2020-2023

MOTHER INFANT HEALTH & EQUITY IMPROVEMENT PLAN

TOGETHER, SAVING LIVES

Executive Summary

All Michigan mothers, infants and families have the right to optimal health. Disparities that show up in every facet of maternal and infant health are rooted in long standing systemic inequities, often based on race. In 2017, there were 2.8 black babies who died before their first birthday for every white baby that died. That same year, there were 6.8 infant deaths for every 1,000 live births, well above the national rate of 5.8. Institutions, policymakers, government, communities, as well as extended families and friends, play an integral role in improving these health outcomes and eliminating these disparities.

The Michigan Department of Health and Human Services (MDHHS), under the advisement of the Maternal Infant Strategy Group (MISG) and in partnership with all maternal infant health stakeholders of Michigan, introduce the ***Mother Infant Health and Equity Improvement Plan*** (i.e., *Improvement Plan*). The maternal infant health stakeholders of Michigan are defined as families, communities, regions, local health departments, faith and community-based organizations, schools, clinicians, hospitals, employers and essentially any individual and/or entity that is vested in improving the lives of mothers, infants and families.

The *Improvement Plan* builds upon the many successes that have and are improving the lives of mothers, infants and families and delves into the heart of the disparities that exist in our state. Michigan has reduced its pregnancy-related mortality rate from 17.5 per 100,000 live births in 2011 to 14.1 per 100,000 live births in 2016[2], reduced the infant mortality rate from 7.1 per 1,000 live births in 2010 to 6.8 per 1,000 live births in 2017[2] and has reduced its teen birth rate from 33.5 per 1,000 live births in 2007 to 17.7 per 1,000 live births in 2016[2]. Michigan has created a Statewide Perinatal Quality Collaborative comprised of Regional Perinatal Quality Collaboratives that unite clinical and community efforts aimed at improving outcomes for mothers, babies and their families.

The Strategic Vision of the *Improvement Plan* is: **Zero preventable deaths. Zero health disparities.** To achieve this collective vision, the *Improvement Plan* will focus on ***six primary priorities***:

Health Equity

Healthy Girls, Women & Mothers

Optimal Birth Spacing & Intended Pregnancies

Full Term, Healthy Weight Babies

Infants Safely Sleeping

Mental, Emotional & Behavioral Well-Being

Maternal and Infant Health has been identified as a key priority area by MDHHS leadership and the Governor. As such, MDHHS is committed to aligning and leveraging all areas within the department, including behavioral health, Medicaid, child welfare and human services to make certain that all mothers, infants and families can realize optimal health.

The *Improvement Plan* outlines six steps to aligning programs and strategies to improve reach and effectiveness:

1. **Program Identification:** Identify programs within MDHHS that impact health outcomes for mothers, infants, and families.
2. **Assessment**: Assess key objectives, available resources, and initial drivers of each program by meeting with key stakeholders.
3. **Innovation**: Identify ways to improve communication, share program resources, and align program goals with the Improvement Plan.
4. **Engagement**: Connect with partners already doing the work, support Regional Perinatal Quality Collaborative Projects, and build equitable community partnerships.
5. **Program Alignment**: Implement parallel projects and work toward shared goals.
6. **Reporting**: Report lessons learned, barriers to collaboration, and share successes.

By 2023, our goal is to improve the Michigan infant mortality black/white ratio by 15% to achieve a ratio of 2.3 black infant deaths for every one white infant death[2]. Below are additional maternal and infant health indicator measures that the MDHHS has set with corresponding outcome goals for each. Ongoing monitoring and surveillance of each will assist in part in evaluating the effectiveness of the *Improvement Plan*.

Indicators	2017 Metric	2023 Goal	% Improvement
Infant Mortality Rate/1000 live births	6.8	5.8	15%
Low Birthweight	8.8%	7.8%	11%
Preterm Birth	10.2%	9.4%	8%
Sleep Related Infant Death Rate/10,000 live births	8.9	7.6	14%
Severe Maternal Morbidity Rate/10,000 delivery hospitalizations	169	130	23%
Pregnancy Related Maternal Mortality Rate/100,000 live births [*2016 data*]	11.5	7.3	37%

* Vital Records (VR) data were used in place of data match with HP2020 goal; ** A 2022 goal of 7.3 was used in the regression model for this indicator as it is the current pregnancy-related maternal mortality rate for California and Canada.

Methodology

The most recent four to five year of indicator data, along with the HP2020 goal (when available), were modeled to obtain annual projections for each of the MIHEIP indicators listed below. Ordinary least squares (linear) regression models were used to calculate projected annual objectives when current estimates were within an acceptable range (0.2 – 0.8) and projected estimates did not surpass 100% or in cases where numerators and denominators were not available. Log-binomial models were used to calculate projected annual estimates when current estimates were outside the acceptable range for OLS and numerators and denominators were available.

Together, we will save lives and achieve our vision! We must make data-informed decisions, deploy strategies to address systemic inequities and the social determinants of health that result in disparate outcomes, and further develop and sustain strong collaborative partnerships to truly assure we are working together.

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Introduction and Overview

The State of Michigan has made strides in improving the health and well-being of mothers and infants. Existing efforts and initiatives have resulted in significant accomplishments in maternal and infant health in the state of Michigan.

- Michigan has reduced its pregnancy-related mortality rate from 17.5 per 100,000 live births in 2011 to 14.1 per 100,000 live births in 2016[2].
- Michigan has reduced its infant mortality rate from 7.1 per 1,000 live births in 2010 to 6.8 per 1,000 live births in 2017[2] (see Figure 1).
- Michigan has reduced its teen birth rate from 33.5 per 1,000 live births in 2007 to 17.7 per 1,000 live births in 2016[2].
- The mandatory maternal death reporting law, Public Act 479 of 2016, was passed on January 5, 2017, which requires physicians and individuals in charge of health facilities to report maternal deaths. This law aims to improve the data quality of maternal deaths in the state and brings awareness to the importance of the death of a woman during or within a year of pregnancy[3].
- Michigan joined the Alliance for Innovation in Maternal Health (AIM) in 2015, a national data-driven maternal safety and quality improvement initiative with the goal of preventing severe maternal morbidity and mortality and started implementing obstetric hemorrhage and severe hypertension in pregnancy safety bundles in early 2016.
- The Regional Perinatal Quality Collaborative (RPQC) initiative was launched in 2015, as an effort to improve the existing Perinatal Care System in Michigan. There are 9 RPQCs, representing all 10 of Michigan's prosperity regions. Each RPQC is charged with improving maternal and infant health outcomes through data-driven quality improvement projects based on the unique regional strengths and challenges.

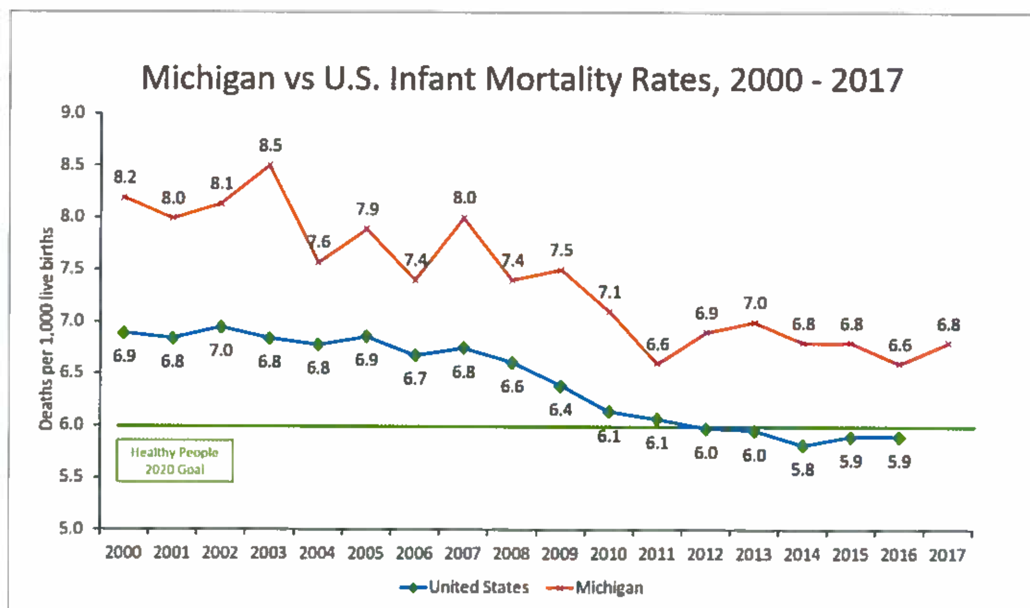

FIGURE 1. MICHIGAN VERSUS UNITED STATES INFANT MORTALITY RATES, 2000-2017

Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per1,000 live births.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Michigan Resident Birth & Death Files; Michigan resident live birth files and infant mortality files, Division for Vital Records and Health Statistics, MDHHS

While improvements have been realized, persistent challenges remain. Despite their resilience and accomplishment, Michigan women, infants, and their families continue to face deeply embedded systemic inequity, social biases, and related stressors that are closely associated with adverse health outcomes. More often, African American women and infants are experiencing disparate outcomes. Native American mothers, babies and families living in poverty[1] are also faced with disparate outcomes, as the direct result of inequity. Systemic inequities result in disparities in both maternal and infant outcomes (see Figures 2 & 3).

Infant Outcomes

- Michigan still ranks 38th in infant mortality out of the 50 states and has a higher overall infant mortality rate than the Healthy People 2020 goal of 6.0 per 1,000 live births[5, 6].
- In 2017, **more than 760 babies** in Michigan did not live to their first birthday[2].
- Michigan's infant mortality rate overall in 2016 (6.8 deaths per 1,000 live births) was **higher than the nation's rate** (5.9 infant deaths per 1,000 live births)[2].
- In 2017, approximately 12% of White Michiganders were reported as living below the poverty line, with 31% of African American residents and 23% of Native American residents living below the poverty line[2].
- In 2017, babies born to Black, non-Hispanic women were **more than twice as likely to die** before their first birthday than babies born to White, non-Hispanic women (14.0 and 5.0 per 1,000 live births, respectively)[2].
- From 2013-2015, the average infant mortality rate for American Indian infants (utilizing a bridged race variable: infant and/or one parent reported as AI on birth certificate) was **9.4 per 1,000 live births**[2].

Maternal Outcomes

Even with ongoing efforts and some recent improvements, maternal deaths in Michigan continue, which is unacceptable. From 2011-2015, Michigan's ***pregnancy-related*** mortality rate was **11.6 maternal deaths per 100,000 live births**[2]. A recent review by the Michigan Maternal Mortality Surveillance (MMMS) Committee found that, of the ***pregnancy-related*** deaths, **44% were determined to be preventable**[4]. In Michigan and across the United States, even when controlling for age, socioeconomic status, and education, women of color face a higher risk of death from pregnancy complications[8].

- In 2015, the most recent year with available data, approximately **90 women in Michigan died** during pregnancy, at delivery, or within a year after the end of her pregnancy[2].
- From 2011-2015, **66 women died** of ***pregnancy-related*** causes in Michigan. The leading cause of ***pregnancy-related*** deaths in Michigan is cardiomyopathy (21%), followed by infection/sepsis (14%). Additional causes of death include cardiovascular conditions, amniotic fluid embolism, cerebrovascular conditions, embolism, hypertension, and other medical conditions (often related to chronic diseases)[2].
- From 2011-2015, Black, non-Hispanic women were **three times more likely to die** from pregnancy-related causes than White, non-Hispanic women (27.7 and 8.1 per 100,000 live births, respectively)[2].

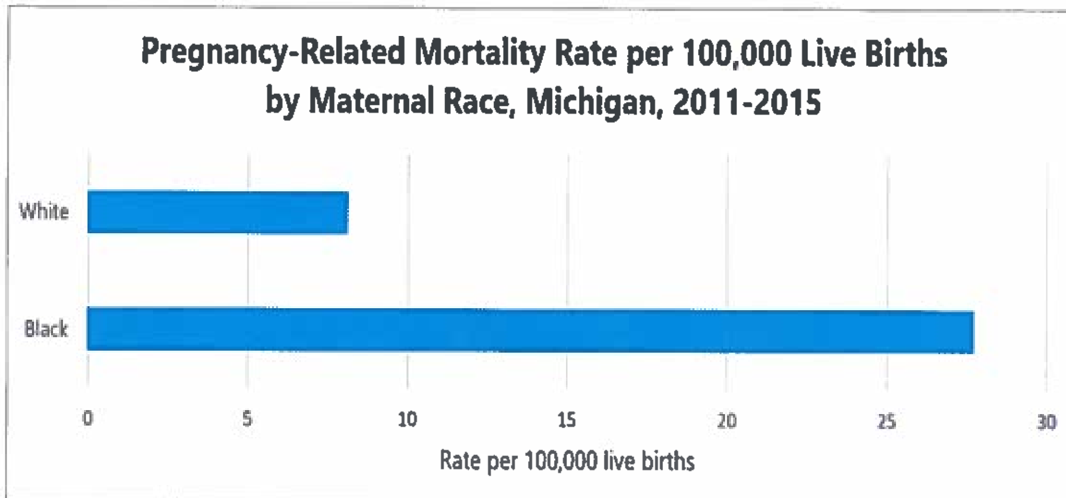

FIGURE 2. PREGNANCY-RELATED MORTALITY RATE PER 100,000 LIVE BIRTHS BY RACE, MICHIGAN, 2011-2015
Data source: Michigan Maternal Mortality Surveillance Program, Maternal Deaths in Michigan, 2011-2015

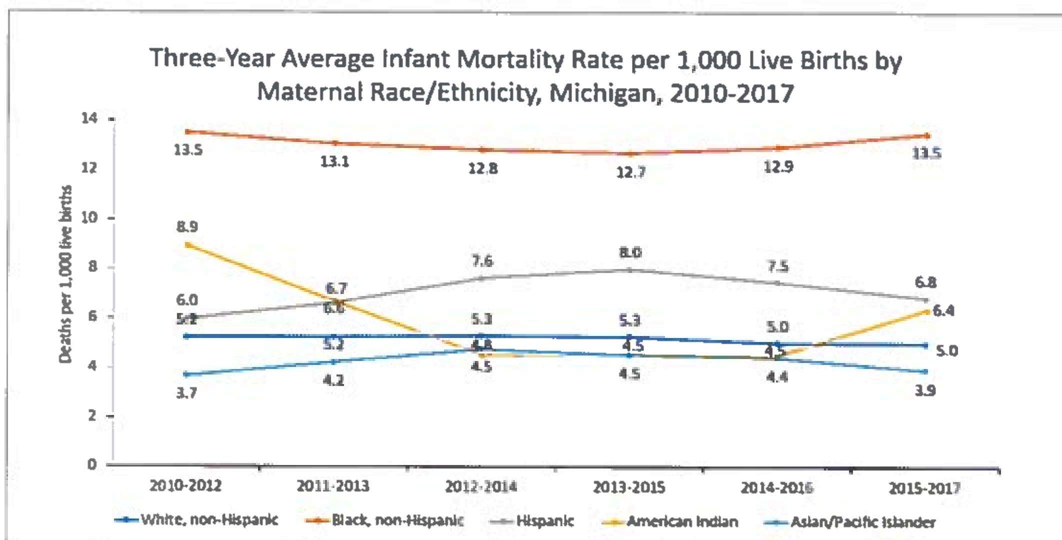

FIGURE 3. THREE-YEAR AVERAGE INFANT MORTALITY RATE PER 1,000 LIVE BIRTHS BY MATERNAL RACE/ETHNICITY, MICHIGAN, 2010-2017
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.
Data source: Michigan resident live birth files and infant mortality files, Division for Vital Records and Health Statistics, MDHHS

Social determinants of health and equity are the economic and social conditions/systems that influence the health of individuals and communities. The conditions and systems in/under which people are born, grow, live, work, and age. Researchers estimate that only 20 percent of the modifiable factors that impact overall health are attributed to clinical care, such as prenatal care and the quality of health care services[1]. An additional 30 percent are attributed to health behaviors, such as tobacco use and nutrition, and 50 percent are attributed to the social, economic, and physical environment (***social determinants of health and equity***), which include housing, transportation, education, and income. Disparities exist in the social determinants of health, as a result of the systemic inequities. Efforts to reduce maternal and infant mortality and improve health outcomes cannot only focus on clinical interventions. They must address the underlying causes of maternal and infant mortality and acknowledge the underlying drivers of inequity, including poverty, racism, and discrimination. Figure 4 gives a clear visualization of the variation in infant mortality rates throughout Michigan.

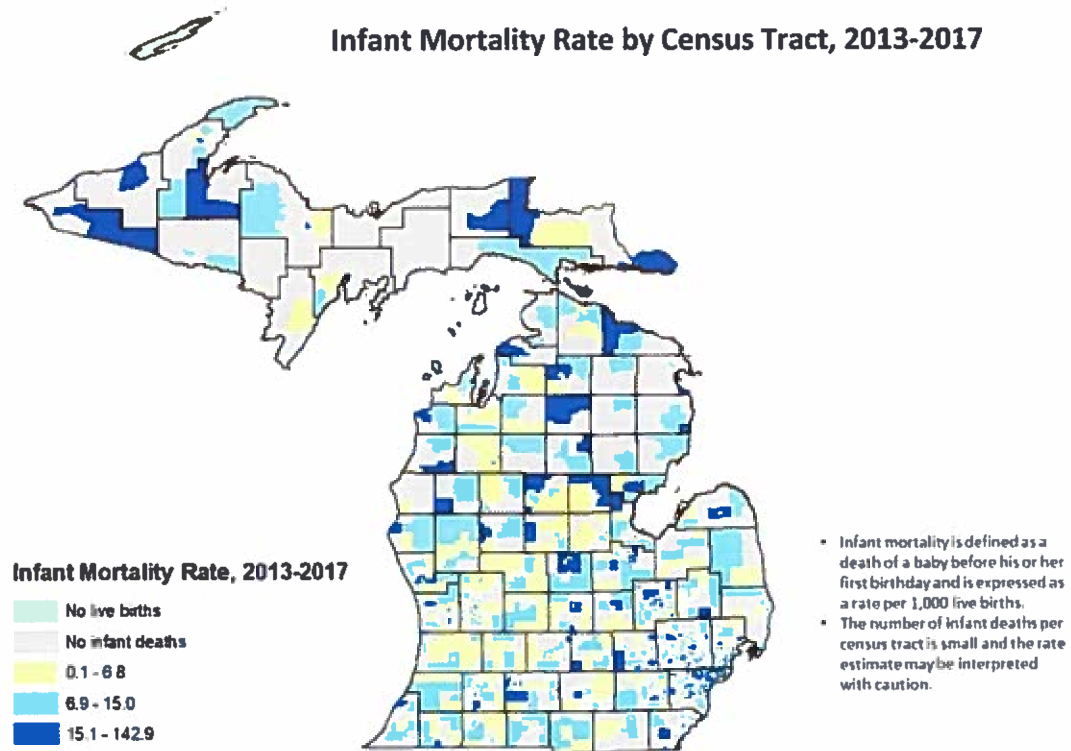

FIGURE 4. AVERAGE INFANT MORTALITY RATE, MICHIGAN, 2013-2017
Data source: Michigan resident live birth files linked with infant mortality files, Division for Vital Records and Health Statistics, MDHHS

Displaying data, such as infant mortality rates, in a map format by census tract (as seen in Figure 4 above), provides a visual representation of areas within the State experiencing adverse outcomes. Using maps like this allows stakeholders to focus their efforts in specific geographic areas.

State Leadership

The Michigan Department of Health and Human Services (MDHHS) remains committed to improving the health and well-being of women, infants, families and communities. To achieve further success in improving the outcome for Michigan mothers, infants and families, we must make data-informed decisions, deploy strategies to address systemic inequities and inequities in the social determinants of health, engage extended families, caregivers, and fathers, and further develop and sustain strong collaborative partnerships.

Maternal and Infant Health has been identified as a key priority area by MDHHS leadership and the Governor. As such, the MDHHS is committed to aligning and leveraging all areas within the department, including behavioral health, Medicaid, child welfare and human services to make certain that all mothers, infants and families can realize optimal health. The MDHHS is dedicated to supporting the steps necessary to achieve the vision of ***zero preventable deaths*** and ***zero health disparities***. The current infant mortality black/white ratio in Michigan (based on 2017 data) is 2.8 black infant deaths for every 1 white infant death. By 2023, our goal is to improve the Michigan infant mortality black/white ratio by 15% to achieve a ratio of 2.3 black infant deaths for every one white infant death[2]. Below are additional maternal and infant health indicator measures that the MDHHS has set with corresponding outcome goals for each. Ongoing monitoring and surveillance of each will assist in part in evaluating the effectiveness of the *Improvement Plan*.

Infant Mortality – 762 babies died before their first birthday in 2017. We can expect to **save 112 babies in 2023** with an infant mortality rate of 5.8 per 1,000 live births.

Sleep Related Infant Death – 99 babies died of sleep related causes in 2017. We can expect to **save 14 babies** in 2023 with a sleep related infant death rate of 7.6 per 10,000 live births.

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<u>**Methodology**</u>

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Partners in Improvement

The *Improvement Plan* is truly the reflection of Michigan voices, as it includes feedback received from town hall meetings held from the Upper Peninsula to the southernmost border of the Lower Peninsula, as well as from other statewide partners both in writing and in person. It is important to note that 'statewide partners', or simply 'partners', is to be inclusive of all maternal infant health stakeholders, including the Regional Perinatal Quality Collaboratives.

Michigan's Mother Infant Health and Equity Collaborative (MIHEC) brings the communities' work together, ensures the Regional Perinatal Quality Collaboratives are connected to one another, connects obstetric initiatives and other statewide work/organizations, and acts as the eyes and ears of the MISG. The success of the *Improvement Plan* will require multi-sector partners working together to address upstream inequities.

FIGURE 5. THE IMPROVEMENT PLAN'S KEY INITIATIVES AND PARTNERS

Partners Addressing Key Positive Priorities

The *Mother Infant Health and Equity Improvement Plan* acknowledges the importance of the many stakeholders working to improve mother, infant, and family outcomes. Families, communities, community organizations and agencies, as well as providers, health plans, and advisory councils, are tremendous resources that must work together to expand capacity. When all resources and stakeholders work together in alignment with the Improvement Plan, improved maternal and infant health outcomes will become realized.

Michigan Alliance for Innovation on Maternal Health (MI AIM)

The Alliance for Innovation in Maternal Health (AIM) is a national data-driven maternal safety and quality improvement initiative that relies on the engagement of stakeholders like health departments, perinatal quality improvement collaboratives, hospitals and health associations. The goal is to implement safety bundles in hospitals to improve care and prevent severe maternal morbidity (complications during labor and delivery) and maternal deaths.

Michigan Collaborative for Contraceptive Access (MICCA)

The Michigan Collaborative for Contraceptive Access (MICCA) is a partnership between the Michigan Department of Health and Human Services, the University of Michigan, and the Institute for Health Policy at Michigan State University. The goal of MICCA is to embed the American College of Obstetricians and Gynecologists (ACOG) guidelines into practice, including:

- Improve prenatal contraceptive counseling
- Increase access to immediate postpartum Long-Acting Reversible Contraceptive (LARC)
- Ensure exceptional patient experience of care

It is important to note that the Michigan Department of Health and Human Services (MDHHS) believes that all women have the right to reproductive freedom, and bodily autonomy. The *Improvement Plan* will work to support all women, so that they may make the best reproductive decisions for themselves and their families.

Achieving Birth Equity Through Systems Transformation (ABEST)

Michigan Public Health Institute's Achieving Birth Equity through Systems Transformation (ABEST) project aims to disrupt racial inequities in maternal and infant mortality. In order to achieve birth equity, systems change is needed that goes deeper than changes to policies and practices or linking services and programs. Change that shifts the conditions that are holding the problem in place is needed. By focusing on root causes, including the role of racism, and addressing relationships and power within systems, the project will change the way maternal and infant health is talked about and acted on.

The project will build capacity among state and local leaders to lead systems change and to shift mental models and narratives. The project will then partner with two communities to develop specific, actionable strategies for transformative systems change. Along the way, the key steps, recommendations, and lessons learned from the project will be documented to develop a guide for other communities who are ready to tackle the root causes of inequities in maternal and infant mortality. The Improvement Plan will work to incorporate outcomes from the ABEST project to work toward equitable birth outcomes.

Community Health Innovation Regions (CHIRs)

Michigan's Community Health Innovation Regions (CHIRs) utilize an innovative model for improving the well-being of a region and reducing medical costs through collaboration and systems change. CHIRs engage a broad group of stakeholders to identify and implement strategies that address ***social determinants of health and equity***, including housing, transportation, and food insecurity.

CHIRs in various regions of the state have succeeded in addressing community needs through the implementation of various projects, including a universal social determinants of health screening tool, a Community Referral Platform (CRP) connecting residents to needed social and health services, and more. The Improvement Plan seeks to incorporate CHIR successes in implementing strategies – focused on the ***social determinants of health and equity*** – to address community health priorities and improve health.

Strategic Vision & Priorities

The *Mother Infant Health and Equity Improvement Plan*, more simply known as the *Improvement Plan*, is the product of a shared vision of a broad range of stakeholders to improve maternal and infant health outcomes and save lives. It builds on the strategies, partnerships, and resources from the previous Infant Mortality Reduction Plans, while adjusting its approach to have a greater impact. The *Improvement Plan* was developed by the Michigan Department of Health and Human Services (MDHHS) under the guidance of the Maternal Infant Strategy Group (MISG), in collaboration with various maternal and infant health stakeholders including Medicaid and Behavioral Health partners. The *Improvement Plan* shares recommendations for each priority area, but in no way captures all the existing and future efforts aimed at saving lives and improving outcomes.

The Strategic Vision of the *Improvement Plan* is: **Zero preventable deaths. Zero health disparities.** To achieve this collective vision, the *Improvement Plan* will focus on ***six primary priorities***:

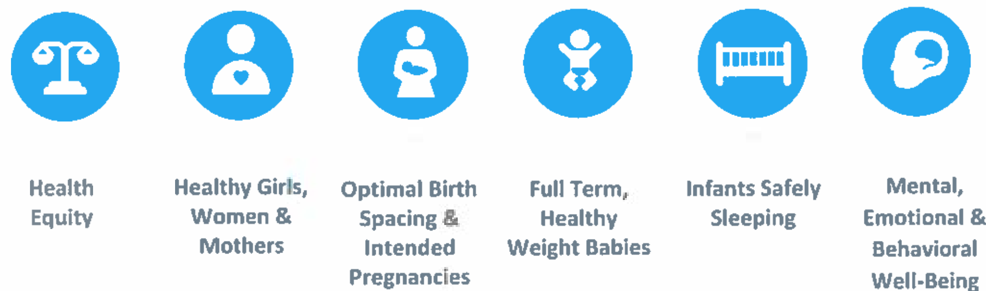

FIGURE 6. THE IMPROVEMENT PLAN'S POSITIVE PRIORITIES

The ***six primary priorities*** of the Improvement Plan were identified based on data provided by the MDHHS Bureau of Epidemiology and through input received from maternal infant health stakeholders from across the state. The leading causes of infant mortality in Michigan in 2017 were preterm birth (< 37 weeks gestation) and low birthweight (<2,500g), birth defects, sudden unexpected infant deaths (SUIDS), and maternal complications[2].

Efforts to eliminate preventable deaths must be employed by addressing these primary drivers as we work together towards achieving the ***six primary priorities***. Upstream preventative measures should be employed to ensure that girls and women are healthy and in a supportive social and physical environment; inclusive of acknowledging and addressing mental and behavioral health concerns, as well as Adverse Childhood Experiences (ACEs). Throughout pregnancy, access to prenatal care is key; cross-sector collaborations are needed to ensure that women have access to life-saving interventions and resources. Postpartum care is needed to ensure that mothers and infants have access to care and continue to thrive. The Improvement Plan will provide recommendations for each of the ***six primary priorities*** through the following methods:

1. Implement data-driven interventions based on data stratified by race, ethnicity and geography;
2. Address systemic inequities;
3. Ensure inclusive decision-making;
4. Continued stakeholder engagement and feedback; and
5. Assessing and connecting local assets and resources.

Strategic Vision

Aligning and Integrating the Work: A Multi-faceted Approach to Implementation

Maternal and infant health are intrinsically connected; from 2015 to 2016, the fourth leading cause of infant mortality in the United States was maternal complications[10]. Integrating interventions across the maternal-infant dyad promotes a holistic approach to care that encompasses health and well-being for both mom and baby. In order to survive and thrive, the maternal-infant dyad must have support at all levels. Mom and baby require a microsystem of support from fathers, extended family, friends, and peers, as well as broader, more macro-level system of support from health care systems, communities, and society overall.

The vision of the Improvement Plan, **zero preventable deaths** and **zero health disparities**, will not be achieved in isolation. It is a collective vision that will take the alignment of MDHHS internal programs, the Regional Perinatal Quality Collaboratives, and importantly external partners. Working together to fulfill the vision of the Improvement Plan will result in a collective, wide-reaching impact. See Figure 7, below, for a visual representation.

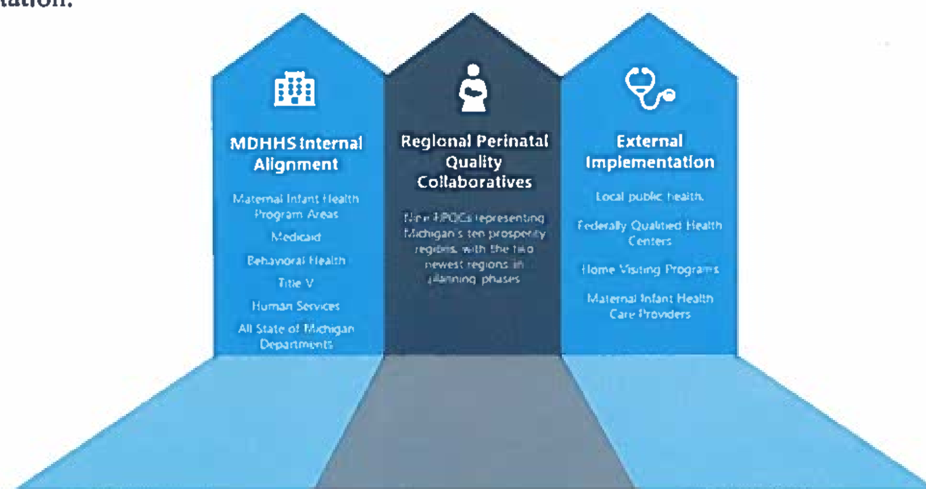

FIGURE 7. MULTI-FACED APPROACH TO IMPLEMENTATION OF THE IMPROVEMENT PLAN

MDHHS Internal Alignment

The process of internal alignment with the Improvement Plan is meant to foster collaboration among program areas within the Michigan Department of Health and Human Services. It outlines a set of collective impact strategies to help initiate and strengthen partnerships, identify shared goals, and measure progress.

The Path to Strategic Alignment

The Improvement Plan outlines six steps to aligning programs and strategies to improve reach and effectiveness:

1. **Program Identification:** Identify programs within MDHHS that impact health outcomes for mothers, infants, and families.
2. **Assessment**: Assess key objectives, available resources, and initial drivers of each program by meeting with key stakeholders.
3. **Innovation**: Identify ways to improve communication, share program resources, and align program goals with the Improvement Plan.
4. **Engagement**: Connect with partners already doing the work, support Regional Perinatal Quality Collaborative Projects, and build equitable community partnerships.

5. **Program Alignment**: Implement parallel projects and work toward shared goals.
6. **Reporting:** Report lessons learned, barriers to collaboration, and share successes.

Regional Perinatal Quality Collaboratives (RPQCs)

The Regional Perinatal Quality Collaboratives (RPQCs) act as the ***backbone organizations*** of the Improvement Plan, charged with leading implementation of quality improvement projects, conducting systems change work, convening regular meetings with diverse stakeholders, and authentic engagement in decision-making. RPQCs serve as the place where community work can align and integrate. Each is comprised of clinical providers, local public health, health plans, nonprofits, community organizations and community members, while evolving to include new partners. Each collaborative region is characterized by the unique efforts, accomplishments, and resources that have supported family needs over time.

Evidence-Based and Promising Practice Interventions

The use of evidence-based practices, programs, and ***promising practices*** are supported to ensure better outcomes for interventions. Evidence-based interventions have been proven effective through rigorous research and are deemed the most effective interventions known to date to address specific issues and to achieve desired outcomes. Utilizing evidence-based interventions with fidelity assures the interventions are being implemented in the most effective manner possible. When this is done, standardized and predictable outcomes can be achieved, resulting in a positive impact on health. However, evidence-based practices may not always consider complexities in race, ethnicity, culture and/or class. Partners are strongly encouraged to tailor interventions to fit their communities and consider promising practices which may be a better fit for the minority populations in which we serve. It is imperative that the interventions aimed at eliminating preventable deaths of moms and babies be chosen in a precise manner by communities. The best way to start is by selecting interventions that have been proven effective at addressing the primary causes of maternal and infant mortality.

> ***What are promising practices?***
> *As defined by the Wisconsin Promising Practices Program (WPP),* ***a promising practice*** *is defined as a practice or program that*[20]*:*
> *1. Focuses on improving health in a racial or ethnic minority population.*
> *2. Produces at least one positive outcome that can be demonstrated with systematically collected quantitative and/or qualitative data.*
> *3. Is based to some degree on proven practices from the research literature and/or the experience of community practitioners and leaders.*
> *4. Is well-suited to its context in terms of language, belief systems and other cultural factors.*

Regions are encouraged to prepare short-term (quarterly), intermediate (yearly), and long-term goals unique to their selected evidence-based strategies and subpopulation. The Improvement Plan's statewide goals build upon the Regional work on a larger scale. Therefore, statewide goals will have a slightly different time frame: the short-term goals will encompass a one-year timeframe, intermediate goals will last 1-2 years, and long-term goals will last more than 2 years. In short, the Regional work helps to improve the overall State goals for infant and maternal health outcomes.

External Implementation

Community partners and local public health provide an abundant source of clinical and public health practitioners working to improve health outcomes. The Improvement Plan will work with traditional (i.e., clinicians, hospitals) and non-traditional (i.e., schools, businesses) partners. We will seek support and commitment from individuals and organizations in the form of signed consensus statements. After a consensus statement is signed, the individual/organization will receive a toolkit that includes practices for improving health equity, guidance on partnering with nontraditional partners, and key messaging developed to increase awareness and engage communities. Many different stakeholders can lead or participate in efforts to advance health equity and improve outcomes for Michigan families. The Improvement Plan seeks to "connect the dots" between those doing the work to improve outcomes more quickly and on a larger scale.

Health Equity

Priorities

Women and infants are at the center of Michigan families enjoying vibrant lives. Shaping their experiences are culture and history that are illustrative of beauty, intellect, ingenuity, and resilience. The numbers tell part of the story that clearly show the impact that systemic inequity is having on many Michigan families. Disparities in health outcomes for African American, Native American and Latino families are the result of systemic inequities.

Recommendations: What can be done?

Health equity means that **everyone** has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care. - Robert Wood Johnson Foundation[1].

There are actionable issues that can be addressed so that women of color, women managing poverty, and their infants can be more supported. Multiple sectors will have to work together with Michigan residents to assess factors that indirectly determine their health.

Enhancing access to the social determinants of health is a powerful way to move Michigan residents toward optimal health and more equitable circumstances overall. Systemic inequities need to be identified (i.e. patterned lack of availability to fresh and healthy foods) and actionably addressed through programs at the local level. Resources must be distributed equitably and a starting point for this to occur is assuring the data driven interventions are aimed at addressing disparities.

Actions

State Government will:

- Perform an initial assessment of organizational activities and health equity work that is underway in many sectors and systems (e.g. unconscious bias training, system assessments).
- Establish and support internal initiatives that specifically address ***social determinants of health and equity***.
- Identify ways to streamline and simplify processes for families seeking MDHHS services
- Assess lessons learned from projects such as the Kellogg Foundation funded Practices to Reduce Infant Mortality through Equity (PRIME) and a current Michigan Public Health Institute (MPHI) project, Achieving Birth Equity through Systems Transformation (ABEST).

Partners may:

- Implement data-driven interventions to ensure that populations that have been marginalized have access to services and resources needed.
- Model innovative strategies to address social determinants of health like transportation, housing and access to food to help families gain access to resources needed.
- Assess unconscious bias in providers who serve families and implement strategies to address it.
- Assess and improve how non-traditional health institutions (i.e. housing, environment, education) utilize a health and equity lens in policies and procedures.

Priorities

The health of girls and women prior to, during and after pregnancy is critically important. Identifying and effectively addressing pre-existing conditions is vital. The state of pregnancy is a time of rapid change and with this change, additional stressors can be placed on the health and well-being of mothers. Making every effort to assure that women are as healthy as possible when entering pregnancy and receiving optimal care and support is imperative.

Recommendations: What can be done?

Optimally, every opportunity should be afforded for girls to be healthy when transitioning into adulthood. Chronic and persistent health conditions, such as obesity, high blood pressure and diabetes, should be addressed. It is imperative that women enter pregnancy in the best possible state of health.

KEY FACTS
52.4% of the women delivering a live born infant in 2017 entered pregnancy overweight or obese.
Data source: Michigan Pregnancy Risk Monitoring System (PRAMS) and resident live birth files, Division for Vital Records and Health Statistics

1. **Focus on Prevention.** It is vital that we focus on prevention both within healthcare systems and in communities. This is foundation of effective public health.
2. **Integrate Health into All Facets of Policy and Decision Making** When decisions are made with health at the forefront, adverse health outcomes and inequities will be dramatically decreased. Employers, businesses, urban planners, academic institutions, housing agencies, environmental regulators and others can have a significant impact on the health of women and infants.
3. **Increase the Implementation of Community-Based Preventive Services and Linkage with Clinical Care** Having prevention services available in communities, while making certain there is a direct linkage to quality clinical care, provides the platform for health and longevity.

Actions
State Government will:

- Support community-based preventive services in partnership with local public health and remove barriers to accessing such services.
- Prioritize housing and food security.
- Conduct ongoing public health surveillance to evaluate success in preventing public health threats and to respond to public health emergencies in an expedited manner.
- Work collaboratively with partners to promote health and safety in all communities.
- Increase access to quality Home Visiting Programs and other sources of community-based prevention support services, including universal postpartum home visits and breastfeeding support.
- Increase number of families served by home visiting, especially families with the highest level of need and acuity.
- Pilot Diabetes Prevention Programs that are less than 16 weeks in duration.
- Assure families have access to critical support programs (i.e. WIC, SNAP, Medicaid, etc.) and work to simplify and maintain enrollment in such services.

Partners may:

- Increase hours of operation to include evenings and weekends and offer services in convenient locations for families.
- Expand the reach of community preventive services through public-private partnerships.
- Utilize promising practice and/or evidence-based interventions when partnering with families to promote healthy lifestyles.
- Conduct blood pressure wellness checks and assure warm handoffs to clinical providers for follow up care.

Optimal Birth Spacing & Intended Pregnancies

Priorities

Planning for pregnancy is critical to having health outcome for mothers and their babies. Spacing pregnancies at least eighteen months apart has been proven to improve the health and well-being of both the mother and their infants including decreasing maternal and infant mortality. The time between pregnancies permits recovery from pregnancy, promotes infant bonding and attachment, and aids in preparation for subsequent pregnancies, if desired. To assure optimal birth spacing, it is essential that pregnancies are intended and planned for. Men should be engaged in conversations about family planning and reproductive health as well.

Recommendations: What can be done?

Assuring optimal birth spacing and intended pregnancy begins with equipping women and their partners with knowledge and access to family planning resources resulting in successful reproductive life planning.

KEY FACTS

From 2012-2014, 47.7% of women with a recent live birth in Michigan reported that their pregnancies were unintended[2].

- **Increase Use & Access of Pre/Interconception Care** Preconception and interconception care can result in reductions in birth defects, low birth weight and premature babies, maternal morbidity and mortality, and address chronic health conditions.
- **Assure Access to Family Planning Services** The ability to plan pregnancies results in ample spacing and intendedness, both of which contribute to healthy pregnancies and infants, educational attainment and economic mobility.

Actions

The State Government will:

- Increase access to comprehensive, high quality family planning services, especially for teens and low-income men and women, via existing and new innovative partnerships.
- Support tribes and communities to implement evidence-based sexual education.
- Increase access to Long-Acting Reversible Contraception (LARC) both prior to pregnancy and during the postpartum period.
- Explore incentivizing the implementation of alternate prenatal and pediatric care models.

Partners may:

- Implement policies and procedures that ensure quality, confidential and culturally sensitive reproductive health services are available to *all* community members through innovative methods, such a telehealth.
- Disseminate information through social media on the importance of reproductive life planning.
- Ensure that teen pregnancy prevention programs exist in schools and communities.
- Provide reproductive health services in locations and at times that increase access to families (i.e., at Urgent Care Centers, extended evening and weekend hours).
- Co-locate behavioral health, prenatal care, WIC, primary care, and family planning services.

Priorities

Assuring the health of mothers and babies requires preparation well before pregnancies begin. It is imperative that the preconception and inter-conception periods be supported via chronic disease prevention, identification of behavioral health needs, and linkage to clinical and community resources.

Recommendations: What can be done?
Assuring healthy, full term babies can be assisted in a multitude of ways inclusive of medical screening and intervention aimed at achieving full term, healthy babies and addressing behaviors that may result in preterm and/or low birth weight babies, such as smoking.

KEY FACTS

Premature birth and ***low birth weight babies*** are the leading contributors to infant death in Michigan, and a major cause of long-term health problems in children who survive. In 2017, 10.2% of infants in Michigan were born preterm (prior to 37 weeks' gestation) and 8.8% of infants were born with ***low birth weight***[2].

- **Reduce the Rate of Primary Cesarean Section**
In recent years, the reduction of primary cesarean section has resulted in decreased risk and complications that coincide with C-sections, such as infection and increased blood loss.
- **Short Cervix Screening and Treatment** Preterm birth is one of the leading causes of infant morbidity and mortality in Michigan, and worldwide[11]. Identifying a short cervix (<25mm) using a transvaginal ultrasound during the mid-trimester of pregnancy is a significant predictor of preterm delivery. Routine cervical screening, paired with progesterone treatment for women with a short cervix, is an effective intervention to reduce the rate of preterm delivery[12,13].
- **Tobacco Cessation** According to the American College of Obstetricians and Gynecologists (ACOG), "smoking during pregnancy is the most modifiable risk factor for poor birth outcomes"[15]. Screening pregnant women for tobacco use and linking to follow-up treatment for smoking cessation can reduce the risk of babies being born low birth weight, prematurely, dying a sudden unexpected infant death (SUID), and many other adverse health outcomes.

Actions
The State Government will:

- Increase access to tobacco cessation interventions, including e-cigarettes, while patients are in waiting rooms at provider's offices, in their homes with the assistance of home visitors.
- Support access to enhanced care coordination models, inclusive of Community Health Workers (CHWs) and doulas.
- Improve and align Fetal Infant Mortality Review (FIMR), Child Death Review (CDR) and Michigan Maternal Mortality Surveillance (MMMS) to provide actionable and locally relevant recommendations.
- Encourage cervical length screening and use of vaginal progesterone as best practices.

Partners may:

- Educate women and families on the connection between tobacco use and unhealthy babies.
- Provide grief support groups for families that have experienced the loss of an infant.
- Implement policies and procedures that are supportive of pregnant and postpartum women (i.e., alternate work scheduling, paid time off for medical appointments, transportation).
- Work to assure pregnant women are connected to early comprehensive prenatal care and home visiting programs.

Infants Safely Sleeping

Priorities

Deaths of infants due to unsafe sleeping environments and practices are preventable. The potential to impact the infant mortality rate in Michigan by reducing the number of sleep-related deaths is significant. If all sleep-related deaths in Michigan were eliminated, the infant mortality rate would reduce by almost 19%, saving nearly 150 infant lives per year [2]. Fathers, other caregivers, and the broader community are important to engage in efforts around promoting safe sleep environments.

Recommendations: What can be done?

Through knowledge of infant safe sleep practice, open discussions about risk reduction, and guaranteeing every infant has a safe place to sleep, sleep-related deaths can be stopped.

KEY FACTS

Sleep-related infant death is a leading cause of death among infants less than one year. In Michigan, from 2010 to 2016, there were 1,013 sleep-related infant deaths, which is a rate of 1.3 deaths per 1,000 live births[2].

- **Sharing Knowledge of Why Unsafe Sleep Environments Cause Infant Deaths** Sharing clear, concise information about what actions and/or items can put an infant at risk of death allowing parents to make informed decisions about their infant's sleep practices.
- **Disseminate Information on Protective Factors** Breastfed babies and babies who live in a smoke free environment are at decreased risk for a sleep-related death.
- **Engage Community Leaders** Developing and sustaining partnerships with community leaders can help in getting the safe sleep message out to communities on a local level.

Actions

The State Government will:

- Provide Motivational Interviewing Infant Safe Sleep training for family support workers to address risk reduction of families served.
- Disseminate **community-informed** safe sleep messaging to families and family support workers.
- Increase knowledge of best practices to promote infant safety (i.e., car seats, appropriate sleep environments, appropriate storage and disposal of medications and potentially toxic substances).
- Support lactation services and decrease barriers to breastfeeding, as breastfeeding is a protective factor in reducing sleep-related deaths.

Partners may:

- Assist in creating a tangible plan of support for families with young infants to assure safety issues do not occur as the result of sleep deprivation and lack of infant safe sleep environment.
- Implement supportive breastfeeding practices for mothers and their babies in every environment (i.e., workplace, schools, businesses, churches).
- Provide education and messaging regarding the benefits of breastfeeding for both mothers and their babies, including reducing the risk for obesity.
- Share information about breastmilk being the best form of nutrition for babies.

Priorities

When considering the health of mothers, one must be cognizant of all aspects of health. Maternal mental and behavioral health can significantly impact overall health outcomes for mom and baby[18]. It is imperative to screen for mental and behavioral health conditions, including postpartum depression and substance use disorder (SUD). Implementing guidelines regarding follow-up services for women who score high/screen positive, can help reduce the risk of adverse outcomes for both moms and babies.

Recommendations: What can be done?

KEY FACTS

The incidence of pharmacologically treated **neonatal abstinence syndrome (NAS)** among Michigan newborns increased significantly from 418.4 per 100,000 live births in 2010 to 839.4 per 100,000 live births in 2017[9]. Neonatal Abstinence Syndrome is described as symptoms a baby displays when withdrawing from certain drugs it was exposed to in the womb. NAS is most often caused by a woman taking opioids during pregnancy[21].

Mental, emotional and behavioral well-being are dependent upon many considerations including having healthy relationships, feeling connected to a community, and having the ability to access mental and behavioral services when needed. Many women and children experience Adverse Childhood Experiences (ACEs) that can have a profound impact on mental and physical health and development, including increasing the risk for substance use, depression, anxiety, and unintended pregnancy[22]. The occurrence of ACEs further exemplifies the importance of mental, emotional and behavioral well-being.

- **Promote Identification of Mental and Behavioral Health Needs and Access to Quality Services** making certain the mental and behavioral health screening and linkage to quality services is a standard of care that must be afforded to all Michigan girls, women and their families.
- **Foster Positive Parenting including Violence-Free Homes.** Parental/Caregiver attachment is critical to the growth and development of children and creates the foundation for positive, supportive interactions and relationships.

Actions

The State Government will:

- Increase access to mental and behavioral health services utilizing innovative methods, such as telehealth, and based on the identified needs of communities.
- Support the integration of mental health in primary care and non-traditional healthcare settings.
- Ensure students have access to mental health and counseling services, such as at Child and Adolescent Health Centers.
- Embed mental health services in home visiting and family support programs.

Partners may:

- Train professionals and community members to identify signs of depression, suicidality, and substance use disorders and create closed loop, coordinated referral systems for individuals to connect to resources.
- Support anti-bullying environments in schools.
- Understand the impact and prevalence of adverse childhood experiences and work to develop ways to prevent and mitigate their impact on long term health.
- Employers can assure that quality mental and behavioral health services are part of an employee's health benefit package.

To view the *Improvement Plan* Appendices document, please visit: https://www.michigan.gov/miheip

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