MI AIM HANDBOOK

MI AIM

MICHIGAN ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

Zero Preventable Deaths. Zero Health Disparities

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MI AIM INTRODUCTION

80-90 maternal deaths occur each year in Michigan.

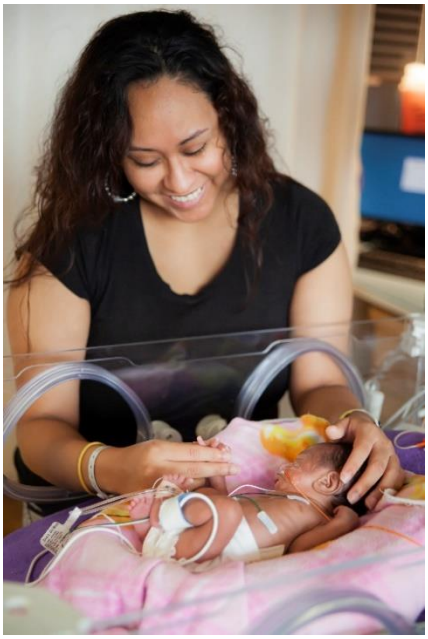
Nearly 50 percent of pregnancy-related maternal deaths are preventable.

Disparities in maternal mortality exist by **race, age, and education** level.

From 2012-2016, black women were **2.4 times** more likely to die from pregnancy-related causes in Michigan than their white counterparts.

MI AIM strives to decrease maternal mortality and morbidity in Michigan

Michigan was among the first states to join the **Alliance for Innovation in Maternal Health (AIM),** a national maternal safety and quality improvement initiative, with the goal of eliminating preventable maternal mortality and severe morbidity.



The **MI AIM Patient Safety Bundles** are a structured way of improving care processes and patient outcomes.

Michigan has been working on the implementation of the **Obstetric Hemorrhage** and **Severe Hypertension** bundles, improving health outcomes for mothers by combating the leading causes of preventable maternal mortality.

The safety bundles help fully equip hospitals with actionable protocols, necessary equipment, staff education, and staff drills to prevent and adequately treat these severe maternal events.

Link to Patient Safety Bundles

Data provided by Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016

MI AIM INTRODUCTION

Since birthing hospitals in Michigan began participating in MI AIM, there has been a **10.5 percent decrease in severe maternal morbidity**, reducing the rate to 1.7 percent.

In addition, complications during labor and delivery among women who experience hemorrhage have decreased by 17.9 percent and a there has been a 5 percent decrease among women who experience hypertension.

"Pregnancy, labor and delivery should be safe and healthy for all Michigan women."

Robert J. Sokol, M.D., co-chair of MI AIM, and Emeritus Dean and Emeritus Distinguished Professor of Obstetrics and Gynecology and Physiology at Wayne State University.

MI AIM builds upon years of hard work of the Michigan Health and Hospital Association (MHA), Michigan hospitals, Michigan Department of Health and Human Services (MDHHS), Wayne State University, and many more.

MI AIM is moving forward with plans to ensure Zero preventable deaths and Zero health disparities by building more diverse partnerships, furthering Safety Bundle implementation and supporting initiatives to improve the health of moms in Michigan. MI AIM is working to promote and support education, outreach and advocacy for moms, babies and families for healthier outcomes and stronger families.

Michigan AIM is saving women's lives through evidence-based practice and data-driven quality improvement initiatives.

MI AIM
MICHIGAN ALLIANCE FOR INNOVATION ON MATERNAL HEALTH A I M

MI AIM STRUCTURE

MI AIM Leadership

Robert Sokol, MD, Wayne State University
Dawn Shanafelt, MPA, BSN, RN, Michigan Department of Health andHuman Services

MI-AIM Operations Co-Chairs

Jody Jones MD, American College of Obstetricians and Gynecologists (ACOG)
Mary Schubert, Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)

MI AIM Operation Team & Steering Committee

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Cheryl Gibson-Fountain, MSMS, AMA
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Data Management

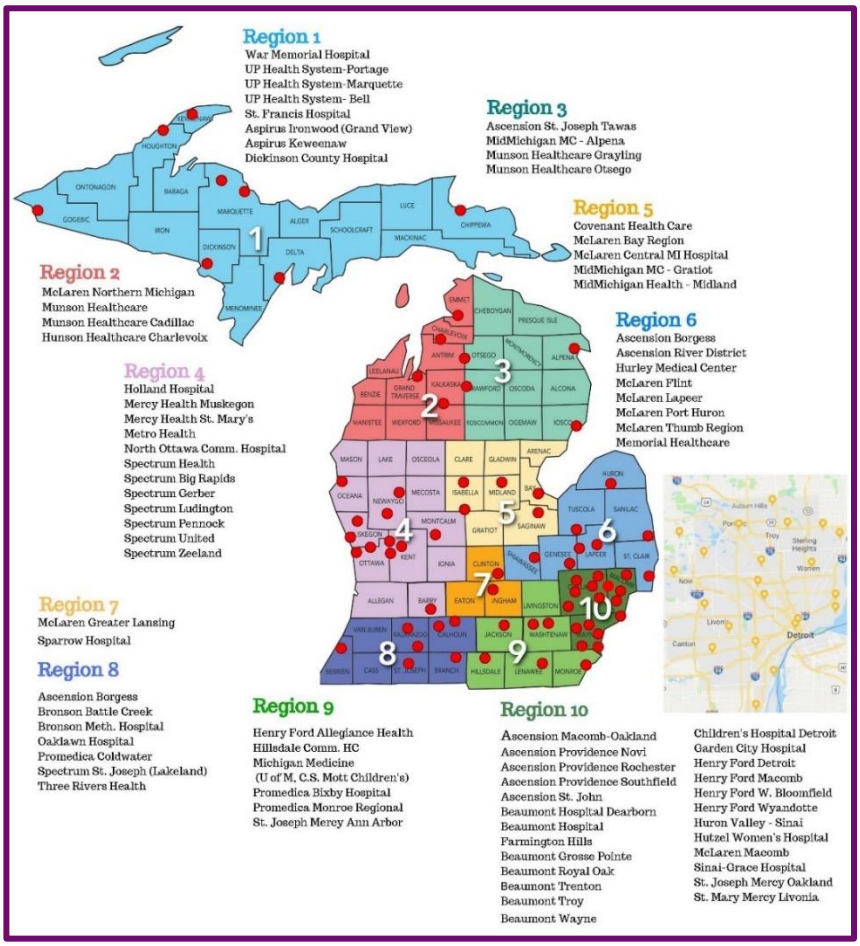
Andrew Syrek, Michigan Health and Hospital Association (MHA)

Chris Fussman, Michigan Department of Health and Human Services (MDHHS)

Michigan Regions

The State of Michigan is divided into 10 prosperity regions. These regions group hospitals together by geographic location.

Each region has a MI AIM representative. Regional members and ad hoc members provide technical assistance and support as needed.



MI AIM STRUCTURE

MI AIM works through statewide committees and teams at individual hospitals and health systems to align national, state, and hospital-level quality improvement efforts to improve overall maternal health outcomes.

MI AIM is committed to improving maternal outcomes in Michigan

MI AIM leadership, committees, administrative support and hospital members work on highly specialized and diverse projects across Michigan, to improve maternal and infant health.

Because of this, it is impossible to capture the broad and expansive work of individual efforts. It is important to acknowledge this and commend the partners for the expansive and invaluable work to improve health for moms, babies and families in Michigan.

The MI AIM efforts explicitly align with Michigan's Mother Infant Health & Equity Improvement Plan (MIHEIP), Michigan Maternal Mortality Surveillance (MMMS) Committee Recommendations and Michigan's Regional Perinatal Quality Collaboratives (RPQC's).

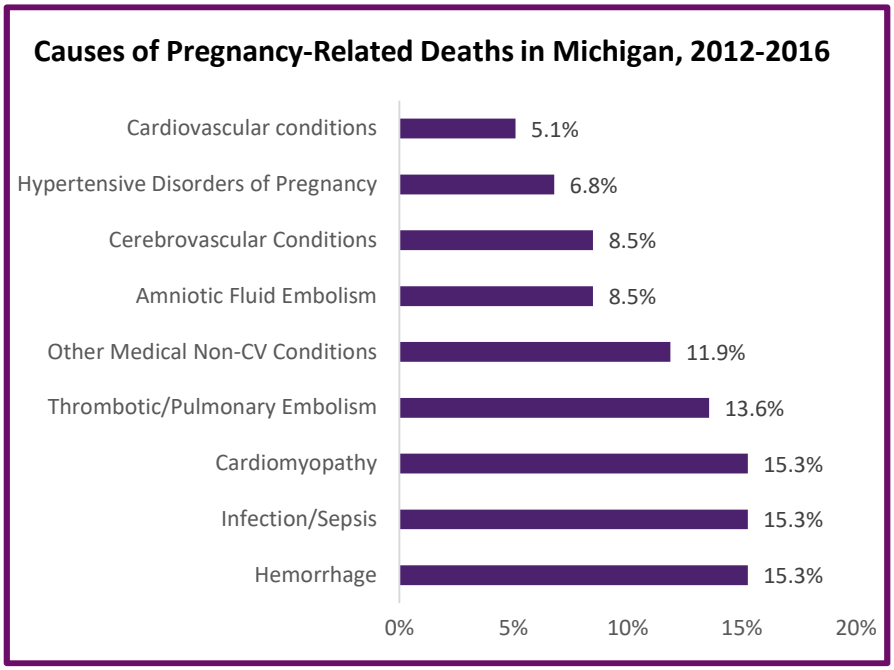
For more information on MI AIM please contact: **MDHHS-DMIH@Michigan.gov**
Visit the MI AIM website at **http://www.miaim.us/**
Find out more at **https://safehealthcareforeverywoman.org/aim-program/**
Learn more about Michigan's **Mother Infant Health & Equity Improvement Plan**

MI AIM CURRENT AND RELATED PROGRAMS

To address the most frequent causes of preventable maternal mortality and morbidity, Michigan has implemented three patient safety bundles with support of MI AIM and the Obstetrics Initiative (OBI):

1. Obstetric Hemorrhage
2. Severe Hypertension in Pregnancy
3. Safe Reduction of Primary Cesarean Birth

MI AIM is working to rethink care delivery.

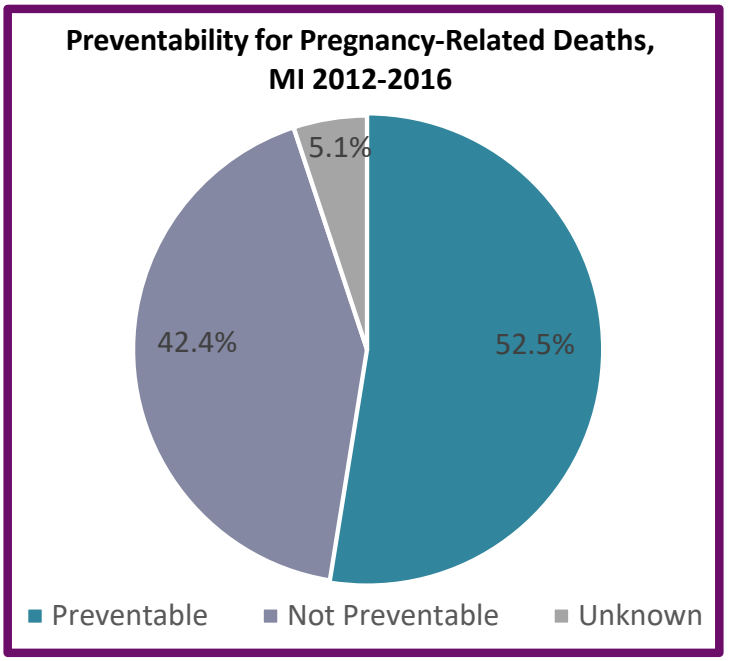


To decrease the impact of the (SARS CoV-2) aka COVID-19 pandemic on health outcomes for families, the Michigan Alliance for Innovation on Maternal Health (MI AIM) modified the Hemorrhage & Hypertension recommendations to address the impact on bundle implementation.

MI AIM is also working with partners to implement projects focusing on Quality Improvement, Long-Acting Reversable Contraception, Opioid Use Disorder and Health Disparities.

Nearly half of all maternal deaths are preventable.

MI AIM is saving lives in Michigan.



Data Sources: Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016; Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics, Resident Death Files, 2012-2016

Learn about **Michigan Maternal Mortality Surveillance (MMMS) and Michigan Maternal Death Data**

Find out more about Safety Bundles at **https://safehealthcareforeverywoman.org/aim-program/**

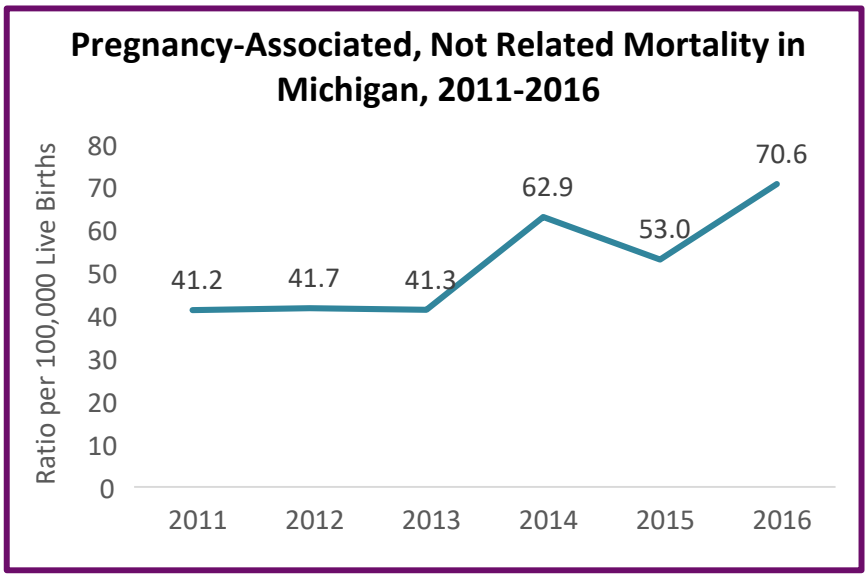
MI AIM CURRENT AND RELATED PROGRAMS

Three hundred-fifty two women died from pregnancy-associated, not related causes between 2011-2016. **Nearly half of these deaths were preventable.**

Pregnancy-associated, not related mortality is the death of a woman while pregnant or within one year of the end of a pregnancy due to a cause **unrelated to pregnancy.**

This includes both accidental and medical causes of death which were determined to be unrelated to pregnancy.

The most common cause of pregnancy-associated, not related injury death is **accidental drug overdose**, which has been increasing in Michigan. Other common causes of death include motor vehicle accidents, homicide, and suicide.



MI AIM is moving forward to protect the health of moms and babies in Michigan. By addressing social determinants of health, stigma, implicit bias and health disparities.

Moving forward MI AIM will begin implementing additional safety bundles:

1. Reduction of Peripartum Racial/Ethnic Disparities
2. Obstetric Care for Women with Opioid Use Disorder
3. CMQCC- Improving Diagnosis and Treatment of Maternal Sepsis
4. Maternal Venous Thromboembolism

Additional Resources

Michigan Maternal Mortality Surveillance (MMMS) and Michigan Maternal Death Data

Data Sources: Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016; Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics, Resident Death Files, 2012-2016

MICHIGAN ALLIANCE FOR INNOVATION ON MATERNAL HEALTH AIM

Michigan's Alliance for Innovation on Maternal Health and COVID-19 Recommendations for the Obstetric Hemorrhage Safety Bundle

READINESS

Every Unit

- Hemorrhage cart with supplies, checklist, and instruction cards for intrauterine balloons and compressions stitches.
- Immediate access to hemorrhage medications (kit or equivalent).
- Establish a response team – who to call when help is needed (blood bank, Advanced gynecologic surgery, other support and tertiary services).
- Establish massive and emergency release transfusion protocols (type-O negative uncross matched).
- Unit education on protocols, unit-based drills (with post-drill debriefs).

Adaptation: Staffing for units may be adjusted due to COVID-19. Staff new to the maternity care team require (just-in-time) training on the importance of assessment & management of obstetric hemorrhage.

Adaptation: Due to limited blood supply resources during COVID-19, Consider options used for patients who do not accept blood products for all patients such as use of cell saver resources, intrauterine balloon etc.

RECOGNITION & PREVENTION

Every Patient

- Assessment of hemorrhage risk (prenatal, on admission, and other appropriate times).
- Measurement of cumulative blood loss (formal, as quantitative as possible).
- Active management of the third stage of labor (department-wide protocol).

Adaptation: Planning for patients with known risk factors for massive hemorrhage (e.g. placenta previa, possible placenta accreta) should include assessment of availability of blood products locally given shortages due to COVID-19 with consideration of transfer to a facility with more resources as necessary.

Link to Patient Safety Bundle

MICHIGAN ALLIANCE FOR INNOVATION ON MATERNAL HEALTH AIM

RESPONSE

Every Hemorrhage

- Unit-standard, stage-based obstetric hemorrhage emergency management plan with checklists.
- Support program for patients, families, and staff for all significant hemorrhage.

REPORTING/SYSTEMS LEARNING

Every Unit

- Establish a culture of huddles for high-risk patient and post-event debriefs to identify successes and opportunities.
- Multidisciplinary review of serious hemorrhages for systems issues.
- Monitor outcomes and process metrics in perinatal quality improvement (QI) Committee

Adaptation: To support morbidity reviews, huddles, and hospital patient care sign out it is essential to secure virtual technology options for all members of the maternity care team.

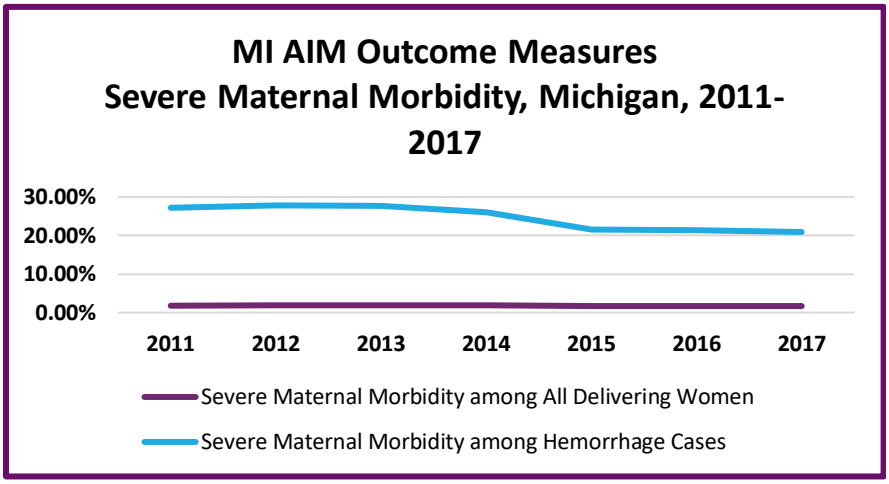
Note: Adapted from the Council on Patient Safety in Women's Healthcare for the novel COVID-19 pandemic

Link to Patient Safety Bundle

OBSTETRIC HEMORRHAGE

Between 2012-2016, obstetric hemorrhage was one of the most common causes of pregnancy-related death in Michigan. Opportunities exist to assess risk, anticipate, and plan prior to an obstetric hemorrhage event.

A standardized approach to obstetric hemorrhage includes a clearly defined, staged checklist of appropriate actions to be taken in an emergency situation. Multidisciplinary coordination and preparation, particularly with the blood bank, are critical in providing safe obstetrical care.



Data Provided by Michigan Health and Hospital Association (MHA)

AIM Patient Safety Bundles for Obstetric Hemorrhage

Downloadable PDF of the bundle

Complete resource listing

Safety Action Series introductory presentation

Hemorrhage Resources

Risk Assessment Tables:

- Prenatal & Antepartum
- Labor & Delivery Admission and Intrapartum

Checklists:

- Hemorrhage Stages 1-4 June 2019
- Recommended Instruments March 2019 (HEM Cart & Medication Kit)

Posters:

- Managing Maternal Hemorrhage
- Massive Transfusion Protocol (Blood Bank)
- Surgical Management

Guidance Documents

- Patients Who Decline Blood Products
- Morbidly Adherent Placenta
- Supplemental Guidance for Anemic Patients

Additional Resources

- ACOG Obstetric Hemorrhage Slide Deck
- SMI Obstetric Team Debriefing Form
- CMQCC Obstetric Hemorrhage Toolkit
- AWHONN Quantification of Blood Loss Video
- AWHONN Postpartum Hemorrhage Project

Michigan's Alliance for Innovation on Maternal Health and COVID-19 Recommendations for the Hypertension Safety Bundle

READINESS

Every Unit

- Standards for early warning signs, diagnosis criteria, monitoring and treatment of severe preeclampsia/eclampsia (include order sets and algorithms)
- Unit education on protocols, unit-based drills (with post-drill debriefs)
- Process for timely triage and evaluation of pregnant and postpartum women with hypertension including Emergency Department and outpatient areas
- Rapid access to medications used for severe hypertension/preeclampsia: Medications should be stocked and immediately available on Labor and Delivery and in other areas where patients may be treated. Include brief guide for administration and dosage.
- System plan for escalation, obtaining appropriate consultation, and maternal transport as needed.

Adaptation: With COVID-19, triage processes and location of triage may be altered, therefore we encourage health systems to communicate widely to assure all areas of the health system are aware of these changes.

Adaptation: Staffing for units may be adjusted due to COVID-19. Staff new to the maternity care team require (just-in-time) training on the importance of assessment & management of hypertension during pregnancy.

RECOGNITION & PREVENTION

Every Patient

- Standards protocol for measurement and assessment of Blood Pressure and urine protein for all pregnant and postpartum women.
- Standard response to maternal early warning signs including listening to and investigating patient symptoms and assessment of labs (e.g. complete blood count (CBC) with platelets, aspartate aminotransferase (AST) and alanine aminotransferase (ALT)).
- Facility-wide standards for educating prenatal and postpartum women on signs and symptoms of hypertension and preeclampsia.

Link to Patient Safety Bundle

Adaptation: With COVID-19 resulting in the use of virtual visits for some health systems, mechanisms should be considered to assure blood pressure assessment and assessment of urine protein can be maintained. This may include patient conducted home Blood Pressure assessment and urine testing, with procedures for reporting results to health care providers.

RESPONSE

Every case of severe hypertension/preeclampsia

- Facility-wide standard protocols with checklists and escalation policies for management and treatment of:
  - Severe hypertension
  - Eclampsia, seizure prophylaxis, and magnesium over-dosage
  - Postpartum presentation of severe hypertension/preeclampsia
- Minimum requirement for protocol:
  - Notification of physician or primary care provider if systolic BP =/> 160 or diastolic BP =/> 110 for two measurements within 15 minutes
  - After the second elevated reading, treatment should be initiated ASAP (preferable within 60 minutes of verification)
  - Includes onset and duration of magnesium sulfate therapy
  - Includes escalation measures for those unresponsive to standard treatment
  - Describes manner and verification of follow-up within 7 to 14 days postpartum
  - Describes postpartum patient education for women with preeclampsia
- Support plan for patients, families, and resources for ICU admissions and serious complications of severe hypertension

REPORTING/SYSTEMS LEARNING

Every Unit

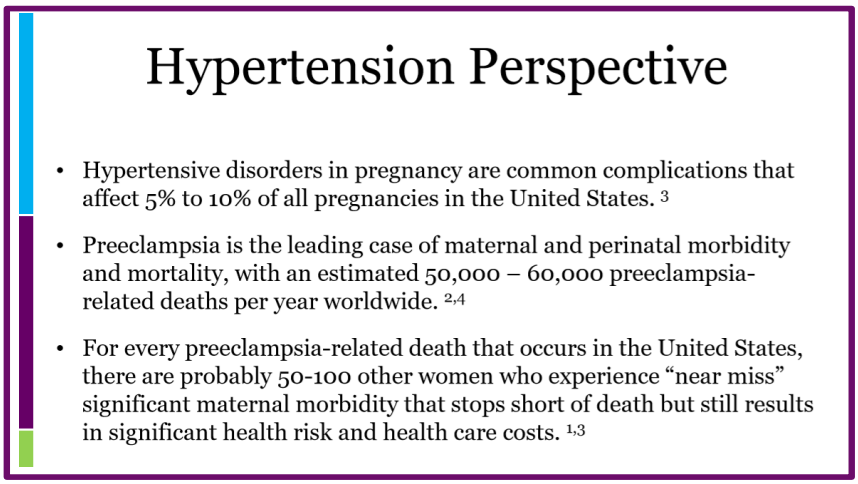
- Establish a culture of huddles for high risk patient and post-event debriefs to identify successes and opportunities.
- Multidisciplinary review of all severe hypertension/eclampsia cases admitted to ICU for system issues.
- Monitor outcomes and process metrics.

Adaptation: To support morbidity reviews, huddles, and hospital patient care sign out it is essential to secure virtual technology options for all members of the maternity care team.

Note: Adapted from the Council on Patient Safety in Women's Healthcare for the novel COVID-19 pandemic

HYPERTENSION

Complications arising from hypertensive disorders of pregnancy are among the leading causes of preventable severe maternal morbidity and mortality. Timely and appropriate treatment has the potential to significantly reduce hypertension-related complications. Increasing evidence indicates that standardization of care improves patient outcomes.



AIM Patient Safety Bundle Severe Hypertension in Pregnancy

Downloadable PDF of the bundle

Complete resource listing

Safety Action Series presentation

Systolic BP ≥ 160 or **diastolic BP ≥ 110** warrant:

- Prompt evaluation at bedside
- Treatment to decrease maternal morbidity and mortality

Risk reduction and successful clinical outcomes require avoidance/management of severe systolic and diastolic hypertension in women with:

- Preeclampsia
- Eclampsia
- Chronic hypertension
- Superimposed preeclampsia

Hypertension Resources

Algorithms:

- Labetalol
- Hydralazine
- Oral Nifedipine

Checklists:

- Hypertensive Emergency
- Eclampsia
- ED Postpartum Preeclampsia

Eclampsia:

- Simulation Scenario Overview #1
- Clinical Scenario #2
- Drill Assessment Tool

Additional Resources:

Safe Motherhood Initiative Severe Hypertension ACOG
Preeclampsia and Hypertension in Pregnancy.
ACOG Hypertension in Pregnancy
ACOG Committee Opinion Chronic Hypertension in Pregnancy

COUNCIL ON PATIENT SAFETY
IN WOMEN'S HEALTH CARE
safe health care for every woman

PATIENT SAFETY BUNDLE

Safe Reduction of Primary Cesarean Births

SAFE REDUCTION OF PRIMARY CESAREAN BIRTHS: SUPPORTING INTENDED VAGINAL BIRTHS

READINESS

Every Patient, Provider and Facility

- Build a provider and maternity unit culture that values, promotes, and supports spontaneous onset and progress of labor and vaginal birth and understands the risks for current and future pregnancies of cesarean birth without medical indication.
- Optimize patient and family engagement in education, informed consent, and shared decision making about normal healthy labor and birth throughout the maternity care cycle.
- Adopt provider education and training techniques that develop knowledge and skills on approaches which maximize the likelihood of vaginal birth, including assessment of labor, methods to promote labor progress, labor support, pain management (both pharmacologic and non-pharmacologic), and shared decision making.

RECOGNITION AND PREVENTION

Every patient

- Implement standardized admission criteria, triage management, education, and support for women presenting in spontaneous labor.
- Offer standardized techniques of pain management and comfort measures that promote labor progress and prevent dysfunctional labor.
- Use standardized methods in the assessment of the fetal heart rate status, including interpretation, documentation using NICHD terminology, and encourage methods that promote freedom of movement.
- Adopt protocols for timely identification of specific problems, such as herpes and breech presentation, for patients who can benefit from proactive intervention before labor to reduce the risk for cesarean birth.

Link to Patient Safety Bundle

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

safe health care for every woman

PATIENT SAFETY BUNDLE

Safe Reduction of Primary Cesarean Births

RESPONSE

To Every Labor Challenge

- Have available an in-house maternity care provider or alternative coverage which guarantees timely and effective responses to labor problems.
- Uphold standardized induction scheduling to ensure proper selection and preparation of women undergoing induction.
- Utilize standardized evidence-based labor algorithms, policies, and techniques, which allow for prompt recognition and treatment of dystocia.
- Adopt policies that outline standard responses to abnormal fetal heart rate patterns and uterine activity.
- Make available special expertise and techniques to lessen the need for abdominal delivery, such as breech version, instrumented delivery, and twin delivery protocols.

REPORTING/SYSTEMS LEARNING

Every birth facility

- Track and report labor and cesarean measures in sufficient detail to: 1) compare to similar institutions, 2) conduct case review and system analysis to drive care improvement, and 3) assess individual provider performance.
- Track appropriate metrics and balancing measures, which assess maternal and newborn outcomes resulting from changes in labor management strategies to ensure safety.

For more information visit the Council's website at www.safehealthcareforeverywoman.org

Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The Council on Patient Safety in Women's Health Care disseminates patient safety bundles to help facilitate the standardization process. This bundle reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular bundle may be adapted to local resources, standardization within an institution is strongly encouraged.

The Council on Patient Safety in Women's Health Care is a broad consortium of organizations across the spectrum of women's health for the promotion of safe health care for every woman.

Link to Patient Safety Bundle

SAFE REDUCTION OF PRIMARY CESAREAN BIRTHS

The Obstetrics Initiative (OBI) is a hospital-based women's health Collaborative Quality Initiative (CQI) funded by Blue Cross Blue Shield of Michigan/Blue Care Network.

OBI supports vaginal births and safely reducing cesarean deliveries for low-risk pregnancies in Michigan hospitals.

OBI focuses on safely reducing cesarean delivery among NTSV; **N**ulliparous (first time delivering) women, who are carrying a **T**erm (>=37 weeks) and **S**ingleton pregnancy with baby in a **V**ertex (head down) presentation.

NTSV deliveries, which are often low risk births, account for 30- 35 percent of the deliveries occurring annually in Michigan.

The Safe Reduction of Primary Cesarean Birth Bundle emphasizes timing of admission, shared decision making, and support in labor; and focuses on implementing approaches that support spontaneous progress of labor during the first stage of labor.

Patient is a good candidate for continued outpatient management if the following criteria are met:

- Reassuring fetal testing
- Normal blood pressure
- Gestational age ≥ 37 weeks**
- Vertex
- No prior uterine scars (myomectomy or cesarean delivery) **
- Intact membranes
- No significant maternal or fetal disease
- Cervical dilation < 4 cm* and effacement < 80%
- Labor partnership reviewed if available
- Coping with contractions
- Support person available
- *If no support person or inadequate support, attempt to identify labor support (Doula, extra labor nurse support, social worker, volunteer, etc.)*

* Note: special circumstances such as severe fatigue, multiple triage visits, prolonged latent phase, and difficulty coping may warrant admission before 4cm.
** Women with gestations ≥41 weeks or prior cesarean delivery may require additional assessment and evaluation. These are not absolute contraindications and require individualized clinical decision making.

The OBI Promoting Spontaneous Progress in Labor Bundle is in direct alignment with the AIM bundle Safe Reduction of Primary Cesarean Birth (+AIM).

LONG ACTING REVERSIBLE CONTRACEPTIVES

Insertion of Intrauterine Devices (IUDs) among postpartum women is safe and does not appear to increase health risks associated with IUD use such as infection. Higher rates of expulsion during the postpartum period should be considered as they relate to effectiveness, along with patient access to interval placement (i.e., not related to pregnancy) when expulsion rates are lower.

Evidence for Expulsion:

- Studies suggest that immediate post placental (<10 minutes) and early postpartum (10 minutes up until 72 hours) placement is associated with increased risk for expulsion, both at the time of a vaginal delivery and at the time of a cesarean delivery
- Early postpartum placement has similar or increased risk for expulsion compared with immediate post placental placement.

Intrauterine Devices and Breastfeeding:

- Breastfeeding provides important health benefits for mother and infant.
- Two randomized controlled trials found conflicting results on breastfeeding outcomes when IUDs were initiated immediately postpartum compared with six to eight weeks postpartum.
    - Initiation of IUDs immediately postpartum had no other harmful effect on infant health, growth, or development.
    - Initiation of IUDs at four weeks postpartum or later demonstrated no detrimental effect on breastfeeding outcomes and no harmful effect on infant health, growth, or development.
- Breastfeeding women using IUDs do not have an increased risk for certain IUD-related adverse events including expulsion, infection, pain, or bleeding compared with non-breastfeeding women.

Informed Consent and Breastfeeding:

- Certain women might be at risk for breastfeeding difficulties, such as women with previous breastfeeding difficulties, certain medical conditions, or certain perinatal complications and those who deliver preterm.
- For these women, as for all women, discussions about contraception for breastfeeding women should include information about risks, benefits, and alternatives.

CDC Classifications for Intrauterine Devices
US Department of Health and Human Services. Healthy people 2020: Maternal, infant, and child health objectives. Washington, DC: US Department of Health and Human Services; 2015.

LONG ACTING REVERSIBLE CONTRACEPTIVES

MI AIM is working with partners to ensure all women have access to the full range of postpartum contraceptive methods before leaving the hospital after a delivery.

Optimal birth spacing of at least 18 months has been proven to improve the health and wellbeing of mothers and their infants including decreasing maternal and infant mortality.

Long-Acting Reversible Contraceptive (LARC) methods remain the most effective reversible contraception and have the highest continuation and satisfaction rates among all users.

The goal of MI AIM's LARC partnerships are to embed the American College of Obstetricians and Gynecologists (ACOG) guidelines into practice, during prenatal and postpartum visits, including:

- Support patients through evidence-informed, patient-centered reproductive counseling.
- Discuss pregnancy intention routinely with all patients of reproductive age.
- Increase access to contraceptives including immediate postpartum LARC.
- Educate providers on LARC insertion.
- Educate providers on health equity and implicit bias.
- Ensure exceptional patient experience of care.

MI AIM's LARC partnerships align with AIM Patient Safety Bundle Postpartum Care Basics for Maternal Safety from Birth to the Comprehensive Postpartum Visit

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It is important to note that the American College of Obstetricians and Gynecologists (ACOG) assert that health care decisions should be made jointly by patients and their trusted health care professionals. MI AIM and its partners are dedicated to evidence-based and compassionate care and will work to support all women in making the best reproductive decisions for themselves and their families.

Additional Resources

ACOG Long-Acting Reversible Contraception Program
Immediate Postpartum Long-Acting Reversible Contraception. Committee Opinion No. 670. American College of Obstetricians and Gynecologists. 2016
Michigan Maternal Mortality Surveillance (MMMS) Committee Recommendation on LARC

INTEGRATING MEOWS AND SMM IN QUALITY IMPROVEMENT

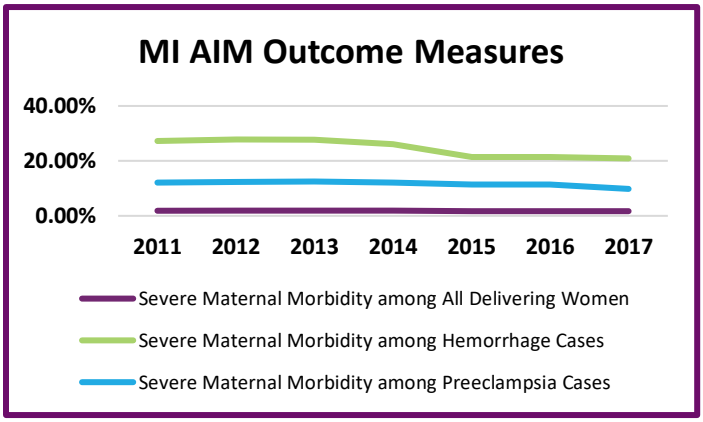
MI AIM recommends a Maternal Early Obstetric Warning System (MEOWS) and a supporting Effective Escalation Policy. Case reviews of maternal death have revealed a concerning pattern of delay in recognition of hemorrhage, hypertension, sepsis, venous thromboembolism and heart failure. Early-warning systems have been proposed to facilitate timely recognition, diagnosis, and treatment for women developing critical illness.

"Early detection of severe illness in pregnant women is challenging because of the relative rarity of such events, combined with the normal changes in physiology associated with pregnancy and childbirth."

-The Health Foundation

The **Modified Early Obstetric Warning Score (MEOWS)** is a simple, physiological score that may allow improvement in the quality and safety of management, while considering changes in physiology seen in normal pregnancy.

Severe Maternal Morbidity (SMM) is associated with a high rate of preventability.



Identifying severe morbidity is critically important for preventing injuries that lead to mortality and identifying opportunities for quality improvement to ensure safety.

AIM SMM Patient Safety Tools include:
Resources on Severe Maternal Morbidity
Severe Maternal Morbidity Review
Summary After a Severe Maternal Event

All cases of SMM should undergo a **multidisciplinary review analysis**, resulting in quality improvement. If the case of severe maternal morbidity meets the definition for a Joint Commission Sentinel Event, the case should be referred for Root Cause Analysis Process.

Additional Resources

Maternal Early Warning System: Successfully Implementing & Utilizing an Escalation Plan
Maternal Early Warning Criteria: from the National Partnership for Maternal Safety
Value of MEOWS in managing maternal complications in the peripartum period: an ethnographic study
Support After a Severe Maternal Event
AIM Severe Maternal Morbidity (SMM) Code List
The Joint Commission Perinatal Care Certification
CDC Severe Maternal Morbidity in the United States
TeamSTEPPS®: an evidence-based teamwork system aimed at optimizing patient care by **improving communication and teamwork skills** among health care professionals, including frontline staff.

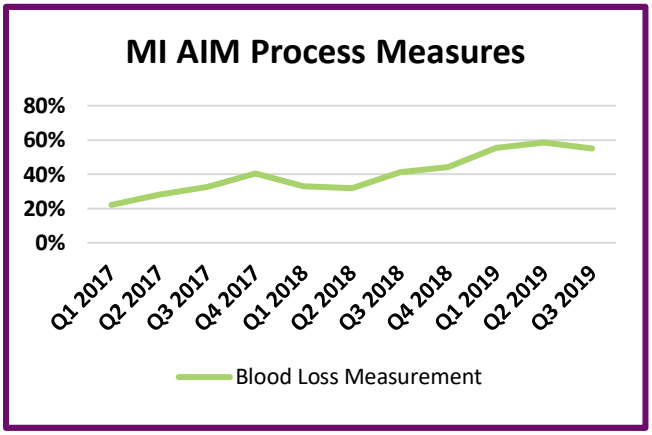
USE THE MI AIM DASHBOARD TO EVALUATE YOUR HOSPITAL

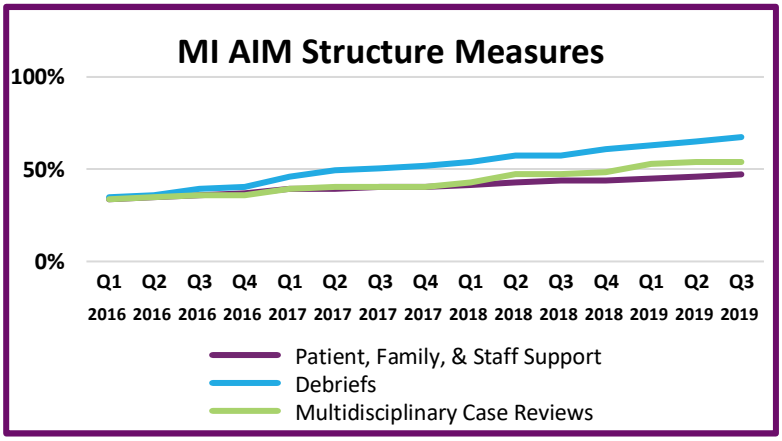
MI AIM Dashboard

To ensure high quality healthcare delivery for moms across Michigan, MI AIM partners with MHA and MDHHS to improve data collection.
The KeyMetrics Dashboard will be available to hospital staff and will highlight the three measure types supported within the bundles – outcomes, process, and structure measures. The new MI AIM Data Dashboard will make it easier to view trends. Streamlined data collection and data entry will save time and money.

The MI AIM Dashboard is available at: KeyMetrics.

The link to request new user access is found on the log-in page. **Please contact keystonedata@mha.org with Dashboard or Data questions.**





2020 MI AIM DESIGNATION CRITERIA

Fifty of Michigan's Birthing Hospitals received MI AIM Quality Improvement Awards in 2020 in recognition of Michigan hospitals improving care for mothers and babies.

13 Platinum Awards | 15 Gold Awards | 6 Silver Awards | 16 Bronze Awards

Designation criteria changes annually to encourage further quality improvement and account for new changes to the MI AIM program. Review the MI AIM Designation Criteria.

MI AIM Quality Improvement Designation Awards are based on a hospital's participation and commitment to MI AIM, Data Reporting, implementation of Patient Safety Bundles, improvement in Patient Safety, and participation in continuing education and other additional Quality Improvement initiatives.

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

safe health care for every woman

PATIENT SAFETY BUNDLE

Reduction of Peripartum Racial/Ethnic Disparities

READINESS

Every health system

- Establish systems to accurately document self-identified race, ethnicity, and primary language.
  - Provide system-wide staff education and training on how to ask demographic intake questions.
  - Ensure that patients understand why race, ethnicity, and language data are being collected.
  - Ensure that race, ethnicity, and language data are accessible in the electronic medical record.
  - Evaluate non-English language proficiency (e.g. Spanish proficiency) for providers who communicate with patients in languages other than English.
  - Educate all staff (e.g. inpatient, outpatient, community-based) on interpreter services available within the healthcare system.
- Provide staff-wide education on:
  - Peripartum racial and ethnic disparities and their root causes.
  - Best practices for shared decision making.
- Engage diverse patient, family, and community advocates who can represent important community partnerships on quality and safety leadership teams.

RECOGNITION

Every patient, family, and staff member

- Provide staff-wide education on implicit bias.
- Provide convenient access to health records without delay (paper or electronic), at minimal to no fee to the maternal patient, in a clear and simple format that summarizes information most pertinent to perinatal care and wellness.
- Establish a mechanism for patients, families, and staff to report inequitable care and episodes of miscommunication or disrespect.

Link to Patient Safety Bundle

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

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PATIENT SAFETY BUNDLE

Reduction of Peripartum Racial/Ethnic Disparities

RESPONSE

Every clinical encounter

- Engage in best practices for shared decision making.
- Ensure a timely and tailored response to each report of inequity or disrespect.
- Address reproductive life plan and contraceptive options not only during or immediately after pregnancy, but at regular intervals throughout a woman's reproductive life.
- Establish discharge navigation and coordination systems post childbirth to ensure that women have appropriate follow-up care and understand when it is necessary to return to their health care provider.
  - Provide discharge instructions that include information about what danger or warning signs to look out for, whom to call, and where to go if they have a question or concern.
  - Design discharge materials that meet patients' health literacy, language, and cultural needs.

REPORTING & SYSTEMS LEARNING

Every clinical unit

- Build a culture of equity, including systems for reporting, response, and learning similar to ongoing efforts in safety culture.
- Develop a disparities dashboard that monitors process and outcome metrics stratified by race and ethnicity, with regular dissemination of the stratified performance data to staff and leadership.
- Implement quality improvement projects that target disparities in healthcare access, treatment, and outcomes.
- Consider the role of race, ethnicity, language, poverty, literacy, and other social determinants of health, including racism at the interpersonal and system-level when conducting multidisciplinary reviews of severe maternal morbidity, mortality, and other clinically important metrics.
  - Add as a checkbox on the review sheet: Did race/ethnicity (i.e. implicit bias), language barrier, or specific social determinants of health contribute to the morbidity (yes/no/maybe)? And if so, are there system changes that could be implemented that could alter the outcome?

Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The Council on Patient Safety in Women's Health Care disseminates patient safety bundles to help facilitate the standardization process. This bundle reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular bundle may be adapted to local resources, standardization within an institution is strongly encouraged.

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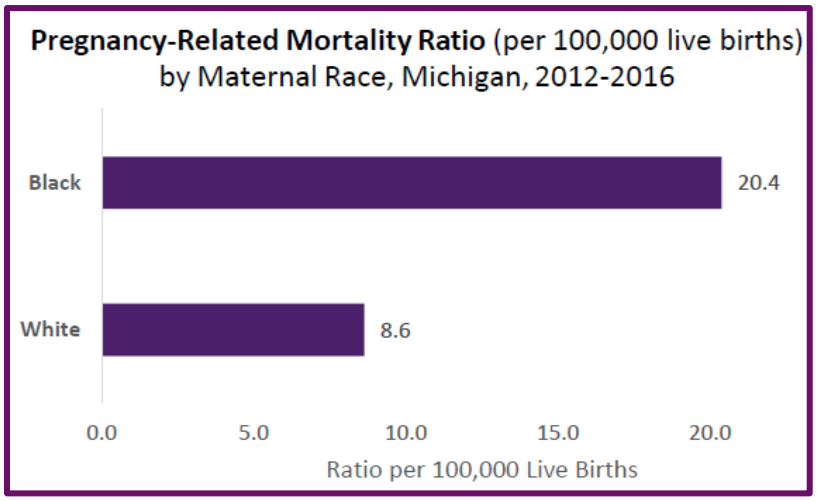
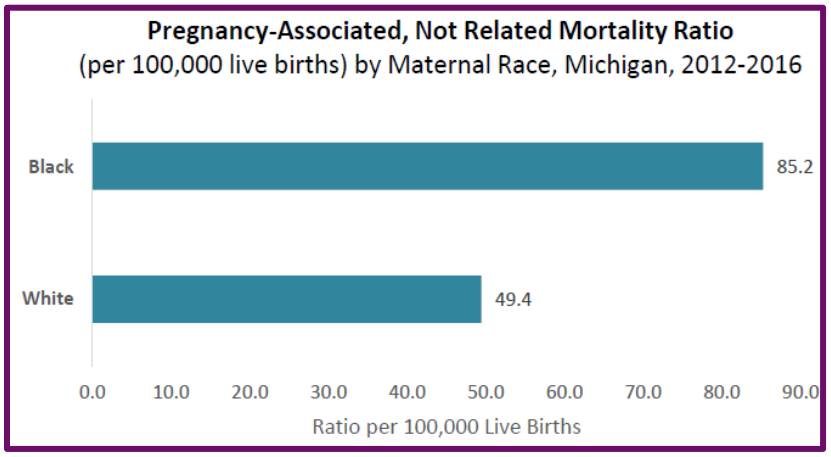
HEALTH DISPARITIES

Nationwide, black women die from pregnancy-related causes at a much higher ratio compared to white women. Disparities exist in every facet of maternal and infant health and are rooted in long standing systemic inequities, often based on race.



From 2012-2016, black women were **2.4 times** more likely to die from pregnancy-related causes in Michigan (20.4 and 8.6 per 100,000 live births, respectively).

From 2012-2016, black women were **1.7 times** more likely to die from pregnancy-associated, not related causes in Michigan (85.2 and 49.4 per 100,000 live births, respectively).



MI AIM is committed to eliminating health disparities. In alignment with Michigan's Maternal Mortality Surveillance Recommendations and the MIHEIP, MI AIM recommends that all providers receive regular continuing education related to implicit bias, health equity, culturally competent care, and stigma.

Zero Preventable Deaths
Zero Health Disparities

Data Sources: Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016; Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics, Resident Death Files, 2012-2016

HEALTH DISPARITIES
The Hazards of Our Systems for Black Mothers

Irving Family's Story: Shalon Irving was a lieutenant commander in the U.S. public health service commissioned corps and a CDC epidemiologist. She earned a dual doctorate in sociology and gerontology, and she was an ecstatic mother-to-be.

Just three weeks after giving birth to her daughter, Irving suffered complications from high blood pressure and died in February 2017. She was just 36.

"Black women are not being seen or heard when it comes to their health, especially during and after pregnancy." Irving said.

Like Irving, 80-90 women die each year in Michigan during pregnancy, birth, or within one year of pregnancy.[1] Nearly 50 percent of these deaths are preventable. Irving sought care but her pain and symptoms were not heard and instead were considered a normal part of the postpartum experience.

"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."

-Michigan's Mother Infant Health and Equity Improvement Plan (MIHEIP)-

Additional Resources

Reduction of Peripartum Racial/Ethnic Disparities
AIM Patient Safety Bundle Reduction of Peripartum Racial/Ethnic Disparities
Mother Infant Health and Equity Improvement Plan
Michigan Maternal Mortality Surveillance (MMMS) and Michigan Maternal Death Data

Data Sources: Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016; Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics, Resident Death Files, 2012-2016

Thank you to the Council on Patient Safety's Voices of Impact program for elevating the voices of women and families and putting voices next to numbers to raise awareness.

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
safe health care for every woman

PATIENT SAFETY BUNDLE

Obstetric Care for Women with Opioid Use Disorder

READINESS

Every patient/family

- Provide education to promote understanding of opioid use disorder (OUD) as a chronic disease.
  - Emphasize that substance use disorders (SUDs) are chronic medical conditions, treatment is available, family and peer support is necessary and recovery is possible.
  - Emphasize that opioid pharmacotherapy (i.e. methadone, buprenorphine) and behavioral therapy are effective treatments for OUD.
- Provide education regarding neonatal abstinence syndrome (NAS) and newborn care.
  - Awareness of the signs and symptoms of NAS
  - Interventions to decrease NAS severity (e.g. breastfeeding, smoking cessation)
- Engage appropriate partners (i.e. social workers, case managers) to assist patients and families in the development of a "plan of safe care" for mom and baby.

Every clinical setting/health system

- Provide staff-wide (clinical and non-clinical staff) education on SUDs.
  - Emphasize that SUDs are chronic medical conditions that can be treated.
  - Emphasize that stigma, bias and discrimination negatively impact pregnant women with OUD and their ability to receive high quality care.
  - Provide training regarding trauma-informed care.
- Establish specific prenatal, intrapartum and postpartum clinical pathways for women with OUD that incorporate care coordination among multiple providers.
- Develop pain control protocols that account for increased pain sensitivity and avoidance of mixed agonist-antagonist opioid analgesics.
- Know state reporting guidelines regarding the use of opioid pharmacotherapy and identification of illicit substance use during pregnancy.

Link to Patient Safety Bundle

- Know federal (Child Abuse Prevention Treatment Act - CAPTA), state and county reporting guidelines for substance-exposed infants.
  - Understand "Plan of Safe Care" requirements.
- Know state, legal and regulatory requirements for SUD care.
- Identify local SUD treatment facilities that provide women-centered care.
  - Ensure that OUD treatment programs meet patient and family resource needs (i.e. wrap-around services such as housing, child care, transportation and home visitation).
  - Ensure that drug and alcohol counseling and/or behavioral health services are provided.
- Investigate partnerships with other providers (i.e. social work, addiction treatment, behavioral health) and state public health agencies to assist in bundle implementation.

RECOGNITION & PREVENTION

Every provider/clinical setting

- Assess all pregnant women for SUDs.
  - Utilize validated screening tools to identify drug and alcohol use.
  - Incorporate a screening, brief intervention and referral to treatment (SBIRT) approach in the maternity care setting.
  - Ensure screening for polysubstance use among women with OUD.
- Screen and evaluate all pregnant women with OUD for commonly occurring co-morbidities.
  - Ensure the ability to screen for infectious disease (e.g. HIV, Hepatitis and sexually transmitted infections (STIs)).
  - Ensure the ability to screen for psychiatric disorders, physical and sexual violence.
  - Provide resources and interventions for smoking cessation.
- Match treatment response to each woman's stage of recovery and/or readiness to change.

Link to Patient Safety Bundle

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE
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PATIENT SAFETY BUNDLE

Obstetric Care for Women with Opioid Use Disorder

RESPONSE

Every provider/clinical setting/health system

- Ensure that all patients with OUD are enrolled in a woman-centered OUD treatment program.
  - Establish communication with OUD treatment providers and obtain consents for sharing patient information.
  - Assist in linking to local resources (e.g. peer navigator programs, narcotics anonymous (NA), support groups) that support recovery.
- Incorporate family planning, breastfeeding, pain management and infant care counseling, education and resources into prenatal, intrapartum and postpartum clinical pathways.
  - Provide breastfeeding and lactation support for all postpartum women on pharmacotherapy.
  - Provide immediate postpartum contraceptive options (e.g. long acting reversible contraception (LARC)) prior to hospital discharge.
- Ensure coordination among providers during pregnancy, postpartum and the inter-conception period.
  - Provide referrals to providers (e.g. social workers, psychiatry, and infectious disease) for identified co-morbid conditions.
  - Identify a lead provider responsible for care coordination, specify the duration of coordination and assure a "warm handoff" with any change in the lead provider.
  - Develop a communication strategy to facilitate coordination among the obstetric provider, OUD treatment provider, health system clinical staff (i.e. inpatient maternity staff, social services) and child welfare services.
- Engage child welfare services in developing safe care protocols tailored to the patient and family's OUD treatment and resource needs.
  - Ensure priority access to quality home visiting services for families affected by SUDs.

Link to Patient Safety Bundle

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

safe health care for every woman

REPORTING & SYSTEMS LEARNING

Every clinical setting/health system

- Develop mechanisms to collect data and monitor process and outcome metrics to ensure high quality healthcare delivery for women with SUDs.
  - Develop a data dashboard to monitor process and outcome measures (i.e. number of pregnant women in OUD treatment at specified intervals).
- Create multidisciplinary case review teams to evaluate patient, provider and system-level issues.
- Develop continuing education and learning opportunities for providers and staff regarding SUDs.
- Identify ways to connect non-medical local and community stakeholders with clinical providers and health systems to share outcomes and identify ways to improve systems of care.
  - Engage child welfare services, public health agencies, court systems and law enforcement to assist with data collection, identify existing problems and help drive initiatives.

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Link to Patient Safety Bundle

OBSTETRIC CARE FOR WOMEN WITH OPIOID USE DISORDER

In alignment with the State's Mother Infant Health & Equity Improvement Plan, and nationally recognized Gold Standards, MI AIM work on substance exposure will emphasize care that maintains the mother-baby dyad during the prenatal and postpartum periods, as well as throughout the hospital stay.

MI AIM is working to improve outcomes for mothers and newborns impacted by substance exposure, with a specific focus on Opioid Use Disorder (OUD).

The most common cause of pregnancy associated, not related injury death in Michigan is accidental poisoning/drug overdose (47.4%).[1]

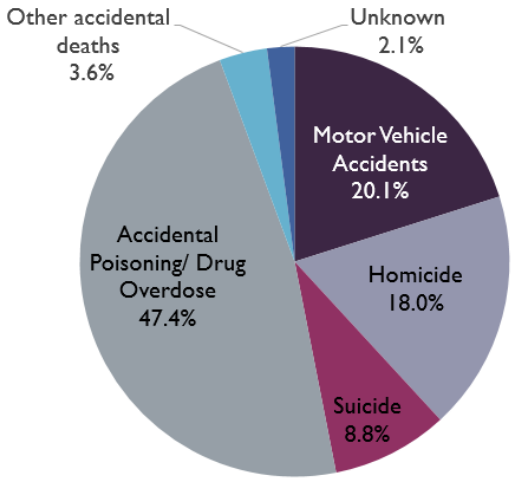
Opioid overdose deaths are preventable.

-Centers for Disease Control and Prevention-

Use of opioids during pregnancy can result in neonatal abstinence syndrome or neonatal opioid withdrawal syndrome (NAS/NOWS).

Nationally, rates of opioid use disorder at delivery hospitalization more than quadrupled during 1999–2014, to 6.5 per 1000 births in 2014.[2] The rising frequency of NAS/NOWS points to the need for measures to reduce substance exposure in both mms and babies.[2]

PREGNANCY-ASSOCIATED, NOT RELATED INJURY DEATHS IN MICHIGAN



Cause of Death, 2012-2016

MI AIM is working with partners across Michigan to: implement universal substance use screening, promote risk reduction models, increase access to medical care and treatment for pregnant and postpartum women with OUD, optimize care for substance exposed newborns and decrease stigma related to substance use.

Additional Resources

Obstetric Care for Women with Opioid Use Disorder AIM Patient Safety Bundle
AIM Opioid Bundle – Additional Resources
AIM National Collaborative on Maternal OUD
March of Dimes Neonatal Abstinence Syndrome
CMQCC -Mother & Baby Substance Exposure Initiative
Michigan.gov/Opioids
National Institute on Drug Abuse; NAS/NOWS
CDC's Work to Prevent Opioid Overdose Deaths

Data Sources: 1. Michigan Department of Health and Human Services, Michigan Maternal Mortality Surveillance Program, 2012-2016; Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics, Resident Death Files, 2012-2016

2. Dramatic Increases in Maternal Opioid Use and Neonatal Abstinence Syndrome. National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services.

COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

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PATIENT SAFETY BUNDLE

Maternal Venous Thromboembolism Prevention

READINESS

Every Unit

- Use a standardized venous thromboembolism (VTE) risk assessment tool for VTE during:
  - Outpatient prenatal care
  - Antepartum hospitalization
  - Hospitalization after cesarean or vaginal deliveries
  - Postpartum period (up to six weeks after delivery)

RECOGNITION & PREVENTION

Every Patient

- Apply standardized tool to all patients to assess VTE risk at time points designated under "Readiness"
- Apply standardized tool to identify appropriate patients for thromboprophylaxis
- Provide patient education
- Provide all healthcare providers education regarding risk assessment tools and recommended thromboprophylaxis

RESPONSE

Every Unit

- Use standardized recommendations for mechanical thromboprophylaxis
- Use standardized recommendations for dosing of prophylactic and therapeutic pharmacologic anticoagulation
- Use standardized recommendations for appropriate timing of pharmacologic prophylaxis with neuraxial anesthesia

REPORTING/SYSTEMS LEARNING

Every Unit

- Review all thromboembolism events for systems issues and compliance with protocols
- Monitor process metrics and outcomes in a standardized fashion
- Assess for complications of pharmacologic thromboprophylaxis

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IMPROVING DIAGNOSIS AND TREATMENT OF MATERNAL SEPSIS

Sepsis is a leading cause of maternal morbidity and mortality. Between 2012-2016, the most common causes of pregnancy-related death in Michigan were cardiomyopathy, infection/sepsis, and hemorrhage.

The CMQCC Sepsis Task Force estimates that 63 percent of maternal deaths from sepsis had a good or strong chance to have been preventable.

For each maternal death there are 50 women who experience life-threatening morbidity from sepsis. Prompt recognition and rapid treatment of pregnant and postpartum women with sepsis usually results in good outcomes.

A New Two-Step Approach to Screening for Maternal Sepsis

Step 1: Initial Sepsis Screen

Step 1: Initial Sepsis Screen for All Patients with Suspected Infection (POSITIVE if two (2) or more criteria are met)
• Oral temperature < 36°C (98.6°F) or ≥ 38°C (100.4°F) • Heart rate > 110 beats per minute and sustained for 15 minutes • Respiratory rate > 24 breaths per minute and sustained for 15 minutes • White blood cell count > 15,000/mm^3 or < 4,000/mm^3 or > 10% immature neutrophils (bands)

Step 2: Confirmation of Sepsis

Step 2: Confirmation of Sepsis Test to Evaluate End Organ Injury
Laboratory values
• Complete blood count (including % immature neutrophils [bands], platelets) • Coagulation status (prothrombin time/international normalized ratio/partial thromboplastin time) • Comprehensive metabolic panel (specifically include bilirubin, creatinine) • Venous lactic acid
Bedside assessment
• Urine output (place Foley catheter with urometer) • Pulse oximetry • Mental status assessment

Advantage of a Two-Step Approach:

Patients who meet two or more criteria of the initial sepsis screen (Step 1) and meet one or more end organ injury criteria (Step 2) receive a diagnosis of sepsis. The two-step process allows for increased sensitivity resulting in fewer missed sepsis cases and increased specificity resulting in fewer false-positive cases.

The Surviving Sepsis Campaign recommends the following:

1. Act quickly upon recognition of sepsis and septic shock.
2. Minimize time to treatment. Sepsis is a medical emergency.
3. Monitor closely for response or lack of response to interventions.
4. Communicate sepsis status during bedside care and handoff.

Additional Resources

CMQCC- Improving Diagnosis and Treatment of Maternal Sepsis
Prevention of Surgical Site Infections After Gynecologic Surgery

MI AIM

MICHIGAN ALLIANCE FOR INNOVATION ON MATERNAL HEALTH AIM

LINKS AND SELECT REFERENCES

MI AIM Contact Info: MDHHS-DMIH@Michigan.gov
http://www.miaim.us/
MI AIM Designation Criteria
KeyMetrics

Links:

ACOG Practice Bulletins
ACOG Safe Motherhood Initiative
ACOG Long-Acting Reversible Contraception Program
ACOG Hypertension in Pregnancy
Alliance for Innovation on Maternal Health Program (AIM) and National Patient Safety Bundles
Behavior that undermines a culture of safety. Committee Opinion No. 683. ACOG
Breast feeding or nipple stimulation for reducing postpartum hemorrhage in the third stage of labor
California Maternal Quality Care Collaborative (CMQCC)
CDC Reproductive Health
CDC Severe maternal morbidity (SMM)
CMQCC- Improving Diagnosis and Treatment of Maternal Sepsis
Executive summary of the reVITALIZE initiative: standardized obstetric data definitions
Immediate Postpartum Long-Acting Reversible Contraception. Committee Opinion No. 670. ACOG
Maternal and Infant Health CDC Division of Reproductive Health
Maternal Early Warning System: Successfully Implementing and Utilizing an Escalation Plan
Maternal Early Warning Criteria: from the National Partnership for Maternal Safety
Maternal Morbidity: Screening and Review ACOG
Michigan Maternal Mortality Surveillance (MMMS) Program
Michigan Maternal Mortality Surveillance (MMMS) and Michigan Maternal Death Data
Michigan Maternal Mortality Surveillance (MMMS) - Committee Recommendations
Michigan's Mother Infant Health & Equity Improvement Plan
National Partnership for maternal safety. Consensus bundle on Obstetric hemorrhage
Obstetric Care Consensus No. 2 Levels of Maternal Care
Obstetrics Initiative (OBI)
OBI Promoting Spontaneous Progress in Labor Bundle
Prevention of Surgical Site Infections After Gynecologic Surgery
Reduction of Peripartum Racial/Ethnic Disparities
Severe maternal morbidity among delivery and postpartum hospitalizations in the United States
Variations in Postpartum Hemorrhage Management among Midwives: A National Vignette-Based Study
Value of MEOWS in managing maternal complications in the peripartum period: an ethnographic study

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MI AIM

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