RAISING HOPE BY BIRTHING CHANGE

This Strategic Plan was developed by the Maryland Maternal Health Improvement Task Force

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MARYLAND MATERNAL HEALTH IMPROVEMENT STRATEGIC PLAN

The Maryland Maternal Health Strategic Plan outlines how agencies, organizations, community groups, and residents will work together to reduce maternal deaths and complications in Maryland over the next five years. The World Health Organization defines maternal health as the health of the woman during pregnancy, during delivery, and in the postpartum period.[1] Along with infant mortality, indicators such as severe maternal morbidity and maternal mortality are widely considered to reflect the overall health and well-being of a community.

IN 2019, MARYLAND WAS ONE OF NINE STATES SELECTED TO BE PART OF A NATIONWIDE STATE MATERNAL HEALTH INNOVATION PROGRAM.

In December 2020, both the Department of Health and Human Services and the Surgeon General outlined a national plan to improve maternal health outcomes.[2] In the year prior, Congress enacted legislation to support maternal mortality review committees and increase the supply of maternity care providers in under served areas. In 2020, Congress built on prior legislation to improve maternal health outcomes and address persistent inequalities in maternal mortality and with the introduction of a series of bills including the Maternal Health Quality Improvement Act and the Maternal Outcomes Matter (MOM) Act.

In September 2019, Maryland was one of nine states selected to be part of a nationwide State Maternal Health Innovation Program with the Health Resources and Services Administration. Led by Johns Hopkins University, MDMOM is a five-year initiative to improve maternal health in Maryland. Other partners include the University of Maryland, Baltimore County; the Maryland Patient Safety Center; and the Maryland Department of Health. As part of MDMOM, a Maternal Health Improvement Task Force was established to coordinate programs and policies to improve the health and well-being of birthing people in Maryland. The Task Force was charged with developing a five-year strategic plan to improve maternal health in Maryland, building upon the 2020 Maryland Title V Needs Assessment.

[1] World Health Organization. Maternal Health. https://www.who.int/health-topics/maternal-health#tab=tab_1. Accessed 15 October 2020.

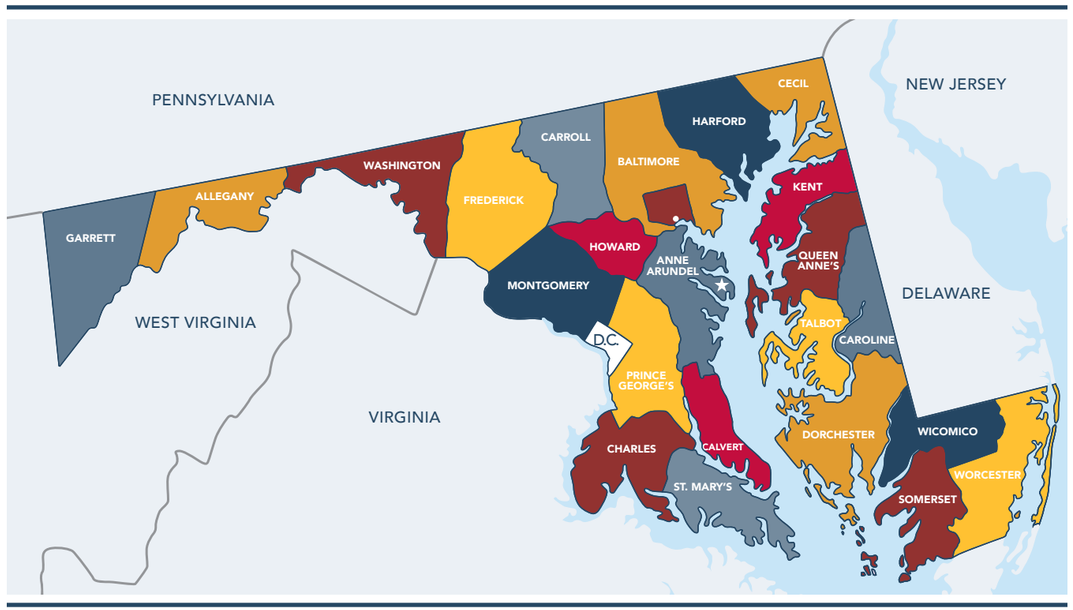
[2] Health and Human Services. HHS Outlines New Plans and Partnerships to Reduce U.S. Pregnancy-related Deaths. https://www.hhs.gov/about/news/2020/12/03/hhs-outlines-new-plans-to-reduce-us-pregnancy-related-deaths.html#:~:text=HHS%20Action%20Plan,-In%20the%20newly&text=The%20Action%20Plan%20outlines%20three,of%20reproductive%20age%20with%20hypertension. Accessed 15 December 2020.

While COVID-19 has recently been at the forefront for public health agencies and health care systems, maternal health remains a public health priority as it lays the foundation for the health of future generations. The disparate impact of COVID-19 on racial and ethnic minorities threatens to exacerbate existing maternal health inequities and has highlighted the significance of investments in maternal health and innovative local strategies to address racial disparities in maternal health outcomes.

Brief Overview of Maryland

Maryland is a small but diverse state, comprising 24 jurisdictions, including 23 counties and the city of Baltimore. Maryland is geographically unique, with the Allegheny Mountains and Chesapeake Bay separating its western and eastern regions from the central population centers of the state. With an estimated population of more than 6 million in 2018, Maryland is the nation's 19th most populous state.

The State's maternal health population includes an estimated 1.2 million women of childbearing age (ages 15–45). In calendar year 2019, there were 70,130 live births, which included 29,486 Non-Hispanic White births (42.0%), 22,269 Non-Hispanic Black births (31.8%), 5,127 Non-Hispanic Asian/Pacific Islander births (7.3%), 111 American Indian births (0.2%), and 12,860 Hispanic births of all races (18.3%).



Development Process of the Maternal Health Strategic Plan

The Maternal Health Strategic Plan process was structured into six stages: 1) scan of existing needs assessments and plans including the Title V State Action plan, Maternal Mortality Review Committee and Stakeholder Group recommendations, as well as strategic plans from other states; 2) identification of state-level strengths and challenges; 3) identification of key priorities, goals, and desired outcomes based on identified strengths and challenges; 4) stakeholder and public input; 5) strategic plan revisions based on feedback; and 6) report finalization.

Members of the Maternal Health Improvement Task Force led the development of the Maternal Health Strategic Plan. Overall, approximately 15 stakeholder input sessions were held. Many of these input sessions occurred through existing stakeholder meetings. Please see Appendices 1—3 for further information about Task Force members and activities related to the development of the strategic plan.

As the Title V Needs Assessment was recently completed (between September 2019 and July 2020), information from the Title V needs assessment is also reflected in the Maryland Maternal Health Improvement Strategic Plan. The Title V Needs Assessment also consisted of six stages: 1) a planning stage that included the initial meeting with the Steering Committee and a formal research plan; 2) gathering existing data from a variety of data sources to better understand the population needs, available services, and disparities in health care access and health outcomes; 3) broad-based stakeholder input, including 31 key informant interviews and four public forums; 4) identifying priorities through strategic planning sessions with key stakeholders; 5) public comment; and 6) report development.

IDENTIFIED STATE-LEVEL STRENGTHS AND CHALLENGES/GAPS IN IMPROVING MATERNAL HEALTH AND WELLNESS

Identified State-Level Strengths

Key strengths toward improving maternal health and wellness in Maryland include:
Insurance Coverage as a Medicaid Expansion State and recent legislation that extends Medicaid Coverage for comprehensive medical, dental, and other health care services for birthing individuals from two to 12 months postpartum: Maryland is a Medicaid Expansion state and over the past several years, Maryland residents have seen significantly higher rates of health care coverage. Maryland's uninsured rate declined from 10.1% in 2012 to 6.0% in 2018—— lower than the national rate of 8.9%. Since 2015, the uninsured rate in Maryland decreased for all races and ethnicities but remained highest for Hispanic individuals (22.3% in 2018, a slight increase from 22.0% percent in 2017). The uninsured rate decreased for most age groups since 2015 but increased slightly for those 45 to 54 years of age (6.1% in 2015 to 7.2% in 2018). According to the 2019 Maryland Behavioral Risk Factor Surveillance System (BRFSS), 87.2% of women ages 18—44 had health care coverage, and 77.5% of women ages 18—44 had a preventive medical visit in the past year. Additionally, a higher percentage of Maryland women had a mammogram as compared with the national average (80.0% and 74.7%, respectively).

Pregnant and postpartum individuals with family incomes less than 250% of the federal poverty level are eligible for Medicaid coverage. During the 2021 session, the Maryland legislature passed Senate Bill 923, which extends Medicaid postpartum coverage for comprehensive medical, dental, and other health care services from two to 12 months postpartum. The legislation will provide an estimated $17 million in additional funding to improve health for pregnant and postpartum individuals who participate in Maryland's Medicaid program.

Maryland's Unique Health Care Finance Model that Aims to Advance Hospital Care Quality, Care Transformation Across the Health Care System, and Population Health: By agreement with the Centers for Medicare and Medicaid Innovation (CMMI), Maryland has a unique all-payer hospital financing structure directed and managed by the Maryland Health Services Cost Review Commission. By agreement with CMMI, the State has adopted a Statewide Integrated Health Improvement Strategy (SIHIS) to advance hospital care quality, care transformation across the health care system, and population health. The last goal, total population health, has three domains: diabetes, opioids, and maternal and child health. The maternal and child health goal has two specific outcomes of interest: decreasing severe maternal morbidity and childhood asthma emergency department visit rates, and related disparities. CMMI approved the State's strategy proposal on March 17, 2021.

THE HEALTH SERVICES COST REVIEW COMMISSION APPROVED $40 MILLION DOLLARS OVER FOUR YEARS.

As Maternal and Child Health was identified as the third domain within the population health goal, the Health Services Cost Review Commission approved $40 million dollars over four years to meet the SIHIS Maternal and Child Health goals. The majority (80%) of the funds will go towards Medicaid to increase linkages to care for birthing people with opioid use disorder, reimbursement for doula/birth worker services, expand group-based prenatal care,

and maternal and infant home visiting. The remaining funds will go towards public health services to expand asthma home visiting, promising practice, and evidence-based home visiting, as well as expanding group prenatal care for birthing people, regardless of payer.

Maryland's Health Care and Public Health Environment: Maryland's health care system includes 24 local health departments (LHDs), 77 hospitals, 21 federally qualified health centers (FQHCs), the Medicaid Program, private insurers, regulatory agencies, provider groups, advocacy groups, and countless health practitioners. MCH specific resources include 32 birthing hospitals, nearly 2,600 pediatricians and adolescent practitioners, over 1,200 obstetricians and gynecologists, and nearly 1,900 family/general practitioners. Maryland is also home to several of the nation's top hospitals such as Johns Hopkins University. Maryland is ranked number 5 out of 51 (including Washington, D.C.) for providing access to mental health services.[3]

Perinatal System Standards of Care for Maryland Birthing Hospitals: The Maryland Perinatal System Standards was developed in the mid-1990s by a Maryland Department of Health advisory committee as a set of voluntary standards for Maryland hospitals providing obstetric and neonatal services. Level III and Level IV hospitals are designated perinatal referral centers that provide specialized care for both pregnant birthing individuals, as well as neonates. The Standards have since been incorporated into the regulations for designation of perinatal referral centers by the Maryland Institute for Emergency Medical Services Systems (MIEMSS), as well as the Maryland Health Care Commission's State Plan regulations for obstetrical units and neonatal intensive care units. MIEMSS regulates Level III and Level IV Hospitals. Level I and Level II are voluntary designations as delivering hospitals but do not have the same specialized care as Level III and Level IV hospitals. Maryland Department of Health reviews and monitors the voluntary designation of Level I and II hospitals as authorized by Health-General Article, §18-107, Annotated Code of Maryland and outlined in COMAR 10.11.06.00-13.

Maternal Mortality Review Committee (MMRC): Since 2000, with the enactment of the Health-General Article, §13-1201 through §13-1207, Maryland has had a Maryland Maternal Mortality Review Committee that identifies maternal death cases, ; reviews medical records and other relevant data, ; determines preventability of the deaths, ; develops recommendations for the prevention of maternal deaths, ; and disseminates findings to policymakers, health care providers, health care facilities, and the public. The Maryland Maternal Mortality Review Committee has served as a leader for other states that have recently developed their own Maternal Mortality Review Committees.

[3] Mental Health America. State of Mental Health in America 2020. https://www.mhanational.org/issues/ranking-states. Accessed 2021 August 7.

Maryland Perinatal-Neonatal Quality Collaborative: Since 2003, the Maryland's Perinatal-Neonatal Quality Care Collaborative (MDPQC), a statewide network of perinatal care providers and public health professionals, have worked together to make Maryland the safest place to have a baby. Through continuous quality improvement, the Collaborative works to improve outcomes for newborns and pregnant individuals. In 2009, the Collaborative began an initiative to reduce early elective deliveries at < 39 weeks gestational age without medical indications. When the collaborative ended in December 2013, there was a 94% reduction in rate of early C-section deliveries (from 10.4% to 0.6%) and 95% reduction in early elective inductions (2% to 0.2%). In 2009, Maryland became the first state to have all birthing hospitals recognized by March of Dimes to reduce Early Elective Deliveries to less than 5%. In 2015, Maryland became the second state designated as a member of the Alliance for Innovation in Maternal Health (AIM), a Health Resources and & Services Administration (HRSA) supported program.

Local Health Improvement Coalitions: The infrastructure of coalition building and collective impact at the local level is a state-wide strength. Local Health Improvement Coalitions (LHICs) equip local jurisdictions to determine and address specific public health priorities and provide the infrastructure for collaborations at the local level. As of August 2021, nearly all jurisdictions operate LHICs. In addition, jurisdictions whose LHICs may not be focused on maternal and child health (MCH) priorities may have pre-existing strong MCH collaborations such as B'more for Healthy Babies, which has coordinated efforts toward a 32% decrease in infant mortality from 2009 to 2018 in Baltimore City, and Frederick County's Maternal and Child Health Collaborative.

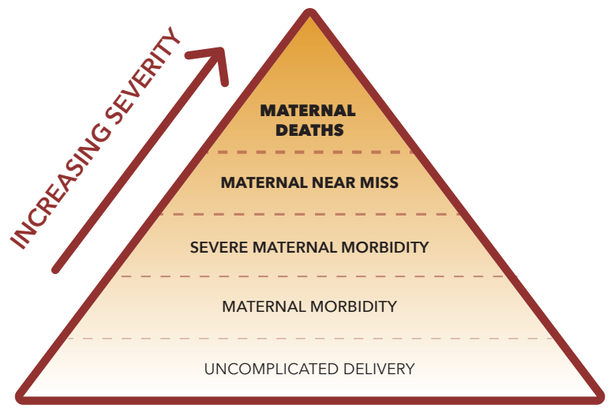
Maryland SBIRT (Screening, Brief Intervention, and Referral to Treatment) Initiative: As part of the Maryland SBIRT initiative, the Behavioral Health Administration of Maryland Department of Health has implemented SBIRT into many health care settings across the state including over 34 emergency departments, 10 hospital mother-baby units, 22 OB/GYN practices, 7 detention centers, 20 public schools, 4 colleges, and 172 primary care practices. The program has resulted in over 1.3 million screenings, 100,000 brief interventions, and 20,000 referrals to treatment. Birthing hospitals who have implemented SBIRT include Anne Arundel Medical Center, Greater Baltimore Medical Center, MedStar Franklin Square, MedStar Harbor, Mercy, Meritus, LifeBridge Sinai, Saint Agnes, University of Maryland Medical Center, and the University of Maryland Upper Chesapeake. The Maryland Family Planning Program also has implemented SBIRT across their 62 clinical sites throughout the state and has partnered with Planned Parenthood of Maryland to provide SBIRT training and technical assistance.

Key Metrics

The following key metrics are used to identify challenges/gaps in improving maternal health and wellness:

Spectrum of Severe Maternal Morbidity and Mortality.: Figure 1 illustrates the spectrum of maternal health outcomes. At the base of the pyramid are healthy birthing people who experience no complications. At the top of the pyramid are the most severe end of the continuum: those who experience severe complications during pregnancy or those who die during pregnancy or afterwards. Instances of both maternal mortality and severe maternal morbidity are considered sentinel events that emphasize critical issues in maternal health. Disparities by race and socio-economic status in these adverse outcomes indicate inequities in the impact of social determinants of health, and in the availability of quality health care services that address the needs of each patient.

FIGURE 1: SPECTRUM OF SEVERE MATERNAL MORBIDITY AND MORTALITY



Maternal Mortality: In the beginning of the 20th century, the maternal mortality ratio (MMR)[4] in the U.S. was approximately 850 deaths per 100,000 births. The ratio dropped throughout the century, reaching its low point of about 7/100,000 in the early to mid-1980s——a 99% reduction in the ratio from the beginning of the century. However, since the late 1980s, the MMR has been increasing. It is estimated that 40%-50% of this increase is an artifact resulting from two efforts aimed at more complete data collection of maternal deaths, which are widely believed to have been under-reported. During the 1990s, ICD-10 O-codes, which account for late, (i.e., post—42 day) pregnancy-related deaths, (and also pregnancy-associated deaths not directly related to the pregnancy,) were introduced; and in the 2000s, a pregnancy checkbox was added to state death certificates. These changes, along with a central data collection and review center established in 1986, the CDC Pregnancy-Related Mortality Surveillance System (PMSS), helped to address under-reporting issues.[5] While the maternal mortality ratio is technically not a rate, to align with the Centers for Disease Control and Prevention as well as the National Center for Health Statistics, MMR will refer to Maternal Mortality Rate.

However, accounting for these changes, there remains a "real" increase in MMR of over 50% since the 1980s. The U.S. MMR was 17.4 maternal deaths per 100,000 live births in 2018, the latest year for which national data are available. The national racial disparity in MMR is pronounced: 37.3 deaths per 100,000 live births for non-Hispanic Blacks compared to 14.9 for non-Hispanic Whites,[6] resulting in a Black:White disparity of 2.5.

For the purposes of this report, the Maternal Mortality Rate was calculated using the CDC Wonder data, and the ICD-10 codes used to identify maternal deaths are A34, O00-O95, and O98-O99.[7]

A five-year average of Maryland's MMR is used to compare it with the national MMR, as averaging the Maryland ratio stabilizes the number and is necessary because maternal deaths are relatively infrequent events that may vary considerably year to year, particularly in a small state like Maryland.

IN PREVIOUS YEARS, THE MARYLAND MMR HAD CONSISTENTLY BEEN HIGHER THAN THE NATIONAL AVERAGE.

In previous years, the Maryland MMR had consistently been higher than the national average. From 2009 to 2013, the Maryland MMR was 29% percent higher than the national rate. However, from 2014 to 2018, the Maryland MMR was 11% percent less than the national rate. Between the two five-year periods, the U.S. MMR increased by 9.5% percent and the Maryland rate decreased by 24.9% percent (see Table 1). Both the U.S. and Maryland rates remain above the Healthy People 2020 Objective MICH-5 target of 11.4 maternal deaths per 100,000 live births.

[4] The MMR is technically a ratio and not a rate. The Maternal Mortality Rate is defined by the number of maternal deaths in a given period per population of women who are of reproductive age. The Maternal Mortality Ratio is the number of maternal deaths per live births. Therefore, the ratio will include in its numerator cases, e.g., mothers who died with ectopic pregnancies, abortions, or stillbirths, that are not represented in the denominator of live births.

[5] Main EK. Maternal mortality: new strategies for measurement and prevention. Current Opinion in Obstetrics and Gynecology. 2010 Dec;22(6):511-6. doi: 10.1097/GCO.0b013e3283404e89. PMID: 20978441.

[6] https://www.cdc.gov/nchs/maternal-mortality/index.htm.

[7] These numbers are different from the Maryland Maternal Mortality Review Reports as the ICD-10 codes used to identify maternal deaths are A34, O00—O95, and O98—O99 rather than ICD-10 codes O00—O99, which were previously used to calculate Maternal Mortality Rate.

TABLE 1. U.S. AND MARYLAND MMR TRENDS

Years	Maryland	United States
2009–2013	24.5	18.9
2014–2018	18.4	20.7

Racial Disparities in MMR: As noted above, Black non-Hispanic (NH) women in the U.S. had an MMR 2.5 times greater than White NH women in 2018, a disparity that has persisted since the 1940s. In Maryland, there is an even greater disparity between the MMR for Black NH and White NH women. Table 2 shows the MMR by race in Maryland for six overlapping five-year periods over the past decade. As noted above, compared to 2009—2013, during which the Black NH:White NH racial disparity stood at 2.5, the 2014—2018 MMR for White NH women in Maryland decreased 56.7 percent, and the MMR for Black NH women decreased 12.0%percent. The 2014—2018 MMR for Black NH women is 4.0 times the MMR for White NH women.

TABLE 2. FIVE-YEAR ROLLING AVERAGE MATERNAL MORTALITY RATE BY RACE, MARYLAND

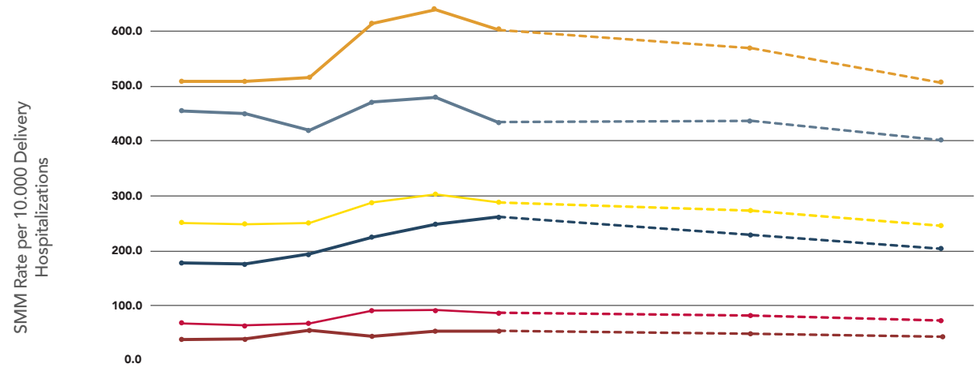
Maryland			
Year	All Races	White NH	Black NH
2010–2014	25.7	18.7	45.2
2011–2015	23.5	17.6	40.5
2012–2016	19.7	12.3	38.0
2013–2017	19.5	11.8	35.7
2014–2018	18.4	8.8	35.1

DATA FROM 2018 INDICATES THAT OVERDOSE ACCOUNTED FOR 31.6% OF ALL PREGNANCY-ASSOCIATED DEATHS, MAKING IT THE LEADING CAUSE OF PREGNANCY-ASSOCIATED DEATHS IN THE 2019 MARYLAND MATERNAL MORTALITY REVIEW ANNUAL REPORT.

Severe Maternal Morbidity: Severe maternal morbidity (SMM) is estimated to be nearly 100 times more common than maternal mortality. As with MMR, SMM rates in Maryland are characterized by significant racial disparities (see Figure 2). SMM includes unexpected outcomes of labor and delivery that result in significant short- or- long-term consequences to a woman's health.[8] The Centers for Disease Control and Prevention conducts SMM surveillance using administrative hospital discharge data consisting of 21 indicators that include 16 diagnosis-based indicators such as acute kidney failure, sepsis, eclampsia, embolism, as well as 5 five procedure-based indicators including blood transfusion and hysterectomy.[9] This definition will be used to track progress toward SMM objectives in the strategic plan.

FIGURE 2: RATE OF SEVERE MATERNAL MORBIDITY BY RACE AND ETHNICITY

Number and Rate* of Severe Maternal Morbidity (SMM) by Race and Ethnicity by Year, Maryland, 2014-2026



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
AVERAGE	249.8	247.6	250.6	288.6	303.0	288.2				273.2			245.5
White Non-Hispanic SMM cases (#)	456	450	419	471	480	435				437			402
Black Non-Hispanic SMM cases (#)	510	509	517	614	640	603				570			506
Asian Non-Hispanic SMM cases (#)	68	64	67	90	92	87				82			73
Hispanic SMM cases (#)	177	176	195	224	249	262				229			204
Other Non-Hispanic SMM cases (#)	38	39	55	44	54	54				49			43

Substance Use/Misuse Disorder: The Maryland Vital Statistics Administration (VSA) reported 2,773 unintentional intoxication deaths involving drugs and alcohol in 2020, a 16.6% increase from 2019. Ninety percent of these deaths were categorized as opioid-related, higher than at any other point during the opioid crisis. The number of opioid-related unintentional intoxication fatalities increased 18.7%, from 2,106 in 2019, to 2,499 in 2020.

[8] American College of Obstetricians and Gynecologists and the Society for Maternal–Fetal Medicine, Kilpatrick SK, Ecker JL. Severe maternal morbidity: screening and review. Am J Obstet Gynecol. 2016;215(3):B17–B22.

[9] Centers for Disease Control and Prevention. How Ddoes CDC Identify Severe Maternal Morbidity. ? https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm. Accessed 27 December 2020.

This is substantially less than the 70% increase between 2015 and 2016, which was the largest single-year increase that has been recorded. Fentanyl-related deaths continue to rise, increasing 20.7% from 1,927 in 2019 to 2,326 in 2020. Maryland Vital Statistics VSA data indicates that drug and alcohol intoxication deaths among women increased from 640 deaths in 2018 to 654 deaths in 2019, a two percent2% increase.

Mental Health: According to 2019 Pregnancy Risk Assessment Monitoring System (PRAMS) data, 13.1% of women reported depression before pregnancy and 15.6% of mothers reported symptoms of postpartum depression. During the three months before pregnancy, 20.5% of women reported they had anxiety.

Cesarean Delivery: While recent improvements in decreasing cesarean deliveries (CDs) among Nulliparous, Term, Singleton, Vertex (NTSV) births have been achieved, the proportion of live babies born at or beyond 37.0 weeks gestation to women in their first pregnancy, that are singleton, and in the vertex presentation (no breech or transverse positions), remains higher than the Healthy People 2030 national goal of 23.6% of NTSV births being cesarean deliveries. According to Maryland Vital Statistics Administration VSA data, in 2019 (most recent data), 32.9% of all births to Maryland residents occurred by cesarean delivery, a decrease from the rate of 34.9% in 2015. However, the larger decrease has been in NTSV cesarean deliveries, from 30.0% in 2015 to 27.8% in 2019, a decrease of 7.3% over four years.

The World Health Organization considers the ideal rate for cesarean deliveries (CD) to be 10–to 15%.[10] CDs can prevent injury and death in birthing people who are at higher risk of complications during delivery, as well as prevent injury and death in their newborns. CDs are linked to increased risk of infections and blood clots, and many birthing people who are not at higher risk for delivery complications get unnecessary CDs.

Initiatives to decrease the NTSV cesarean delivery rate started in 2016 through the Maryland Perinatal Neonatal Quality Collaborative and the Alliance for Innovation on Maternal Health (AIM) patient safety bundle on Safe Reduction of Primary Cesarean Birth.[11] The collaborative continued its focus on CDs until the end of 2018, by which time the Collaborative found a 6% overall reduction in low-risk cesarean deliveries among participating hospitals.

[10] World Health Organization. WHO Statement on Cesarean Section Rates. https://apps.who.int/iris/bitstream/handle/10665/161442/WHO_RHR_15.02_eng.pdf?sequence=1.

[11] https://safehealth careforeverywoman.org/council/patient-safety-bundles/maternal-safety-bundles/safe-reduction-of-primary-cesarean-birth-aim/.

Smoking During Pregnancy: In 2019, Maryland was slightly below the national average for women who smoked during pregnancy, with 4.7% of Maryland women who smoked during pregnancy, compared to 6.0% nationally (Maryland Vital Statistics Administration, National Vital Statistics System). Maryland has seen a downward trend in the percentage of women who smoke during pregnancy since 2010 (8.9%), while the national trend reached its peak in 2014 (7.9%) and started decreasing in 2015. The percentage of Maryland women who smoked during pregnancy in 2019 was highest among White non-Hispanic White women (7.4%), followed by Black non-Hispanic Black women (4.2%), and Hispanic women (0.8%).

Many key informants from the Title V needs assessment agreed that many smoking cessation resources are available in Maryland, including the QuitLine, smoking cessation therapies, health department smoking cessation programs, and anticipatory guidance programs. One key informant reported that smoking cessation education is also provided through the early care nurse who provides in-home services.

Preventive Dental Visits in Pregnancy: According to 2019 PRAMS data, 54.1% of women reported having their teeth cleaned during pregnancy, a one percent1% increase from 53.4% in 2018. Many Title V needs assessment key informants stated that Medicaid coverage for preventive dental visits is very good, particularly during pregnancy.

Prenatal Care: The percentage of Maryland women who initiated prenatal care during the first trimester rose to 84.8% in 2019, a 2.4% increase from 82.8% in 2018, according to PRAMS data. Among non-Hispanic White women, 93.2% initiated prenatal care during the first trimester, compared to 79.5% of non-Hispanic Black women, and 72.0% of Hispanic women. First trimester prenatal care initiation increased as the woman's age increased.

Breastfeeding: In 2019, according to PRAMS data, 91.4% of Maryland mothers reported having ever breastfed their babies, an increase from 89.6% in 2018. Rates of breastfeeding in Maryland were high across all races, ranging from 89.1% for Black Non-Hispanic Black mothers to 99.6% among Asian mothers.

Teen Pregnancy and Reproductive/Sexual Health: Maryland VSA data showed that the adolescent birth rate decreased 55.4%, from 31.2 births per 1,000 adolescent females ages 15—19 years in 2009 to 13.9 births per 1,000 adolescent females in 2019. Hispanic females had the highest adolescent birth rate, with 36.7 births per 1,000 adolescent females, which was more than double the adolescent birth rate for Black, non-Hispanic females (17.0 per 1,000 adolescent females) and more than five times the adolescent birth rate for White, non-Hispanic females (7.3 per 1,000 adolescent females).

Identified State-Level Challenges and Metrics

This section presents specific challenges and metrics for maternal health that were identified through key informant interviews and focus groups during the 2020 Title V Needs Assessment.

Inadequate access to high-risk obstetrics care in medically underserved areas: Title V key informant interviews revealed that access to high-risk obstetrics care was hindered by several factors including the lack of providers, barriers in transportation and travel, and the association of insurance eligibility with immigration status. Inadequate access to high-risk obstetrics care is particularly acute in rural areas of Maryland such as Southern Maryland, the Eastern Shore, and Western Maryland. Transportation was highlighted, as several key informants stated that those with low- incomes especially struggle with transportation barriers to medical appointments.

Inadequate access to mental and behavioral health specialists: While Maryland is ranked overall as fifth in mental health care access,[12] key informants emphasized a lack of mental and behavioral health specialists providers who specialize in treating birthing people. The lack of access is further exacerbated by few transportation options, particularly in rural areas. Data from the Health Resources and Services Administration (HRSA) Data Warehouse indicate that 18 of Maryland's 24 jurisdictions are designated shortage areas for mental health services.

TITLE V KEY INFORMANTS REPORTED THAT RACISM AFFECTS THE HEALTH CARE RECEIVED BY BIRTHING PEOPLE OF COLOR AND THAT THEY ARE NOT TREATED EQUALLY DUE TO SYSTEMATIC BIASES.

Increasing substance use and increasing overdose deaths: Data from 2018 indicates that overdose accounted for 31.6% of all pregnancy-associated deaths, making it the leading cause of pregnancy-associated deaths in the 2019 Maryland Maternal Mortality Review Annual Report. The rate of overdose deaths for women ages 15—49 was 24.1 deaths per 100,000 population in 2019 (Maryland Vital Statistics Administration). It is estimated that only 74.7% of pregnant individuals with opioid use disorder received opioid maintenance treatment in 2019 (Maryland Behavioral Health Administration).

[12] Mental Health America. State of Mental Health in America 2020. https://www.mhanational.org/issues/ranking-states. Accessed 2021 August 7.

Structural racism and systematic biases: Title V key informants reported that racism affects the health care received by birthing people of color and that they are not treated equally due to systematic biases. One key informant in particular stated that "when low-income women or women of color visit, they are treated differently. They feel like the people are rude, don't understand what is being said to them, and sometimes look down on them." A few key informants stated that, like the immigrant population, Black families have a lack of trust in health care providers. As COVID-19 has further constrained access to reproductive and maternal health care, structural and systemic inequities have been exacerbated.[13]

Lack of social support and opportunity for perinatal health education: Key informants reported the importance of addressing social needs and social supports, including transportation, food insecurity, housing instability, and limited childcare service options, particularly for newborns. Title V key informants reported that addressing these barriers is more challenging for low-income families.

It was also noted that there is a cost associated with most childbirth classes, making them less accessible for low-income families. Additionally, many of the key informants commented that there is a lack of knowledge of the importance of well-woman visits. Furthermore, a few key informants stressed that there is a lack of knowledge about the importance of prenatal vitamins, especially among younger mothers.

Burnout and stress among health care, first responder, and public health workforce during COVID-19: The World Health Organization (WHO) has recognized burnout as a syndrome and, based on the International Classification of Diseases (ICD-11): "Burnout is caused by chronic stress in the workplace which is not managed successfully and is characterized by three dimensions: 1) feeling of energy loss or fatigue; 2) increased mental distance from one's job or negative feelings or pessimism about the job; and 3) reduced professional effectiveness." During the COVID-19 pandemic, health care workers, public health officials, and first responders have been providing care to those affected by COVID-19 or working to develop the public health infrastructure to test, investigate cases, contact trace, provide guidance, and provide vaccinations. Providers had to increase their capacity and cover other providers due to illnesses, which further exacerbated health care workforce shortages in many Maryland communities. Data from the HRSA Data Warehouse indicate that 19 of Maryland's 24 jurisdictions are currently either entirely or partially federally designated as health professional shortage areas for primary care or dental services.

[13] Maternal Health Task Force. Amidst the COVID-19 Pandemic, we must remember maternal health. https://www.mhtf.org/2020/04/18/amidst-the-COVID-19-pandemic-we-must-remember-maternal-health/ 2020 April 18.

Existing Maternal Health Initiatives within the State

Despite the challenges for maternal health, Maryland has several statewide initiatives that are addressing maternal health outcomes. These initiatives include:

Statewide Integrated Health Improvement Strategy (SIHIS): As part of the Statewide Integrated Health Improvement Strategy (SIHIS) that is connected to the State's Total Cost of Care Model, maternal health is a population health priority area. Specifically, SIHIS outlines that the goal is to reduce the severe maternal morbidity rate overall from 242.5 SMM events per 10,000 delivery hospitalizations (2018) to 197.1 SMM events per 10,000 delivery hospitalizations (2026). Recognizing the role that racial disparities play in driving overall SMM rates, the excess rate of Black non-Hispanic SMM events (compared to White non-Hispanic SMM events) is targeted to be reduced by 25% by 2026.

Additional components of SIHIS include efforts to increase group-based prenatal care through the Centering Pregnancy approach, doula services reimbursement through Medicaid, and an expansion of evidence-based and promising practice maternal and infant home-visiting services.

Title V Maternal and Child Health Services (MCH) Block Grant: The Title V MCH Block Grant provides funds to states to improve the health of women and children, including those with special health care needs. The program is authorized under Title V of the 1935 Social Security Act and is administered by the Maternal and Child Health Bureau of the HRSA of the U.S. Department of Health and Human Services. At the state level in Maryland, the grant is administered by the Prevention and Health Promotion Administration (PHPA) of the Maryland Department of Health.

HRSA Maternal & Child Health

As health care has continued to undergo payment reforms, Title V continues to collaborate with the Medicaid Program to improve access to health care services for women and children. As more eligible residents have received Medicaid coverage to enable them to access health care, Title V has shifted its emphasis from a direct service gap-filling model to more of a population and infrastructure-based model.

Maryland Title V has supported activities to address national maternal health performance measures such as low-risk cesarean delivery, breastfeeding, preventive dental care, and smoking during pregnancy. These activities have included providing essential care coordination and home-visiting services through local health departments and community-based organizations, leading collaborations on quality improvement with birthing hospitals through the Perinatal Neonatal Quality Collaborative, and conducting essential public health infrastructure activities such as epidemiology, project management and administration, and surveillance support. In addition, Title V funds support Surveillance Quality Initiatives including Fetal and Infant Mortality Reviews, Child Fatality Reviews, and Maternal Mortality Reviews. These reviews identify clinical, non-clinical, and system factors that contribute to adverse outcomes.

Maternal Health Innovation Program (MDMOM): Maryland is one of nine states to receive funding for the Maternal Health Innovation Program by the Health Resources and Services Administration (HRSA) for five years. The program in Maryland, called MDMOM, aims to improve maternal health across the state by coordinating innovation in the areas of maternal health data, hospital and community service delivery, training, and resource availability. MDMOM is a collaboration of Johns Hopkins University, Maryland Department of Health, Maryland Patient Safety Center, and the University of Maryland, Baltimore County.

The Maternal Health Improvement Task Force, led and chaired by the Maryland Department of Health, is a part of the MDMOM Initiative. The Task Force, which first met in 2020, brings together a diverse group of key stakeholders, including officials from state health governing bodies, departments, and agencies; professional organizations; maternity health care providers; insurance payers; patient advocacy groups; and local community organizations. The Task Force is responsible for developing a statewide strategic plan for improving maternal health by addressing racial disparities and leveraging existing resources.

MARYLAND IS ONE OF NINE STATES TO RECEIVE FUNDING FOR THE MATERNAL HEALTH INNOVATION PROGRAM BY THE HRSA FOR FIVE YEARS.

In July 2020, MDMOM launched a hospital-based pilot program in six birthing hospitals (Anne Arundel Medical Center, Howard County General Hospital, Johns Hopkins Hospital, MedStar St. Mary's Hospital, Mercy Medical Center, and Sinai Hospital of Baltimore) to test processes for facility-based severe maternal morbidity surveillance and review in Maryland. This pilot is the first phase of a larger initiative to establish a voluntary statewide SMM surveillance and review program in Maryland. The SMM surveillance case definition in Maryland is adapted from the proposed CDC/AGOG/SMFM definition for facility-based surveillance. It includes all women admitted to an ICU or critical care unit; women with four or more units of red blood cells transfused; and women affected by emerging public health threats requiring hospital admission and treatment (e.g., COVID-19). MDMOM developed standard case identification, abstraction, and review protocols to be used during the pilot phase. Upon abstraction of data from several cases, each multidisciplinary hospital-based review committee meets to review cases, assess their preventability, and draw lessons for practice reforms.

Maryland Perinatal-Neonatal Quality Collaborative: Maryland's Perinatal-Neonatal Quality Care Collaborative (MDPQC) is a network of perinatal care providers and public health professionals working to improve health outcomes for women and newborns through continuous quality improvement. The Collaborative provides participating birthing hospitals with educational resources, technical assistance, and a platform for communication and sharing best practices.

All 32 birthing hospitals in Maryland participate in the MDPQC. The current focus is severe hypertension, through implementation of the Alliance for Innovation in Maternal Health (AIM) safety bundle. The bundle components review readiness through standards in early warning signs; diagnostic criteria; monitoring of treatment of severe preeclampsia/eclampsia; recognition and prevention through standard protocol for measurement and assessment of blood pressure and urine protein for all pregnant and postpartum people; response such as facility-wide standard protocols with checklists and escalation policies for management and treatment; and reporting systems and learning processes to establish a culture of post-event debriefs and a multidisciplinary review of all severe hypertension/eclampsia cases admitted to the Intensive Care Unit.

Maryland Perinatal Support Program: The purpose of the Maryland Perinatal Support Program (MPSP) is to support and improve the perinatal system of care in Maryland. Specifically, MPSP brings maternal-fetal medicine consultation, education, and technical assistance, as well as obstetric nursing outreach and education, to Level I and II birthing hospital providers in the State. Maternal-fetal medicine specialists provide unique support in the evaluation and management of pregnant and postpartum patients with pre-existing medical conditions, pregnancy complications, or known/suspected fetal anomalies.

Babies Born Healthy Program: The Babies Born Healthy (BBH) Program aims to improve maternal and infant health in Maryland. The program focuses resources on the eight jurisdictions with the highest numbers and rates of infant deaths, which include Anne Arundel, Baltimore, Caroline, Charles, Montgomery, Prince George's, and Wicomico Counties along with Baltimore City. These jurisdictions accounted for 78% of infant deaths in Maryland from 2012 through 2016. Community Health Workers (CHWs) collaborate with nurses to target care coordination and navigation services in high-risk neighborhoods to link vulnerable pregnant individuals to essential services that have been associated with improved birth outcomes. This approach was informed by the understanding that pregnancy is an important and opportune time to engage birthing individuals in their health and health care.

Maryland Maternal, Infant, and Early Childhood Home Visiting: Early Childhood Home Visiting is a voluntary primary prevention strategy that improves maternal and child health outcomes, enhances parenting, and promotes the growth and development of young children. Home-visiting programs are focused, individualized, and culturally competent services for expectant parents, young children, and their families. These programs are made available in the home and help families strengthen attachment, foster optimal development for their children, promote health and safety, and reduce the risk for child maltreatment.

In 2010, the Affordable Care Act (ACA) established the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program. Funds provided to states must be allocated to communities at highest risk, as identified through a comprehensive needs assessment, and these funds may only support evidence-based home-visiting programs that meet specific federal criteria. Currently, seven evidence-based home-visiting programs are in use in Maryland: Nurse-Family Partnership, Healthy Family America, Parents as Teachers, Home Instruction for Parents of Preschool Youngsters (HIPPY), Early Head Start, Family Connects, and Attachment & Biobehavioral Catch-up. Additionally, longstanding locally developed home-visiting programs in Maryland such as Baltimore Healthy Start, and the Baltimore City Health Department Maternal and Infant home-visiting program have demonstrated improved perinatal outcomes.

Maternal Mortality Review (MMR) Committee and the MMR Stakeholder Group: The Maryland Maternal Mortality Review Committee identifies maternal death cases, reviews medical records and other relevant data, determines preventability of the deaths, develops recommendations for the prevention of maternal deaths, and disseminates findings to policymakers, health care providers, health care facilities, and the public. In 2018, the Maryland General Assembly established a Maternal Mortality Review (MMR) Stakeholder Group with House Bill 1518 to review the findings and recommendations in the annual Maternal Mortality Review Report. The MMR Stakeholder Group is charged with examining issues resulting in disparities in maternal deaths, reviewing the status of implementation of previous recommendations, and identifying new recommendations with a focus on initiatives to address disparities in maternal deaths.

Maryland Family Planning Program: The Maryland Family Planning Program improves maternal health by ensuring access to breast and cervical cancer screening, prevention and treatment of sexually transmitted infections, contraception, HIV testing and prevention education, infertility and preconception services, health education and counseling, and referrals to community resources. In May 2019, Maryland became the first state to formally withdraw from Title X federal funding for family planning services in the setting of new restrictions. At this time, Title V partnered with the Maryland Family Planning Program to continue to provide critical reproductive health services. There are 62 family planning clinical sites across the state.

Perinatal System Standards of Care for Maryland Birthing Hospitals: The Maryland Perinatal Clinical Advisory Committee develops, reviews, and updates the Maryland Perinatal System Standards for all levels of obstetric and neonatal care. The Perinatal Standards were updated in April 2019 to be consistent with the most recent edition of the Guidelines for Perinatal Care, a joint manual of the American Academy of Pediatrics (AAP) and the American College of Obstetrics and Gynecology (ACOG). All Level III and Level IV perinatal referral hospitals were notified of this update, and MIEMSS (Maryland Institute for Emergency Medical Services Systems) Regulation Compliance Verification packages were sent to these hospitals in order to verify compliance with the Standards. Of the 32 delivery hospitals in Maryland, six (6) are Level I, eleven (11) are Level II, thirteen (13) are Level III, and two (2) are Level IV. The most recent Standards are incorporated in MIEMSS regulations governing Level III and IV hospitals, and compliance with the Standards is required for designation at these levels.

Pregnancy Risk Assessment Monitoring System (PRAMS): Maryland PRAMS collects state-specific population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy and is supported by the Centers for Disease Control and Prevention. One out of every 35 individuals who delivers each month is selected, at random, to participate in the PRAMS project. These birthing individuals are sent a survey, which is available in both English and Spanish, and asked to provide answers to questions about their behaviors and experiences before, during, and shortly after pregnancy. This information informs action needed to be taken to improve the health and wellness of birthing individuals and their babies. Currently 47 states, Washington, D.C., New York City, and Puerto Rico currently participate in PRAMS, representing approximately 83% of all U.S. live births.

MARYLAND'S MOM MODEL ADDRESSES FRAGMENTATION IN THE CARE OF PREGNANT AND POSTPARTUM MEDICAID BENEFICIARIES WITH OPIOID USE DISORDER (OUD) THROUGH A STATEWIDE APPROACH.

Maternal Opioid Misuse Model (MOM): The Maryland Department of Health launched its Maternal Opioid Misuse (MOM) model in January 2020, with funding from the Center for Medicare and Medicaid Innovation and in collaboration with the Centers for Medicare & Medicaid Services. As part of a series of Maryland Health Services Cost Review Commission (HSCRC) funded expansions of Medicaid Services announced in July 2021, the MOM services model will be further expanded. Maryland's MOM model addresses fragmentation in the care of pregnant and postpartum Medicaid beneficiaries with Opioid Use Disorder (OUD) through a statewide approach involving collaborative work with its nine Medicaid managed care organizations (MCOs), improved data infrastructure, and strengthened provider capacity in underserved areas of the state. The MOM model will focus efforts on increased utilization of ambulatory and behavioral health care, such as medication-assisted treatment; enhanced MCO case management; improved provider capacity, especially in rural areas, to treat pregnant and postpartum participants with OUD; and enhanced care coordination and health information technology infrastructure to ensure families have access to the community resources that they need.

Due to COVID-19, the launch of the model was delayed to July 2021, and the focus will be in one jurisdiction, St. Mary's County. However, funds through SIHIS will allow the expansion of the MOM model to other jurisdictions.

Maryland Prenatal and Infant Care Coordination Services Grant Program Fund (Thrive by Three Fund): The purpose of the Thrive by Three program is to improve care coordination services for low-income pregnant and postpartum people and children from birth to 3 years of age. Any local jurisdiction in the State of Maryland is eligible to apply for the Thrive by Three program. Priority is given to proposals from a county or municipality that has: a high number of births to women enrolled in Medicaid; has high rates of infant mortality; has high rates of preterm birth; and can demonstrate that the program will be coordinated with community-based service providers. During the 2021 Maryland General Assembly Session, Senate Bill 777 was passed, which expanded the program to allow direct granting of funds to federally qualified health centers (FQHCs), hospitals, and other providers of prenatal care.

New State Policy Highlights:

Extension of Medicaid Coverage from 2 Months to 12 Months Postpartum: As noted above, legislation (SB923/HB0470) that requires the Maryland Medicaid Program to provide comprehensive medical, dental, and other health care services to pregnant Medicaid Program recipients for the duration of pregnancies and for 12 months immediately following the end of pregnancies passed the Maryland legislature during the 2021 legislative session. The law becomes effective January 1, 2022.

Medicaid Coverage of Doula Services: As part of Maryland's new $72 million Maternal and Child Health Care Initiative announced by Governor Hogan on July 6, 2021, Medicaid reimbursement for doula services will be implemented for the first time. Doula care includes non-clinical emotional, physical, and informational support before, during, and after labor and birth. Extensive research shows that doula care is a high-value model that improves childbirth outcomes, increases care quality, and holds the potential to achieve cost savings. Doula support improves the overall satisfaction with the experience of childbirth and specifically reduces rates of cesarean deliveries, adverse maternal health outcomes, and the likelihood of postpartum depression. The effectiveness of doula services has been demonstrated primarily in relation to "low-risk" pregnancies. This is particularly relevant to the discussion of racial disparities in maternal health, in that racial disparities in outcomes are the greatest for "low-risk" pregnancies. Expanding doula services holds tremendous potential in for reducing racial disparities in maternal health, and in a cost-effective manner.

Maryland Opioid Misuse (MOM) Model Incentive Program: This component of the MOM model incentivizes obstetric and primary care providers to treat for opioid use disorder through buprenorphine and counselling with wraparound technical assistance support from the Maryland Addiction Consultation Service, including clinical tools developed by the state's Prescription Drug Monitoring Program. Physician office-based buprenorphine treatment destigmatizes the receipt of treatment for OUD for those reluctant to seek medications in an opioid treatment program setting and fosters the integration of medication for OUD with primary and obstetric care for the benefit of the patient. Pending the availability of MOM model funding, the MOM model Provider Incentive Program will incentivize 20 providers per year from 2021 through 2024.[14]

Home Visiting Expansion: An expansion of Nurse Family Partnership and Healthy Families America home- visiting program services under the Home Visiting Services (HVS) Pilot, through a service expansion initiative of the State of Maryland's Medicaid §1115 HealthChoice waiver, was announced by Governor Hogan in July 2021 as part of Maryland's new $72 million maternal and child health care initiative.

Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program Fatherhood Initiative: The Maryland Department of Health launched a fatherhood services capacity-building initiative in July 2020 to build father-focused programming and increase home-visiting competencies in local maternal, infant, and early childhood home-visiting programs. The fatherhood training series was established to enhance MIECHV home visitors' capacity to effectively communicate and engage fathers, father figures, and co-parents to engage with their child more positively and actively. The first phase of the program utilized a father-friendly assessment to determine the current capabilities, strengths, and weaknesses of MIECHV home--visiting programs to effectively engage fathers to participate in their child's life more actively. The two subsequent phases focused on building from the results of the father-friendly assessment. Phase two included a training series and phase three implements a father-focused peer support group. The fatherhood peer support groups project is currently underway and is an evidence-informed program for fathers to gain knowledge, skills, and confidence in the areas of navigating and carrying out co-parenting, work assistance, child welfare, and custody arrangements. This last phase began this summer and will continue through June 2022 with up to 16 MIECHV jurisdictions participating, which will support up to 100 home visitors.

Maternal Health Equity Advisory Group for non-obstetric health care providers: With the leadership and support of an advisory group comprising of local experts in the fields of maternal health, emergency medicine, family practice, racial bias in health care, and health care inequities, and in partnership with the Maryland Hospital Association, the Maryland Patient Safety Center will create educational tools to address the substantial disparity in the severe maternal morbidity rate for black mothers in Maryland. The advisory group will review current procedures and protocols to identify factors that contribute to maternal morbidity through a lens of health equity and will produce policy and practice recommendations to educate non-obstetric providers of care to pregnant and postpartum patients on the topics of maternal morbidity, racial bias, and the importance of respecting the patient's voice at all levels of care.

[14] https://health.maryland.gov/mmcp/Pages/MOM-Model-Provider-Incentive-Program.aspx.

Local Intervention Highlights:

Maryland Community Health Resources Commission (CHRC): The Maryland Community Health Resources Commission (CHRC) has supported services to medically underserved women in several jurisdictions throughout Maryland. In Queen Anne's County, the CHRC supported the Mom Movers Program, which provided the resources for the Queen Anne's County Health Department to provide prenatal care to uninsured and undocumented foreign-born women with less than five years of residency in the United States. In addition, the program provided transportation to and from medical appointments as well as linkages to other resources in the community. The program provided services and education to 88 women through 850 prenatal visits over the duration of the grant.

The Carroll County Health Department received a three-year grant from the CHRC that funded the Best Beginnings Program, an interagency prenatal care program that focuses services on low-income, uninsured, and underserved pregnant residents of Carroll County. Eighty women were served in this program through 3,652 patient visits over the duration of the grant.

A two-year grant from the CHRC to the Prince George's County Health Department funded the Tapestry Program, which provided perinatal services to low-income, uninsured, and underinsured women in Prince George''s County. The health department partnered with the University of Maryland to provide multidisciplinary services to high-risk women of reproductive age, including those with HIV/AIDS. Services to 165 women through 987 visits were provided over the duration of the grant.

Merck for Mother Safer Childbirth Cities Initiative: Under the Merck for Mother Safer Childbirth Cities initiative, Baltimore Healthy Start is working to: 1) augment the State of Maryland's Maternal Mortality Review process and medically-focused MDMOM statewide severe maternal morbidity review process with a Baltimore-focused SMM review process, partnering with the Baltimore City Health Department to develop a social determinant– and maternal perspective-focused SMM review that complements MDMOM facility-based reviews; 2) implement a "Patients as Partners" initiative that presents data and testimonials from mothers to hospitals regarding their childbirth experiences and recommendations to improve the quality of care so as to bring the knowledge and experience of maternity patients to bear on hospital and health system quality improvement processes; 3) provide postpartum care services, delivered by Certified Registered Nurse Practitioners, co-located and co-scheduled in FQHC pediatric clinics, at 2-week, 4-week, 2-month, 6-month, and 12-month infant well-child visits to improve monitoring and timely response to maternal health complications in the postpartum period; and 4) and implement a Maternal Health Monitoring Intervention (MHMI) of prenatal and postpartum home-based assessments for Baltimore Healthy Start clients with immediate medical referral in response to signs and symptoms of maternal health complications.

Baltimore City's Coordinated Maternal and Infant Health Improvement Strategy: B'more for Healthy Babies (BHB) is Baltimore City's strategy to prevent infant mortality and improve maternal and child health outcomes at a population level. Since the launch of BHB in 2009, the city's infant mortality rate has decreased by 35%, and the Black-White disparity in infant mortality has decreased by 53%. BHB works citywide as well as intensively in two communities, Upton/Druid Heights and Patterson Park North & East, to improve maternal health. Intervention begins in adolescence with BHB's Youth Sexual Health Initiative and its U Choose campaign to provide reproductive health education in city schools and help young adults make informed choices about health and family planning. In pregnancy and postpartum, BHB's centralized intake system provides care coordination that links thousands of mothers to prenatal, specialty, and behavioral health care and community supports needed to have a healthy pregnancy, such as home visiting and nutrition support. In the two BHB communities, group-based programs like prenatal Moms Clubs and breastfeeding support groups help mothers create social connections while supporting their health. In Upton/Druid Heights, the B'more Peaceful Motherhood program screens mothers for high blood pressure and provides support for mindfulness and stress reduction, and in Patterson Park North & East, the nutrition and fitness group B'more Fit gives mothers free opportunities to exercise and make friends. The combination of building citywide infrastructure to support maternal health and offering local intensive supports based on the needs of mothers in the community is critical to BHB's success.

Maternal Health Improvement Program Task Force

The purpose of the Maternal Health Improvement Program Task Force is to:

- Coordinate activities and programs that aim to improve the health and well-being of pregnant and postpartum individuals in the state of Maryland;
- Identify state-specific gaps in the following areas: maternal health data, delivery of and access to quality perinatal health care services, and relevant laws and health policies for pregnant and postpartum individuals;
- Develop a 5-year Strategic Plan to improve maternal health in Maryland, building on the 2020 Maryland Title V Needs Assessment, work plans of ongoing maternal health programs in the state, and available maternal health case review and population-level surveillance data;
- Engage, support, and monitor implementation of maternal health programs in Maryland;
- Assist with dissemination of maternal health program evaluation findings and lessons learned in Maryland and beyond;
- Develop a Sustainability Plan to ensure continuity of work towards improving maternal health in the State of Maryland.

a) Mission, Vision, Values, and Key Drivers

Mission: To identify and support effective policies and initiatives that optimize current delivery systems in order to: meet the needs of communities that have been silenced as a result of structural racism; improve the quality of the full spectrum of reproductive, perinatal, and postpartum care; and strengthen service delivery systems for the medically- under served.

Vision: All people in Maryland who give birth are in optimal health and thriving.

Frameworks that Inform the Maternal Health Strategic Plan: The Life Course Model, which recognizes the origins of health disparities 1) through both biological and behavioral mechanisms by which structurally patterned exposures during critical and sensitive periods of the life course, (e.g., the prenatal and early childhood periods), result in sustained shifts in health trajectories that may endure despite later intervention; and 2) through "weathering"; i.e., the hypothesis that cumulative and stress-mediated wear and tear on cellular integrity leads to accelerated biological aging, the premature dysregulation or exhaustion of important body systems, and the early onset of chronic diseases of aging, health-induced disability, and excess mortality among marginalized groups.[15]

[15] Jones NL, Gilman SE, Cheng TL, Drury SS, Hill CV, Geronimus AT. Life Course Approaches to the Causes of Health Disparities. Am J Public Health. 2019;109(S1):S48-S55. doi:10.2105/AJPH.2018.304738.

The Social-Ecological Model, which considers the impact of, and interplay between, individual factors (biological and behavioral), relationships (family, friends, social networks), community factors (neighborhoods, workplaces, schools) and societal factors (cultural norms, government policies) on health and health outcomes, and suggests that these social factors play critical roles in shaping health and health disparities.[16]

The Health Equity Framework, which brings together the Life Course and Socio-Ecological Models to uncover and illuminate the mechanisms that lead to health disparities and to help identify courses of actions to achieve the goal of health equity, ; i.e., for each person to have the personal agency and fair access to resources and opportunities needed to achieve the best possible physical, emotional, and social health and well-being.[17]

Values and Guiding Principles:

- Promote policies and practices that support racial equity and community inclusivity;
- Acknowledge that cumulative and intergenerational stress impacts health;
- Apply a strengths-based approach for all programs, policies, and procedures;
- Partner with community members who have lived experience through community-based and faith-based organizations;
- Ensure that programs, policies, and practices are data-driven and are evidence-informed;
- Honor and respect that families are formed with unique and diverse characteristics and a multi-generational, whole family, modernistic approach is required.

[16] Centers for Disease Control and Prevention. The Social-Ecological Model: A Framework for Prevention. https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html.

[17] Peterson A, Charles V, Yeung D, Coyle K. The Health Equity Framework: A Science- and Justice-Based Model for Public Health Researchers and Practitioners. Health Promotion Practice. August 2020. doi:10.1177/1524839920950730.

As part of the process to achieve health equity, the Task Force discussed the need to:

- Provide treatment and resources, as needed, to ensure different population groups experience no more than population-proportionate rates of adverse maternal health outcomes;
- Eliminate inequitable policies, practices, attitudes, and cultural messages that measurably disadvantage some population groups relative to others;
- Correct the damage that various population groups have experienced as a result of past or present inequitable policies, practices, attitudes, and cultural messages;
- Root out underlying causes, such as structural racism, leading to inequities in maternal and child health;
- Advocate for social justice in maternal health.[18]

Key Drivers:

Key drivers for this strategic plan are:

- Community involvement: partner with community-based organizations that have lived experience with adverse maternal health outcomes;
- Adequate resources, including sustainable financial and human resources;
- Evidence: assessments and data-driven programming;
- Equity-promoting anti-racist strategies.

b) Membership by Role and Organization Name

Membership by Role and Organization Name

Task Force membership comprises representatives from local and state agencies, health care systems, payers, community groups and organizations serving birthing people, advocacy organizations, and educational institutions, as well as people with lived experiences. Currently over 30 members serve on the Task Force. Please see Appendix 3 for a list of members and respective organizations serving on the Maryland Maternal Health Improvement Task Force and their respective roles and organizations.

[18] Association of Maternal & Child Health Programs. (Re)Framing and (Un)Doing: Practicing Racially Just and Equitable MCH Leadership. AMCHP Leadership Lab Webinar. November 16, 2020.

c) Overview of Meeting Frequency and Planned Activities

The Task Force first met on March 30, 2020. Subsequent meetings were held on April 30, 2020, September 29, 2020, January 26, 2021, April 21, 2021, and July 27, 2021. Originally, the Task Force was scheduled to meet twice a year. However, as of September 2020, the Maternal Health Improvement Task Force has met virtually quarterly and will continue to meet this frequently. Ad-hoc meetings or workgroups will be scheduled as the need arises.

Previously Planned Activities:

Maternal Health Improvement Program Equity Forum (July 21, 2020): The purpose of this forum was to discuss equity and maternal health. Partners and stakeholders defined equity as when every person has the opportunity "to attain his or her full health potential" and no one is "disadvantaged from achieving this potential because of social position or other socially determined circumstances."[19] Participants reported that to eliminate disparities in maternal mortality and severe maternal morbidity, the Task Force had to work on being anti-racist. Being anti-racist is being proactive and working with the system to create policies, practices, and procedures to promote racial equity.[20]

Equity Advisor Consultant: Since April 2020, the Maternal Health Improvement Program Task Force has been working with an Equity Advisor Consultant, Dr. Kanika Harris. Dr. Harris provides technical expertise and guidance for the task force and its activities and for the development of the strategic plan through an anti-racism lens. In addition, Dr. Harris will assist the Task Force Chair with contextualizing data to demonstrate the impact of racism, determinants of equity, and social determinants of health. Dr. Harris will also assist with the identification of community-based partners engaged in maternal health improvement activities across the state.

Black Maternal Health Week Workshop #1: Intersectionality and Anti-Racism (April 6, 2021). This session was led bya Task Force member, Andrea Williams-Muhammad. Task Force members and partners were invited to learn the definitions of key terms, understand how the systems within which people work can perpetuate oppression, and how individuals can work within those systems for sustainable change.

[19] Centers for Disease Control and Prevention. Health Equity. https://www.cdc.gov/chronicdisease/healthequity/index.htm#:~:text=Health%20equity%20is%20achieved%20when,length%20of%20life%3B%20quality%20oflength%20of%20life%3B%20quality%20of" \h . Accessed 27 December 2020.

[20] National League of Cities. What does it mean to be anti-racist? https://www.nlc.org/article/2020/07/21/what-does-it-mean-to-be-an-anti-racist/.

Black Maternal Health Week Workshop #2: Improving Maternal Health with Community Doulas (April 13, 2021). This Workshop was led by Task Force member, Andrea Williams-Muhammad. Task Force members and partners learned the scope of practice of community doulas and the evidence supporting their contribution to reductions in maternal morbidity and mortality, as well as challenges and misconceptions of doula care, highlighting examples in urban and rural settings in Maryland.

Future Planned Activities:

Finalization of Task Force Charter: A charter was developed to provide clarity in the Task Force"s role and to provide foundational agreements. A draft was presented to the Task Force during the July 2021 meeting and will be finalized in the next several months.

Selecting a Chair and Vice Chair: In order to emphasize and practice inclusion, the Task Force will be selecting a Chair and Vice Chair. The Title V manager has been serving as Chair of the Task Force with support from the Director of the Bureau of Maternal and Child Health and the Deputy Director. The Chair and Vice-Chair will strategically plan for agenda items and facilitate the activities and conversations moving forward.

ACTION PLAN FOR ADDRESSING MATERNAL HEALTH NEEDS

ACTION PLAN FOR ADDRESSING MATERNAL HEALTH NEEDS

Primary and Secondary Maternal Health Outcomes to be Achieved through the Action Plan:

A small group consisting of epidemiologists, providers from public health and health care, community-based organizations reviewed current outcome measures through Title V, the Statewide Integrated Health Improvement Strategy, as well as other state measures to propose primary and secondary outcome measures. Below are two primary outcome measures that are considered to be sentinel health markers for the Maternal and Child Health population and three secondary outcomes that align with Title V measures.

Primary Outcomes:

Outcome 1: Decrease overall five-year rolling maternal mortality rate (number of deaths from any cause related to or aggravated by pregnancy or its management [excluding accidental or incidental causes] during pregnancy and childbirth or within one year of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births [see Appendix 5]) by 8% over the next five years to 15.9 per 100,000 live births (baseline 17.2 [2015–2019]).

Table 3 outlines the baseline and goals to decrease maternal mortality. The goal is to decrease five-year rolling maternal mortality ratio among White non-Hispanic (NH) women by 5% over the next 5 five years to 11.1 per 100,000 live births (baseline 11.6 [2015–2019]) as well as decrease five-year rolling maternal mortality ratio among Black non-Hispanic women by 10% over the next five years to 25.0 per 100,000 live births (baseline 27.8 [2015–2019]).

TABLE 3: GOALS TO DECREASE MATERNAL MORTALITY RATE*

Population	Baseline (2015–2019)	Goal (2020–2024)	Absolute change	Relative Percentage Change
Total	17.2	15.9	1.3	8%
White NH	11.6	11.1	0.5	5%
Black NH	27.8	25.0	2.8	10%
Other NH	13.4	12.7	0.7	5%

**Calculated using an assumption that the number of births would remain the same in each of the five-year periods.*

Outcome 2: Reduce the severe maternal morbidity rate based on the Centers for Disease Control and Prevention definition from a baseline of 242.5 per 10,000 delivery hospitalizations to 197.1 per 10,000 delivery hospitalizations by 2026. This outcome goal aligns with the Statewide Integrated Health Improvement Strategy. Please see Table 4.

TABLE 4: GOALS FOR SEVERE MATERNAL MORBIDITY EVENTS PER 10,000 DELIVERY HOSPITALIZATIONS, DISAGGREGATED BY RACE AND ETHNICITY, AS OUTLINED IN THE STATEWIDE INTEGRATED HEALTH IMPROVEMENT STRATEGY

Population	Baseline (2018)	2023	2026	Absolute Change	Relative Percentage Change
Total	242.5	219.3	197.1	45.4	19%
White NH	183.6	169.8	156.1	27.5	15%
Black NH	328.5	295.7	262.8	65.7	20%
Asian NH	241.9	217.7	193.5	48.4	20%
Hispanic	236.9	213.2	189.5	47.4	20%
Other	227.3	204.6	181.5	45.5	20%

Secondary Outcomes:

The following outcomes align with Title V National Performance measures.[21]

Increase the number of pregnant individuals who abstain from smoking during pregnancy to 97.1% (baseline 2019 95.3%) by 2026 (Title V National Performance Measure).

Risk-appropriate perinatal care is provided to 95.3% of very low birth weight infants at appropriate-level hospitals. (baseline 2019 93.4%) by 2026 (Title V National Performance Measure).

Reduce the number of cesarean deliveries among low-risk (term [37+ weeks], singleton, vertex) births to nulliparous pregnant individuals to 25.8% (baseline 2019 27.8%) by 2026 (Title V National Performance Measure).[22]

Overarching Strategic Priorities and Goals Guiding the Action Plan

The Task Force identified five strategic priorities and goals that are found in Table 5. Please see Appendix 6 to review the Action plan that includes team leads and key partners as well as the status of initiatives.

TABLE 5: MARYLAND MATERNAL HEALTH IMPROVEMENT STRATEGIC PLAN PRIORITIES AND GOALS

Strategic Priorities (SP)	Goals
1) Equity and Anti-Racism	1) Promote equity and anti-racism in maternal health policies and practices
2) Achieve Improved Health Using the Life Course Model	2) Promote maternal health (preconception, prenatal and birth, postpartum and interconception periods) through the implementation of effective programs and advocacy for necessary policy change. **Subgoal 2a:** Preconception health: Provide adequate support and resources to ensure birthing people can choose when to become pregnant and optimize their health in anticipation of the pregnancy. **Subgoal 2b:** Prenatal and birth period health: Achieve healthy pregnancies and birth outcomes. **Subgoal 2c:** Postpartum and interconception health: Achieve healthy futures with comprehensive postpartum and interconception care to support healing and optimal maternal mental health and healthy parent-child bonding during the postpartum period.
3) Families and Communities	3) Acknowledge the influence of the social determinants of health and historical racism in the development of strategies to improve resiliency and promote an optimal quality of life for birthing people, their families, and their communities.
4) Data	4) Improve access to and utilization of data and improve surveillance of data on structural racism and its impact, to make informed policy decisions.
5) Workforce	5) Develop a maternal health provider workforce that will be available, accessible, and culturally relevant and whose practice is rooted in principles of equity and racial justice.

[21] Please note that the outcomes are different from that of the Title V application as the Maternal Health Improvement Strategic Plan goal year is 2026 versus 2025.

[22] Maryland Title V National Performance Measure 2015—2020 Needs Assessment cycle.

Specific Objectives Aligned with each Strategy and Goal:

Strategic Priority 1 — Equity and Anti-Racism

Goal 1 **Promote equity and mobilize against racism in Maternal Health.**

[Obj.1.1] Increase knowledge of providers on community-based resources and their roles (e.g., community-based birth workers and home-visiting programs).

[Obj.1.2] Increase provider awareness, knowledge, and patient assessment and interaction skills to build understanding of how structural and institutional racism relates to maternal health outcomes as measured by pre-/post-evaluation results.

[Obj.1.3] Increase opportunities for people with lived experience to serve as patient representatives engaged in equal decision making and advisory roles (e.g., patient care quality improvement, morbidity, and mortality case reviews).

[Obj.1.4] Produce and promote a maternal health dashboard to show data stratified by race, ethnicity, and geography.

Strategic Priority 2 — Achieve Health Using the Life Course Model

Goal 2 **Promote maternal health (preconception, prenatal and birth, postpartum and interconception periods) through the implementation of effective programs and advocacy for necessary policy change.**

Subgoal 2a **Preconception and interconception health:** Provide adequate support and resources to ensure birthing people can choose when to become pregnant and optimize their health in anticipation of the pregnancy.

[Obj.2a.1] Increase access to comprehensive, quality family planning and reproductive health services across Maryland through the Maryland Family Planning Program.

[Obj.2a.2] Improve prevention, diagnosis, and treatment of cardiovascular disease and hypertension, through counseling, medical evaluations, and medical and non-medical therapies.

[Obj.2a.3] Address the prevention, diagnosis, and treatment of diabetes through screening, counseling, medical evaluations, and medical and non-medical therapies.

[Obj.2a.4] Address the diagnosis and treatment of behavioral health conditions including depression, anxiety, and substance use disorders through screening (including SBIRT), counseling, and medical and non-medical therapies.

Subgoal 2b **Prenatal and birth period:** Achieve healthy pregnancies and birth outcomes.

[Obj.2b.1] Expand the use of the Maryland Prenatal Risk Assessment (MPRA) in addressing risks related to chronic conditions, mental health, substance use, and intimate partner violence.

[Obj.2b.2] Expand the number of prenatal care practices offering group-based prenatal care through the CenteringPregnancy Institute by at least 50%.

[Obj.2b.3] Identify and close gaps in access to maternal-fetal medicine expertise and learning opportunities to Level I and II birthing hospitals services through the Maryland Perinatal Support Program.

[Obj.2b.4] Expand adoption of the Alliance for Innovations in Maternal Health (AIMs) evidence-based safety bundle for severe hypertension through the Maryland Perinatal Neonatal Quality Collaborative in all Maryland birthing hospitals.

[Obj.2b.5] Develop a data system mechanism that will rack the number of high-risk birthing people through the Postpartum Infant Maternal Referral (PIMR) form.

[Obj.2b.6] Increase enrollment in evidence-based and promising practice home-visiting programs that offer social support, care coordination, and monitoring of changes in clinical risk factors; and link to essential resources such as smoking cessation programs, breastfeeding support groups, and basic needs (food and housing).

[Obj.2b.7] Increase the number of hospitals that comply with the Maryland Hospital Breastfeeding Policy Recommendations.

Subgoal 2c Postpartum and interconception health: Achieve healthy futures with comprehensive postpartum and interconception care to support healing and optimal maternal mental health and healthy parent-child bonding during the postpartum period.

[Obj.2c.1] Increase the number of birthing people who receive comprehensive postpartum and interconception care through 12 months postpartum.

[Obj.2c.2] Expand the use of the Postpartum Infant Maternal Referral (PIMR) form to address risks related to mental health, substance use, and intimate partner violence.

[Obj.2c.3] Improve care coordination with primary care providers and social service providers through the CRISP referral-based tool and other available tools.

[Obj.2c.4] Standardize maternal warning signs education.

Strategic Priority 3 — Families and Communities

Goal 3 Develop strategies that acknowledge the influence of the social determinants of health and historical racism to improve resiliency for birthing people, families, and communities and to promote an optimal quality of life.

[Obj.3.1] Improve family and community-driven service provision such as care coordination and home-visiting services that promote resiliency through mental health screening and service referrals, substance use intervention, tobacco cessation, reproductive life planning, chronic disease management, basic needs support, and access to health care.

[Obj. 3.2] Improve environments to support healthy living through promotion and support of smoke-free/tobacco-free public and multi-unit housing.

[Obj. 3.3] Support the increase in community gardens, green spaces, and tree canopies in low-income neighborhoods.

[Obj. 3.4] Strengthen father/partner co-parenting involvement.

[Obj. 3.5] Support the use of evidence-based strategies to address violence within families and communities.

Strategic Priority 4 — Data

Goal 4 Improve access to and utilization of data and improve surveillance of data on structural racism and its impact to make informed decisions.

[Obj.4.1] Further analyze and understand the causes of maternal mortality and severe maternal morbidity in Maryland through analysis of surveillance data and facility-based case reviews.

[Obj.4.2] Enhance maternal health surveillance and quality initiatives through a focus on social determinants of health, family and community factors, and the perspectives of mothers with lived experience.

Strategic Priority 5 — Workforce

Goal 5 Develop a maternal health provider workforce that will be available, and accessible, and that offers services based on the principles of cultural humility, equity, and racial justice.

[Obj.5.1] Build the capacity of maternal health providers through the identification of evidence-informed and culturally congruent learning opportunities.

[Obj.5.2] Evaluate the impact of new Medicaid coverage for doula services on the number of trained and certified doulas and doula availability to low-income mothers in Maryland.

[Obj.5.3] Increase the number of obstetrics and primary care providers who screen for substance use and/or behavioral health conditions with patients of reproductive age and refer positive screens for treatment through the Maryland SBIRT (Screening, Brief Intervention, Referral to Treatment) initiative.

[Obj. 5.4] Increase accessibility to prenatal care as well as oral and behavioral health during the prenatal period in communities with members who face barriers to receiving prenatal care (e.g., immigration status).

Further Opportunities

The Maternal Health Improvement Task Force identified opportunities that are currently not reflected in the action plan. These include examining additional opportunities such as encouraging workplace support for postpartum birthing people, including policies regarding paid time off.

APPENDIX

Appendix 1: Maternal Health Steering Committee Members

Shelly Choo	Maryland Department of Health
Colleen Wilburn	Maryland Department of Health
Patricia Liggins	Birth Workers United
Shadae Paul	Maryland Health Care Commission
Andrea Williams-Muhammad	Nzuri Malkia Birth Collective
Anne Burke	Holy Cross Hospital
Donna Neale	Johns Hopkins University
Rosemarie Satyshur	University of Maryland
Alena Troxel	Maryland Department of Health
Kate Schneider	Maryland Department of Health

Meeting Dates:

– February 25, 2021

– March 30, 2021

– July 29, 2021

Appendix 2: Stakeholder Input Sessions

The following are stakeholder input sessions for the maternal health strategic plan:

Maternal Mortality Review Stakeholder Committee . . . . . September 14, 2020

Local Health Officer Roundtable . . . . . September 14, 2020

Birthing Hospitals Webinar . . . . . October 22, 2020

Maryland Department of Health's Maternal and Child Health Bureau staff survey

Maternal Mortality Quality Review Committee (MMQRC) . . . . . September 9, 2020

Internal MCHB Senior Leadership Meeting. . . . . September 19, 2020

Stakeholder Input Meeting
Local Health Department Title V Coordinators and community partners . . . . September 17, 2020

Local Health Department Quarterly Meeting. . . . . October 15, 2020

Community-Based Organizations stakeholders — one-on-one meetings with community-based organizations including Mommy Up, Healthy Start.

MDMOM Leadership Team Meeting . . . . . September 18, 2020

Fetal and Infant Mortality Review Coordinators Meeting. . . . . September 22, 2020

Maryland Maternal Health Improvement Task Force . . . . . September 29, 2020

State Council on Child Abuse and Neglect. . . . . December 3, 2020

B'more for Healthy Babies Core Implementation Meeting . . . . . February 8, 2021

Maternal Mortality Review Stakeholder Group . . . . . March 25, 2021

Appendix 3: Maryland Maternal Health Improvement Task Force Members

Name	Title	Organization
Colleen S. Wilburn (Chair)	Title V Manager	Maryland Department of Health
Shelly Choo	Director, Maternal and Child Health Bureau	Maryland Department of Health
Lauren Arrington	Certified Nurse Midwife	St. Joseph's Hospital
Robert Atlas	Chair, Department of Obstetrics and Gynecology	Mercy Hospital
Anne Burke	Vice President, Medical Affairs	Holy Cross Hospital
Sherrie Burkholder	Nurse Manager, Obstetrics	UPMC Western Maryland/AWHONN
Jennifer Callaghan-Koru	Assistant Professor	University of Maryland, Baltimore County
Elizabeth Chung	Executive Director	Asian-American Center for Frederick
Bonnie DiPietro	Director of Operations	Maryland Patient Safety Center
Diane Feeney	Associate Director, Maryland Health Services Cost Review Commission	Maryland Department of Health
Melissa Fleming	President	Maryland Affiliate of the American College of Nurse Midwives
Laura Goodman	Division Chief, Office of Innovation, Research and Development, Health Care Financing	Maryland Department of Health
Maria Grant	Vice President, Public Policy	CareFirst BlueCross BlueShield
Rinku Mehra	Medical Director	Amerigroup Maryland Health Plan
Lee Hurt	Director, Vital Statistics Administration	Maryland Department of Health
Alyson Jacobson	Director, Home Visiting Services	Prince George's Child Resource Center
Aliya Jones	Deputy Secretary, Behavioral Health Administration	Maryland Department of Health
Sandy Kick	Senior Manager, Office of Innovation, Research and Development, Health Care Financing	Maryland Department of Health
Traci LaValle	Senior Vice President, Quality and Health Improvement	Maryland Hospital Association
Patricia Liggins	Doula	Birth Workers United
Tanay Lynn Harris	Founder Co-Founder	Mommy Up The Bloom Collective

Courtney McFadden	Deputy Director, Prevention and Health Promotion Administration	Maryland Department of Health
Janice Miller	Director, Programs and Clinical Services	House of Ruth
Donna Neale	Assistant Professor	Johns Hopkins University
Shadae Paul	Program Manager, Government Relations and Special Projects	Maryland Health Care Commission
Laurence Polsky	Health Officer	Calvert County Health Department
Tenille Ramsey	Nursing Program Consultant, Patient Safety, Maryland Office of Health Care Quality	Maryland Department of Health
Gene Ransom III	Chief Executive Director	Maryland State Medical Society (MedChi)
Maxine Reed-Vance	Deputy Director, Quality Assurance and Clinical Affairs	Baltimore Healthy Start
Jeanne Sheffield	Professor, Obstetrics and Gynecology Director, Division of Maternal-Fetal Medicine	Johns Hopkins University Johns Hopkins Hospital
Andrea Williams-Muhammad	Executive Director	Nzuri Malkia Birth Collective
Katie Richards	Quality Improvement Advisor	Health Quality Innovators (Maryland Perinatal-Neonatal Quality Collaborative)
Ashley Milcetic	Director, Maternal, Child, and Elder Health Programs	St. Mary's County Health Department
Mary Wichansky	Senior Director	Mental Health Association of Maryland
Stacey Lobst	Assistant Professor	AWHONN

Appendix 4: Definitions

1. Pregnancy-Related Death (Maternal Mortality): The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.[23]

2. Severe Maternal Morbidity: Severe maternal morbidity (SMM) includes unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health.[24]

3. Substance Use Disorder (SUD): A disease that affects a person's brain and behavior and leads to the inability to control the use of legal or illegal substances including drugs/medication, alcohol, and nicotine.

Appendix 5: Justification of Maternal Mortality Rate definition

The definition of maternal mortality rate (number of deaths from any cause related to or aggravated by pregnancy or its management [excluding accidental or incidental causes] during pregnancy and childbirth or within one year of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births) was chosen based on the CDC Maternal Mortality Review Committee's definition of a pregnancy-related death and availability of the death data by ICD-10 code group in the Maryland Vital statistics Annual Report.

[23] https://www.cdc.gov/reproductivehealth/maternal-mortality/preventing-pregnancy-related-deaths.html.
[24] https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html.

Appendix 6. Maryland Maternal Health Improvement Action Plan

GOAL 1: PROMOTE EQUITY AND MOBILIZE AGAINST RACISM IN MATERNAL HEALTH.

	Team Leads and Key Partners	Initiation Date	Status
Objective 1.1 Increase knowledge of providers on community-based resources and their roles (e.g., community-based birth workers, home-visiting programs).			
Tactic 1. Implement social needs screening and referral to community-based resources through initiatives such as Maternal Opioid Misuse Model	Maryland Medicaid, Managed Care Organizations, Providers	July 2021	Ongoing
Tactic 2. Work with CRISP to support efforts for bi-directional feedback and referrals to community-based and social service providers	CRISP, Community-Based Providers, WIC, American Academy of Pediatrics	August 2021	Ongoing
Objective 1.2 Increase provider awareness, knowledge, and skills to build understanding of how structural and institutional racism connects to maternal health outcomes as measured by pre-/post-evaluation results.			
Tactic 1. Develop and implement Implicit Bias Training for perinatal providers, as required by House Bill 837	MDMOM, Perinatal Providers	December 2020	Ongoing
Tactic 2. Develop an equity toolkit with community-based organizations for perinatal providers that complements the Implicit Bias Training	MDMOM, Birthers United, Nzuria Malkia Birth Collective	July 2020	Ongoing
Tactic 3. Provide learning from Adverse Maternal Outcomes in Maryland skill-based training to participating birthing hospitals	MDMOM, Perinatal Providers	March 2020	Ongoing
Tactic 4. Provide Managing Bias in the Care of Patients with Substance Use Disorder training to participating birthing hospitals	MDMOM, Perinatal Providers	December 2020	Ongoing
Tactic 5. Develop trainings for Emergency Department and primary care providers to understand the impacts of structural and systemic racism	Maternal Health Equity Advisory Group	August 2021	Ongoing
Objective 1.3 Increase the opportunities for people with lived experience to serve as patient representatives engaged in equal decision making and advisory roles (e.g., patient care quality improvement, morbidity, and mortality case reviews).			
Tactic 1. Continue to train community members to serve on Continuous Quality Improvement boards in hospitals and SMM review boards through Baltimore Healthy Start's Merck Patients as Partners Initiative	Baltimore Healthy Start	December 2020	Ongoing
Tactic 2. ncrease racially, ethnically, and organizationally diverse representation on review and advisory committees related to maternal health (e.g., MHIP Task Force, Maternal Mortality Review Committee, Stakeholder Committee)	Maryland Department of Health	June 2021	Ongoing
Objective 1.4 Produce and promote a maternal health dashboard to show data stratified by race, ethnicity, and geography.			
Tactic 1. Produce and promote a maternal health dashboard that tracks maternal health trends in the state	MDMOM	August 2021	Ongoing
Tactic 2. Improve maternal health data accessibility and utilization through increased awareness of the Maternal Health Report Card initiative by the Maryland Health Care Commission found at https://healthcarequality.mhcc.maryland.gov/Hospital/List?tableType=maternityCare	Maryland Health Care Commission	May 2021	Ongoing

GOAL 2: ACHIEVE HEALTH (PRECONCEPTION, PRENATAL AND BIRTH, POSTPARTUM AND INTERCONCEPTION PERIODS) USING THE LIFE COURSE MODEL TO SUPPORT MARYLAND BIRTHING PEOPLE THROUGH ADVOCACY AND IMPLEMENTATION OF EFFECTIVE POLICIES.

Subgoal 2a: Preconception and interconception health: Provide adequate support and resources to ensure birthing people can choose when to become pregnant and optimize their health in anticipation of the pregnancy.	Team Lead and Key Partners	Initiation Date	Status
Objective 2a.1: Increase access to comprehensive, quality family planning and reproductive health services across Maryland through the Maryland Family Planning Program.			
Tactic 1. Conduct a needs assessment to understand opportunities to expand reproductive and sexual health services[1] in Maryland (e.g., availability, access)	Maryland Family Planning Program	December 2021	Planned
Tactic 2. Encourage postpartum individuals to have a post-delivery contraceptive plan through perinatal home visiting	MIECHV, Maternal and Infant Home Visiting, Baltimore Healthy Start	January 2021	Ongoing
Tactic 3. Connect adolescents with youth-friendly family planning services through initiatives such as True You Maryland and UChoose	Maryland Optimal Adolescent Health Program, Baltimore City Health Department	2016	Ongoing
Objective 2a.2: Improve prevention, diagnosis, and treatment of cardiovascular disease and hypertension, through counseling, medical evaluations, medical and non-medical therapies.			
Tactic 1. Provide office and remote blood pressure monitoring as well as performance-based incentives for blood pressure control at Maryland Primary Care sites	Maryland Primary Care Program	January 2021	Ongoing
Tactic 2. Implement data extraction and reporting on a monthly basis, including race/ethnicity, for the blood pressure quality measures at Maryland primary care sites	Maryland Primary Care Program	January 2021	Ongoing
Tactic 3. Implement the Alliance for Innovation in Maternal Health (AIM) severe maternal health hypertension safety bundle through the Maryland Perinatal Neonatal Quality collaborative in all 32 birthing hospitals	Maryland Perinatal Neonatal Quality Collaborative, Health Quality Innovators, Birthing Hospitals	January 2021	Ongoing

[1] Reproductive and Sexual Health Services include but are not limited to access to information, services on prevention, diagnosis, counselling, treatment, and care. The Maryland Family Planning program ensures access to breast and cervical cancer screening, prevention and treatment of sexually transmitted infections, HIV testing and prevention education, infertility and preconception services, health education and counseling, and referrals to community resources, as well as access to a broad range of family planning methods.

Objective 2a.3: Address the prevention, diagnosis, and treatment of diabetes through screening, counseling, medical evaluations, medical and non-medical therapies.			
Tactic 1. Identify patients with history of gestational diabetes, diabetes, and pre-diabetes during office visits at the Maryland Primary Care Program Offices	Maryland Primary Care Program	December 2020	Ongoing
Tactic 2. Refer eligible patients to a CDC-recognized National Diabetes Prevention Program (DPP) or Diabetes Self-Management Program (DSMP) through the e-referral tool on CRISP (Maryland's Health Information Exchange)	Maryland Primary Care Program, CRISP, Medicaid, National Diabetes Prevention Program (National DPP), Diabetes Self-Management Program (DSMP)	December 2020	Ongoing
Objective 2a.4: Address the diagnosis and treatment of behavioral health conditions including depression, anxiety, and substance use disorders through screening (including SBIRT) counseling, medical, and non-medical therapies.			
Tactic 1. Implement SBIRT at the Maryland Family Planning Clinic Sites	Maryland Family Planning Team	January 2021	Ongoing
Tactic 2. Implement Maternal Opioid Misuse Model Incentive Program to increase the number of X-waivered providers	Maryland Medicaid, Maryland Addiction Consult Services, Maryland Primary Care Program, Primary Care Offices	January 2021	Ongoing
Tactic 3. Expand SBIRT beyond the current 310 sites through the Maryland Primary Care Program	Maryland Primary Care Program, Primary Care Offices	January 2021	Ongoing
Tactic 4. Reduce substance use disorder stigma and increase SBIRT training among maternity care providers through expert training	MDMOM	March 2021	Ongoing
Subgoal 2b: Prenatal and birth period: Achieve healthy pregnancies and birth outcomes.			
Objective 2b.1 Expand the use of the Maryland Prenatal Risk Assessment (MPRA) in addressing risks related to chronic conditions, mental health, substance use, and intimate partner violence.			
Tactic 1. Expand the pilot project of electronic submission of the MPRA currently underway in the Baltimore Metro area to build upon existing efforts, and consider the expansion feasibility and approach for implementation of an electronic version of the MPRA statewide	Maryland Medicaid, Maternal and Child Health Bureau, Local Health Departments, Prenatal Care Practices	March 2021	Ongoing
Objective 2b.2: Expand the number of prenatal care practices offering group-based prenatal care through the CenteringPregnancy Institute by at least 50%.			
Tactic 1. Identify and implement an approach to Medicaid reimbursement for CenteringPregnancy	Maryland Medicaid, Managed Care Organizations	February 2022	Planned
Tactic 2. Expand the number of clinical practices offering CenteringPregnancy model through technical assistance with Centering Healthcare Institute	Maternal and Child Health Bureau, Centering Healthcare Institute, Clinical Practices	December 2021	Planned
Objective 2b.3: Identify and close gaps in access to maternal-fetal medicine expertise and learning opportunities to Level I and II birthing hospitals services through the Maryland Perinatal Support Program.			
Tactic 1. Conduct a needs assessment to identify the gaps in maternal-fetal medicine expertise in Level I and II birthing hospital services	Maryland Perinatal Support Program implemented by UMMS	January 2022	Planned
Tactic 2. Conduct trainings and provide technical assistance to providers on maternal-fetal medicine subjects	Maryland Perinatal Support Program	March 2022	Planned

Objective 2b.4: Expand adoption of the Alliance for Innovations in Maternal Health (AIMs) evidence-based safety bundle for severe hypertension through the Maryland Perinatal Neonatal Quality Collaborative in all Maryland Birthing hospitals.			
Tactic 1. Track structure and process measures including the proportion of patients treated within one hour of severe-range blood pressure	Health Quality Innovators, Maryland Perinatal Neonatal Quality Collaborative, Birthing Hospitals	May 2021	Ongoing
Tactic 2. Offer support to hospitals for provider, nurse, and patient education on signs, symptoms, and management of hypertension and preeclampsia	Health Quality Innovators, Maryland Perinatal Neonatal Quality Collaborative, Birthing Hospitals	November 2021	Ongoing
Objective 2b.5: Develop a data system mechanism that will track the number of high-risk birthing people through the Postpartum Infant Maternal Referral (PIMR) form.			
Tactic 1. Transfer the PIMR form onto a data system platform such as Redcap and/or CRISP	Maternal and Child Health Bureau, CRISP, Local Health Departments	December 2021	Planned
Objective 2b.6: Increase enrollment in evidence-based and promising practice visiting programs that offer social support, care coordination, and monitoring of changes in clinical risk factors; and link to essential resources such as smoking cessation programs, breastfeeding support groups, and basic needs (food and housing).			
Tactic 1. Expand evidence-based and promising practice home-visiting programs through the Health Service Cost Review Commission Maternal and Child Health Funds	Maternal and Child Health Bureau, Office of Minority Health and Health Disparities	November 2021	Planned
Tactic 2. Expand the Home Visiting Services Pilot to statewide coverage of Healthy Families American and Nurse Family Partnership	Maryland Medicaid, Maternal, Infant, and Early Childhood Home Visiting (MIECHV)	January 2022	Planned
Objective 2b.7 Increase the number of hospitals that comply with the Maryland Hospital Breastfeeding Policy Recommendations.			
Tactic 1. Reconvene the MDH Breastfeeding Policy Committee to strategize processes to assist in increasing the number of Baby-Friendly Hospitals or hospitals that comply with the Maryland Hospital Breastfeeding Policy Recommendations	MDH Breastfeeding Policy Committee	January 2021	Planned
Subgoal 2c: Postpartum and interconception health: Achieve healthy futures with comprehensive postpartum and interconception care to support healing and optimal maternal mental health and healthy parent-child bonding during the postpartum period.			
Objective 2c.1: Increase the number of birthing people who receive comprehensive postpartum and interconception care through 12 months postpartum.			
Tactic 1. Inform stakeholders about the increased coverage during the postpartum period for those on medical assistance	Medicaid, Managed Care Organizations, Maternal and Child Health Bureau	January 2022	Planned
Tactic 2. Increase the availability and accessibility of doulas/birth workers during the postpartum period through implementation of reimbursement for doulas/birth workers in Maryland	Medicaid, Managed Care Organizations, Doula Technical Advisory Committee	January 2022	Planned
Objective 2c.2: Improve the role of the Postpartum Infant Maternal Referral (PIMR) form in addressing risks related to mental health, substance use, and intimate partner violence.			
Tactic 1. Expand the use of the Postpartum Infant Maternal Referral (PIMR) form to address risks related to mental health, substance use, and violence in birthing people and their infants	Maternal and Child Health Bureau, Overdose Data to Action, Local Health Departments	January 2022	Planned
Tactic 2. Have the PIMR form available electronically for health care providers in CRISP	Maternal and Child Health Bureau	January 2022	Planned

Objective 2c.3: Improve care coordination with primary care providers and social service providers through the CRISP referral-based tool and other available tools.			
Tactic 1. Work with CRISP to support efforts for bi-directional feedback and referrals to social service providers	CRISP, Maryland American Academy of Pediatrics, Clinical Practices, WIC	August 2021	Ongoing
Objective 2c.4: Standardize maternal warning signs education.			
Tactic 1. Develop a maternal warning signs education toolkit	MDMOM	February 2021	Ongoing
Tactic 2. Implement and expand maternal warning signs education through home visiting and other community-based programs serving pregnant and postpartum individuals	MDMOM	February 2021	Ongoing

GOAL 3: DEVELOP STRATEGIES THAT ACKNOWLEDGE THE INFLUENCE OF THE SOCIAL DETERMINANTS OF HEALTH AND HISTORICAL RACISM TO IMPROVE RESILIENCY FOR BIRTHING PEOPLE, FAMILIES, AND COMMUNITIES AND TO PROMOTE AN OPTIMAL QUALITY OF LIFE.

Objective 3.1: Improve family and community-driven service provision such as care coordination and home-visiting services that promote resiliency through mental health screening and service referrals, substance use intervention, tobacco cessation, reproductive life planning, chronic disease management, basic needs support, and access to health care.	**Team Leads and Key Partners**	**Initiation Date**	**Status**
Tactic 1. Provide care coordination/home-visiting services that include promotion of resiliency, mental health screening, substance use intervention, tobacco cessation, reproductive life planning, chronic disease management, and access to health care	Healthy Families America, Nurse Family Partnerships, MIECHV, Title V, Healthy Start, Babies Born Healthy, Local Health Departments, Maryland Medicaid	2018	Ongoing
Tactic 2. Expand Nurse Family Partnership and Healthy Families America Home Visiting programs under Maryland Medicaid's Home Visiting Services pilot by sunsetting coverage of the limited HVS pilot through the 1115 HealthChoice waiver and transitioning it to an expanded benefit through the State Plan	Medicaid, Nurse Family Partnership, Healthy Families America	January 2022	Planned
Tactic 3. Implement social needs screening and navigation to resources through the Maternal Opioid Misuse Model	Maryland Medicaid, Maternal Opioid Misuse Model		
Objective 3.2: Improve environments to support healthy living through promotion and support of smoke-free/tobacco-free public and multi-unit housing.			
Tactic 1. Identify multilevel barriers in the environment that prevent healthy living	Cancer and Chronic Disease Bureau (CCDB), Center for Tobacco Prevention and Control, along with Local Health Departments	2016	Ongoing
Tactic 2. Continue to provide Marylanders with free access to evidence-based tobacco use treatment by promoting the Maryland Tobacco Quitline and local health department services	CCDB, Center for Tobacco Prevention and Control, along with LHDs	2016	Ongoing
Tactic 3. Continue to provide technical assistance to property managers, tenants, and landlords on tobacco-free policies (mdsmokefreeliving.org)	CCDB, Center for Tobacco Prevention and Control, along with LHDs	2016	Ongoing
Objective 3.3: Support the increase in community gardens, green spaces, and tree canopies in low-income neighborhoods.			
Tactic 1. Partner with the Maryland Department of Housing and Community Development (DHCD) with their Sustainable Communities Initiative	Department of Housing and Community Development, Maternal and Child Health Bureau	January 2021	Ongoing
Objective 3.3: Strengthen father/partner co-parenting involvement.			
Tactic 1. Conduct the Fatherhood project with the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program to address foundational co-parenting skills development and successful co-parenting	MIECHV	June 2021	Ongoing
Objective 3.4: Support the use of evidence-based strategies to address violence within families and communities.			
Tactic 1. Conduct the Fatherhood project with the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program to address foundational co-parenting skills development and successful-co parenting	MIECHV	June 2021	Ongoing

GOAL 4: IMPROVE ACCESS TO AND UTILIZATION OF DATA AND IMPROVE SURVEILLANCE OF DATA ON STRUCTURAL RACISM AND ITS IMPACT TO MAKE INFORMED DECISIONS.

Objective 4.1: Further analyze and understand the causes of severe maternal morbidity in Maryland through analysis of surveillance data and facility-based case reviews.	**Team Leads and Key Partners**	**Initiation Date**	**Status**
Tactic 1. Launch and expand the severe maternal morbidity review pilot process in birthing hospitals in Maryland	MDMOM, Birthing Hospitals	December 2020 start; September 2021 expansion	Ongoing
Objective 4.2: Enhance maternal health surveillance and quality initiatives through a focus on social determinants of health, family and community factors, and the perspectives of mothers with lived experience.			
Tactic 1. Launch the local Maternal Mortality Review process that focuses on social determinants of health and family and community factors	Baltimore City Health Department, Baltimore Healthy Start, Maryland Department of Health	August 2021	Ongoing

GOAL 5: DEVELOP A MATERNAL HEALTH PROVIDER WORKFORCE THAT WILL BE AVAILABLE, ACCESSIBLE AND THAT OFFERS SERVICES BASED ON THE PRINCIPLES OF CULTURAL HUMILITY, EQUITY, AND RACIAL JUSTICE.			
Objective 5.1: Build the capacity of maternal health providers through the identification of evidence-informed and culturally congruent learning opportunities.	**Team Leads and Key Partners**	**Initiation Date**	**Status**
Tactic 1. Continue to provide training to maternity care providers on implicit bias and cultural competency to focus on anti-racism, resilience, trust building, and community building	MDMOM	March 2021	Ongoing
Objective 5.2: Evaluate the impact of new Medicaid coverage for doula services on the number of trained and certified doulas and doula availability to low-income mothers in Maryland.			
Tactic 1. Conduct an evaluation of the new Medicaid coverage for doula services	Hilltop, Maryland Medicaid	January 2023	Planned
Objective 5.3: Increase the number of obstetrics and primary care providers who screen for substance use and/or behavioral health conditions with patients of reproductive age and refer positive screens for treatment through the Maryland SBIRT (Screening, Brief Intervention, Referral to Treatment) Initiative.			
Tactic 1. Encourage obstetrics and primary care providers to obtain training, certification, and waivers to prescribe medications for opioid use disorder) to optimally treat pregnant and parenting women with Opioid Use Disorder	Maryland Addiction Consultation Services	January 2021	Ongoing
Tactic 2. Encourage safe opioid prescribing practices, including Naloxone co-prescribing, and promote education on Naloxone use by patients, families, and health care practitioners	Office of Provider Engagement and Regulations	July 2019	Ongoing
Objective 5.4 Increase accessibility to prenatal care as well as oral and behavioral health during the prenatal period in communities with members who face barriers to receiving prenatal care (e.g., immigration status).			
Tactic 1. Expand the use of current resources to include prenatal care for individuals who are not eligible for Medicaid (e.g., Thrive by Three Fund, Title V)	Maternal and Child Health Bureau	July 2021	Ongoing