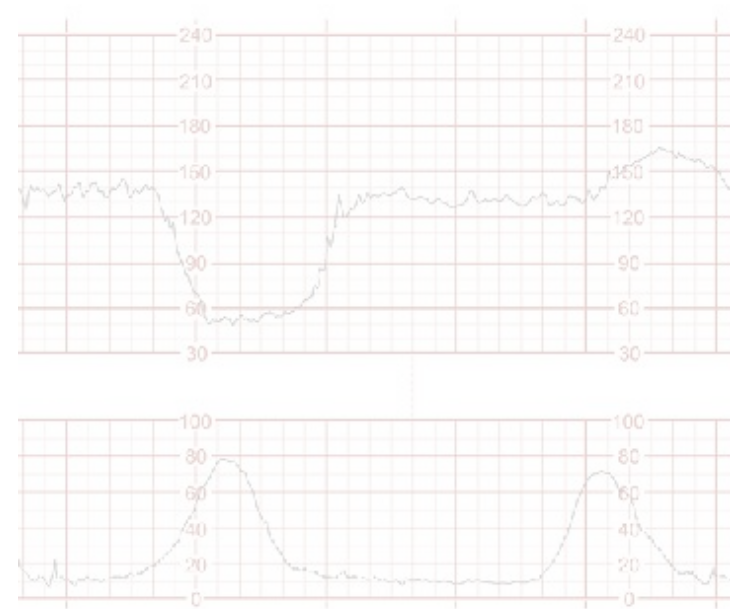
- Some cesareans will always be needed.
- Including the pregnant person and their support people in the labor decision-making process may ease potential feelings of disappointment and improve their understanding of the rationale.
- Taking steps to promote family bonding during and after cesarean birth will improve satisfaction, reduce perceptions of pain, and improve breastfeeding.

How to improve: Outline for the rest of the session



READINESS

Building systems to support physiologic birth: everyone has a role to play



RECOGNITION & RESPONSE

Important opportunities:
Labor inductions,
equivocal FHR patterns,
and slow labor



REPORTING

Using data to guide improvement efforts



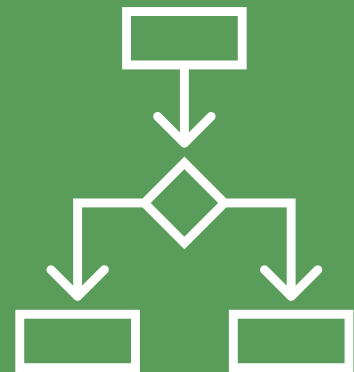
RESOURCES

Available resources from AIM and others

A Family of Measures for Improvement



Outcome



Process



Balancing



Structure

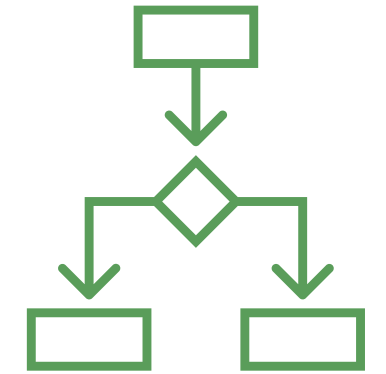
Outcome Measures



The clinical outcome of interest for the initiative

- Overall cesarean rate
 - Primary cesarean rate
 - NTSV cesarean rate
 - NTSV cesarean rate following labor induction
-
- Measures can be easily captured using vital records, billing, and EHR data sources

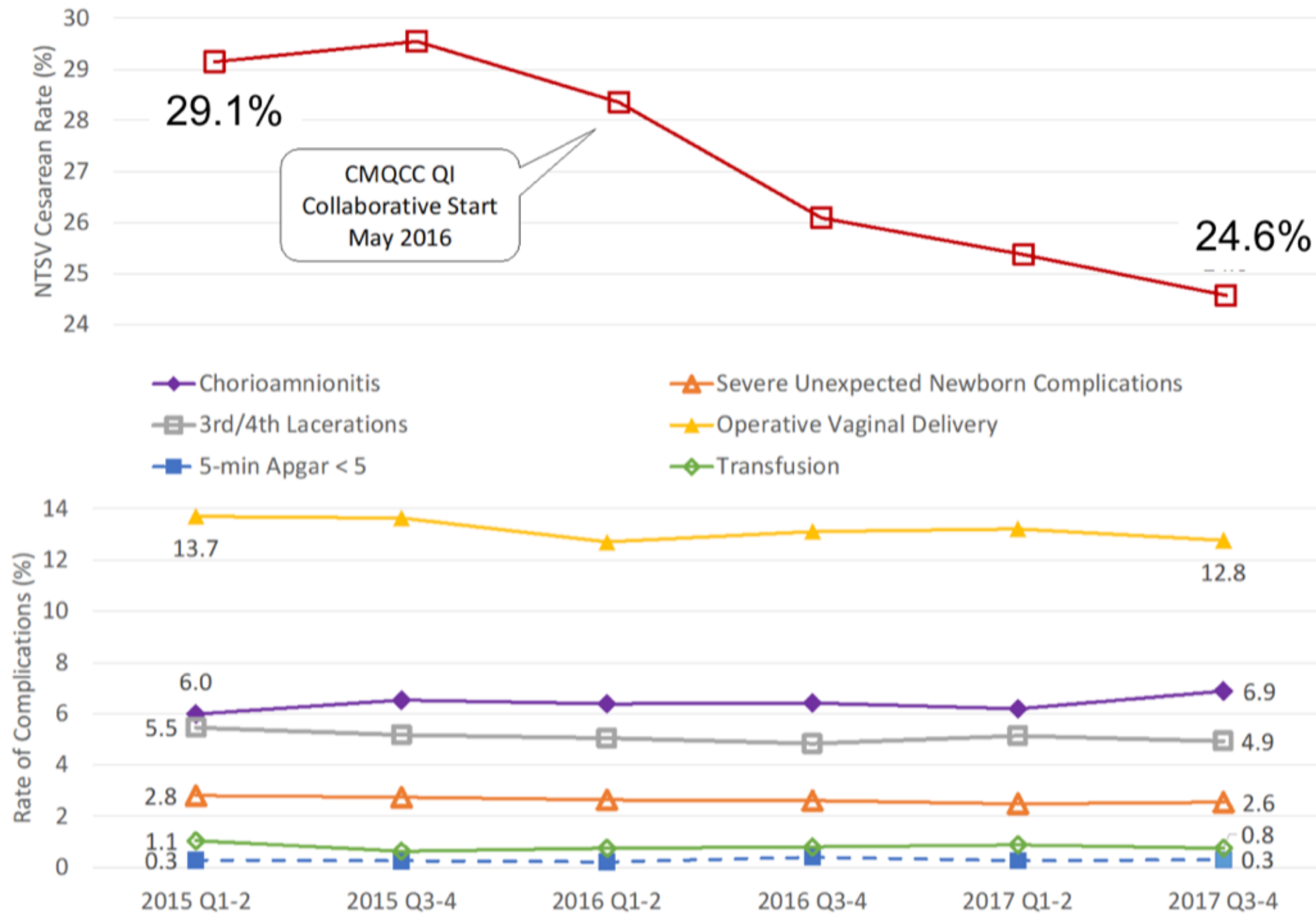
Process Measures



Measuring the quality of the care provided

- Portion of **term primary cesareans for non-progressive labor** that met current national consensus guidelines
- Portion of **term primary cesareans for fetal concerns** that met current expert guidelines
- These values are important to understand, at a facility and maybe even provider level, where your improvement opportunities lie

Balancing Measures



Will doing fewer cesareans result in harm in other ways?

Balancing measures are important for:

- Safety
- Staff buy-in

CMQCC
California Maternal
Quality Care Collaborative



A word about examining provider-level cesarean rates

- Recognition of outliers in practice is an important part of improvement.
- Those with the best outcomes should be studied to learn keys to success.
- Those with suboptimal outcomes should be offered support to adjust practices.
- Calculation of rates must account for practice type (ie coverage of non-operative obstetrical providers) and be over enough time for trends to be stable (6-month time periods or more).



Guidance for Understanding and Unblinding Provider-Level NTSV Cesarean Rates

At Start of Project

Before the process of unblinding NTSV cesarean rates begins, it is important for teams to have a baseline understanding of their underlying practices. This can be determined through an examination of the drivers for primary cesarean rates, followed by a chart review of a sample to assess how well the providers follow the national ACOG guidelines for Failure to Progress and other key primary cesarean indications. Ongoing monthly review for consistency with guidelines is also quite useful (recognizing that not every case will follow the guidelines perfectly). The Readiness Assessment and Structure Measures Checklist will assist with this baseline review. Success of the project hinges upon system improvements that support providers in reducing individual rates.

<https://www.cmqcc.org/content/guidance-understanding-and-unblinding-provider-level-ntsv-cesarean-rates>

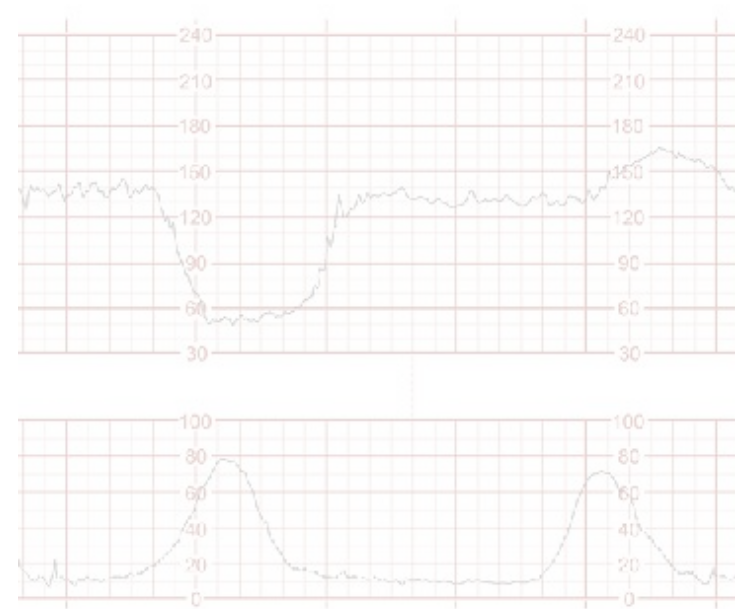


How to improve: Outline for the rest of the session



READINESS

Building systems to support physiologic birth: everyone has a role to play



RECOGNITION & RESPONSE

Important opportunities:
Labor inductions,
equivocal FHR patterns,
and slow labor



REPORTING

Using data to guide improvement efforts



RESOURCES

Available resources from AIM and others

Resources from AIM

- Bundle is under revision and new version with additional resources expected in early 2023



ALLIANCE FOR INNOVATION ON MATERNAL HEALTH
A quality improvement initiative to support best practices that make birth safer, improve maternal health outcomes and save lives.

HOME ABOUT US PATIENT SAFETY BUNDLES AIM CORNERSTONES RESOURCES AIM DATA COLLABORATIVE STRATEGIES CONTACT

AIM PATIENT SAFETY BUNDLES

AIM develops multidisciplinary, clinical-condition specific patient safety bundles to support best practices that make birth safer. [LEARN MORE](#)

SAFE REDUCTION OF PRIMARY CESAREAN BIRTH

READINESS	+
RECOGNITION & PREVENTION	+
RESPONSE	+
REPORTING & SYSTEMS LEARNING	+
RESPECTFUL, EQUITABLE & SUPPORTIVE CARE	+
SAFE REDUCTION OF PRIMARY CESAREAN BIRTH IMPACT STATEMENT	+

QUICK LINKS

- Safe Reduction of Primary Cesarean Birth Printable Bundle (PDF)
- Safe Reduction of Primary Cesarean Birth Complete Bundle Resource Listing (PDF)
- Safe Reduction of Primary Cesarean Birth Implementation Resources (PDF)

Journal Articles

- Obstetrics & Gynecology (Link)

<https://saferbirth.org/psbs/safe-reduction-of-primary-cesarean-birth/>



Resources from CMQCC

ABOUT CMQCC

MATERNAL
DATA CENTER

QI INITIATIVES

- Toolkit from CMQCC outlines specific practices and resources in detail, complementary to the AIM bundle.
- Free on their website, just need to register

Toolkit to Support Vaginal Birth and Reduce Primary Cesareans

The Toolkit is a comprehensive, evidence-based “how-to” guide designed to educate and motivate maternity clinicians to apply best practices for supporting vaginal birth. Cesarean births among low-risk, first-time mothers have been the largest contributor to the recent rise in cesarean rates, and accounts for the greatest variation in cesarean rates between hospitals.

The Toolkit contains key strategies and resources to:

- Improve the Culture of Care, Awareness, and Education for Cesarean Reduction
- Support Intended Vaginal Birth
- Manage Labor Abnormalities and Safely Reduce Cesarean Births
- Use Data to Drive Reduction in Cesareans

**Appendix Q, Example Algorithm for the Management of Intrapartum Fetal Heart Rate Tracings, has been updated (9/20/17)

Yes

REGISTER OR LOGIN TO DOWNLOAD

<https://www.cmqcc.org/VBirthToolkitResource>

IOWA
HHS



Conclusions

- Rates of cesarean birth are too high in the U.S. and contribute to morbidity and mortality. Regional, facility, and provider-level variation demonstrate the potential for improvement.
- Strategies exist to support physiologic birth at the policy, community, facility, and individual provider and nurse levels. Everyone has a part to play.
- The first step for a state, community, facility, or individual looking to lower cesarean rates is to examine historical data to identify improvement opportunities.
- Unit culture heavily influences cesareans – investing in training and resources to support labor progress is an important way to promote a culture of support for physiologic birth.
- Partnering with pregnant people and their families throughout care, including during labor, may ease emotions if a cesarean becomes necessary. Taking deliberate steps to promote family bonding following cesarean birth also optimizes the experience and outcomes.

Questions or discussion?
stephanie-radke@uiowa.edu





How did you find us?





Upcoming TAP Webinars

Register at saferbirth.org under Resources > Events

Implementing a Clinician and Staff Peer Support Program

January 19th
at 3 PM ET



Linda Kenney & Jackie Ewuoso, MPH

Patient Support

February 9th
at 3 PM ET



Coming Soon!



Thank you!

**The recording
will be emailed
to all attendees
once ready**

**AIM will also post
the recording on
our website,
saferbirth.org**

**Any questions about
this webinar or the
series can be sent to
AIM@acog.org**

**Remember to
register for
upcoming
webinars!**