Institute for Healthcare Improvement

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

Safe Reduction of Primary Cesarean Birth Change Package

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Contents

Introduction

The Alliance for Innovation on Maternal Health (AIM) is a national data-driven maternal safety and quality improvement (QI) initiative. AIM works through state and community-based teams to align national, state, and hospital-level QI efforts to reduce preventable maternal mortality and severe morbidity across the United States.

The AIM Patient Safety Bundles are a core part of this work. To promote the successful implementation of these bundles, AIM partnered with the Institute for Healthcare Improvement (IHI) to create a series of associated change packages. This specific change package is designed to support Perinatal Quality Collaboratives (PQCs) and other state-based initiatives to leverage the AIM Safe Reduction of Primary Cesarean Birth Patient Safety Bundle more effectively.

Why is this important?

The United States remains in a maternal mortality crisis, highlighting the urgency for comprehensive reforms in maternal healthcare. According to the National Center for Health Statistics, the maternal mortality rate in 2021 was 32.9 deaths per 100,000 live births, compared with a rate of 23.8 in 2020 and 20.1 in 2019.[1] One contributing factor to this problem is the rising number of cesarean births, which can lead to increased morbidity and mortality from hemorrhage, infection, adherent placentation, and venous thromboembolism. While cesarean births can be lifesaving and necessary, many unplanned cesarean births could be prevented with standardized modifications to care.

Unacceptable racial inequities persist within maternal healthcare, most notably affecting Black and Indigenous communities, causing disproportionately high rates of maternal death and morbidity in these populations. Inequities in cesarean birth rates further demonstrate variations in treatment across populations and settings.

To address this issue, it is imperative for maternal health professionals and birthing facilities to take proactive steps to enhance the likelihood of safe primary vaginal births and decrease preventable cesareans in all groups. By adopting evidence-based practices, promoting continuous labor support, and encouraging open communication between healthcare providers and birthing individuals, we can foster an environment that prioritizes the wellbeing of each birthing person and improves outcomes. This change package aims to support teams implementing the AIM Safe Reduction of Primary Cesarean Birth Patient Safety Bundle by improving Readiness, Recognition, Response and Reporting within a framework of Respectful, Equitable and Supportive care and multidisciplinary collaboration at all levels.

What is a change package?

A change package is a document listing evidence-based, or best-practice changes specific to a topic and is usually organized around a framework or model. In this case, the Safe Reduction of

Primary Cesarean Birth Change Package is structured around the Safe Reduction of Primary Cesarean Birth Patient Safety Bundle.[2]

Changes packages, including this one, are structured around the following components:

- **Primary Drivers**: Major processes, operating rules, or structures that will contribute to moving toward the aim. In this change package, the primary drivers are based on AIM's Five Rs Framework (Readiness, Recognition & Prevention, Response, Reporting/Systems Learning, and Respectful Care).
- **Change Concepts:** Broad concepts (e.g., "move steps in the process closer together") that are not yet specific enough to be actionable but that will be used to generate specific ideas for change.
- **Change Ideas**: Actionable, specific ideas for changing a process. Change ideas can come from research, best practices, or from other organizations that have recognized a problem and have demonstrated improvement on a specific issue related to that problem.

Taken as a whole, a change package has the potential to seem overwhelming. Based on the priorities of your state and community, we encourage you to start small by testing a couple of ideas connected to the aim you set. Through iterative tests of change (also known as Plan-Do-Study-Act (PDSA) cycles), you will have an opportunity to learn what works and what does not in your efforts to improve your processes. Initially, these cycles are carried out on a small scale (e.g., one patient on one day) to see if they result in improvement. Teams can then expand the tests and gradually incorporate larger and larger samples until they are confident that the changes will result in sustained improvement.

How to prioritize changes?

No team is expected to test all the listed change ideas. Consider this a menu of options from which you may choose what to tackle first. Each team will review their baseline data, progress to date, organizational priorities, and select an area(s) to prioritize. For example, some may start with one driver. Others may start by tackling one idea across all drivers. Start by choosing an area that you think could lead to an easy win.

You can also leverage the following tools to help you decide where to start:

1. Pareto chart: A type of bar chart in which the various factors that contribute to an overall effect are arranged in order according to the magnitude of their effect. This ordering helps identify the "vital few" — the factors that warrant the most attention.[3]
2. Priority matrix: A tool that can better help you to understand important relationships between two groupings (e.g., steps in a process and departments that conduct those steps) and make decisions on where to focus.[4]
3. Impact-effort matrix: A tool that helps identify which ideas seem easiest to achieve (least effort) with the most effects (highest impact). The ideas identified via this tool would be a great place to start.[5]

Change Package

A Note on Symbols

Respectful, Equitable, and Supportive Care

In the latest revision of the AIM Safe Reduction of Primary Cesarean Birth Patient Safety Bundle, a fifth R was added; Respectful, Equitable, and Supportive Care. This R is integrated throughout the change package, and all change ideas that fall under this R are marked with a ◊ symbol.

Additional Considerations

It is understood that every team utilizing this change package will be at a different point in this work. If your organization is further along in your safe reduction of primary cesarean birth improvement work and has found reliability in some of the change ideas below, we suggest testing the additional considerations in *italics* and marked by the * symbol.

Readiness

Change Concept	Change Idea	Key Resources and Tools
Develop provider, patient community and unit culture that values, promotes, and supports spontaneous onset and progress of labor and vaginal birth and understands the risks for current and future pregnancies of cesarean birth without medical indication	Conduct Labor Culture Survey to develop a better understanding of current state and how unit culture may be affecting patient care *Use the results of the survey to identify opportunities for staff training, coaching, and support* *	Measuring labor and delivery unit culture and clinicians' attitudes toward birth: Revision and validation of the Labor Culture Survey[6]
	Develop mechanisms for peer feedback, pairing providers with lower cesarean rates and those with higher rates to facilitate coaching and support	California Maternal Quality Care Collaborative (CMQCC): Guidance for Understanding and Unblinding Provider-Level NTSV Cesarean Rates[7]
	Develop and document a process for training, recruiting, and incorporating midwives into active clinical practice and team-based care on labor and delivery units *Consider developing processes for incorporating community-based midwives into the care team upon transfer from home birth or birth center to hospital birth* *	CMQCC: Toolkit to Support Vaginal Birth and Reduce Primary Cesareans (pg.86-97)[8] Purchaser Business Group on Health: How To Successfully Integrate Midwives Into Your Practice[9]
	Develop and document a process for integrating doulas into prenatal, intrapartum, and postpartum care	CMQCC: Toolkit to Support Vaginal Birth and Reduce Primary Cesareans (pg.102-107)[8]
	Provide resources, support, and opportunities for providers to discuss and openly communicate fears related to legal risk and malpractice concerns, and understand strategies to reduce risk of litigation	The effect of malpractice claims on the use of caesarean section[10]
Provide education to pregnant people and families related to their options for labor and birth throughout	Work with patients and their support networks, including doulas, on the creation of a flexible birth plan that includes decisions they may need to make during labor and delivery	CMQCC: Birth Preferences Guide[11] American College of Obstetricians and Gynecologists (ACOG): Sample Birth Plan Template[12]

the perinatal care cycle, with an emphasis on informed consent, and shared decision-making	*Support patients to create a vaginal birth plan and an alternative cesarean birth plan to ensure that their wishes are honored as much as possible if a cesarean birth becomes necessary* *	March of Dimes: Your Birth Plan (available in multiple languages)[13] CMQCC: My Birth Matters[14]
	Develop understandable, patient-facing tools for communicating risks and benefits of interventions and procedures offered during prenatal care and labor that may affect the need for a cesarean birth, and provide examples from the patient perspective	National Partnership for Women & Families: What Every Pregnant Woman Needs to Know About Cesarean Birth[15] March of Dimes: Medical reasons for inducing labor[16] Consumer Reports Health: Monitoring your baby's heartbeat during labor[17] ACOG: If Your Baby Is Breech[18]
	Educate patients and their families throughout the prenatal period about what might happen during labor and delivery to establish realistic expectations about the length of the labor process and pain during labor, especially during an induction	American College of Nurse Midwives (ACNM): Normal, Healthy Childbirth for Women & Families: What You Need to Know[20] National Partnership for Women & Families: Giving Birth[21] ACOG: Medications for Pain Relief During Labor and Delivery[22]
	Increase access to and quality of comprehensive, evidence-based childbirth education by using in-house Certified Childbirth Educators or connecting patients to other outside, evidence-based education programs *Consider alternate formats such as phone or web-based educational materials and interactive applications* *	Lamaze International[23] The Bradley Method[24] Hypnobirthing International[25] Spinning Babies[26]
	Translate and contextualize all standard, evidence-based prenatal education into the languages commonly spoken in the populations you serve ◊	

Facilitate multidisciplinary education to healthcare team members on approaches which maximize the likelihood of vaginal birth, including assessment of labor, methods to promote labor progress, labor support, coping mechanisms, and pain management (both pharmacologic and non-pharmacologic), and shared decision-making to all providers and staff that provide care to pregnant and postpartum people	Provide hands-on training for all labor and delivery clinicians on nonpharmacologic labor support techniques	ACNM: Birth Tools[27] Pharmacologic and nonpharmacologic options for pain relief during labor: an expert review[28] World Health Organization (WHO) recommendations: non-clinical interventions to reduce unnecessary caesarean sections[29]
	Provide regular staff training and certification in all forms of fetal assessment and interpretation, including electronic monitoring and intermittent auscultation *Encourage all OB providers to complete fetal monitoring training upon hire and again every two years* *	Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN): Fetal Heart Monitoring Education Programs[30] ACNM: Intermittent Auscultation Bundle[31] Institute for Perinatal Quality Improvement: Intermittent Auscultation Simulation-Based Education[32] National Certification Corporation (NCC): Electronic Fetal Monitoring[33]
	Identify key decision points that may influence risk for a cesarean birth (e.g., method of cervical ripening, admission criteria, use of Pitocin, category 2 electronic fetal monitoring (EFM) tracings, failure to progress) and design shared decision-making guides *Consider shared decision making at all levels, among the care team members as well as between the provider and patient* * *Include long-term risks in addition to short-term outcomes as part of decision-making guides* *	CMQCC: Pre-Cesarean Checklist for Labor Dystocia or Failed Induction[34] ACOG Committee Opinion Number 819: Informed Consent and Shared Decision Making in Obstetrics and Gynecology[35] Agency for Healthcare Research and Quality (AHRQ): The SHARE Approach[36]

Training on trauma-informed care and health care team member biases to enhance high-quality, equitable outcomes	Conduct implicit bias and respectful care trainings annually for all clinicians and staff ◊ *Consider developing a holistic approach to implicit bias education that moves beyond annual training, and may include e-modules, grand rounds, skill days, and opportunities for feedback, reflections, and discussion* * ◊	Summary of implicit bias and respectful care training resources (Appendix B) Society for Maternal-Fetal Medicine and National Birth Equity Collaborative: Strategies to Overcome Racism's Impact on Pregnancy Outcomes[37] Duke Obstetrics and Gynecology: ALLIED: Antiracism Learning, Leading and Innovating Educational Development for Faculty[38] Health Equity Rounds: An Interdisciplinary Case Conference to Address Implicit Bias and Structural Racism for Faculty and Trainees[39]
	Train all staff, from reception to triage to inpatient and outpatient providers, in active listening and trauma-informed care to ensure that all patients, regardless of their race, ethnicity, religion, gender expression, sexual orientation, etc., are truly heard and respected ◊ *Invite individuals with lived experience to participate in training to share their perspectives with the health care team* * ◊	Trauma-Informed Care Implementation Resource Center: What is Trauma-Informed Care?[40] Trauma Informed Care for Trans and Gender Diverse Patients[41] Integrating Trauma-Informed Care into Maternity Care Practice: Conceptual and Practical Issues[42] The Birth Nurse: Healthcare to Prevent Birth Trauma[43] Trauma-Informed Care and Healthy Pregnancy: What Providers Need to Know (YouTube Video)[44]

	Develop mechanisms to identify patients who have a history of trauma, including birth trauma and loss, upon admission, and work with patients and their support person(s) to co-design responsive and supportive care plans *When possible, utilize electronic health record (EHR) tools and alerts to indicate a history of trauma or PTSD* *	ACOG Committee Opinion Number 825: Caring for Patients Who Have Experienced Trauma[45] Refining Trauma-Informed Perinatal Care for Urban Prenatal Care Patients with Multiple Lifetime Traumatic Exposures: A Qualitative Study[46] City University of London: City Birth Trauma Scale[47]

Recognition and prevention

Change Concept	Change Idea	Key Resources and Tools
Implement standardized admission criteria, triage management, education, and support for people presenting in spontaneous labor	Review admission criteria for patients presenting in labor and train triage staff in assessing active labor status *Consider cervical progression (e.g., 6 cm vs. 4 cm) as part of admission criteria as well as hospital resources and patient care needs* * *Design criteria for standardization, but also include some flexibility for the dynamic nature of childbirth and patient needs* *	The evolution of the labor curve and its implications for clinical practice: the relationship between cervical dilation, station, and time during labor[48] ACOG Obstetric Care Consensus Number 1: Safe Prevention of the Primary Cesarean Delivery[49] Contemporary Patterns of Spontaneous Labor With Normal Neonatal Outcomes[50] Timing of hospital admission at first childbirth: A prospective cohort study[51]
	Train clinicians and staff in providing guidance and suggestions for patients and their support persons during early labor if they are not ready to be admitted to the labor unit	Am I in Labor?[52] ACOG: How to Tell When Labor Begins[53] CMQCC: Coping with Labor Algorithm[54] ACOG Committee Opinion Number 667: Hospital-Based Triage of Obstetric Patients[55]
	Develop standardized, evidence-based approaches to induction of labor processes, such as use of Bishop scores to assess cervical readiness, to ensure optimal opportunities for success	ACOG: Labor Induction[56] CMQCC: Induction of Labor Algorithm[57]

	Look at data on success rates for various induction options (balloon, artificial rupture of membranes (AROM), Pitocin, etc.) when making decisions on how to proceed *	Review of Evidence-Based Methods for Successful Labor Induction[58]
	Develop standard protocols for safe outpatient induction initiation, including strategies to support cervical ripening	AHRQ: Cervical Ripening in the Outpatient Setting[59]
	Mark or note NTSV (nulliparous, term, singleton, vertex) patients in the EHR and other central, visible locations on the labor floor to generate awareness and communication among providers and encourage use of labor support techniques to promote vaginal birth	
Ensure availability and offer a range of standard techniques of pain management and comfort measures that promote labor progress and prevent dysfunctional labor	Standardize movement in labor for all birthing individuals of all body weights/types and ensure adequate and safe support for staff to enable movement for patients with elevated BMI (e.g., use of wireless monitoring devices)	Evidence Based Birth: Positions during Labor and their Effects on Pain Relief[60] A review and comparison of common maternal positions during the second-stage of labor[61]
	Make available the use of nonpharmacologic labor support techniques such as hydrotherapy, nitrous oxide, therapeutic rest, and hands-on support with positioning and peanut balls, and provide training for clinicians and staff on the labor unit in how to use these tools *Provide labor positioning guides and visuals for labor and delivery clinicians and make these resources available in central, easily accessible locations on the labor floor* *	Spinning Babies[26] Impact of therapeutic rest in early labor on perinatal outcomes: a prospective study[62] Healthy Birth Practice #2: Walk, Move Around, and Change Positions Throughout Labor[63] Pharmacologic and nonpharmacologic options for pain relief during labor: an expert review[28]
	Review options for labor pain management during prenatal care and childbirth education; support patients in making choices by reviewing the available options and discussing the risks and benefits of each	Clarifying Your Feelings About Pain and Medications in Childbirth[64]

	Pay attention to ways in which implicit bias based on a patient's race or ethnic background may influence provider response to pain and pain management * ◊	ACOG: Medications for Pain Relief During Labor and Delivery[22]
Utilize standardized methods in the assessment of the fetal heart rate status, including interpretation and documentation and encourage evidence-based positioning and patient movement in labor	Provide standardized criteria for fetal monitoring (intermittent auscultation, remote monitoring, or continuous monitoring in and out of bed) to promote maximum movement and comfort in combination with safety *Explore and test options for wireless or remote monitoring where feasible and safe* *	Fetal Monitoring: Creating a Culture of Safety With Informed Choice[65] ACOG Practice Bulletin Number 106: Intrapartum Fetal Heart Rate Monitoring: Nomenclature, Interpretation, and General Management Principles[66]
	Develop evidence-based, unit standards for interpretation of fetal heart rate tracings and decision-making guidelines for providers *Require regular (annual or biannual) training for providers on fetal heart rate interpretation* *	StatPearls: Fetal Monitoring[67] CMQCC: Algorithm for the Management of Category II Fetal Heart Tracings[68] A Standardized Approach for Category II Fetal Heart Rate with Significant Decelerations: Maternal and Neonatal Outcomes[69]
	Conduct multidisciplinary reviews of fetal heart rate strips to encourage communication between clinicians and promote the use of a common language	A Review of NICHD Standardized Nomenclature for Cardiotocography: The Importance of Speaking a Common Language When Describing Electronic Fetal Monitoring[70] ACNM: Standard Nomenclature for Intrapartum Fetal Heart Rate Surveillance[71]

Implement protocols for timely identification of specific conditions, such as active herpes and breech presentation, for patients who can benefit from proactive intervention before labor to reduce the risk for cesarean birth	Develop and implement standard processes for assessing and documenting fetal position between 35 and 37 weeks to proactively diagnose breech presentation	
	Develop and implement standard processes for identifying active herpes cases and proactively managing throughout pregnancy to allow for the possibility of vaginal delivery	ACOG Practice Bulletin Number 220: Management of Genital Herpes in Pregnancy[72] Government of Western Australia North Metropolitan Health Service: Herpes simplex in pregnancy[73]
	Track cases of undiagnosed breech and untreated herpes cases by provider and clinic to identify patterns in missed diagnoses and opportunities for education and training	
Implement standardized approaches to promote evidence-based interventions for conditions such as macrosomia, low-lying placenta, and oligohydramnios	Consider a second-level review for indications for cesarean birth with limited evidence, e.g., macrosomia	ACOG Committee Opinion Number 831: Medically Indicated Late-Preterm and Early-Term Deliveries[74] ACOG Practice Bulletin Number 216: Macrosomia[75]
	Regularly review, update, and provide training for providers on current guidelines related to diagnosis and management of oligohydramnios and low-lying placenta, as well as considerations for decision making for this condition	ObG Project: Vaginal Delivery or Cesarean Section for a Low-Lying Placenta?[76] Guideline No. 402: Diagnosis and Management of Placenta Previa[77]
	Develop a standardized approach and create standard tools (e.g., checklists, educational materials) for diagnosis and management of gestational diabetes to prevent large-for-gestational-age cesarean deliveries	

Response

Change Concept	Change Idea	Key Resources and Tools
Ensure availability of clinicians, staff, and resources to maintain appropriate ongoing labor assessment and support and respond to labor process disruptions and emergencies	Revise hospital policies to ensure that doulas are acknowledged as part of the care team and not considered visitors ◊ *Provide opportunities for relationship building between doulas and the clinical care team to build trust and shared language* *	Impact of Doulas on Healthy Birth Outcomes[78] U.S. Department of Health and Human Services (HHS): Doula Care and Maternal Health: An Evidence Review[79] International Childbirth Education Association: The Role and Scope of Birth Doula Practice[80] CMQCC: Toolkit to Support Vaginal Birth and Reduce Primary Cesareans (pg.102-107)[8] Continuous Labor Support for Every Woman[81]
	Standardize the use of team huddles to review indications for a cesarean birth and identify additional strategies to try before deciding on a cesarean birth	CMQCC: Pre-Cesarean Checklist for Labor Dystocia or Failed Induction[34]
	Encourage care team discussions about progress of labor to take place at the bedside with the entire team	
	Conduct regular simulations with a multidisciplinary team for scenarios that may occur on the labor and delivery unit that could result in a cesarean birth *For smaller facilities without a full surgical team in-house, consider conducting simulations of an emergency cesarean birth to develop comfort and preparedness with situations that may arise* *	AHRQ: In Situ Simulation[82] ACOG: Resource Binder: A guide to accompany OB Drill Binders[83]

Utilize standardized evidence-based labor algorithms, policies, and techniques, which allow for prompt recognition and treatment of dystocia and are consistent with the diagnosis of labor dystocia criteria	Incorporate standardized dystocia diagnostic criteria into the EHR and provider documentation *If available, utilize EHR functions such as notes templates and labor curves that show if labor is progressing along a curve or falling off* *	
	Utilize a standard labor dystocia checklist as a communication tool (rather than an audit tool) with all NTSV patients throughout labor	CMQCC: Labor Dystocia Checklist[84]
Adopt policies that outline standard responses to abnormal fetal heart rate patterns and uterine activity to avoid unnecessary intervention and maintain high-quality neonatal outcomes	Regularly review clinical guidelines and algorithms related to fetal heart rate abnormalities and ensure that guidelines and protocols are written up in easily accessible locations	Clinical algorithms for management of fetal heart rate abnormalities during labour[85] Prenatal Risk Management and Education Services (PRMES): Intrapartum FHR Monitoring Management Decision Model[86]
	Include situations with fetal heart rate abnormalities as part of simulations to allow providers to practice response and decision making in these situations	
Provide via clinician training, skill development, or referral expertise and techniques to lessen the need for abdominal delivery, such as breech version, instrumented delivery, and twin delivery protocols	Facilitate accesses to broader training for providers, especially those who work in low-volume facilities, on different techniques for assisted vaginal deliveries, breech, and twin deliveries	Advanced Life Support in Obstetrics (ALSO)[87]
	Identify hospital champions for specific skills and procedures, including: foley bulb placement, breech and forceps deliveries, intrapartum fetal head rotation, twin deliveries, and external cephalic version (ECV), and engage them in training and support for other providers, including residents *Use a data-driven approach to identify champions and keep in mind that they may not be in leadership roles (look at their success rates with various techniques and approaches)* *	

	Facilitate access to consults for specialized procedures such as ECV, operative vaginal deliveries, and twin deliveries, and identify referral options if these procedures cannot be offered locally	

Reporting and Systems Learning

Change Concept	Change Idea	Key Resources and Tools
Perform regular multidisciplinary reviews of indications for cesarean births to determine alignment with established standards to identify systems issues and variations in provider performance	Collect and report out on provider-level cesarean birth rates (physicians and nurses) and provide tools and resources for providers to support them in understanding and reflecting on the data without judgment or blame *Develop and share tools to create a psychologically safe environment in which to review comparison data* *	Just Culture: A Foundation for Balanced Accountability and Patient Safety[88]
	Have nurses report out during shift huddles to encourage ownership of quality improvement efforts	
	Identify and engage clinical champions who have achieved low cesarean birth rates to share best practices, lead trainings, and support and coach other providers	
	Develop realistic standards for the organization to achieve and maintain. As feasible, provide comparison data from other hospitals with similar populations to set appropriate benchmarks.	A Comparison of the Nulliparous-Term-Singleton-Vertex and Society of Maternal-Fetal Medicine Cesarean Birth Metrics Based on Hospital Size[89] Comparing variation in hospital rates of cesarean delivery among low-risk women using 3 different measures[90] Cesarean Delivery Trends Among Patients at Low Risk for Cesarean Delivery in the US, 2000-2019[91]

	Engage with regional networks such as Perinatal Quality Collaboratives to learn from other hospitals about best practices and share standard tools and resources	Centers for Disease Control and Prevention (CDC): State Perinatal Quality Collaboratives[92]
Monitor appropriate metrics and balancing measures, including maternal and newborn outcomes resulting from changes in labor management strategies, with disaggregation by race and ethnicity due to known disparities in rates of cesarean delivery	Collect patient-reported measures around experience of care and perception of safety and trust as a standard part of reporting systems	Selecting and Implementing Patient-Reported Outcome and Experience Measures to Assess Health System Performance[93]
	Develop methods for collecting feedback from groups that are historically underrepresented in patient surveys, particularly those identifying as Black, Indigenous and People of Color (BIPOC), and provide explanations to patients on how the data will be used	
	Use, and review regularly as a clinical team, a balanced set of process measures that include adherence to admission criteria, appropriate management of labor, indication for induction, and Bishop score with induction outcomes	CMQCC: Performance Measures Used to Assess Cesarean Birth[94] AIM: Safe Reduction of Primary Cesarean Birth Core Data Collection Plan[95]
	Include balancing measures, such as severe unexpected newborn complications, unplanned NICU admissions, 3rd and 4th degree lacerations, and OB hemorrhage, for both birthing persons and newborns as a standard measure on system dashboards	CMQCC: Performance Measures Used to Assess Cesarean Birth[94]
	Review all process and outcome data disaggregated by race, ethnicity, and language to assess for inequities with unit-specific and leadership teams ◊ *Engage leaders in identification and discussion of inequities to destigmatize the process and move toward action* * ◊ *In settings where use of disaggregated data may cause potential patient identifiability or unstable data, identify alternative strategies to integrate equity considerations into reporting and systems learning* ◊ *	Illinois Perinatal Quality Collaborative (ILPQC): Stratifying Your Maternal Quality Data by Patient Race/ Ethnicity, and other Demographics to Improve Birth Equity[96] ILPQC: Process Flow for Collecting Data on Patient Race & Ethnicity[97]

		Urban Institute: Do No Harm Guide: Applying Equity Awareness in Data Visualization[98] Hospitals in Pursuit of Excellence: Reducing Health Care Disparities: Collection and Use of Race, Ethnicity and Language Data[99] American Hospital Association (AHA): A Framework for Stratifying Race, Ethnicity and Language Data[100]
Establish a culture of multidisciplinary planning, huddles, and post-event debriefs for unplanned cesarean births, which identify success, opportunities for improvement, and action planning for future events	Conduct regular reviews of unplanned cesarean births including indications for performing the cesarean birth to identify specific areas for improvement, education, and training *Establish standardized briefing documentation to capture successes and actionable follow-up* *	AHRQ TeamSTEPPS: Briefs, Debriefs, and Huddles[101] ACOG: Obstetric Team Debriefing Form[102] Checklists, Huddles, and Debriefs: Critical Tools to Improve Team Performance in Obstetrics[103]
	Recognize “saves” (NTSV vaginal deliveries) and acknowledge the clinical team who participated to encourage shared learning and positive case reviews	
	Utilize a standard process for making clinical and delivery notes in EHR (e.g., dot phrase notes) to accurately capture indications for a cesarean birth and support subsequent data review	
	Create opportunities for staff and providers to give feedback to leadership about the resources and support they need to achieve target cesarean birth rates	

Respectful, Equitable, and Supportive Care

Change Concept	Change Idea	Key Resources and Tools
Include each pregnant and postpartum person and their identified support network as respected members of and contributors to the multidisciplinary care team *	Review birth plans and preferences with patients and their support networks and adhere to the birth plan as much as possible, discussing openly with patients when plans may need to shift ◊ *Use trauma-informed language to discuss potential complications with patients, and avoid fearful or threatening language when discussing the option to have a cesarean birth * ◊*	
	Engage patients and their families in decision making about their care at every point, from admission through discharge, including during rounds ◊ *Provide tools and scripts for providers to use for shared decision making and informed consent conversations * ◊*	AHRQ: The SHARE Approach: 5 Essential Steps for Shared Decision Making[36] ACOG Committee Opinion Number 819: Informed Consent and Shared Decision Making in Obstetrics and Gynecology[35]
	Keep patients and their families/support persons updated throughout their hospital admission about how labor is progressing and inform them about any potential risks or concerns ◊ *Use guidelines and checklists as communication tools to guide conversations with patients and their families * ◊*	Ariadne Labs: TEAMBIRTH[104]
	Ask patients if they would like to be accompanied by their support person for any exams, procedures, and discussions ◊ *Create and use wall signage to inform patients that they can be accompanied by their support person for any exams/procedures and discussions about their care * ◊*	

	Involve patients and families in process improvement in inpatient and outpatient settings, and co-design tools and resources ◊ *Involve patients and caregivers, especially those who have delivered in the last 1-3 years, in advisory groups to help redesign care, review publicly reported data, and inform QI efforts* * ◊	National Institute for Children's Healthcare Quality (NICHQ): Powerful Partnerships: A Handbook for Families and Providers Working Together to Improve Care[105] IHI: Experience-Based Co-Design of Health Care Services[106] National MCH Workforce Development Center: Successful Engagement With People Who Have Lived Experiences[107]
Engage in open, transparent, empathetic, and trauma-informed communication with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans	Provide communication in the patient's preferred language and support access to interpretation services; provide educational materials for patients in common languages spoken in your community ◊ *Allow extra time for interactions with patients taking place through interpreters as this can increase the time it takes to communicate* * ◊ *Where feasible, provide one-on-one nursing support during labor for patients whose primary language is not English* * ◊	National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care[108]
	Educate clinicians on providing respectful care by engaging in the life-long learning of cultural humility, understanding that individuals cannot learn all aspects of any culture, including their own ◊	AWHONN: Respectful Maternity Care Implementation Toolkit[109] ACOG: Respectful Care eModules[110] The Cycle to Respectful Care: A Qualitative Approach to the Creation of an Actionable Framework to Address Maternal Outcome Disparities[111]

	Provide education during prenatal care about decisions that might need to be made during delivery, and provide resources to patients and their support networks on how to advocate for their needs and wishes during labor and delivery ◊	CDC: HEAR HER Campaign: Guide for Patients[112] The New York Times: Protecting Your Birth: A Guide for Black Mothers[113] Every Mother Counts: Choices in Childbirth[114] CMQCC: My Birth Matters[14] AIM: Urgent Maternal Warning Signs[115]
	Allow space for patients and their support persons to advocate for a delivery that they are comfortable with, not just what is best for providers and the care team ◊ *Bring patients and their families into "stop and think" conversations with the care team* * ◊	

Appendix A

1. Hoyert D. Maternal Mortality Rates in the United States, 2021. National Center for Health Statistics. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021/maternal-mortality-rates-2021.htm. Accessed August 24, 2023.

2. Safe Reduction of Primary Cesarean Birth. Alliance for Innovation on Maternal Health. https://saferbirth.org/psbs/safe-reduction-of-primary-cesarean-birth/. Accessed August 7, 2023.

3. Pareto Chart. Institute for Healthcare Improvement. https://www.ihi.org:443/resources/Pages/Tools/ParetoDiagram.aspx. Accessed April 20, 2023.

4. Priority Matrix: An Overlooked Gardening Tool. Institute for Healthcare Improvement. https://www.ihi.org:443/education/IHIOpenSchool/resources/Pages/AudioandVideo/Priority-Matrix-An-Overlooked-Gardening-Tool.aspx. Accessed April 20, 2023.

5. Impact Effort Matrix. American Society for Quality. https://asq.org/quality-resources/impact-effort-matrix. Accessed April 20, 2023.

6. White VanGompel E, Perez S, Wang C, Datta A, Cape V, Main E. Measuring labor and delivery unit culture and clinicians' attitudes toward birth: Revision and validation of the Labor Culture Survey. *Birth*. 2019;46(2):300-310. doi:10.1111/birt.12406

7. Guidance for Understanding and Unblinding Provider-Level NTSV Cesarean Rates. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/guidance-understanding-and-unblinding-provider-level-ntsv-cesarean-rates. Accessed August 7, 2023.

8. Smith H, Peterson N, Lagrew D, Main E. Toolkit to Support Vaginal Birth and Reduce Primary Cesareans. California Maternal Quality Care Collaborative. https://www.cmqcc.org/sites/default/files/Vbirth-Toolkit-with-Supplement_Final_11.30.22_2.pdf

9. Hughes B, Rubinstein B. How To Successfully Integrate Midwives Into Your Practice. Purchaser Business Group on Health. https://www.pbgh.org/resource/how-to-successfully-integrate-midwives-into-your-practice/. Accessed August 7, 2023.

10. Schifrin BS, Cohen WR. The effect of malpractice claims on the use of caesarean section. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2013;27(2):269-283. doi:10.1016/j.bpobgyn.2012.10.004

11. Appendix E: Birth Preferences Guide. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-e-birth-preferences-guide. Accessed August 7, 2023.

12. Sample Birth Plan. American College of Obstetricians and Gynecologists. https://www.acog.org/womens-health/health-tools/sample-birth-plan. Accessed August 7, 2023.

13. Your birth plan. March of Dimes. https://www.marchofdimes.org/find-support/topics/planning-baby/your-birth-plan. Accessed August 7, 2023.

14. My Birth Matters. California Maternal Quality Care Collaborative. https://www.cmqcc.org/my-birth-matters. Accessed August 7, 2023.

15. What Every Pregnant Woman Needs to Know About Cesarean Birth. National Partnership for Women & Families. https://nationalpartnership.org/wp-content/uploads/2023/02/what-every-pregnant-woman-needs-to-know-about-cesarean-section.pdf. Accessed August 7, 2023.

16. Medical reasons for inducing labor. March of Dimes. https://www.marchofdimes.org/find-support/topics/birth/medical-reasons-inducing-labor. Accessed August 7, 2023.

17. Monitoring you baby's heartbeat during labor. https://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000097/ChoosingWiselyFetalMonitoringAAN-ER.pdf. Accessed August 7, 2023.

18. If Your Baby Is Breech. American College of Obstetricians and Gynecologists. https://www.acog.org/womens-health/faqs/if-your-baby-is-breech. Accessed August 7, 2023.

19. Resources for Parents. Evidence Based Birth. https://evidencebasedbirth.com/resources-for-parents/. Accessed August 7, 2023.

20. Normal, Healthy Childbirth for Women & Families: What You Need to Know. American College of Nurse-Midwives. https://www.midwife.org/acnm/files/ACNMLibraryData/UPLOADFILENAME/000000000280/NormalBirth_ConsumerDoc%20FINAL.pdf. Accessed August 7, 2023.

21. Giving Birth. National Partnership for Women & Families. https://nationalpartnership.org/childbirthconnection/giving-birth/. Accessed August 7, 2023.

22. Medications for Pain Relief During Labor and Delivery. American College of Obstetricians and Gynecologists. Accessed August 7, 2023. https://www.acog.org/womens-health/faqs/medications-for-pain-relief-during-labor-and-delivery

23. Lamaze International. https://www.lamaze.org/. Accessed August 7, 2023.

24. The Bradley Method. https://www.bradleybirth.com/. Accessed August 7, 2023.

25. HypnoBirthing International. https://hypnobirthing.com/. Accessed August 7, 2023.

26. Spinning Babies - Comfort in Pregnancy and Easier Birth. Spinning Babies. https://www.spinningbabies.com/. Accessed August 8, 2023.

27. Tools to Optimize Outcomes of Labor Safely. BirthTools. https://www.birthtools.org/. Accessed August 7, 2023.

28. Zuarez-Easton S, Erez O, Zafran N, Carmeli J, Garmi G, Salim R. Pharmacologic and nonpharmacologic options for pain relief during labor: an expert review. *American Journal of Obstetrics & Gynecology*. 2023;228(5):S1246-S1259. doi:10.1016/j.ajog.2023.03.003

29. WHO recommendations: non-clinical interventions to reduce unnecessary caesarean sections. World Health Organization. https://www.who.int/publications-detail-redirect/9789241550338. Accessed August 7, 2023.

30. Nielsen D. Fetal Heart Monitoring. Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). https://www.awhonn.org/fhm/fetal-heart-monitoring/. Accessed August 7, 2023.

31. Reducing Primary Cesareans: Bundle Name: Intermittent Auscultation. The American College of Nurse-Midwives Healthy Birth Initiative. https://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000089/Bundle-Intermittent-Ausculation-v2.pdf. Accessed August 7, 2023.

32. Intermittent Auscultation Simulation-Based Education. Institute for Perinatal Quality Improvement. http://www.perinatalqi.org. Accessed August 7, 2023.

33. Electronic Fetal Monitoring. National Certification Corporation. https://www.nccwebsite.org/certification-exams/details/1/electronic-fetal-monitoring. Accessed August 7, 2023.

34. Appendix J: Pre-Cesarean Checklist for Labor Dystocia or Failed Induction. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-j-pre-cesarean-checklist-labor-dystocia-or-failed-induction. Accessed August 7, 2023.

35. Informed Consent and Shared Decision Making in Obstetrics and Gynecology. Committee Opinion 819. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2021/02/informed-consent-and-shared-decision-making-in-obstetrics-and-gynecology. Accessed August 7, 2023.

36. The SHARE Approach. Agency for Healthcare Research and Quality. https://www.ahrq.gov/health-literacy/professional-training/shared-decision/index.html. Accessed April 24, 2023.

37. Strategies to Overcome Racism's Impact on Pregnancy Outcomes. National Birth Equity Collaborative and Society for Maternal-Fetal Medicine. https://s3.amazonaws.com/cdn.smfm.org/media/2315/Strategies_to_Overcome_Racism_Infographic.pdf. Accessed April 24, 2023.

38. ALLIED: Antiracism Learning, Leading and Innovating Educational Development for Faculty. Duke University School of Medicine. https://obgyn.duke.edu/allied. Accessed May 31, 2023.

39. Perdomo J, Tolliver D, Hsu H, et al. Health equity rounds: an interdisciplinary case conference to address implicit bias and structural racism for faculty and trainees. *MedEdPORTAL*. 15:10858. doi:10.15766/mep_2374-8265.10858

40. What is Trauma-Informed Care? Trauma-Informed Care Implementation Resource Center. https://www.traumainformedcare.chcs.org/what-is-trauma-informed-care/. Accessed April 20, 2023.

41. Trauma Informed Care for Trans and Gender Diverse Patients. LGBTQIA+ Health Education Center. https://www.lgbtqiahealtheducation.org/courses/trauma-informed-care-for-trans-and-gender-diverse-patients/. Accessed May 31, 2023.

42. Sperlich M, Seng JS, Li Y, Taylor J, Bradbury-Jones C. Integrating trauma-informed care into maternity care practice: conceptual and practical issues. *Journal of Midwifery & Women's Health*. 2017;62(6):661-672. doi:10.1111/jmwh.12674

43. Trauma-Informed Healthcare Consulting and Education. The Birth Nurse. https://mandyirby.com/. Accessed August 7, 2023.

44. *Trauma-Informed Care and Healthy Pregnancy: What Providers Need to Know*.; 2022. https://www.youtube.com/watch?v=z1wjAXYI9Uw. Accessed August 7, 2023.

45. Caring for Patients Who Have Experienced Trauma. Committee Opinion 825. American College of Obstetricians and Gynecologists. https://www.acog.org/en/clinical/clinical-guidance/committee-opinion/articles/2021/04/caring-for-patients-who-have-experienced-trauma. Accessed May 31, 2023.

46. Gokhale P, Young MR, Williams MN, et al. Refining trauma-informed perinatal care for urban prenatal care patients with multiple lifetime traumatic exposures: a qualitative study. *Journal of Midwifery and Women's Health*. 2020;65(2):224-230. doi:10.1111/jmwh.13063

47. City Birth Trauma Scale. City, University of London. https://blogs.city.ac.uk/citybirthtraumascale/. Accessed August 7, 2023.

48. Hamilton EF, Romero R, Tarca AL, Warrick PA. The evolution of the labor curve and its implications for clinical practice: the relationship between cervical dilation, station, and time during labor. *American Journal of Obstetrics & Gynecology*. 2023;228(5):S1050-S1062. doi:10.1016/j.ajog.2022.12.005

49. Safe Prevention of the Primary Cesarean Delivery. Obstetric Care Consensus Number 1. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/obstetric-care-consensus/articles/2014/03/safe-prevention-of-the-primary-cesarean-delivery. Accessed August 7, 2023.

50. Zhang J, Landy HJ, Ware Branch D, et al. Contemporary patterns of spontaneous labor with normal neonatal outcomes. *Obstetrics & Gynecology*. 2010;116(6):1281. doi:10.1097/AOG.0b013e3181fdef6e

51. Kjerulff KH, Attanasio LB, Vanderlaan J, Sznajder KK. Timing of hospital admission at first childbirth: A prospective cohort study. *PLOS ONE*. 2023;18(2):e0281707. doi:10.1371/journal.pone.0281707

52. Am I in Labor? *Journal of Midwifery & Women's Health*. 2016;61(1):145-146. doi:10.1111/jmwh.12432

53. How to Tell When Labor Begins. American College of Obstetricians and Gynecologists. https://www.acog.org/womens-health/faqs/how-to-tell-when-labor-begins. Accessed August 7, 2023.

54. Appendix F: Coping with Labor Algorithm. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-f-coping-labor-algorithm. Accessed August 7, 2023.

55. Hospital-Based Triage of Obstetric Patients. Committee Opinion 667. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2016/07/hospital-based-triage-of-obstetric-patients. Accessed August 7, 2023.

56. Labor Induction. American College of Obstetricians and Gynecologists. https://www.acog.org/womens-health/faqs/labor-induction. Accessed August 7, 2023.

57. Appendix R: Induction of Labor Algorithm. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-r-induction-labor-algorithm. Accessed August 7, 2023.

58. Carlson N, Ellis J, Page K, Dunn A, Phillippi J. Review of evidence-based methods for successful labor induction. *Journal Midwifery Women's Health*. 2021;66(4):459-469. doi:10.1111/jmwh.13238

59. McDonagh M, Skelly AC, Tilden E, et al. Outpatient cervical ripening: a systematic review and meta-analysis. *Obstetrics & Gynecology*. 2021;137(6):1091-1101. doi:10.1097/AOG.0000000000004382

60. Dekker R. Positions during Labor and their Effects on Pain Relief. Evidence Based Birth. https://evidencebasedbirth.com/positions-during-labor-and-their-effects-on-pain-relief/. Accessed August 7, 2023.

61. Huang J, Zang Y, Ren LH, Li FJ, Lu H. A review and comparison of common maternal positions during the second-stage of labor. *International Journal of Nursing Sciences*. 2019;6(4):460-467. doi:10.1016/j.ijnss.2019.06.007

62. Maykin MM, Ukoha EP, Tilp V, Gaw SL, Lewkowitz AK. Impact of therapeutic rest in early labor on perinatal outcomes: a prospective study. *American journal of obstetrics & gynecology MFM*. 2021;3(3):100325. doi:10.1016/j.ajogmf.2021.100325

63. Ondeck M. Healthy Birth Practice #2: Walk, Move Around, and Change Positions Throughout Labor. *Journal of Perinatal Education*. 2019;28(2):81-87. doi:10.1891/1058-1243.28.2.81

64. Simkin P. Clarifying Your Feelings About Pain and Medications in Childbirth. https://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000006/MOC-CnC-PainMgmtPreferenceScale-Simpkin.pdf. Accessed August 7, 2023.

65. Heelan L. Fetal monitoring: creating a culture of safety with informed choice. *Journal of Perinatal Education*. 2013;22(3):156-165. doi:10.1891/1058-1243.22.3.156

66. Intrapartum Fetal Heart Rate Monitoring: Nomenclature, Interpretation, and General Management Principles. Practice Bulletin Number 106. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2009/07/intrapartum-fetal-heart-rate-monitoring-nomenclature-interpretation-and-general-management-principles. Accessed August 7, 2023.

67. Kauffmann T, Silberman M. Fetal Monitoring. *StatPearls*. https://www.statpearls.com/ArticleLibrary/viewarticle/21712. Accessed August 7, 2023.

68. Appendix P: Algorithm for the Management of Category II Fetal Heart Tracings. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-p-algorithm-management-category-ii-fetal-heart-tracings. Accessed August 7, 2023.

69. 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. *American Journal of Perinatology*. 2018;35(14):1405-1410. doi:10.1055/s-0038-1660459

70. Robinson B. A review of NICHD standardized nomenclature for cardiotocography: the importance of speaking a common language when describing electronic fetal monitoring. *Reviews in Obstetrics and Gynecology*. 2008;1(2):56-60.

71. Standard Nomenclature for Intrapartum Fetal Heart Rate Surveillance. American College of Nurse-Midwives. http://www.midwife.org/acnm/files/acnmlibrarydata/uploadfilename/000000000273/PS-Standardized-Nomenclature-FINAL-22-MAR-18.pdf. Accessed August 7, 2023.

72. Management of Genital Herpes in Pregnancy. Practice Bulletin 220. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2020/05/management-of-genital-herpes-in-pregnancy. Accessed August 7, 2023.

73. Herpes simplex in pregnancy. Government of Western Australia. North Metropolitan Health Service. Women and Newborn Health Service. https://www.kemh.health.wa.gov.au/~/media/HSPs/NMHS/Hospitals/WNHS/Documents/Clinical-guidelines/Obs-Gyn-Guidelines/Sexually-Transmitted-Infections-Herpes-Simplex.pdf?thn=0#:~:text=Viral%20detection%20techniques%20Use%20a%20flocked%20swab%20which,with%20the%20Microbiology%20Registrar%20or%20Microbiologist%20on%20call. Accessed August 7, 2023.

74. Medically Indicated Late-Preterm and Early-Term Deliveries. Committee Opinion Number 831. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2021/07/medically-indicated-late-preterm-and-early-term-deliveries. Accessed August 7, 2023.

75. Macrosomia. Practice Bulletin Number 216. American College of Obstetricians and Gynecologists. https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2020/01/macrosomia. Accessed August 7, 2023.

76. Harris M. Vaginal Delivery or Cesarean Section for a Low-Lying Placenta? The ObG Project. https://www.obgproject.com/2019/04/14/vaginal-delivery-or-cesarean-section-for-a-low-lying-placenta/. Accessed August 7, 2023.

77. Jain V, Bos H, Bujold E. Guideline no. 402: diagnosis and management of placenta previa. *Journal of Obstetrics and Gynaecology Canada*. 2020;42(7):906-917.e1. doi:10.1016/j.jogc.2019.07.019

78. Gruber KJ, Cupito SH, Dobson CF. Impact of doulas on healthy birth outcomes. *The Journal of Perinatal Education*. 2013;22(1):49-58. doi:10.1891/1058-1243.22.1.49

79. Doula Care and Maternal Health: An Evidence Review. Office of the Assistant Secretary for Planning and Evaluation. U.S. Department of Health and Human Services. https://aspe.hhs.gov/reports/doula-care. Accessed May 31, 2023.

80. Katz B, Barr-Lyles B. The Role and Scope of Birth Doula Practice. https://icea.org/wp-content/uploads/2022/09/The-Role-and-Scope-of-Birth-Doula-Practice.pdf.

81. Continuous labor support for every woman. *Journal of Obstetric, Gynecologic & Neonatal Nursing*. 2018;47(1):73-74. doi:10.1016/j.jogn.2017.11.010. Accessed August 7, 2023.

82. In Situ Simulation. Agency for Healthcare Research and Quality. https://www.ahrq.gov/patient-safety/settings/labor-delivery/perinatal-care/modules/situ.html. Accessed August 7, 2023.

83. Resource Binder: A guide to accompany OB Drill Binders. American College of Obstetricians and Gynecologists. https://www.med.uvm.edu/docs/resource_binder_-electronic_version_-_for_flipbook_distribution/vchip-documents/resource_binder_-electronic_version_-_for_flipbook_distribution.pdf?sfvrsn=767530c1_2. Accessed August 7, 2023.

84. Appendix K: Labor Dystocia Checklist. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-k-labor-dystocia-checklist. Accessed August 7, 2023.

85. Cheung KW, Bonet M, Frank KA, Oladapo OT, Hofmeyr GJ. Clinical algorithms for management of fetal heart rate abnormalities during labour. *BJOG : An International Journal of Obstetrics and Gynaecology*. doi:10.1111/1471-0528.16731

86. Intrapartum FHR Monitoring Management Decision Model. PRMES. https://prmes.com/wp-content/uploads/2017/06/2017-Management-Model.pdf. Accessed August 7, 2023.

87. Advanced Life Support in Obstetrics (ALSO®). American Academy of Family Physicians. https://www.aafp.org/cme/programs/also.html. Accessed August 7, 2023.

88. Boysen PG. Just culture: a foundation for balanced accountability and patient safety. *The Ochsner Journal*. 2013;13(3):400-406.

89. Shields LE, Walker S, Hedriana HL, et al. A comparison of the nulliparous-term-singleton-vertex and society of maternal-fetal medicine cesarean birth metrics based on hospital size. *American Journal of Perinatology*. 2018;35(4):390-396. doi:10.1055/s-0037-1607985

90. Armstrong JC, Kozhimannil KB, McDermott P, Saade GR, Srinivas SK, Society for Maternal-Fetal Medicine Health Policy Committee. Comparing variation in hospital rates of cesarean delivery among low-risk women using 3 different measures. *American Journal of Obstetrics and Gynecology*. 2016;214(2):153-163. doi:10.1016/j.ajog.2015.10.935

91. Frappaolo AM, Logue TC, Goffman D, et al. Cesarean delivery trends among patients at low risk for cesarean delivery in the US, 2000-2019. *JAMA Network Open*. 2023;6(3):e235428. doi:10.1001/jamanetworkopen.2023.5428

92. State Perinatal Quality Collaboratives. Centers for Disease Control and Prevention. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pqc-states.html. Accessed April 24, 2023.

93. Bull C, Teede H, Watson D, Callander EJ. Selecting and implementing patient-reported outcome and experience measures to assess health system performance. *JAMA Health Forum*. 2022;3(4):e220326. doi:10.1001/jamahealthforum.2022.0326

94. Appendix H: Performance Measures Used to Assess Cesarean Birth. California Maternal Quality Care Collaborative. https://www.cmqcc.org/content/appendix-h-performance-measures-used-assess-cesarean-birth. Accessed August 7, 2023.

95. Safe Reduction of Primary Cesarean Birth Patient Safety Bundle: Core Data Collection Plan. Alliance for Innovation on Maternal Health. https://saferbirth.org/wp-content/uploads/Final_CS_DCP.pdf. Accessed August 7, 2023.

96. Strategies to Overcome Racism's Impact on Pregnancy Outcomes. National Birth Equity Collaborative and Society for Maternal-Fetal Medicine. https://s3.amazonaws.com/cdn.smfm.org/media/2315/Strategies_to_Overcome_Racism_Infographic.pdf. Accessed August 7, 2023.

97. Process Flow for Collecting Data on Patient Race & Ethnicity. Illinois Perinatal Quality Collaborative. https://ilpqc.org/ILPQC%202020%2B/Birth%20Equity/Process%20Flow%20for%20Race%20Ethnicity%20Data%20Collection%20with%20Staff%20Responses.pdf. Accessed April 24, 2023.

98. Do No Harm Guide: Applying Equity Awareness in Data Visualization. Urban Institute. https://www.urban.org/research/publication/do-no-harm-guide-applying-equity-awareness-data-visualization.Accessed April 24, 2023.

99. Reducing Health Care Disparities: Collection and Use of Race, Ethnicity and Language Data. Hospitals in Pursuit of Excellence. http://www.hpoe.org/Reports-HPOE/Equity_Care_Report_August2013.PDF. Accessed April 24, 2023.

100. A Framework for Stratifying Race, Ethnicity and Language Data. American Hospital Association. http://www.hpoe.org/resources/ahahret-guides/1690. Accessed April 24, 2023.

101. TeamSTEPPS Pocket Guide: Briefs and Debriefs. Illinois Perinatal Quality Collaborative and Agency for Healthcare Research and Quality. https://ilpqc.org/wp-content/docs/htn/Reporting/AHRQTeamSTEPPSPocketGuide_BriefsandDebriefs.pdf. Accessed August 7, 2023.

102. Obstetric Team Debriefing Form. American College of Obstetrics and Gynecology. https://www.acog.org/-/media/project/acog/acogorg/files/forms/districts/smi-ob-hemorrhage-bundle-debriefing-form.pdf. Accessed April 24, 2023.

103. Trejo FE, Igel CM, Chuang M, Bajaj K, Bernstein PS. Checklists, huddles, and debriefs: critical tools to improve team performance in obstetrics. *Clinical Obstetrics and Gynecology*. 2019;62(3):518. doi:10.1097/GRF.0000000000000464

104. TEAMBIRTH. Ariadne Labs. https://www.ariadnelabs.org/delivery-decisions-initiative/teambirth/. Accessed August 7, 2023.

105. Powerful Partnerships: Working Together to Improve Care. National Institute for Children's Health Quality (NICHQ). https://www.nichq.org/resource/powerful-partnerships-handbook-families-and-providers-working-together-improve-care. Accessed April 24, 2023.

106. Experience-Based Co-Design of Health Care Services. Institute for Healthcare Improvement. https://www.ihi.org:443/resources/Pages/Publications/Experience-Based-Co-Design-Health-Care-Services-Innovation-Case-Study.aspx. Accessed April 24, 2023.

107. Successful Engagement with People Who Have Lived Experiences. National MCH Workforce Development Center. https://mchwdc.unc.edu/resources/successful-engagement-with-people-who-have-lived-experiences/. Accessed April 24, 2023.

108. National Culturally and Linguistically Appropriate Services (CLAS) Standards. Think Cultural Health. US Department of Health & Human Services. https://thinkculturalhealth.hhs.gov/. Accessed April 24, 2023.

109. Respectful Maternity Care Implementation Toolkit. AWHONN. https://www.awhonn.org/respectful-maternity-care-implementation-toolkit/. Accessed April 24, 2023.

110. Respectful Care eModules. American College of Obstetricians and Gynecologists. https://www.acog.org/en/education-and-events/emodules/respectful-care. Accessed May 31, 2023.

111. Green CL, Perez SL, Walker A, et al. The cycle to respectful care: a qualitative approach to the creation of an actionable framework to address maternal outcome disparities. *International Journal of Environmental Research and Public Health*. 2021;18(9):4933. doi:10.3390/ijerph18094933

112. HEAR HER Campaign: Pregnant and Postpartum Women. Centers for Disease Control and Prevention. https://www.cdc.gov/hearher/pregnant-postpartum-women/index.html. Accessed April 20, 2023.

113. Chidi E, Cahill EP, M.D. Protecting Your Birth: A Guide for Black Mothers. *The New York Times*. https://www.nytimes.com/article/black-mothers-birth.html. Accessed April 24, 2023.

114. Choices in Childbirth. Every Mother Counts (EMC). https://everymothercounts.org/choicesinchildbirth/. Accessed April 24, 2023.

115. Urgent Maternal Warning Signs. Alliance for Innovation on Maternal Health. https://saferbirth.org/aim-resources/aim-cornerstones/urgent-maternal-warning-signs/. Accessed April 20, 2023.

Appendix B

Implicit Bias and Respectful Care Training Resources

Tier/type of education process	Resource/tool available	Brief description
E-modules: Free maternal health–focused equity and bias e-module trainings for independent completion in about an hour or less	Diversity Science	Three e-modules focused on implicit bias and reproductive justice. Option to integrate into hospital learning management systems through ILPQC access.
	The Office of Minority Health: Think Cultural Health	Four e-modules focused on Culturally and Linguistically Appropriate Services (CLAS) in maternal health care
Programs: Fee-based day or multi-day trainings	Birthing Cultural Rigor: Basic Training in Obstetric Racism™ (BTOR™)	BTOR™ is a 12-week online course. The online BTOR™ is organized into six two-hour interactive modular units and six corresponding 60-minute coaching sessions.
	Perinatal Quality Improvement SPEAK UP Against Racism Training	SPEAK UP training is a day-long interactive workshop that outlines strategies to help individuals and groups dismantle racism, provide high-quality, equitable care, and reduce perinatal health disparities.
Other Supportive Resources	Professionalism: Microaggression in the Healthcare Setting	Article provides strategies for health care professions to address microaggressions when they come up in day-to-day interactions with other health care professionals.
	Addressing the Elephant in the Room: Microaggressions in Medicine	Article describes common microaggressions at the intersection of gender and race, and strategies providers and staff can use to respond to them.
	Protecting Your Birth: A Guide for Black Mothers (and OB care team)	Guide on how racism / bias can affect pre- and postnatal care, and ideas to facilitate optimal patient-provider communication and promote respectful care

	CDC HEAR HER Campaign	Resources to raise awareness of life-threatening warning signs during and after pregnancy and improve patient-provider communication, including patient story videos and discussion tools
	Harvard Project Implicit Association Test	Test to check implicit bias before participating in equity training and/or health care hiring/candidate selection