Key:
X = discussed by workgroup
C = combined with item in parentheses
Yellow highlight = new topic suggested by workgroup

Measurement Topic	**Approach Discussed in Workgroup**			
	A (Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment)	**B** (Health Behaviors, Co-morbidities, Gaps in Provider Education)	**C** (Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment)	**D** (Support, Patient Experience, Person Centered Care, Mental Health Disorders)
Morbidity Framework				
Access to Treatment and receipt of services	X		X	X
Timeliness of Treatment	X		X	C (*access to treatment and receipt of services)*
Treatment of hemorrhage	C *(timeliness of treatment)*	X		C *(access to treatment and receipt of services)*
Final Measurement Topic: Timely access treatment and receipt of services Rationale: »Both access and timeliness are critical factors to preventing severe morbidity and mortality within maternal care. »Timeliness can be compared through stratification. »Some populations have accessibility issues, others have availability issues, and some have both.				
Risk Appropriate Care	X	C *(Coordination of Care)*	X	X
Current Measurement Topic: Risk Appropriate Care				
Coordination of Care	X	C	X	C

		(Risk Appropriate Care)		*(Substance Use Disorders)*
Current Measurement Topic: Follow up and Coordination of Care				
Proposed Measurement Topic: Coordination of Risk Appropriate Care Rationale: »Receiving risk-appropriate care may require a transfer or co-management of prenatal care »Coordinated care between specialists or hospitals is necessary to optimize outcomes				
~~*Clear cut actions and protocols for the first trimester visits*~~		X		C *(combined into protocols and guideline adherence)*
~~*Clear cut actions and protocols for postpartum visits*~~				C *(combined into protocols and guideline adherence)*
Final Measurement Topic: Protocols and guideline adherence Rationale: »This is a priority area to prevent overuse of care and minimize practice pattern variation. »The goal of adherence to protocols and guidelines plays an important role in ensuring equal treatment. »The majority of monitored screening practices occurring as a part of routine antepartum care target reducing neonatal morbidity. »Protocols and Guideline Adherence to specifically include hypertension and hemorrhage.				
Substance use and misuse	X	X		X
Mental Health	X			X
Final Measurement Topic: Substance use disorders, mental health, behavioral health Rationale: »Clinical areas have significant overlap in terms of clinicians providing this care and the pathways to ensure implementation.				
Access to continuous labor support	X	X		C

				(*patient experience OR clear-cut actions and protocols during perinatal period)*
Pain management		X		C (*access to continuous labor support)*
Final Measurement Topic: Access to pain management and labor support Rationale: »Misalignment with birth goals and communication can lead to adverse outcomes.				
Differences in screening practices during Intrapartum care	X	X		C (*clear cut actions and protocols for perinatal period)*
~~*Spacing of pregnancies*~~				
~~*Access to contraception*~~ *(combined with Access to Care)*				
Patient Reported Experience of Care	X	X	C *(Family Reported Outcomes)*	C *(Family Reported Outcomes)*
Family Reported outcomes & experiences	X		C *(Patient Reported Outcomes)*	C *(Patient Reported Outcomes)*
Final Measurement Topic: Patient and Family Reported Outcomes and Experience of Care Rationale: »Patients may not be aware or conscious during all aspects of care, but families are often present »Families experience differential enforcement of visiting hours or staff response				
Everyone being treated equally	X			X
Unequal care once access is achieved	C (*everyone being treated equally)*	X		
Unequal Treatment	C		X	

	(*everyone being treated equally)*			
Final Measurement Topic: Unequal Treatment / Equitable Treatment Rationale: »Workgroups discussed topic areas overlapping heavily				
Mortality Framework				
Mortality Prevention	X	X	X	
Systematic approaches for maternal mortality	X	X		X
Failure to Rescue	C *(Risk Appropriate Care)*			X
Family Reported Outcomes & Experiences for maternal mortality	X		X	X
Root Cause Analysis	X	X		X
Improvements to mortality measurement at the state level	X	X		X
Protocols and guideline adherence (C)			X	
Continuity of coverage and care (C)			X	

Morbidity Framework Measurement Topics and Approaches

Measurement Topic: Timely access treatment and receipt of services

Timeliness of treatment and receipt of services is a critical factor for preventing severe morbidity and mortality within maternal care. This includes the availability and accessibility of services, provision of care and receipt of those services. Currently, there tends to be an overprovision of care during the perinatal period that is not always appropriate and under provision of care for mental health and substance use disorders. Certain populations (e.g., rural communities) experience accessibility issues and others experience challenges with availability of services. Measures addressing this topic should capture the differences in timeliness of treatment, which can be compared through stratification. Stratification will also reveal differences in receipt of services.

Morbidity Framework Placement:

Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long term and short-term approach
• Timing of care (e.g., initiation of prenatal care, timeliness of completed referrals/follow up, time from diagnosis to treatment). o Time to treatment of hypertension, stratified by race/ethnicity. o Time to treatment of pain management, stratified by race/ethnicity.	Extracting data from the electronic medical record and stratify by race/ethnicity and other social risk factors (as applicable) to assess timeliness of treatment for pain and hemorrhage. Measures focused on appropriate care in terms of culture, risk-level, and/or specificity can help prioritize care for each patient and allow for better evaluation of care going forward. Measures that examine insurance coverage and utilization by race, ethnicity, payor type.	Short-term approaches: Identifying and extracting stratified data from the EMR is a short-term approach that can be accomplished in 1 – 4 years. Some aspects of this measurement approach can be implemented in the short-term (e.g., increase use of existing AIM bundle of adequate support for traumatic birth experience). Interventions could be prioritized for the leading causes of death and mortality. Access to specialists (e.g. maternal fetal medicine, endocrinology, cardiology, mental health, behavioral health, MAT, etc.).

• Use AIM bundles to develop measures of hemorrhage treatment quickly (e.g. cart availability). • Access to treatment that is culturally congruent, relevant, and appropriate. Treatment and/or referrals to services that address specific needs related to culture, race, ethnicity, and account for language barriers. • Improving measurement and screening by separating treatment for mental health and substance use disorders.	Measures that access the timing of the initiation of prenatal care – if the initiation is at 18 weeks and can flag for access	Availability and distance to services is particularly important to rural populations, who are at extreme risk. Long-term approaches: Availability of treatment can measure whether needed facilities exist. Access to and availability of safe and reliable contraception. Accessibility of treatment can measure whether existing facilities can be utilized by all.

Measurement Topic: **Risk Appropriate Care**

Risk appropriate care refers to ensuring that a patient has access to the resources and personnel to meet her anticipated needs. Risk appropriate care is more than the care within the facility, it is more of a network of care (e.g., referrals, transfers, birthing center vs. hospital, etc.). For those women with high-risk medical or obstetric comorbidities at highest risk of severe maternal morbidity or mortality, provision of risk-appropriate care is of critical importance. Current screening requirements from departments of health target things like infectious issues (i.e. HIV and syphilis screening or GBS screening) that target neonatal morbidity and are not major causes of maternal morbidity. Increasing screening for high-risk maternal states is necessary to decrease maternal morbidity, but needs to be balanced with avoiding unwarranted over-medicalization of birth. Access is important for specific conditions, but more research may be needed to be sure that there is an explicit connection with outcomes. Before creating measures here it may be more prudent to do this research first.

Morbidity Framework Placement:

Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Health Equity, Implicit Bias, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long term and short-term approach

• Clear screening protocols for conditions that contribute to worse outcomes and deaths. • Documented referral and treatment pathways for women with high-risk comorbidities in pregnancy. • Coordination of nonmedical supportive care to ensure risk appropriate care and availability for women. • Appropriateness of maternal care setting at the time of delivery in accordance with national guidelines and accepted best practices. • Involvement of maternal-fetal medicine specialists for high risk women and avoidance of overuse for low-risk women to avoid inequitable care	• Comprehensive risk assessment in prenatal period for maternal states that increase the risk of key adverse outcomes such as hemorrhage or cardiovascular morbidity. • Uniform collection of immunization status in preconception period • Appropriateness for site of delivery based on maternal comorbidities as outlined in the levels of maternal care guidelines. • Physiologic birth has the potential to reduce a lot of morbidity. Overuse of interventions could be addressed by promoting physiologic birth for those who express a desire for this approach.	Short-term approaches: • Tracking of referral rates for high-risk patients for appropriate subspecialty consultations within a given practice or hospital network. • Stratified analyses to ensure equal receipt of risk-appropriate services according to race, ethnicity, payor status, and geographic location. • Hospital self-designation of level of care or participation in local or regional efforts to designate levels of maternal care. • Description of comorbidities warranting additional oversight or consideration of transfer at the hospital or practice level. Long-term approaches: • Coordinated designation of levels of maternal care within each state or regional care network. • Metrics tracking delivery at risk-appropriate center for high-risk women.

Measurement Topic: **Follow up and Coordination of Care**

The growing medical complexity of the obstetric patient population demands multidisciplinary input from providers beyond the obstetrician. For some patients, receiving risk-appropriate care may require transfer of care at the time of delivery or co-management of prenatal care in anticipation of delivery at another hospital. Coordinated care between specialists or between hospitals is necessary to optimize outcomes but requires a great deal of effort on behalf of patients and providers. This type of coordinated care is particularly important for populations that may need emergency care outside of their usual practice or provider and for populations who see different providers each visit. Once a patient receives access to risk appropriate care, ensuring that their care is optimized within a regional referral network is of paramount importance.

Morbidity Framework Placement:
Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Health Equity, Implicit Bias, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Person Centered Care, Mental Health Disorders		
Measurement Approaches	**Description**	**Long term and short-term approach**
• Comprehensive maternal risk assessment during prenatal care with appropriate follow up for high-risk patients • Referral to appropriate collaborators for patients with high-risk issues (i.e. team approach to risk assessment). • Sharing of records between providers and facilities providing care—regardless of differences in hospital network or state.	Short term goal to ask hospitals to identify comorbidities commonly warranting referral, long-term goal of designating of levels of care at state level Use of screening tool like obstetric comorbidity index to identify women at risk of morbidity due to compounding risk factors Documentation of conversations with patient incorporating individualized risk assessment and her available delivery options to improved informed care choices. Care provided by subspecialist for those who need it (e.g., involvement of cardiologist for women with cardiac disease, care by accreta team for those with concern for accrete) EMR, HIEs could increase or lead to universal access to patient information across hospital systems. Encouraging states or hospital systems to share records or establish programs for coordinating records.	<u>Short-term approaches</u>: • Referral of high-risk patients for appropriate subspecialty consultations within a given hospital network. • Documentation of assessment of high-risk comorbidities and appropriate follow up. • Practice-specific or hospital-specific list of comorbidities that may warrant involvement of other specialists or hospital, respectively. <u>Long-term approaches</u>: • Adherence to best practices as outlined above at level of referring and receiving hospital. • Implementation of systems to share medical records between hospitals or care pathways to optimize outcomes for patients vulnerable to adverse outcomes due to lack of coordinated care (i.e. those being comanaged between sites)

Measurement Topic: **Protocols and guidelines adherence**

This is a priority area to prevent overuse of care and minimize practice pattern variation. The majority of monitored screening practices occurring as a part of routine antepartum care target reducing neonatal morbidity as described above (in Risk Appropriate Care). Protocols to follow up high-risk pregnancies are often similarly dedicated to neonatal outcomes and limited to interventions such as ultrasound. The corresponding interventions for maternal risk states are less clear and are not linked to any billable procedures with little incentive to prioritize their implementation in the common time constraints of ambulatory prenatal care. Though disease specific guidelines exist, there is little monitoring of adherence with these guidelines. The Joint Commission mandates surrounding hypertension and hemorrhage go a long way to address the associated disparities, but not all hospitals are accredited by The Joint Commission or have the same resources available to meet their mandates. The burden of implementation of screening practices and protocols must fall on the hospital or practice—not the provider—so that screening for maternal morbidity is engrained in prenatal care culture to the degree of other practices like aneuploidy screening or screening for group B strep are. On the other hand, protocols drive clinical actions and the goal of adherence to protocols and guidelines therefore plays an important role in ensuring equal treatment (i.e. ensuring that the privately insured English-speaking patient with anxiety about her pregnancy gets the same level of care as the publicly insured non-English speaking patient who is less comfortable addressing her concerns with her provider).

Most hypertension guidelines focus on inpatient management. Targeting prenatal care is possible with potential preventability in transfusion. A large proportion of all maternal near-miss events are due to pregnancy hypertension Having clear assessments in place and educating staff on the administration of these assessments should decrease failures to prevent and recognize severe hypertension/preeclampsia. The Joint Commission set forth standard hemorrhage guidelines for facilities, but not all facilities are accredited in this way.

Most hemorrhage guidelines focus on inpatient management. Targeting prenatal care is possible with potential preventability in transfusion. Preventing and assessing patients' risks for hemorrhage associated morbidity allows the identification of higher risk patients. The risk of hemorrhage may change for each patient over time, depending on the clinical situations that present during the course of the pregnancy. The Joint Commission set forth standard hemorrhage guidelines for facilities, but not all facilities are accredited in this way.

Morbidity Framework Placement:
Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Quality Care, Mental Health Disorders

Measurement Approaches	Description	Long term and short-term approach
• Protocols outlining screening practices and recommended follow up for conditions	Screening protocols should be outlined but associated with follow up and screening should	*NEED SHORT- and LONG-TERM APPROACHES*

that contribute to maternal morbidity and mortality. • Tracking of interventions or modifications in prenatal care provided to mitigate risks associated with high-risk medical, obstetric, or psychosocial states (with an eye towards equitable and timely implementation). • Documentation of significant co-morbidities and appropriate risk reduction techniques (ex: hypertension, substance use, cardiovascular disease, diabetes, history of preterm birth, history of cesarean delivery). • Screening for previously unrecognized medical and/or psychiatric co-morbidities • The adherence to guidelines and best practices set forth in existing patient safety bundles to reduce hypertension and hemorrhage-associated morbidity (e.g. active management of third stage of labor as measured by how many get routine oxytocin, avoiding severe sustained hypertension) • Screening rates for conditions that contribute to worse outcomes and deaths (e.g., preeclampsia, cardiomyopathy, post-partum hemorrhage).	be repeated at multiple timepoints throughout pregnancy and postpartum state. Metric may need to account for frequency of prenatal visits (i.e. seen x times, completed x screenings). Examples of Evidence-Based Screening Practices, Interventions, Modifications in Prenatal Care or Associated Follow Up: • Receipt of low dose aspirin in women 12-14 weeks for whom this applies by the recommendation of USPFT guidelines • Receipt of blood pressure cuff in women with chronic hypertension at initial visit • Screening for previously undiagnosed comorbid conditions at initial prenatal visit (Ex: Diabetes, unhealthy weight, depression, cardiac disease). • Screening for tobacco, alcohol and substance use. Screening for intimate partner violence. • Addressing unhealthy weight • Early diabetes screening for women at risk • Dedicated placental assessment for women with risk factors for accreta • Referral to cardiology for women with cardiovascular disease • Blood pressure check 1 week after discharge for women with hypertension complicating pregnancy or delivery • Strategies to screen for and reduce physiologic anemia to avoid transfusion associated morbidity	

• Risk-appropriate screening practices for women with high-risk comorbidities and appropriate interventions • Receipt of interventions to prevent and facilitate early identification of hypertension. • Interventions should address appropriate blood pressure measurement at each pregnancy visit, as well as a checklist for the common signs and symptoms of hypertension • Avoiding severe sustained hypertension in line with Joint Commission Standards independent of accreditation • The adherence to guidelines and best practices set forth in hemorrhage bundle (e.g. active management of third stage of labor as measured by how many get routine oxytocin) • Management of anemia (e.g., looking at anemia in prenatal care and workup and treatment to avoid low starting hemoglobin as cause of transfusion) • Follow and report best practices associated with hemorrhage risk stratification and debriefing, regardless of Joint Commission accreditation status	Level of measurement is important and should be considered at the hospital, practice, and physician level. All measurements should champion a strategy to motivate systematic support for standard of care to reduce variation. Echocardiography for women with cardiovascular disease Early diabetes screening for women at risk Dedicated placental assessment for women with risk factors for accrete Level of measurement is important and should be considered at the hospital, practice, and physician level. Measures that assess number of patients with anemia, employ systematic support for standard of care to reduce variation. Measurement at the hospital level (best place to start) o TJC holds accountability but how do you measure that standard? o State health departments use these guidelines Measurement of anemia practices at either the practice or physician level to reduce practice pattern variation and provide motivation for a practice to systemically support standard of care.	

• Complete an evidence-based assessment to determine maternal hemorrhage risk during the third trimester.		

Measurement Topic: Substance use disorders, mental health, behavioral health

There are significant gaps in mental health care and measurement should focus on this. The treatments for substance use disorder and other perinatal mental health disorders are distinct, but do have significant overlap in terms of the clinicians providing this care and the pathways to ensure implementation. Therefore, measurement approaches applicable to addressing substance use disorders may bolster those for mental health and vice versa. Culturally relevant screenings and care will help encourage historically marginalized patients to seek care, and providers not to continue marginalizing patients.

Morbidity Framework Placement:
Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long term and short-term approach
• Access to behavioral health services for women screening positive for mental health disorders or substance use disorders. • Screening for psychosocial stressors (including social determinants of health screening) as a part of antepartum and postpartum care. • Availability of resources to get to needed services and follow up (child care, transportation, internet access) • Use of trauma-informed care including implementation of best practices at the	EMR data and surveys can be used to apply universal screening. Measures should champion approaches that prioritize vulnerable populations and address subdomains of racism, health equity, discrimination, implicit bias, lived environment. Measures of referral and engagement (including follow up for patients who are referred to but don't access care) will help prioritize more than screening and promote better health outcomes but decreasing barriers to accessing mental health services.	Short-term approaches: • Tracking of screening completion rates as outlined by best practices and monitoring of referral and receipt of care rates for patients screening positive for mental health disorders, substance use disorders, or socially vulnerable states. • Provision of targeted social services to those screening positive. • Systematically assess barriers to accessing care for those who are referred to but do not engage in care.

level of the practice or hospital and provider training	More research is needed to understand why there are gaps in screening and referrals (e.g. Do providers feel there are not sufficient resources for referral? Is the screening standard viewed as appropriate for all populations?)	Long-term approaches: • Coordinated designation of levels of maternal care within each state or regional care network. • Building evidence base to inform guidelines outlining best practices surrounding psychosocial interventions and trauma-informed care.
Measurement Topic: Access to pain management and labor support The intersection of medical care and psychosocial care on labor and delivery is challenging. Patients bring a wealth of lived experience, hopes, and expectations to their deliveries. The priorities of the provider may not always align with the priorities of the patient and patients may have varying medical knowledge or comfort with their care team to advocate for their own goals. Misalignment in these goals can lead to adverse outcomes and further underscore distrust in the medical system, which may have implications for the postpartum period and a woman's future pregnancies or health. Building systems to prioritize the patient experience in labor and delivery can mitigate morbidity in the moment but also work to bolster other important themes in maternal morbidity and mortality prevention. The challenge is that what continuous labor support looks like and what works to improve outcomes is not well understood. Coverage and reimbursement of doula care would promote access to labor support, but evidence-based guidelines outlining why this matters (e.g. financially and otherwise) are lacking. **Morbidity Framework Placement**: Domains: Intrapartum Care Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Co-morbidities, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders		
Measurement Approaches	**Description**	**Long term and short-term approach**
• Establishing a clear birth plan acknowledging patient hopes for delivery. • Access to adjunct intrapartum support (i.e. doulas) for those who may benefit from the intervention (i.e. patients attempting VBAC, high-risk social states).	Appropriate use of antepartum anesthesia consults for high-risk patients (i.e. substance use disorder, high risk of hemorrhage, complex medical comorbidities). Timeliness and effectiveness of provision of neuraxial analgesia for patients requesting	Short-term approaches: • Development of institution-specific quality metrics to address themes related to the labor experience. • Surveying patient experiences to inform best practices and reveal areas for improvement at the hospital level.

• Interdisciplinary collaboration and accountability of care and support for patients at high-risk medically or socially. • Timely access to pain management strategies aligned with patient goals of care.	epidural stratified by high-risk sociodemographic states (i.e. high BMI, race, ethnicity, payor status, limited health literacy or English proficiency). Development and monitoring of targeted anesthesia quality metrics as a surrogate for attentive labor support (i.e. replacement of epidural, need for general anesthesia for epidural failure) Surveying of patient experiences with emphasis on those with greatest need based on medical comorbidities (including substance use disorders) or social vulnerabilities that may limit patient's ability to advocate for her own care. Establishing dedicated pathways and protocols for those seeking unmedicated birth to optimize coordination of care between certified birth centers or certified nurse midwives and other levels of care when need arises (including attempted homebirth transfers).	• Analysis of any measurements focusing in this area stratified by medical and social risk states. • Institution-specific protocols dedicated to providing safe care for and support of patients seeking to minimize interventions at birth. <u>Long-term approaches</u>: • Building evidence base to inform guidelines outlining best practices surrounding labor support interventions and patients who may benefit most from this intervention. • Equitable access to culturally-appropriate labor support interventions independent of payor status.

<u>Measurement Topic</u>: Patient and Family Reported Outcomes and Experiences of Care

The patient reported experience of care is critical to improving outcomes and reducing morbidity. Feedback from the family and their experience should be coupled with patient reported experiences of care. Patients may not be aware during delivery of all the care they experience (unconscious, intubations, etc.), but families often are present. In addition, different families experience differential enforcement of rules according to the care setting (e.g. visiting hours) or staff exhibit different levels of response, or helpfulness.

<u>Morbidity Framework Placement</u>:
Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders		
Measurement Approaches	**Description**	**Long Term and short-term approaches**
• Care team responsiveness to patient needs during a maternal event. • Evaluating patient experiences of maternal care (e.g., restrictions to visitation due to COVID, treatment of visitors and family) • Survey with several concepts: o Support after traumatic birth, were you treated equitably and fairly, were you screened for mental health disorders during pregnancy, did you receive referrals to needed and appropriate services? o First survey: Quality of prenatal care o Second survey: Quality of labor and delivery care o Survey with discrete questions (scorable measure) or a collection of patient experiences. • Use CDC-developed informant interview guide from the MMRIA project and apply it to morbidity. This should measure differential treatment of family	Develop and use surveys to collect data on patient experience and family experience together. Surveys of those receiving direct care (patients) and those who are also impacted by care (families) can supply measure users with good information for internal QI purposes. Think about implementation at the hospital system level rather than provider level. Use survey methods and stratification to address subdomains of racism, health equity, discrimination, and implicit bias. It is important to balance the burden on the patient with the burdens on providers (i.e., surveys are burdensome, and many have low response rates). These surveys should cover a range of sites (hospitals, individual providers, systems). Use survey methods to address subdomains of support, patient experience, person centered care, and mental health disorders.	<u>Short-term approaches</u>: • Adaptation to existing patient experience surveys to include more targeted questions. <u>Long-term approaches</u>: • Comprehensive risk assessment • Conversations with patients about risks and provided options for care/treatment. • Resources that would be needed during prenatal and intrapartum care • Improvements to informed decision-making practices (e.g., actively identify hospitals specific to patient needs) • Do not delay progression and active participate in delivery with over-anesthesia • Focus on system level measures for better adoption from all stakeholders and stronger implementation.

members during the labor and delivery experience. • Families experience differential treatment during intrapartum care and during postpartum care. • Ensure interdisciplinary responsibility – all care providers should be held accountable and responsible for patient progress and outcomes as appropriate.		

Measurement Topic: Unequal Treatment / Equitable Treatment

Measuring the use of evidence-based guidelines and practice to determine why health treatment is not equal among minorities when compared to whites, even when access to healthcare is comparable.

Morbidity Framework Placement
Domains: Preconception/Well Women Care, Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Monitoring of interventions offered to prevent primary cesarean delivery and quality improvement endeavors to improve these rates • Consistent collection of date on SDoH, race & ethnicity to allow for stratified reporting of outcomes • Receipt of pharmacologic venous thromboembolism prophylaxis in admitted patients	Offering external cephalic version prior to primary cesarean delivery for breech. Encouraging operative vaginal delivery prior to second stage arrest or vaginal birth for twins in appropriate candidates. Survey methods can be most comprehensive way to develop this data (PRAMS) to address subdomains of racism, health equity, discrimination, implicit bias, lived environment.	Short term approaches: Monitoring of rates at physician or practice level. Long-term approaches: Example, the hospital-based program in Canadian tertiary care center requiring junior physicians consult senior physicians prior to performing cesarean delivery in second stage in attempt to increase exposure to operative vaginal delivery and decrease cesarean delivery (unpublished).

• Time to care stratified by race and ethnicity	Complex studies of coordination of care EMR data Measures comparing between hospitals can address subdomains of health equity and lived environment. Stratification by race and ethnicity is vital for understanding equitable treatment. Use survey methods and EMR data to address subdomains of support, patient experience, person centered care, and mental health disorders. Include measures of a provider's experience that allow for provider introspection – e.g., did they give the same course of treatment to all patients (sepsis, hypertension, and racial differences)? Balanced with measures of what providers do, not only what they say they do. Measures that consider questions such as - were there differences in who was offered a social worker, psychologist, mental health support, primary nursing in NICU?	

Measurement Topic: Mortality Prevention

These will contribute to SMM prevention as well. About 700 women die each year in the United States as a result of pregnancy or delivery complications. Half of these deaths are preventable. Women in the US are more likely to die from childbirth or other pregnancy-related causes than other women in the developed world.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Defined postnatal care package, including timeliness of postpartum referral or postpartum follow up visit • High yield screening practices as outlined in morbidity framework above—particularly regarding risk appropriate care for high-risk groups or diseases • AIM Bundles used to measure standard practices. This will focus measures on conditions that are most preventable.	How many states participate in AIM? How many bundles have they adopted? What is the adoption rate within the hospitals of the state? What about level 0 facilities?	*NEED LONG- and SHORT-TERM APPROACHES*

Measurement Topic (carried over from morbidity):
Substance use disorders, mental health, behavioral health

There are significant gaps in mental health care and measurement should focus on this. Overdose deaths are #1 killer in postpartum period. Death by suicide may be prevented with increased screenings for perinatal mood and anxiety disorders, IPV, ACEs, SUD, EPDS but it must be equitable and systematic. In a recent CA review, most women who died by suicide had a history of untreated or poorly treated mental health disorders. The treatments for substance use disorder and other perinatal mental health disorders are distinct, but do have significant overlap in terms of the clinicians providing this care and the pathways to ensure implementation. Therefore, measurement approaches applicable to addressing substance use disorders may bolster those for mental health and vice versa. Culturally relevant screenings and care will help encourage historically marginalized patients to seek care, and providers not to continue marginalizing patients.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• It is common for medications to be stopped out of provider or patient fear during pregnancy. Measures need to increase the emphasis on care of women with MH disorders during pregnancy and the postpartum period. • Provider education measures could improve the number of women kept on their medications and resolve worries about unknown effects on fetus. • Screening in the postpartum period for mental health/mood disorders, substance use.	MMRC forms collect whether deaths involve mental health as a contributing factor. There may not be a review of the gaps in care that contributed to the death.	*NEED LONG- and SHORT-TERM APPROACHES*

• Availability of resources to get to needed services (child care, transportation, internet access) • Pain management plan that is opioid limiting (postpartum) • Having a clear plan for patients in high-risk categories • Patient education and awareness of symptoms that could lead to mortality. • Never-events		

Measurement Topic: Continuity of coverage AND care

The continuity of coverage and care should be thought of in a broad sense, not just insurance status. This includes access to support services and providers such as doulas, examining care processes up front before disparities are identified, applying the concept of the medical home to maternal care before and after pregnancy, and monitoring the number of interactions a patient has with the healthcare system and locations (for the marginally insured, this does have a correlation with maternal death).

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Integrated service delivery from pregnancy to postnatal period	*NEED MEASURE DESCRIPTIONS*	*NEED LONG- and SHORT-TERM APPROACHES*

• Retrospective: Using payment or form of coverage to track care for maternal patients (e.g., woman going to different EDs or providers and seeking different care) • Improvement in tracking maternal patient visits (i.e., frequency and settings) prior to mortality; tracking by payment • Concurrent: Improvement in tracking maternal patient visits (i.e., frequency and settings) during postpartum. Create a trigger for utilization review concurrently by payers to capture data and intervene via care/case management.		

Measurement Topic: Systematic approaches for maternal mortality

Systematic inequalities lead to a need for systematic approaches such as integrated service delivery throughout the maternal life cycle. Maternal mortality itself can be a rarity which makes measurement difficult, however systematic changes can help with 60-70% of the preventable deaths.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Translate MMRC recommendations to hospital level practices	*NEED MEASURE DESCRIPTIONS*	*NEED LONG- and SHORT-TERM APPROACHES*

• Presence of hospital severe maternal morbidity review to identify those at highest risk of progressing to maternal mortality.		
Measurement Topic: Failure to Rescue Failure to prevent mortality from an underlying condition or complication of medical care. Health care systems should be able to rapidly identify and treat complications when they occur. Hospital volume, communication failures, and lower nurse staffing have all been associated with higher failure-to-rescue rates. **Mortality Framework Placement** Domains: Prenatal, Intrapartum Care, and Postpartum Care Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders		
Measurement Approaches	**Description**	**Long- and short-term approaches**
• Measure of the number of women with hemorrhage that go on to have a severe maternal morbidity. • Measurement of risk appropriate care, especially for high-risk pregnancies. Could be measurement of whether or not the proper care algorithm was followed.	*NEED MEASURE DESCRIPTIONS*	*NEED LONG- and SHORT-TERM APPROACHES*
Measurement Topic: (carried over from morbidity): **Patient and Family Reported Outcomes and Experiences of Care** The patient reported experience of care is critical in improving outcomes and reducing mortality. Feedback from the family and their experience should be coupled with patient reported experiences of care. Patients may not be aware during delivery of all the care they experience		

(unconscious, intubations, etc.), but families often are present. In addition, different families experience differential enforcement of rules according to the care setting (e.g. visiting hours) or staff exhibit different levels of response, or helpfulness.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Develop a measure on patient and family reported experiences of care that is utilized by all MMRCs in order to allow the uniform collection of this information across states. • Visitation (COVID) and treatment, support provided to family in an event of a woman dying. • Use CDC-developed informant interview guide from the MMRIA project. This should measure differential treatment of family members during the labor and delivery experience. • Ensure interdisciplinary responsibility – all care providers should be held accountable and responsible for patient progress and outcomes as appropriate.	Personal narratives, interviews or focus groups used as a modality for measurement and improving quality. Understanding what the family experienced and observed (heard, saw, how they were treated, etc.)	*NEED LONG- and SHORT-TERM APPROACHES*

Measurement Topic: Improvements to Mortality Measurement at the Hospital Level

Root cause analysis is a technique that helps answer the question of why a mortality occurs. Seeks to determine the primary cause of the mortality using the steps of: determining what happened, determining why it happened, and figuring out what to do in order to reduce the likelihood of it occurring again.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches
• Determine flaws in healthcare system using measurement of physical causes, human causes, and organizational causes.	Hospital level review and analysis of maternal death Requirement to be done in cases of maternal death hospital level review and analysis of maternal death. Family or other perspectives are often excluded from official review, and could provide insight into cause.	*NEED LONG- and SHORT-TERM APPROACHES*

Measurement Topic: Improvements to mortality measurement at the state level

It takes a long time to report data at the state level. Improvement in time to reporting case reviews (e.g. releasing 2013 data in 2020) makes it hard to plan improvement activities. Expedience in state level measurement is vital, while noting that committees only meet 3-4 times per year, gathering numerous records.

Mortality Framework Placement
Domains: Prenatal, Intrapartum Care, and Postpartum Care

Subdomains: Racism, Health Equity, Discrimination, Implicit Bias, Lived Environment, Health Behaviors, Co-morbidities, Gaps in Provider Education, Risk Appropriate Care, Healthcare Access, Quality Care, Unequal Treatment, Support, Patient Experience, Person Centered Care, Mental Health Disorders

Measurement Approaches	Description	Long- and short-term approaches

• All states to establish MMRCs that review pregnancy-related and pregnancy-associated deaths in addition to maternal deaths • State level/Regional data – focus on systems level data for mortality (from LOC/distinctions) • Mandated short and consistent turnaround time to reporting case reviews and data	Breaking maternal mortality measurement into discrete elements. Making sure suicide and substance use deaths are counted toward maternal mortality. Identifying differences between the drivers of maternal mortality and obstetric causes of mortality.	*NEED LONG- and SHORT-TERM APPROACHES*