FOUNDATION FOR Health Care Quality

Obstetrical Care Outcomes Assessment Program: A White Paper in Three Parts

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Abstract

The current state of maternity care in the United States and Washington State is not meeting our population's needs. Relying on traditional claims and administrative data to monitor improvement is not enough to improve clinical practice and stop birthing people and babies from death and injury. Understanding the processes of labor and delivery through **clinical data** is necessary to understand where changes need to be made to improve outcomes of care. Acknowledging the reality that births happen in a variety of settings and by including data captured across the spectrum of team members and health professionals who manage labor and delivery, the Obstetrical Care Outcomes Assessment Program (OB COAP) can transform perinatal care in all delivery settings through inclusion, transparency, and accountability.

This three-part series of white papers is directed to all who receive, pay for, and administer obstetrical care. This series will outline why clinical data is necessary and how OB COAP can partner with the audience to improve birth outcomes.

I. **Quality Improvement in the Delivery of Maternity Care** will give an overview of the current state of obstetrics care in our region, review the data from which we understand the current state, and introduce the Care Outcomes Assessment Programs (COAP) from Cardiac to Obstetrics care and the impact on our region's health.

II. **Social Determinants of Health and Equity** will highlight the current state of health disparities in maternal care across race, ethnicity, education level, income, geographic location, and OB COAP's ability to use timely clinical data to identify and respond.

III. **Creating Sustainable, Person-Centered Improvement Processes** will describe the data infrastructure with clinical data feedback, financial models needed to support these processes, action steps for each sector, and the need for patient-reported outcomes.

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Part I: Quality Improvement in the Delivery of Maternity Care

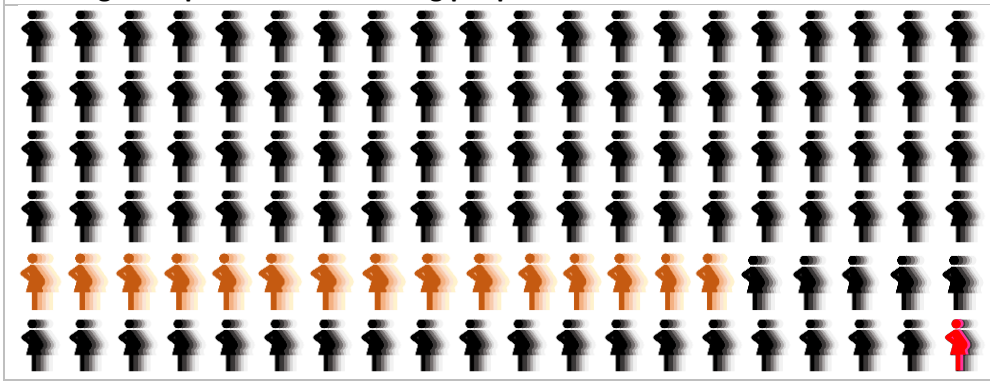
Profiling American Perinatal Care: From National to Local

Perinatal care is failing birthing people and their babies. The United States has a much higher maternal mortality rate than other economically comparable countries. This rate has grown throughout the COVID-19 pandemic.[1] Maternal mortality rates rose in 2020 compared to 2018-19 and clinical levels of depression increased from 11% pre-pandemic to 36% in 2020.[1,2,3] Cesarean births, commonly referred to as C-sections, while potentially life-saving, are an invasive surgery that can result in maternal complications and/or death. C-section rates are higher in the United States at 32% of births than in many other countries that range 4% to 44%.[4,5,6] C-section may be unnecessarily used (overuse) while services such as screening for and treating perinatal depression and anxiety may not be used when indicated (underuse), often leading to life-long complications.[7]

> **Action Step:** Read and share how rising mortality is profiled in New York Times, Wall Street Journal, and by National Public Radio.

Outcomes stratified by race show unequal morbidity and mortality burden especially for black and American Indian/Alaska Native populations.[1,8] **Part II** of this series will outline disparities, social determinants of health, and OB COAP's added value in identifying and intervening in disparate outcomes. Severe maternal morbidity, defined as life-threatening complications related to birth, are also common, occurring in 1.5% of births (see image below).[8] Similar to mortality rates, morbidities are much more common among black than white women. Most of these deaths, and injuries, are believed to be preventable through changes in clinical care and in the perinatal social environment.[9]

For every 10,000 American live births…[10,11]
Each figure represents 100 birthing people



2.4 women die

1,500 women experience a severe maternal morbidity

Birth in Washington State

Washington state's birthing population is similar to the birthing population nationally (see comparison below).[12,13] While both c-section and mortality rates are lower than national rates, both are higher than comparable countries. A robust but informal Maternal Mortality Review Process reviews each maternal death but has yet to effectively reduce mortality rates or reduce disparities within communities of color and those with socioeconomic and other challenges.[14] Data alone are not enough to change practice and improve population health. A collaborative community, feedback to individual delivery sites and individual clinicians, and support for site-level internal quality improvement are needed.

Birth Nationwide
3.6 million babies born every year
Fertility rate: 560 per 10,000 women 15-44 years
C-section rate: 3,200 per 10,000
Maternal mortality rate: 2.4 deaths per 10,000

Birth in Washington State
85,000 babies born every year
Fertility rate: 540 per 10,000 women 15-44 years
C-section rate: 2,500 per 10,000
Maternal mortality rate: 0.9 per 10,000

Foundation for Health Care Quality. November 2022.

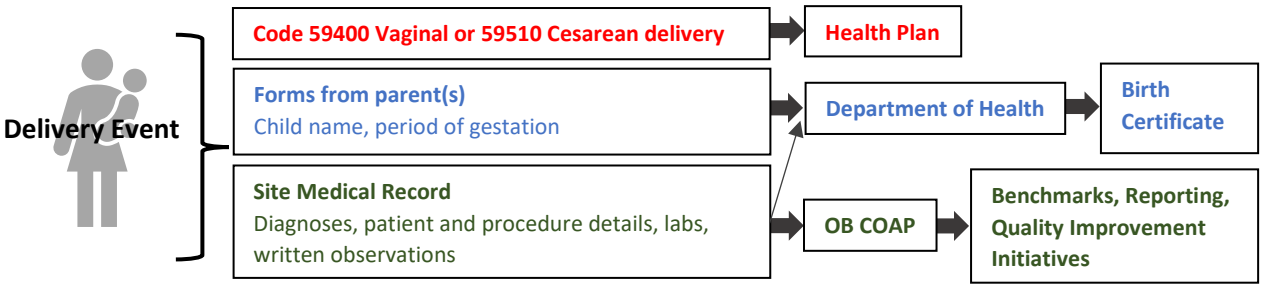
Understanding Health Care Data

Birthing people need a health care delivery system built upon health data infrastructure that partners with patients and health professionals to meet needs, improve care, and build a healthier next generation. To understand how to effectively reduce maternal morbidity and mortality, we must understand what happens to cause injury or death. Each delivery event generates multiple types of health care data including claims or administrative data, birth certificate data, and data in the medical record or clinical data. See below for detail on how these three types of data compare and how they are used in quality improvement and research.

	Claims or Administrative Data	Clinical Data[15]	Birth certificate data[11]
What we can see	Procedure(s) done Amount charged	Demographics, diagnoses, granular clinical details such as cervical dilation, procedural details such as time and technique, lab results, and written observations Roles and accountability	Birth outcome, age and race of gestational parent, limited diagnoses, method of birth, period of gestation, birthweight, and parity
Source	Information submitted by a health professional, care team, or delivery site to a health plan	Medical record	Submitted by delivery site to Department of Health
Use	Reimbursement	Tool for health professionals and delivery sites to manage an episode of care or condition to improve health	Collected for all births, as mandated by state and Federal law
How to Access	Claims databases From health plans	From a delivery site From aggregated registry	State Departments of Health

Action Step: See birth data dashboards at the Washington State Department of Health here.

Clinical data, information taken from a medical or health record, is needed to understand what happened during a clinical episode and make changes necessary to improve processes of care that lead to outcomes. Administrative data cannot be used to understand processes of care and make clinical changes for improvement. See **image** below for information on how data flows from a delivery event.



Administrative data can also be incorrect.[16] A study on cesarean sections found that using ICD-10 codes was only accurate in 12.6% of cases for the outcome being studied and was therefore not reliable.[17] Administrative data, reflecting what gets paid for rather than what happened, is unable to tell health professionals or care teams that a patient was not treated for acute severe hypertension within an hour of diagnosis or how much time in active labor was allowed prior to a c-section.[15] Stratification by socioeconomic factors, race, ethnicity, social determinants of health, risk factors, and detailed process measures are essential to identifying and addressing inequities. While administrative data lacks this granularity and specificity, clinical data can be used to target opportunities for change and establish benchmarks for understanding where change can and should occur.

Application of Care Outcomes Assessment Programs to Health Care Improvement

The Foundation for Health Care Quality's Care Outcomes Assessment Programs (COAPs) use **clinical data** from medical records to compare processes of care and build **collaboration** across health professionals, health care disciplines, delivery sites, and systems. Obstetrical COAP (OB COAP) is built on this framework and has grown from a pilot project in 2010 to a program currently collecting data from almost a third of deliveries in the state. The program is modeled after Cardiac COAP, which has been part of clinical care in Washington state since the late 1990s in response to growing demand for accountability and a desire to improve care across institutions rather than only within centers of excellence.[18,19,20] When applied to cardiac care, COAP's framework for improvement has resulted in measurable and meaningful improvement in processes of care such as reducing blood transfusions and faster removal of assisted ventilation devices, both of which can have a detrimental impact on a person's life, long after cardiac surgery. Cardiac COAP has lowered intra and post-operative blood transfusion from 43% to 24% and increased early extubation (i.e., post-operative ventilation time of less than six hours) from 42% to 71% in coronary artery bypass surgery.[21] These successes show that the COAP framework improves processes of care that matter to patients across hospitals.

Maintaining the crucial COAP tenet of collaboration, OB COAP members represent births occurring in large urban hospitals, regional referral centers, small rural hospitals, and in homes and freestanding birth centers. OB COAP recognizes the importance of including **data from all birth settings and health professionals from across the care spectrum**. These comparative data are critical to understanding and improving care and birth outcomes regardless of where a childbearing person chooses to give birth.[22] Similarly, having representation from all maternity care professional types (i.e., obstetricians, family practice physicians, maternal fetal medicine specialists, hospital-based and community-based midwives, hospitalists, and nurses) in the quality improvement conversation is essential to patient safety, shared learning, and an integrated and effective system of care.[22] OB COAP quality improvement successes include:

- An increase in collection of cord gases from ~33% to over 60% across participating sites following a targeted educational effort to increase awareness of why, when, and how to collect.
- A three-fold increase in the rate of timely treatment of acute severe hypertension intrapartum or postpartum at one of OB COAP's largest participating sites.
- Identification of significantly higher rates of 3rd and 4th degree lacerations following vaginal birth among Asian patients resulting in targeted and ongoing improvement efforts.

Participants have reported benefiting from:

- Improvements in patient charting and documentation
- Increased reimbursement by comparing clinical documentation to coding
- Examination of metrics by health care professional, type, and role which allows for accurate attribution of outcomes and significant improvement in health care professional confidence in reports

OB COAP improves patient care in partnership with member delivery sites and health professionals, allowing collaboration and transparency to replace competition and siloed efforts, and increases the health of birthing parents and their babies.

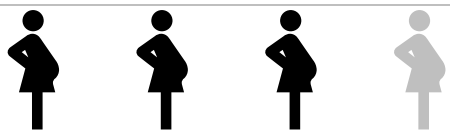
> **Action Step:** Learn more on the OB COAP website about partnering to improve care for pregnant people and babies, **ensure your hospital is a member**, and read **Part II: Social Determinants of Health and Equity**.

Part II: Social Determinants of Health and Equity

Disparities in Obstetrical Health and Care

While maternity care in America is indeed failing our population health needs broadly, minoritized groups experience a disproportionate share of morbidity and mortality. For every non-Hispanic white birthing person who dies, three to four non-Hispanic black birthing people die and almost two and a half American Indian/Alaska native birthing people die, as illustrated below.[23]

[i] Nationally and internationally, a maternal death is traditionally defined as one within 42 days of the end of pregnancy from any cause related to or made worse by pregnancy or pregnancy management not including accidents.[24] Washington State extends this definition to include a death within 12 months. Racial and ethnic disparities in these statistics may be larger than reported. However, much population health-level data relies on sources in which information on race, ethnicity, and other demographics is missing, does not use federally defined categories, or has uncertainty in accuracy due to collection issues.[25]

For every 1 non-Hispanic white pregnant person who dies…	3 to 4 **non-Hispanic black** pregnant people die	**How are these women dying?**[26]
		• More than 33% from cardiovascular complications • 12% from infection • 11% hemorrhage
	2.3 **American Indian/Alaska Native** pregnant people die	
		

Among all birthing people, cardiovascular complications are the leading cause of maternal deaths, followed by infection, and hemorrhage. Among non-Hispanic black pregnant people, cardiovascular complications (including eclampsia, preeclampsia, postpartum cardiomyopathy) are each five times higher than for white pregnant people.[27]

Action Step: Ask if you can stratify your patients' processes of care and outcomes by race and ethnicity.

Aside from race, having pre-pregnancy hypertension, diabetes, self-reported poor or fair health, or a BMI ≥30; being over 40; and not having completed high school or received a GED are all associated with increased risk of perinatal mortality.[28] Pre-pregnancy hypertension, diabetes, and a BMI ≥30 have also been associated with severe maternal morbidity along with excessive gestational weight gain, being over 35, having less than a college education, and being covered by public insurance.[29] Further, pre-pregnancy complications are increasing among the American birthing population as is the age of a person's first pregnancy, resulting in more high-risk pregnancies.[30]

[i] Race in health data (as defined by the Federal Office of Management and Budget) is most often broken down into five categories: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White.[i] Ethnicity, which overlays on top of race, is most often broken down into two categories, Hispanic and non-Hispanic; Hispanic referring to those who can track ancestry from "Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race."[i] State governments can expand these categories, Asian can be broken into: Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or Other Asian, but categories must be able to be collapsed into the five primary groups.

Drivers of Disparities

Poor perinatal outcomes stem from higher rates of predisposing medical conditions, such as obesity and hypertension, that are exacerbated by poor clinical experiences (e.g., prenatal care, labor and delivery management, postpartum follow-up) and the social environment around the birthing person.[31] Those living in rural areas also have a significantly higher mortality and morbidity rate compared to those giving birth in urban areas due to differences in clinical care and social environment.[32,33] Those who visually present as people of color often experience worse quality of care in a clinical encounter due to both implicit (unknown to the person) and explicit bias and stereotyping.[34] Day-to-day experiences build on historic injustices, especially around reproductive autonomy.[35,36] Black newborns experience twice the newborn mortality rate when compared to white newborns.[37] When black newborns are cared for by a physician who is also black, this mortality rate is halved, indicating clinician-specific influence on mortality.[38]

> In her essay on almost dying from a blood clot after giving birth, athlete and activist Serena Williams says, "*Giving birth to my baby, it turned out, was a test for how loud and how often I would have to call out before I was finally heard… Being heard and appropriately treated was the difference between life or death for me; I know those statistics would be different if the medical establishment listened to every black woman's experience*." Read here.
>
> **Action Step:** Take an implicit bias test.

The social determinants of health are "*the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life*."[39] While clinical care does increase overall health and length of life through preventing, diagnosing, managing, and treating conditions and diseases, the social determinants contribute to a much larger proportion of a person's overall modifiable quality and length of life than clinical care, 50% compared to about 20%.[40,41] Homelessness or housing insecurity during pregnancy is associated with twice the odds of pregnancy complications such as hemorrhage or preterm labor even when adjusted for co-occurring alcohol, opioid, and non-opioid drug use.[42]

Individual screening for social risk helps target social services, inform care planning, discharge planning, and address a person's complex needs, as well as inform the needs of a community overall. The American Academy of Family Physicians, the National Association of Community Health Centers, and the American Academy of Pediatrics all recommend screening in a clinical setting to identify and intervene in an individual's social risk.[43,44] Despite this emphasis on screening, a 2017 national survey reported that only 25% of hospitals screened for five common social determinants of health.[21]

In addition to a higher likelihood of poor clinical encounters, a cumulative lifetime of stressful experiences and racially charged microaggressions has been implicated in higher non-Hispanic black maternal and infant mortality. Called weathering, the cumulative stress or allostatic load from continuous systematic and individualized racism is thought to accelerate a person's physiological aging, increasing risk of morbidity and mortality, especially during the physiologically stressful experience of pregnancy.[45,46] Additionally, non-Hispanic black people are more likely to live in neighborhoods of concentrated poverty, a factor that alone increases the risk of preterm delivery for all racial groups.[47,48]

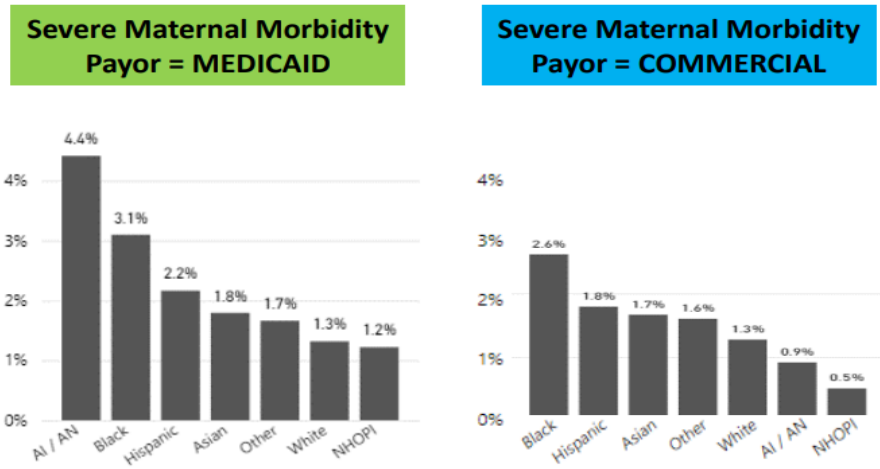
> **Action Step:** Ask if your delivery site is collecting information about patient housing and food security, transportation access, and experience of domestic violence, and can offer same-day resources.

OB COAP Opportunities

OB COAP allows delivery sites and clinicians to look at birthing people as individuals, identify who is most at risk for complications, and conduct interventions for individuals and for marginalized populations that are more likely to experience poor outcomes. While community-level data are only 48% accurate in predicting an individual's social need,[49] the OB COAP database captures whether a person has been screened for housing and food insecurity, lack of transportation, preferred language, and experience of domestic violence. These person-specific, clinical data can assist delivery sites in building pathways for intervening and connecting birthing people to resources, benchmark a community standard of care, and hold organizations and communities accountable. Clinical data can stratify outcomes by race, ethnicity, and insurance provider. Interventions can target improvement towards poorer performing health professionals, medical groups, or delivery sites.

Examination of maternal and newborn metrics by race and ethnicity demonstrates disparity across groups in almost every instance. However, further stratification by layering on payer information illustrates even more dramatic inequities. The ability to identify the specific populations most at risk allows for development of targeted strategies for change.

Health professional-level variation in practice and outcomes can easily be buried within aggregate reporting methodologies. OB COAP's data includes specific health professional identification as well as role (i.e., prenatal care, admission, labor management, delivery). Identifying the role an outlier has played in the birth trajectory is critical to focused and appropriate implementation of interventions.



OB COAP also allows collection of information on emerging or untested interventions such as the increased use of telemedicine in prenatal care and the impact of having a doula present during labor and delivery. Understanding impact, both intended and unintended, of these practices on both the childbearing person and the newborn is essential to determining efficacy and to ensure that the most vulnerable populations benefit and do not experience additional harm.

> **Action Step:** Ensure your planned birthing location or maternity care practice group is a **member of OB COAP** and using reports stratified by race, ethnicity, and payor to identify internal trends benchmarked against OB COAP-wide trends and are part of the multidisciplinary learning collaborative and read **part III: Creating Sustainable, Person-Centered Improvement Processes.**

Part III: Creating Sustainable, Person-Centered Improvement Processes

Data Infrastructure and Feedback

OB COAP meaningfully and sustainably improves patient care and experience in partnership with member delivery sites and clinicians by providing the **right data**, **precise reporting**, and **actionable analytics**. A continuous data feedback loop informs program-wide and delivery system specific improvement and understanding of intended and unintended impacts of initiatives. OB COAP improves care across birth settings by serving as an external resource due to variation in site-level resourcing, staff expertise, and administrative support to evaluate and improve care.

OB COAP provides **the right data**: timely, accurate data that thoroughly describes the course of labor and birth (e.g., whether a patient admitted in spontaneous labor attempts a vaginal birth or is taken directly to cesarean section). Clinical data reflects details documented in a medical record and accurately reflects clinical actions compared to administrative claims or coding data used to optimize payment.

OB COAP provides **precise reporting** at the system, site, practitioner, and pregnant person level that attributes care appropriately and sets benchmarks for performance. Quality improvement requires engagement by clinicians at the bedside and their confidence that information is accurate and reflective of the full patient care trajectory. Labor and delivery are managed by a variety of practitioners with variation in scope of practice (e.g., manage labor but transfer care to another clinician if an operative delivery is required) which causes C-section rate from administrative to inaccurately be zero even the provider who managed labor contributed to the need for a C-section. Similarly, practitioners performing operative deliveries following labor management by another practitioner will have inaccurate higher operative delivery rates. Further, as many people labor over several days, multiple health care providers can manage the labor of one person, another factor lost in administrative data. Accounting for consultation, call, and coverage by knowing who admitted the patient, who provided most of the labor management, and who performed the delivery allows for appropriate attribution of outcomes and for change management initiatives to occur if needed.

OB COAP provides **actionable analytics** including stratification of metrics including by race and ethnicity, socioeconomic factors, type of practitioner, existence of certain practices (e.g., Team Birth huddles, support from doulas), and timeline of care (e.g., length of second stage of labor). This allows for analysis and understanding of where clinical processes result in poor outcomes and where a person's underlying social deprivation may be contributing to poor outcomes. Early research indicates that adjusting for a person's social risk may be more equitable in adjusting payment within a value-based reimbursement context than other patient-level factors due to having a higher impact on outcomes.[50] Social needs and social deprivation are especially impactful on perinatal outcomes. Stratifying process and outcome metrics is how Washington State can effectively develop improvement initiatives and see impact.

Use Case: Improvement in Timely Treatment of Acute Severe Hypertension

Episodes of intra or post-partum acute severe hypertension must be treated within 60 minutes of diagnosis. After OB COAP began reporting this process metric, Hospital A was able to see their comparatively low hypertension treatment rates and initiated an intervention of providing individual reports to clinicians responsible for labor management. After the intervention, Hospital A went from less than 30% cases treated per guidelines to almost 80%, which has been maintained to the present.

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Patient Engagement and Outcomes

OB COAP is working to incorporate patient-reported outcome and experience metrics. While the patient is often framed as being at the heart of care, this is often not true in health care data. For patient-centered care to be actualized, patient engagement and perspective must be actively sought, incorporated, and acted upon. Patient reported outcomes depict an individual's input on health status (e.g., pain), condition, or behavior (e.g., screening for depression).[51,52] Results come directly from the individual who received an intervention without clinical interpretation.[2] Tools include patient reported outcome measures (PROM) and patient reported experience measures (PREM), both of which provide valuable information to positively address health outcomes of birthing people and babies.[2,3] Similar to a patient's social need data, patient reported outcomes are better able to support equitable value-based reimbursement than many other types of patient-specific information.[4]

Many organizations have developed evidence-informed patient reported outcomes tools (e.g., the International Consortium for Health Outcomes Measurement core set of patient-centered outcome measures for pregnancy and childbirth) or have developed processes to gather patient input to change clinical practice.[53] Community-based participatory research and Experience-Based Co-Design both involve those with lived experience as a patient in a clinical service to inform the process of improvement through research, questionnaire development, or quality improvement initiative design.[54] The Giving Voice to Mothers Study is often used as a reference by birthing sites to more fully understand mistreatment during perinatal care.[55] In the study, people of color, of low socioeconomic status, those aged 24 and younger, and/or those who gave birth in a hospital were more likely to experience mistreatment.[6] Several new patient-designed indicators of mistreatment, (e.g., being ignored) were developed for broad use. Experience-Based Co-Design adds the perspective of family and staff and the video interview capture of positive and negative experiences. Staff, patients, and family, watch the videos, discuss, and work in partnership to co-design quality improvement solutions. These processes can result in care workflows with a higher likelihood of positive outcomes by involving all the voices of those impacted.

Smooth Transitions, a program housed at the Foundation for Health Care Quality, improves quality of care for families choosing to give birth at home or in a freestanding birth center whose plans change, resulting in a transition to the hospital for labor management and delivery or postpartum care for themselves or the newborn. While adverse outcome rates are low for planned community births overall, transitioning to a higher level of care can be stressful to those involved, which in and of itself can increase the potential for poor outcomes.[56,57,58] Smooth Transitions collects patient reported outcome data through patient surveys and information from receiving clinician(s), nursing staff, emergency medical services (if used), and the transferring midwife. Data informs quality improvement initiatives as deficits in collaboration or processes are discovered, which increases patient safety and satisfaction with care.

From a clinician at a participating hospital: "*…the healthy relationship I have with the patient's midwives helped this patient have an optimal outcome. The midwife continued to be bedside and help with discussion of care options which lead to an uncomplicated non-instrumented vaginal delivery*."

Action Item: Read the Giving Voices to Mothers study here.
Action Item: Advocate for your delivery site to join Smooth Transitions.

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Seeing the Forest and the Trees

Population health trends are driven by individual delivery system workflows and culture and within those, individual clinician decisions. OB COAP is an efficient mechanism to bring together multidisciplinary clinical leaders to drive evidence-informed processes of care that benefit people, clinicians, health care purchasers, and health plans. High-quality clinical and social care for birthing people is not only ethical, but also represents great potential for downstream cost savings through reduced health service utilization.

The Michigan Collaborative Quality Initiative, housed at the University of Michigan and funded by Blue Cross Blue Shield of Michigan, is focused on 23 health services using clinical data to drive collaborative quality improvement, including an obstetrics initiative directed at patients delivering for the first time who are carrying a single, head-down, more than 37-week gestation (i.e., at term) baby. [59] The initiatives have seen consistent cost savings and improved quality outcomes.[60] The Cardiac Care Outcomes Assessment Program, a similar quality improvement entity of which all delivery sites that perform cardiac intervention (PCI and CABG) in Washington State are members, has demonstrated long-term cost savings.[61] A retrospective cohort study comparing downstream Medicare administrative and claims data for patients who received cardiac intervention in Washington State to a random sample of those who received cardiac intervention in other states, found total five-year downstream costs to be almost $4,000 lower (95% CI = $1,794 to $5,741), adjusting for demographic and comorbidity. Similar impacts of a clinical data quality improvement collaborative have been seen in Virginia on patients with acute myocardial infarction and heart failure.[62]

Investing in quality improvement for labor and delivery has the potential to reduce downstream costs for the birthing person and for the child(ren) born, as has been demonstrated through the Cardiac COAP program and in Michigan and Virginia.[63] The Commonwealth Fund projects total cost, medical and nonmedical, from maternal morbidity on the child(ren) until age five to be 32.3 billion dollars.[64] For the child(ren), the most costly complications are preterm birth, developmental disorders, and respiratory distress; for the birthing person, lost productivity, having a C-section, and increasing hospital length of stay are the most costly.[13] Perinatal vascular, metabolic, or inflammatory complications are linked to increased risk of vascular disease over a lifetime.[65] However, long term outcomes for pregnant people and their babies are lacking. While claims and administrative data are helpful in informing cost implications of interventions and are easily tracked over time through multiple payors, clinical data are needed to change practice and to monitor improvements in the processes of care that lead to these cost savings. Potential next steps will be to link OB COAP clinical data with claims data, including that from Medicaid, for up to five years following birth.

This three-part series of white papers outlines why clinical data are necessary for monitoring and improving obstetrical care and how OB COAP can transform perinatal care in all delivery settings through inclusion, transparency, and accountability. This model of quality improvement replaces competition and siloed efforts with collaboration and transparency, improving the health of birthing parents and babies. The series gives an overview of the current state of obstetrics care in our region, reviewing the current state of perinatal care and outcomes in **Part I**, outlining the impact of social determinants of health in **Part II**, and the creation of a sustainable, person-centered improvement process in **Part III**. Clinical data, transparency, inclusion, mutual support, and mutual accountability taking place within a neutral, unbiased framework, are proven to increase quality and outcomes of care and best obstetrical practice.

Action Item: Join and be an active participant in OB COAP.

Foundation for Health Care Quality. November 2022.

References

[1] Tikkanen R, Gunja MZ, FitzGerald M, Zephyrin L. Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries. The Commonwealth Fund. Available: www.commonwealthfund.org/publications/issue-briefs/2020/nov/maternal-mortality-maternity-care-us-compared-10-countries
[2] Iyengar U, Jaiprakash B, Haitsuka H, Kim S. One Year Into the Pandemic: A Systematic Review of Perinatal Mental Health Outcomes During COVID-19. Front Psychiatry. 2021 Jun 24;12:674194.
[3] Hoyert DL. Maternal mortality rates in the United States, 2020. NCHS Health E-Stats. 2022.
[4] Delport S. Global epidemiology of use of and disparities in caesarean sections. Lancet. 2019 Jul 6;394(10192):23-24.
[5] Washington State Department of Health. Birth Outcomes Data. Accessed: February 2022. Available: https://doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/birth-outcomes
[6] Centers for Disease Control and Prevention. National Vital Statistics System. Accessed: February 2022. Available: www.cdc.gov/nchs/nvss/births.htm
[7] Neiger R. Long-Term Effects of Pregnancy Complications on Maternal Health: A Review. *J Clin Med.* 2017;6(8):76. Published 2017 Jul 27.
[8] Petersen EE, Davis NL, Goodman D, et al. Racial/Ethnic Disparities in Pregnancy-Related Deaths — United States, 2007–2016. MMWR Morb Mortal Wkly Rep 2019;68:762–765.
[9] Howell EA. Reducing Disparities in Severe Maternal Morbidity and Mortality. Clin Obstet Gynecol. 2018;61(2):387-399.
[10] Hoyert DL. Maternal mortality rates in the United States, 2020. NCHS Health E-Stats. 2022.
[11] Chen J, Cox S, Kuklina EV, Ferre C, Barfield W, Li R. Assessment of Incidence and Factors Associated With Severe Maternal Morbidity After Delivery Discharge Among Women in the US. JAMA Netw Open. 2021;4(2):e2036148. doi:10.1001/jamanetworkopen.2020.36148
[12] https://www.marchofdimes.org/peristats/data?reg=99&top=2&stop=1&lev=1&slev=4&obj=1&sreg=99&creg
[13] https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=In%202020%2C%20861%20women%20were,20.1%20in%202019%20(Table).
[14] Washington State Department of Health. Maternal Mortality Review Panel. Accessed: March 2022. Available: https://doh.wa.gov/public-health-healthcare-providers/public-health-system-resources-and-services/maternal-mortality-review-panel
[15] National Library of Medicine. Finding and Using Health Statistics: Medical Records. Accessed: February 2022. Available: www.nlm.nih.gov/nichsr/stats_tutorial/section3/mod2_medical.html
[16] Washington State Health Sciences Library. Data Resources in the Health Sciences. University of Washington. Accessed: February 2022. Available: https://guides.lib.uw.edu/c.php?g=99209&p=642709#12209007
[17] Martin J, Gastanaduy M, Nakahara A, Peterson S, Chai M, Mussarat N, Biggio J. Association of Skin Incision Type With Postoperative Cesarean Delivery Complications in Morbidly Obese Patients. Obstet Gynecol. 2022 Jan 1;139(1):14-20.
[18] Hannan EL, Kilburn H Jr, Racz M, Shields E, Chassin MR. Improving the outcomes of coronary artery bypass surgery in New York State. JAMA. 1994 Mar 9;271(10):761-6. PMID: 8114213.
[19] Peterson ED, DeLong ER, Jollis JG, Muhlbaier LH, Mark DB. The effects of New York's bypass surgery provider profiling on access to care and patient outcomes in the elderly. J Am Coll Cardiol. 1998 Oct;32(4):993-9.
[20] Goss JR, Maynard C, Aldea GS, Marcus-Smith M, Whitten RW, Johnston G, Phillips RC, Reisman M, Kelley A, Anderson RP; Clinical Outcomes Assessment Program. Effects of a statewide physician-led quality-improvement program on the quality of cardiac care. Am Heart J. 2006 May;151(5):1033-42.
[21] Dunbar P, Souter V, Napolitano P, Painter I, Sitcov K, Naji O. Measuring Childbirth Outcomes: Comment. Anesthesiology. 2020 May;132(5):1281-1282.
[22] Levine A, Souter V, Sakala C. Are perinatal quality collaboratives collaborating enough? How including all birth settings can drive needed improvement in the United States maternity care system. Birth. 2022 Mar;49(1):3-10.
[23] Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-Related Mortality in the United States, 2011–2013. *Obstet & Gynecol.* 2017;130:366-373.
[24] World Health Organization. International statistical classification of diseases and related health problems, 10th revision. 2008 ed. 2009.
[25] Saunders H, Chidambaram. Medicaid Administrative Data: Challenges with Race, Ethnicity, and Other Demographic Variables. Kaiser Family Foundation. April 28, 2022. Accessed: June 2022. Available: www.kff.org/medicaid/issue-brief/medicaid-administrative-data-challenges-with-race-ethnicity-and-other-demographic-variables/
[26] Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. Accessed: March 2019. Available: www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm
[27] MacDorman MF, Thoma M, Declcerq E, Howell EA. Racial and Ethnic Disparities in Maternal Mortality in the United States Using Enhanced Vital Records, 2016–2017. *Am J Public Health.* 2021 Sep;111(9):1673-1681.
[28] Nelson DB, Moniz MH, Davis MM. Population-level factors associated with maternal mortality in the United States, 1997-2012. *BMC Public Health.* 2018 Aug 13;18(1):1007.
[29] Freese KE, Bodnar LM, Brooks MM, McTIGUE K, Himes KP. Population-attributable fraction of risk factors for severe maternal morbidity. *Am J Obstet Gynecol MFM.* 2020 Feb;2(1):100066.
[30] Blue Cross Blue Shield. Trends in Pregnancy and Childbirth Complications in the US. June 17, 2020. Accessed: June 2022. Available: www.bcbs.com/the-health-of-america/reports/trends-in-pregnancy-and-childbirth-complications-in-the-us
[31] Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Healthcare, Smedley BD, Stith AY, Nelson AR, eds. Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare. Washington (DC): National Academies Press (US); 2003.
[32] Zozhimannil KB, Interrante JD, Henning-Smith C, Admon LK. Those living in rural areas also have a significantly higher mortality rate compared to those giving birth in urban areas. *Health Affairs.* 2019. Vol 38 No 12.

[33] National Advisory Committee on Rural Health and Human Services. Maternal and Obstetric Care Challenges in Rural America: Policy Brief and Recommendations to the Secretary. May 2020. Accessed: June 2022. Available: www.hrsa.gov/sites/default/files/hrsa/advisory-committees/rural/2020-maternal-obstetric-care-challenges.pdf
[34] Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Smedley BD, Stith AY, Nelson AR, editors. Washington (DC): National Academies Press (US); 2003. PMID: 25032386.
[35] Blue Bird Jernigan V, Peercy M, Branam D. Beyond health equity: achieving wellness within American Indian and Alaska Native communities. *Am J Public Health.* 2015;105 Suppl 3(Suppl 3):S376–S379.
[36] Prather C, Fuller TR, Jeffries WL 4th, et al. Racism, African American women, and their sexual and reproductive health: A review of historical and contemporary evidence and implications for health equity. *Health Equity.* 2018;2(1):249–259. Published 2018 Sep 24.
[37] MacDorman MF, Mathews TJ. Understanding racial and ethnic disparities in U.S. infant mortality rates. NCHS data brief, no 74. Hyattsville, MD: National Center for Health Statistics. 2011.
[38] Greenwood BN, Hardeman RR, Huang L, Sojourner A. Physician-patient racial concordance and disparities in birthing mortality for newborns. *Proc Natl Acad Sci U S A.* 2020 Sep 1;117(35):21194-21200.
[39] World Health Organization. Social determinants of health. 2022. Accessed: March 2022. Available: www.who.int/health-topics/social-determinants-of-health
[40] County Health Rankings & Roadmaps Measures and Data Sources. Robert Wood Johnson Foundation. 2021. Accessed: May 2021. Available: www.countyhealthrankings.org/explore-health-rankings/measures-data-sources
[41] Berwick DM. The Moral Determinants of Health. 2020. *JAMA*. 324(3), 225.
[42] Clark RE, Weinreb L, Flahive JM, Seifert RW. Homelessness Contributes To Pregnancy Complications. *Health Aff (Millwood).* 2019 Jan;38(1):139-146.
[43] Fraze TK, Brewster AL, Lewis VA, Beidler LB, Murray GF, Colla CH. Prevalence of screening for food insecurity, housing instability, utility needs, transportation needs, and interpersonal violence by US physician practices and hospitals. *JAMA Network Open*, 2(9). 2019 e1911514.
[44] Committee on Integrating Social Needs Care into the Delivery of Health Care to Improve the Nation's Health, Board on Health Care Services, Health and Medicine Division, and National Academies of Sciences, Engineering, and Medicine. Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health (p. 25467). 2019. National Academies Press.
[45] Guidi J, Lucente M, Sonino N, Fava GA. Allostatic load and its impact on health: A systematic review. *Psychother Psychosom.* 2021;90(1):11-27.
[46] Riggan KA, Gilbert A, Allyse MA. Acknowledging and addressing allostatic load in pregnancy care. *J Racial Ethn Health Disparities.* 2021 Feb;8(1):69-79..
[47] Holzman C, Eyster J, Kleyn M, Messer LC, Kaufman JS, Laraia BA, O'Campo P, Burke JG, Culhane J, Elo IT. Maternal weathering and risk of preterm delivery. *Am J Public Health.* 2009 Oct;99(10):1864-71.
[48] Austin A. African Americans are still concentrated in neighborhoods with high poverty and still lack full access to decent housing. Economic Policy Institute. July 22, 2013. Accessed: June 2022. Available: www.epi.org/publication/african-americans-concentrated-neighborhoods/
[49] Cottrell EK, Hendricks M, Dambrun K, Cowburn S, Pantell M, Gold R, Gottlieb LM. Comparison of community-level and patient-level social risk data in a network of community health centers. *JAMA Network Open*, 2020. 3(10), e2016852.
[50] Rogstad TL, Gupta S, Connolly J, Shrank WH, Roberts ET. Social Risk Adjustment In The Hospital Readmissions Reduction Program: A Systematic Review And Implications For Policy. Health Aff (Millwood). 2022 Sep;41(9):1307-1315.
[51] Dickinson F, McCauley M, Smith H, van den Broek N. Patient reported outcome measures for use in pregnancy and childbirth: a systematic review. BMC Pregnancy Childbirth. 2019 May 6;19(1):155.
[52] Patient-Reported Outcome Measures Baltimore, MD: Center for Medicare & Medicaid Services: Measurement Management Services; 2022. Available from: https://mmshub.cms.gov/sites/default/files/Patient-Reported-Outcome-Measures.pdf
[53] Depla AL, Lamain-de Ruiter M, Laureij LT, Ernst-Smelt HE, Hazelzet JA, Franx A, Bekker MN; BUZZ Project Team. Patient-Reported Outcome and Experience Measures in Perinatal Care to Guide Clinical Practice: Prospective Observational Study. J Med Internet Res. 2022 Jul 5;24(7):e37725.
[54] Dale C, Stanley E, Spencer F, Goodrich J. What is Experience-based-co-design? London, UK: The Point of Care Foundation; Available from: www.pointofcarefoundation.org.uk/resource/experience-based-co-design-ebcd-toolkit/step-by-step-guide/1-experience-based-co-design/
[55] Vedam S, Stoll K, Taiwo TK, et al. The Giving Voice to Mothers study: inequity and mistreatment during pregnancy and childbirth in the United States. Reprod Health 16, 77 (2019).
[56] Nethery E, Schummers L, Levine A, Caughey AB, Souter V, Gordon W. Birth Outcomes for Planned Home and Licensed Freestanding Birth Center Births in Washington State. Obstet Gynecol. 2021 Nov 1;138(5):693-702.
[57] Josephson SA. Focusing on transitions of care: A change is here. Neurol Clin Pract. 2016 Apr;6(2):183-189.
[58] Cook NL, Clauser SB, Shifreen A, Parry C. Reconceptualizing Care Transitions Research From the Patient Perspective. Med Care. 2021 Aug 1;59(Suppl 4):S398-S400.
[59] Michigan Institute for Healthcare Policy and Innovation. Collaborative Quality Initiatives (CQIs). Accessed: August 2022. Available: https://ihpi.umich.edu/CQIs.
[60] Howard R, Grant J, Leyden T, Englesbe M. Improving the Quality of Health Care through 25 Years of Statewide Collaboration in Michigan. NEJM Catalyst Innovations in Care Delivery 2022; 09

[61] Wong ES, Nelson J, Witten R, Maynard C, Collins-Brandon J, Sitcov K, Hira RS. Does a State-Wide Cardiac Quality Improvement Program Influence Costs Following Cardiac Intervention for Coronary Artery Disease.
[62] Brush JE Jr, Rensing E, Song F, Cook S, Lynch J, Thacker L, Gurram S, Bonow RO, Brough J, Valentine CM. A statewide collaborative initiative to improve the quality of care for patients with acute myocardial infarction and heart failure. Circulation. 2009 Mar 31;119(12):1609-15.
[63] Wong ES, Nelson J, Witten R, Maynard C, Collins-Brandon J, Sitcov K, Hira RS. Does a State-Wide Cardiac Quality Improvement Program Influence Costs Following Cardiac Intervention for Coronary Artery Disease.
[64] O'Neil S, et al., The High Costs of Maternal Morbidity Show Why We Need Greater Investment in Maternal Health (Commonwealth Fund, Nov. 2021). Available: www.commonwealthfund.org/publications/issue-briefs/2021/nov/high-costs-maternal-morbidity-need-investment-maternal-health
[65] Neiger R. Long-Term Effects of Pregnancy Complications on Maternal Health: A Review. J Clin Med. 2017 Jul 27;6(8):76.