Milwaukee Fetal and Infant Mortality Report

Status Report on 2016-2018 Stillbirths and Infant Deaths

DECEMBER 2021
RACE AND ETHNICITY IN THIS REPORT

In this report, race and ethnicity will be based on the US census classifications. The infant’s race is based solely on the mother’s race as reported by the mother on the child's birth certificate. Racial and ethnic groups presented in this report include:
- Non-Hispanic Black or African American
- Non-Hispanic White
- Other= Other races/ethnicities, including Bi-racial
- Hispanic / Latina (ethnicity)

CONFIDENTIALITY

Records are treated with absolute confidentiality. Records are kept in locked file cabinets and are available only to FIMR staff. Case summaries presented to the Case Review Team are stripped of individual identifiers, including the names of providers and institutions involved in care. All Case Review Team members are also required to sign a statement of confidentiality for case review proceedings and to refrain from case discussion outside the time. Only aggregate data are released, and the data are censored if it might permit identification of an individual.

We recognize that there remain many areas of concern which have not been addressed in this report. These include, but are not limited to, insurance inequalities, issues of medical error, the quality of system and individual provider care, and a multi-system response to issues of poverty and race. We encourage all who read this report to develop or design a program based on one or more of the FIMR recommendations. The FIMR project encourages a community wide response to this problem and would be pleased to work with groups willing to sponsor these initiatives.

ACKNOWLEDGMENTS

We would like to thank the Milwaukee FIMR case review team for your commitment, insights and enduring patience seeking solutions and strategies to improve birth outcomes in our city. We would sincerely like to thank all the mothers and families who have shared their stories through the maternal interviews that inform the work of the FIMR case review team. We dedicate this report to you all.

SUGGESTED CITATION


This material is available in alternative formats for individuals with disabilities upon request. Please contact (414) 286-3475 or ADACoordinator@milwaukee.gov.
Dear Friends,

The infant mortality rate is an important marker of overall health of a society. Infants in Milwaukee continue to die at an unacceptable rate in our city. Although the overall infant mortality rate has declined slightly over the past two decades, the disparity between white and black infant mortality has increased to almost three times during the same period. Our gains remain fragile and the racial disparity in poor birth outcomes remains wide.

The City of Milwaukee Health Department has overseen Milwaukee's Fetal and Infant Mortality Review (FIMR) project for more than two decades. Since its inception, FIMR has provided Milwaukee with guidance and recommendations to address the factors that contribute to stillbirth and infant death.

The FIMR project reviews the lives and deaths of Milwaukee infants, as well as those who are never born. We commend the FIMR Case Review Team for their diligence, grace and the dignity they give to these infants while reviewing cases and making recommendations.

The goal of this report is to provide the story, data and recommendations to continue and focus our efforts to prevent infant and fetal deaths.

While all the recommendations in this report should be implemented, as a city and community, we must recognize the factors which profoundly impact a baby’s chance to be healthy and go well beyond health care and individual behavior. We must address poverty, employment, economic opportunity, housing instability, educational attainment and racism to fully address the root causes of infant mortality and poor maternal outcomes. These root causes affect the infant mortality rate of our neighborhoods and city.

Thank you to everyone in Milwaukee who has made the reduction of infant mortality and stillbirths a priority. We need more of you. We need to act on all levels, from one-on-one conversations to promote safe sleep, to health care interventions to improve women’s health before conception and beyond birth and to policy to address institutional and historical racism and poverty.

No one organization can do this alone. We must collectively do everything we can to address infant mortality. The lives of our most precious community residents depend on it.

Sincerely,

Tom Barrett
Mayor

Kirsten Johnson
Commissioner of Health
Dear Friends,

The Fetal and Infant Mortality Review (FIMR) process provides a systematic way of examining fetal and infant losses suffered by families. For more than two decades, the City of Milwaukee Fetal Infant Mortality (FIMR) Program has been dedicated to understanding why Milwaukee’s babies are dying and developing strategies and recommendations to reduce these deaths. The overall goals of the FIMR program are to understand the underlying factors contributing to fetal and infant loss and help develop collaborative approaches to prevention of these losses and reduce the racial/ethnic disparities in birth outcomes in our City and State. When possible, we conduct interviews with mothers who have suffered a fetal or infant loss. Information from these interviews inform the review process and help shape recommendations and improved health care, prevention, and services for families at risk. The maternal interviews provide a voice for these families and highlight the resilience and ongoing challenges coping with the losses. The deaths highlighted in this report are key measures of our community’s health and vitality, and overall social and economic well-being.

In the process of putting together the 2016-2018 Milwaukee Fetal and Infant Mortality Report, we were reminded of the words of Victor Sidel, co-founder of Physicians for Social Responsibility, “Statistics are people with the tears washed away.” The tables and graphs in this report are not just numbers. It is easy to talk about “mortality” or “rates” or “percentages” and lose sight that behind each statistic, each number, is a life lost and a family’s story of grief. Every fetal loss and infant death mark a life dimmed too early. These deaths contribute significantly to Wisconsin’s poor ranking in infant mortality rate in the nation.

This report provides the latest complete data from 2016-2018 and highlights some key recommendations and strategic prevention strategies to reduce fetal and infant deaths in our community. We would like to draw attention to the enormous toll of infant deaths and stillbirths in Black/African American families. These losses are not random but socially patterned, reflecting the ongoing impact of racism and social stratification on birth outcomes. We hope this report will be a call to action to prioritize prevention of premature births and unsafe sleep related deaths in Wisconsin. The report should inform local and state efforts to address fetal and infant mortality and improve birth outcomes. Most of the infant deaths and stillbirths in Milwaukee are preventable and require community engagement/investment and the willingness to act among health care providers, policy makers, community members, and other stakeholders. Some recommendations target specific partners whose actions can significantly contribute to changes and improvements. The report’s findings show the need to examine and act on the underlying social and economic determinants of poor birth outcomes in Milwaukee.

We extend our sincere thanks and gratitude to our dedicated review team members who have diligently given their time and expertise in working collaboratively to improve birth outcomes and reduce disparities in Milwaukee. We dedicate this report to the bereaved and resilient families of our city whose lives have been impacted by a fetal or infant loss. Milwaukee’s Fetal Infant Mortality Review (FIMR) Program is committed to ensuring that all infants in our community are born alive, healthy and thrive.

Emmanuel M. Ngui, DrPH, MSc.
FIMR Principal Investigator

Karen Michalski, MA, MSW
FIMR Project Manager
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EXECUTIVE SUMMARY

BACKGROUND
This Fetal Infant Mortality Review (FIMR) report provides an overview of stillbirths and infant deaths in the city of Milwaukee and other Milwaukee County health departments participating in FIMR. The report provides a summary of fetal and infant deaths, the main contributing factors and recommendations to reduce and/or eliminate these deaths and related disparities. The 2016-2018 report is the seventh report since FIMR began in 1995.

SUMMARY FINDINGS

- The city of Milwaukee accounted for about 14.5% of all births in the State of Wisconsin in 2017.
- Between 2016 and 2018, the city of Milwaukee had 309 infant deaths and 165 stillbirths.
- Other Milwaukee County health departments participating in FIMR had 29 infant deaths and 19 stillbirths and accounted for about 20.7% of all births in Wisconsin in 2017.

Wisconsin state data also show that:

- The city of Milwaukee and the other FIMR participating Milwaukee County municipalities accounted for nearly a third (29.41%) and 30.4% of all infant deaths and 18.21% and 21.3% of all the stillbirths in the state, respectively.

Figure 1. City of Milwaukee Infant Mortality and Stillbirth Rates by Race/Ethnicity, 2016-2018

Infant Mortality Rate

Fetal Deaths (Stillbirths) Rate
**Figure 2. Summary: Leading Causes of Death in City of Milwaukee (2016-2018)**

- **Infant Mortality**
  - Complications of prematurity (49.2%)
  - Combined SIDS, SUDI, Asphyxiation (22.0%)
  - Congenital Anomalies (19.1%)

- **Fetal (Stillbirths)**
  - Maternal Disease/Infection (46.3%)
  - Undetermined (18.9%)
  - Abruption (10.3%)

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**RECOMMENDATIONS**

The FIMR Case Review Team recommend three key overarching strategies aimed at reducing infant deaths and stillbirths in Milwaukee.

**Figure 3. Three Overarching Prevention Strategies**

- **Overarching Prevention Strategies**
  1. Increase access to quality healthcare and community-based services across the lifespan
  2. Promote planned pregnancies and access to reproductive health services
  3. Advocate for comprehensive strategies to address social determinants of health including safe and equitable community living environments

Strategies to improve birth outcomes require concerted efforts at all levels and collaborative partnerships of private, public, and community members to effect change and encourage actions.

- Prevention efforts must target the root causes (social determinants) of poor maternal and infant health
- The responsibility to improve birth outcomes lies with all of us. Every stakeholder must ask themselves, ‘what can we do, who should take action, and what action will be most effective?’
WHAT IS THE FETAL INFANT MORTALITY REVIEW (FIMR)?

FIMR is a multidisciplinary case review of all infant deaths and stillbirths occurring in the city of Milwaukee. Data are abstracted on all deaths, and approximately 20% of all deaths are selected for review by the Case Review Team (CRT). The team consists of a diverse group of professionals (medical, public health, social service professionals) and community members. The team reviews the life and death circumstances of mothers and their babies to identify:

- Factors contributing directly or indirectly to the death,
- Opportunities to improve medical and community service systems for pregnant women, infants and families with young children.

Why FIMR Exists

The goals of FIMR are to:

1. Examine factors associated with stillbirths and infant deaths through case reviews.
2. Identify specific areas of action and make recommendations for action.
3. Assist in planning interventions and policies to address and improve service systems and community resources.
4. Assist and participate in community implementation of interventions and policies.
5. Assess the progress of interventions.

The FIMR Process Cycle

The adapted FIMR Process cycle is shown in Figure 4. The process has four steps which begins when a stillbirth or infant death occurs. The cycle includes data gathering, case review, community action and recommendations for changes in community systems to improve birth outcomes.

Figure 4. The FIMR Process Cycle

Statement of confidentiality/privacy. Data are only presented in aggregate fashion to protect the privacy of families. All records are treated with confidentiality. Records are kept in locked cabinets and are available only to FIMR staff. Case summaries are stripped of individual identifiers. Only aggregate data are released, and the data are censored if it might permit identification of an individual.
INFANT MORTALITY AND STILLBIRTH RATES

Infant mortality and Stillbirth are considered markers or barometers of the general health and well-being of a population.

- **Infant mortality** is defined as the number of infants who die during their first year of life.
- **Infant mortality rate (IMR)** is the number of infant deaths per 1,000 live births during a given period of time.
- **Stillbirths** are defined in Wisconsin as babies who die before taking their first breath, are without a heartbeat at birth, and weigh at least 350 grams and/or are more than 20 weeks gestation. The City of Milwaukee Health Department further classifies stillbirths according to the Stockholm classification of stillbirth,¹ which categorizes stillbirths into 17 groups based on underlying conditions and associated diagnosis, including an “undetermined” category.
- **Stillbirth rate** is calculated as the number of stillbirths per 1,000 live births and stillbirths during a given period of time.

This report is based on an analysis of stillbirths (fetal deaths) and infant deaths from 2016 to 2018 (the most recent three-year pooled data). The report includes analyses of stillbirth because we want to emphasize the significant burden of these deaths and the need for a better understanding of their causes and effective interventions to prevent these losses.

Summary:
- As shown in Table 1, from 2016 through 2018, there were 309 infant deaths, 165 reported stillbirths, and 28,373 live births in the city of Milwaukee. (Stillbirths are known to be underreported.)
- This translates to an overall infant mortality rate of 10.8 and stillbirth rate of 5.8 per 1,000 live births.
- The stillbirth and infant mortality rates were **two to three times** higher among non-Hispanic Blacks than non-Hispanic Whites and Hispanics, respectively.

Table 1. 2016-2018 Summary of Infant Death and Stillbirth Rates compared to 2013-2015

<table>
<thead>
<tr>
<th></th>
<th>Infant Deaths</th>
<th></th>
<th>Stillbirths</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Milwaukee City live births (N)</td>
<td>29,916</td>
<td>28,373</td>
<td>29,916</td>
<td>28,373</td>
</tr>
<tr>
<td>Total deaths (N)</td>
<td>294</td>
<td>309</td>
<td>186</td>
<td>165</td>
</tr>
</tbody>
</table>

**Death Rate**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall rate</td>
<td>9.9</td>
<td>10.8</td>
<td>6.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Non-Hispanic Black rate</td>
<td>14.9</td>
<td>15.9</td>
<td>9.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Non-Hispanic White rate</td>
<td>4.6</td>
<td>5.7</td>
<td>3.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Hispanic rate</td>
<td>4.7</td>
<td>6.3</td>
<td>3.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Asian rate</td>
<td>7.0</td>
<td>5.7</td>
<td>3.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Multiracial rate</td>
<td>13.6</td>
<td>9.1</td>
<td>15.9</td>
<td>NS</td>
</tr>
</tbody>
</table>

¹Reference: City of Milwaukee Health Department.
INFANT DEATHS

Infant mortality is a sentinel event and is often considered a barometer measuring the overall health, social, and economic well-being of a community. Figure 7 shows the trend in infant mortality rates (3-year rolling average) from 2016-2018.

- Between 2003 and 2018, the city of Milwaukee averaged about 10,000 births per year. The number of births, however, has been slowly declining in Wisconsin and Milwaukee, which is consistent with similar declines nationwide.
- Significant racial/ethnic disparities in infant mortality continue to persist in Milwaukee.
Figure 7. Infant Mortality Rates by Race/Ethnicity (3-year rolling average), City of Milwaukee, 2003-2018

Figure 8. Black and Hispanic/White Infant Mortality Disparity Ratios, City of Milwaukee 1995 to 2018

Figure 9. Disparity in Infant Death and Stillbirth compared to live births by race/ethnicity.

Figure 8 shows the disparity ratios in infant mortality for Black and Hispanic compared to white infants. Overall, the disparities are widest among Black compared to white infants, ranging from about 2 times to 3 times greater.

Figure 9 shows the proportion of live births, infant deaths, and stillbirths among different racial/ethnic groups in Milwaukee. Although Blacks make up about 46% of all live births, they account for almost 70% of infant deaths and 68% of stillbirths.
The Black-White disparity in infant mortality exists in both neonatal and post neonatal deaths, as shown in Figures 10a and 10b.

Figure 10a. Trend in Non-Hispanic Black and White Neonatal and Post Neonatal Mortality Rates, City of Milwaukee (WISH Data 2000-2018)

Figure 10b. Trend in Non-Hispanic Black and White Neonatal and Post Neonatal Mortality Rates, City of Milwaukee (WISH Data 2000-2018)
Milwaukee Infant Mortality: Comparison with select large cities in the US.

Figure 11 compares the infant mortality rates for the city of Milwaukee with other selected large cities with similar racial/ethnic and economic make up. Milwaukee’s Black infant mortality rate in 2018 was most comparable to the Black rate in Pittsburgh and Detroit.

Figure 11. Infant Mortality Rate Comparison between Selected Cities, 2017-2018
The overall leading causes of infant deaths in Milwaukee (Figure 12) included:

- **Complications of Prematurity**—accounting for almost half (49.2%) of all infant deaths.
- **Sudden Infant Death Syndrome (SIDS), Sudden Unexpected Death in Infancy (SUDI) and Accidental Suffocation**, accounting for almost a quarter (22%) of all infant deaths.
- **Congenital Anomalies**, (e.g., heart defects, genetic anomalies) account for 19.1% of infant deaths.
- **Other factors such as infections** (i.e., influenza, pneumonia, HSV), **labor/delivery related factors, and homicides** account for about 10% of the remaining infant deaths.

**Figure 12. Leading Causes of Infant Deaths for all racial/ethnic groups in Milwaukee**

![Pie chart showing the distribution of infant deaths by cause.](image)

As shown in Figures 13 to 17, complications of prematurity were the leading cause of death for each racial/ethnic group in Milwaukee.

**Figure 13. Leading Causes of Death among non-Hispanic Black Infants in Milwaukee**

Among Black mothers (Figure 13), complications of prematurity, congenital anomalies, and sleep-related deaths were the three leading causes, accounting for over 89% of infant deaths.

- Complications of prematurity were disproportionately high, associated with over half (52%) of all Black infant deaths.
- The percentage of sleep-related deaths also increased from 16.5% in the previous report (2012-2015) to the 22.4% in 2016-2018.
- Compared to the 2012-2015 report, deaths increased from 2.9% to 4.2% for infection, and complications of labor and delivery increased from 1.8% to 3.7% in 2016-2018.
- Black infant deaths in Milwaukee accounted for:
  - 73% of the deaths due to complications of prematurity
  - 70.6% of sleep related deaths
  - 61.5% of labor and delivery related deaths
  - 81.8% of infant deaths due to infections
  - 80% of infant homicides
Among White mothers (Figure 14), complications of prematurity, congenital anomalies, and sleep-related deaths were the three leading causes, accounting for nearly 89% of infant deaths.

- In contrast to Black infant deaths, congenital anomalies were the second leading cause of death among white infants.
- Compared to the last 2012-2015 report, there was:
  a) an increase in deaths associated with complications of prematurity among white infants increasing from 32% for the 2012-2015 Period to 47% in 2016-2018, and
  b) a decrease in sleep-related deaths (from 25.6 in 2012-2015 to 16.7 in 2016-2018).

Among Hispanic mothers (Figure 15), half (50%) of infant deaths were due to complications of prematurity followed by sleep related deaths (29.4%).

- The percentage of Hispanic infant deaths due complications of prematurity decreased from 54.8% in 2012-2015 to 50.0% in current period.
- Sleep related deaths decreased from 35.7% in 2012-2015 to 29.4% in current period.
- However, the percentage of Hispanic infant deaths associated with congenital anomalies doubled from 7.1% in 2012-2015 to 14.7% in current period.

Among Asian mothers (Figure 16), congenital anomalies were the leading cause of infant deaths, accounting for 72.7% of infant deaths. We note the small number of infant deaths (n=11).

Finally, among Multiracial mothers (Figure 17), 40% of the infant deaths were attributed to sleep-related deaths and 40% to congenital anomalies. Data for multiracial infants is unreliable because of the few number of infant deaths (n=10).

Native American: This report does not include data for Native American infants due to extremely small numbers of infants identified as only Native American.
STILLBIRTHS (FETAL DEATHS)

Figure 18 presents the three-year rolling average trend data for stillbirths from 2003-2018. Although the rates of stillbirths for Blacks declined slightly after a peak in 2010-2012, they remain more than double those of White and Hispanics.

The disparity ratio in infant mortality rates in Milwaukee for the years 2016-2018:

- Black/White disparity ratio is 2.3.
- Hispanic/White disparity ratio is 1.6.
- Black/Hispanic disparity ratio is 1.4.

Figure 18. Stillbirths Rate by Race/Ethnicity (3-Year Rolling Average), City of Milwaukee, 2003-2018

LEADING CAUSES OF STILLBIRTHS IN MILWAUKEE

Figure 19 presents a profile of the leading causes of the 165 stillbirths (fetal deaths) in Milwaukee and within different racial/ethnic groups during the 2016 to 2018 period.

Overall, the main causes of stillbirth for 2016-2018 were:

- **Complications associated with maternal disease/infection**, accounting for 46.1% of stillbirths.
- **Undetermined**, accounting for 18.8% of stillbirths
- **Congenital anomalies and placental abruption**, accounting for 10.3% of stillbirths
- **Placental insufficiency** accounting for about 7.3% of stillbirths followed by cord accidents and cervical insufficiency accounting for 7.3% of the remainder of stillbirth causes.

Figure 19. Leading Causes of Fetal (Stillbirths) for all racial/ethnic groups in Milwaukee
The percentage of Undetermined Cause of Death decreased by more than 150% from 30.5% in 2012-2015 to 18.8% in 2016-2018. Losses associated with maternal disease however increased from 33.2% in 2013-2015 to 48.1% in 2016-2018, possibly due to better classification of undetermined cause of death into maternal diseases and improvements in placental analysis and autopsy.

**Figure 20. Leading Causes of Stillbirths Among non-Hispanic Black women in Milwaukee**

Among Black mothers (Figure 20), almost one half (46.7%) of stillbirth causes were related to maternal risk factors, an increase of 20% from the previous 2012-2015 report. About 12.4% of stillbirths were classified as undetermined/congenital anomalies/abruptions, with the remainder (16.2%) classified as due to placental insufficiency, cervical insufficiency or cord issues.

**Figure 21. Leading Causes of Stillbirths Among non-Hispanic White women in Milwaukee**

For Whites (Figure 21), the leading causes of stillbirths are those related to maternal risk factors (53.6%). This is an increase of 70% compared to the previous report. Undetermined causes (26.3%) have slightly increased, cord issues (15.8%) have doubled, and placental insufficiency (5.3%) have slightly decreased. The doubling of cord issues could be related to an increase in >33 weeks gestational age stillbirths compared to the previous report (23% to now 42%).

**Figure 22. Leading Causes of Stillbirths Among Hispanic women in Milwaukee**

For Hispanics (Figure 22), the leading cause of stillbirths included those due to maternal risk factors (43.8%). This is an increase of 15% compared to the last report. Undetermined (31.3%) have increased 50%, congenital anomalies (9.4%) have decreased by nearly 50%. The remaining 15.6% were due to placental insufficiency, cervical insufficiency and cord issues.

*Note: Asian, Multiracial and Native American stillbirth numbers were too small for analysis.*
MILWAUKEE COUNTY FIMR PARTNERS
CAUSE OF INFANT DEATH AND STILLBIRTH

The Health Departments of Cudahy, Franklin, Greendale, Greenfield, Hales Corners, North Shore, Oak Creek and South Milwaukee/St. Francis are joint partners in FIMR. Their participation is critical to understanding the issues surrounding infant death and stillbirth. (In this section County FIMR refers to the above municipalities.)

The leading causes of 29 infant deaths (Figure 23a) included:

- **Complications of Prematurity**, accounted for 44.8% of infant deaths.
- **Congenital Anomalies, (e.g., heart defects, genetic anomalies)** accounted for 27.6% of infant deaths.
- **Sudden Infant Death Syndrome (SIDS), Sudden Unexpected Death in Infancy (SUDI) and Accidental Suffocation**, accounted for 20.7% of infant deaths.
- **Other factors such as infections, labor/delivery related factors, homicides** accounted for less than 7% of the remaining infant deaths.

Other County FIMR vs. City FIMR rate comparisons are striking.

- Only 29 infant deaths occurred in these other Milwaukee County health departments coverage area compared to 309 infant deaths in the city of Milwaukee.
- Overall, only 2.5% of infant deaths occurred in other county sites outside of the city of Milwaukee.

The following is a profile of the leading causes of the 20 stillbirths (fetal deaths) in Milwaukee County during the 2016 to 2018 period.

- **Undetermined**, accounting for 30% of stillbirths
- **Complications associated with maternal disease/infection**, accounting for 15% of stillbirths
- **Congenital anomalies and placental abruption**, accounting for 25% of stillbirths
- **Cord issues, placental insufficiency, and cervical insufficiency** accounted for the remaining 25% of the stillbirth causes
Several risk factors that increase the likelihood of infant death and stillbirths are presented in Table 2 for the city and other participating health departments in Milwaukee County participating in FIMR. These risk factors are not mutually exclusive and can occur together for the same pregnancy.

Table 2. Risk factors for infant deaths and stillbirths for the city and other Milwaukee FIMR participating municipalities.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>City of Milwaukee</th>
<th>County FIMR</th>
<th>City of Milwaukee Livebirths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infant Deaths</td>
<td>Infant Deaths</td>
<td>Stillbirths</td>
</tr>
<tr>
<td>Previous Preterm Birth</td>
<td>51.1</td>
<td>34.5</td>
<td>45.0</td>
</tr>
<tr>
<td>Maternal Sexually Transmitted Infections</td>
<td>34.6</td>
<td>10.3</td>
<td>10.0</td>
</tr>
<tr>
<td>Maternal Infections (UTI and BV)</td>
<td>24.3</td>
<td>6.9</td>
<td>20.0</td>
</tr>
<tr>
<td>No Postpartum Visit</td>
<td>56.6</td>
<td>24.1</td>
<td>20.0</td>
</tr>
<tr>
<td>Did not receive birth control and/or were not asked</td>
<td>46.0</td>
<td>37.9</td>
<td>55.0</td>
</tr>
<tr>
<td>Mother lives with smoker</td>
<td>38.2</td>
<td>24.1</td>
<td>10.0</td>
</tr>
<tr>
<td>Maternal pre-pregnancy BMI = to or &gt;30</td>
<td>43.0</td>
<td>31.0</td>
<td>36.8</td>
</tr>
<tr>
<td>Close interval pregnancy, less than 12 months</td>
<td>33.3</td>
<td>35.3</td>
<td>23.1</td>
</tr>
<tr>
<td>Maternal tobacco use during pregnancy</td>
<td>35.6</td>
<td>20.7</td>
<td>30.0</td>
</tr>
<tr>
<td>Maternal marijuana use during pregnancy</td>
<td>31.4</td>
<td>10.3</td>
<td>10.0</td>
</tr>
<tr>
<td>Maternal opioid, methamphetamine, or cocaine, other drug use during pregnancy</td>
<td>12.0</td>
<td>10.3</td>
<td>5.0</td>
</tr>
<tr>
<td>Reported interpersonal violence</td>
<td>14.3</td>
<td>3.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Maternal Mental Health issues during pregnancy</td>
<td>31.1</td>
<td>17.2</td>
<td>30.0</td>
</tr>
<tr>
<td>Late or no prenatal care</td>
<td>20.6</td>
<td>3.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Maternal WIC use by self-report</td>
<td>44.3</td>
<td>27.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Maternal hypertension</td>
<td>13.9</td>
<td>10.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Maternal diabetes</td>
<td>13.9</td>
<td>3.4</td>
<td>0.0</td>
</tr>
</tbody>
</table>

* Risk factors are not mutually exclusive.
** Not reported.
1 Other Milwaukee County Health Departments
Complications of prematurity or preterm birth (birth before 37 weeks gestation) are the leading causes of infant death and stillbirth in city of Milwaukee. "The burden of preterm birth is staggering with preterm infants seven times more likely to be ill following delivery than term infants, 48% are usually admitted to the NICU and 23% risk of re-hospitalization during the 1st year of life."

Figure 24 shows the breakdown of stillbirths, infant deaths and live births by gestation age categories.

1. For stillbirths and infant deaths, most occur between 20 and 23 weeks and steadily decline with increasing gestational age.
2. For infant deaths, there is an increase at 37 weeks+.
3. Most of the live births in Milwaukee occur at 39+ weeks, with fewer births in earlier gestational age categories.
MATERNAL HEALTH RISKS
(MATERNAL BEHAVIORS AND CONDITIONS)

Chronic health conditions and unhealthy behaviors (e.g., smoking) directly affect maternal health and the well-being of her baby, her ability to carry her pregnancy to term and give birth to a healthy baby.\textsuperscript{10-20}

Appendix A provides a summary of key maternal health conditions and behaviors associated with adverse birth outcomes. Some of the most common maternal health conditions and behaviors among FIMR mothers in Milwaukee are presented in Figure 25.

Figure 25. Prevalence of key maternal behaviors and conditions among FIMR mothers

- 1 in 3 women had late or no prenatal care compared to 1 in 7 for all livebirths
- 1 in 2 women did not have a postpartum visit
- 1 in 2.5 women were obese (BMI>30) compared to 1 in 3 of all livebirths
- 1 in 3 women had reported mental health issues
  
  - Comparison - State PRAMS data reports 1 in 8 new mothers had a mental health issue by self-report
- An average of 1 in 10 women self-reported interpersonal violence
- 1 in 3 women smoked while pregnant compared to 1 in 7 for all livebirths
- 1 in 7 women had late or no prenatal care compared to 1 in 7 for all livebirths
- 1 in 7 women had chronic hypertension compared to 1 in 20 of all livebirths
- 1 in 7 women had diabetes compared to 1 in 60 of all livebirths
- 1 in 16 women had an STD compared to 1 in 20 of all livebirths
- 1 in 2 women did not have a postpartum visit
- An average of 1 in 2 women did not receive birth control/contraception information
MATERNAL EDUCATION

Increasing maternal education is often associated with improved birth outcomes, however, as shown in Table 3, non-Hispanic Black mothers with some college or higher educational attainment in Milwaukee have a higher infant mortality rate than non-Hispanic White mothers with less than a high school education. Among non-Hispanic White mothers, increasing maternal education is associated with steady decline in infant mortality, a pattern not found among non-Hispanic Black mothers.

Table 3. Infant Mortality by Maternal Education

<table>
<thead>
<tr>
<th></th>
<th>Less than High School</th>
<th>High School</th>
<th>More than High School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infant Death</td>
<td>Stillbirth</td>
<td>Infant Death</td>
</tr>
<tr>
<td>Black</td>
<td>35.5%</td>
<td>21.9%</td>
<td>36.4%</td>
</tr>
<tr>
<td>White</td>
<td>5.6%</td>
<td>15.8%</td>
<td>38.9%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>44.1%</td>
<td>34.4%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Other</td>
<td>36.0%</td>
<td>33.3%</td>
<td>32.0%</td>
</tr>
</tbody>
</table>

MATERNAL AGE

Maternal age of less than 18 or 35 years or over is a documented risk factor for poor birth outcomes. Adolescent mothers less than 18 years old, especially racial/ethnic minorities, are often socially isolated with inadequate support. In general, they make less money, have little to no job skills, and have fewer opportunities. Mothers who are 35 years old or older generally have an increased risk of small or large for gestational age babies, preterm births, and fetal deaths.21

Figure 26. Infant Mortality and Stillbirth Rates by Maternal Age Groups

![Figure 26](image-url)
CLOSE INTERVAL PREGNANCY

A close interval pregnancy is defined as a pregnancy with less than 12 months between the delivery and the date of the last menstrual period signaling beginning of the next pregnancy. Short intervals between delivery and the next pregnancy are linked to prematurity, intentional and unintentional injuries, and Sudden Unexpected Death in Infancy (SUDI).22

Table 4. Infant Mortality and Pregnancy Interval

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer than 6 months</td>
<td>21.0%</td>
<td>22.4%</td>
<td>20.6%</td>
<td>13.4%</td>
</tr>
<tr>
<td>6-11 months</td>
<td>15.8%</td>
<td>18.0%</td>
<td>10.6%</td>
<td>16.8%</td>
</tr>
<tr>
<td>12-18 months</td>
<td>12.4%</td>
<td>15.4%</td>
<td>8.1%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

GRIEF AND BEREAVEMENT

Bereavement support is important to help families cope with fetal or infant loss. These resources are important in helping women and families cope with the immediate loss and the long-term stress associated with the loss. From 2016-2018, support was documented in:

- 84.2% of stillborn deaths
- 73.1% of infant deaths

There remains a gap in bereavement support for those babies who die after being discharged from the hospital. Additionally, bereavement support is not well documented in hospital charts.

Grief and bereavement are personal experiences that vary from person to person. Best practices23 in bereavement support after a pregnancy or infant loss, include encouraging parents to hold the infant, providing photos and other mementos; calling the infant by name; and involving siblings in the grief process. In Milwaukee, several hospitals and agencies also have pregnancy loss support groups.24

Often fathers are not included in grief and bereavement discussions. It is recommended that providers check with the patient’s partner about his sadness and his risk after the loss of the baby. When social services do a postpartum home check on the mother, the father should be included too. His level of sadness should be assessed, and he should be advised of where to get help if needed.25

Sample comments from FIMR mothers.

“Family, friends – they don’t get it. There’s nothing cute about NICU babies. They’re there because they’re sick.”

“My husband doesn’t want to talk about it. He wants to be the strong one.”

“I hate when people say, “God wanted the baby, you can have another baby.” I wanted that baby. I want people to listen, to let me vent.”

“I kind of shut down. I stopped talking to people.”
**SLEEP RELATED DEATHS**

**Infant Sleep Environment**
In 2017, the city of Milwaukee had the highest number of sleep related deaths since FIMR began in 1995. Sleep-related deaths are the second leading cause of infant death in Milwaukee. Sleep related deaths, which include sudden infant death syndrome (SIDS), Sudden Unexpected Death in Infancy (SUDI) and Accidental Suffocation, accounted for 22 of all 2016-2018 infant deaths (Figure 27).

**Figure 27. Classification and Distribution of Sleep-related Deaths (subcategories)**

![Pie chart showing distribution of sleep-related deaths with 76.5% in SUDI, 20.6% in SIDS, and 2.9% in Accidental Suffocation.]

**Figure 28. Risk Factors reported in 2016-2018 Sleep-Related Deaths (n=68)**

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive heat, over 80</td>
<td></td>
</tr>
<tr>
<td>Identified NAS infant at birth</td>
<td></td>
</tr>
<tr>
<td>Has crib, PNP or basinette in home</td>
<td></td>
</tr>
<tr>
<td>Secondhand smoke exposure</td>
<td></td>
</tr>
<tr>
<td>Bed sharing</td>
<td></td>
</tr>
<tr>
<td>Infant born early term, 37-38 weeks gestation</td>
<td></td>
</tr>
<tr>
<td>Placed prone or on side to sleep</td>
<td></td>
</tr>
<tr>
<td>AODA of caregiver</td>
<td></td>
</tr>
<tr>
<td>Infant born premature, before 37 weeks gestation</td>
<td></td>
</tr>
<tr>
<td>Moved from safe sleep place to adult bed</td>
<td></td>
</tr>
<tr>
<td>No known risk factors</td>
<td></td>
</tr>
</tbody>
</table>

0% 20% 40% 60% 80% 100%
Sleep environment is a complex issue when infants die at home while asleep. All information on safe sleep is abstracted from the death scene investigative report. The American Academy of Pediatrics (AAP) and the City of Milwaukee Health Department recommend all parents and caregivers share a room, not a bed with their babies.

SAFE SLEEP GUIDELINES

The City of Milwaukee Health Department recommends that families follow the ABCs of Safe Sleep, stating that a safe sleep environment is one in which an infant sleeps:

**A** = **Alone**
(60% of the babies who died of a sleep related death were sleeping with an adult or sibling)

**B** = On their **Back**
(40% of the babies who died were put to sleep on their stomachs or sides)

**C** = In a **Crib**, bassinette or Pack N’ Play (no pillows, blankets, bumper pads, quilts or toys)
(74% of the babies who died of a sleep related death were sleeping with items in the sleep space)

**S** = In a **Smoke-free** environment, including free of marijuana smoke
(69% of the babies who died of a sleep related death were exposed to smoke)

An infant should never be cared for by someone under the influence of alcohol or drugs, including marijuana and some prescription drugs (controlled substances).

Safe Sleep:
as easy as the ABCs!

**A** = **ALONE**  
**B** = On their **BACK**  
**C** = In a **CRIB**, bassinet, or Pack ‘N Play® without pillows, blankets, bumper pads or toys  
**S** = In a **SMOKE-FREE** home
Infant mortality is considered a barometer or the “Canary in the mine” because it reflects the underlying social determinants - “the material living and working conditions and social environmental conditions which people are born, live, work and age, and the structural drivers of these conditions, comprised of individual and area level socioeconomic status (SES), race/ethnicity, residential segregation, gender, social capital/cohesion and the macroeconomic and macrosocial context.”

The social determinants of poor birth outcomes in Milwaukee are complex and strongly entrenched into the historical context of the city and the state, in terms of segregation, racism and maldistribution of resources, power, and decision making. Experiences of racism/discrimination are associated with adverse birth outcomes.

- Although the underlying reasons for these racial disparities in birth outcomes are not entirely clear, the role of psychosocial stress and economic conditions experienced by many women of color is thought to be a major contributing factor. Economic issues and other forms of psychosocial stress are more likely to affect racial/ethnic minority women than white women.

- Race is a social construct, a social idea rather than a biological entity and is often a proxy for these other social cultural and economic conditions. Poverty and social inequality are inextricably linked with race, particularly in Milwaukee.

1. Milwaukee is the most segregated city in the US (34) and one of America’s 10 most impoverished big cities, with a poverty rate of 38.9 among children and 28.7 overall in 2015.

2. Poverty and unemployment rates are especially high among racial and ethnic minority groups, with 34.6 black and 33 of Hispanic residents in the city living in poverty in 2015.

3. The 2015 median household income in the city was $35,958 compared to $43,873 in Milwaukee County and $55,638 in the state.

- Most of these disparities are not related to genetic factors but are primarily driven by historical and social conditions (Social determinants of health), such as the chronic stress associated with poverty, low educational attainment, unemployment, and the experience of discrimination and structural racism.

- Chronic, unmitigated stress leads to chronic elevations of stress hormones such as cortisol and adrenaline. Elevated levels of adrenaline, in particular, lead to increased uterine muscle irritability, which predisposes pregnant women to going into preterm labor.

- Chronically elevated levels of cortisol impair normal glucose metabolism, making people more at risk for obesity and diabetes, which are also important risk factors for infant death.
Most of these social determinants and related adverse birth outcomes have roots in structural racism in Wisconsin, and particularly in Milwaukee, which has contributed over the decades to devastating rates of poverty, segregation in housing and education, high rates of incarceration and overall marginalization of African Americans from power and resources.35

- Social vulnerability: Milwaukee, with a CDC social vulnerability index of 0.8268 (range 0-lowest vulnerability to 1-highest vulnerability) in 2016 ranks among the worst cities in the US. According to the Centers for Disease Control and Prevention (CDC), social vulnerability refers to “the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks.”36

- This ranking is driven in part by the high levels of social and economic deprivation in the high infant mortality zip codes shown in the maps.

**Distribution on infant deaths in Milwaukee and underlying social conditions.**

As data in this report shows, the burden of infant deaths, and to some extent stillbirths in Milwaukee, is not randomly distributed but follows a gradient of socioeconomic distribution with the highest rates in the most socioeconomically deprived census tracts, zip codes, and aldermanic districts.

- The zip codes and aldermanic districts with the highest infant death rates in Milwaukee are also the most socioeconomically deprived in terms of high poverty, unemployment, crime, incarceration, and under resourced/poor performing schools which are some of the key underlying social determinants of health.

- The high infant mortality zip codes also have the lowest life expectancy in Milwaukee County, with the lowest life expectancy in zip code 53206 (71.3 years) and an average life expectancy of 73.7 for the seven zip codes.
Overall,

- As shown in Figure 30, the highest rates of infant mortality, greater than 16.2/1,000 live births, were in zip codes 53206, 53210, and 53225. The 2016-2018 infant death rate in these zip codes is also higher (worse) than the previous period, as shown by the deeper red color. Other zip codes with high infant death rates (12-16.2/1,000 live births) include 53210, 53216, 53218, and 53209.
- Infant death rates in several zip codes worsened in the current period compared to the previous 2013-2015 period.
- There was a shift in worsening rates of infant deaths to the north and northwestern part of city, with worsening rates in zip codes 53225, 53218 and 53212 and slightly lower rates in zip code 53223.

Figure 30. Infant Mortality Rate by ZIP Code, 2016-2018 compared to 2012-2015 report.
As shown in Figure 31, Aldermanic districts 6 and 7 had the worst infant death rates in the city from 2016-2018. Compared to the previous 2012-2015, the overall infant death rates in district 1 and 15 declined but increased in district 6.

Figure 31. Infant Mortality Rate by Aldermanic District, 2016-2018 compared to 2012-2015 report.
Stillbirths:

As shown in Figure 32, the highest stillbirth rate was in zip code 53216.
- 53208, 53207, 53212, 53202, 53211, 53233 and 53221 zip codes have decreased rates compared to the previous report.
- The remaining city zip codes have remained the same or have increased stillbirth rates when compared to the previous report.

Figure 32 presents stillbirth rates by Milwaukee Zip codes.
As shown in Figure 33, Aldermanic district 7 had the highest stillbirth rate in Milwaukee in 2016-2018.

Figure 33. Stillbirth Rate by Aldermanic District 2016-2018, compared to 2012-2015 report.
Social Patterning of Poor Birth Outcomes in Milwaukee

- For decades, Milwaukee County has ranked as one of the worst counties in Wisconsin on most key health, socioeconomic and environmental contextual factors (Table 4). Milwaukee has a dubious distinction of being the most segregated city in the nation, with high rates of racial discrimination and black unemployment. Additionally, Wisconsin has the highest rate of black male incarceration in the US, with most of the incarcerated population drawn from Milwaukee and the southeast region of Wisconsin. These factors have a great impact on families and the community. They are also linked to increased stress, crime, poorer quality of life, and health for the community.

Table 4. Infant Mortality Rates and Zip-Code Socioeconomic Profile in Milwaukee

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>2016-2018 Infant Mortality Rate¹</th>
<th>2018 Teen Birth Rate²</th>
<th>Males 18-24 without HS diploma</th>
<th>Percent Females 18-24 without HS diploma</th>
<th>Percent Female Single Parent Households with Children &lt;18</th>
<th>Percent Families below the poverty level</th>
<th>Median Income</th>
<th>Life Expectancy (2010-14)³</th>
</tr>
</thead>
<tbody>
<tr>
<td>53226</td>
<td>NA</td>
<td>0</td>
<td>9.70</td>
<td>2.30</td>
<td>18.90</td>
<td>3.10</td>
<td>$66,132</td>
<td>81.1</td>
</tr>
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<td>53203</td>
<td>NA</td>
<td>NA</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>$57,870</td>
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<td>53211</td>
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<td>1.90</td>
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<td>17.50</td>
<td>5.20</td>
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<td></td>
<td>$65,950</td>
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<td>53214</td>
<td>NA</td>
<td>NA</td>
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<td>32.10</td>
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<td>$42,209</td>
<td>75.0</td>
</tr>
<tr>
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<td>15.2</td>
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<td>8.70</td>
<td>$46,786</td>
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<td>5.30</td>
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<td></td>
<td>$48,347</td>
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</tr>
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<td>3.30</td>
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<td>$54,071</td>
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<td>37.90</td>
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</tr>
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<td>12.4</td>
<td>18.10</td>
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<td>29.00</td>
<td>9.60</td>
<td>$46,241</td>
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<td>$52,842</td>
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<td>79.0</td>
</tr>
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<td>8.20</td>
<td>3.60</td>
<td>74.10</td>
<td>59.50</td>
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<td>75.9</td>
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<td>10.8</td>
<td>18.50</td>
<td>9.50</td>
<td>25.30</td>
<td>10.30</td>
<td>$54,889</td>
<td>78.4</td>
</tr>
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<td>53224</td>
<td>12.7</td>
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<td>16.70</td>
<td>50.70</td>
<td>25.30</td>
<td>$40,571</td>
<td>76.9</td>
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<td>25.80</td>
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<td>27.70</td>
<td>21.60</td>
<td>62.60</td>
<td>28.00</td>
<td>$32,177</td>
<td>72.1</td>
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<td>21.90</td>
<td>6.90</td>
<td>58.80</td>
<td>18.90</td>
<td>$39,348</td>
<td>73.2</td>
</tr>
</tbody>
</table>

Note: NA=IMR calculated for greater than 5 deaths as numerator and/or greater than 300 live births as denominator
Table colors correspond to levels of infant mortality rates (IMR) shown in the maps, ranging from least (light gray) to worst (Dark Red) IMR
² Teen birth numerator data source: City of Milwaukee Health Department
Education, single female headed household and median income Zip code data from 2010-2014 5-year American Community Survey at www.americanfactfinder.gov
RECOMMENDATIONS FOR ACTION

REVIEW AND ANALYSIS OF 2016-2018 INFANT DEATHS AND STILLBIRTHS

FIMR presents recommendations for action in improving birth outcomes in Milwaukee and highlights some of the key stakeholders. Potential stakeholders include clients (women, men and families), healthcare and social service providers, healthcare institutions and systems, insurance providers, policy makers, community agencies and businesses and the public. Underlying all of the Recommendations for Action is this fact:

MOTHER’S LIVES and VOICES MATTER!
ESPECIALLY THOSE of BLACK MOTHERS!

THOSE WHO SERVE:
LISTEN! LEARN! AND PRACTICE CULTURAL HUMILITY AND COMPETENT CARE!

SOCIAL ISSUES ARE HEALTH ISSUES

Issue
The burden of poor birth outcomes is disproportionately greater among non-Hispanic Black families compared to White families and other racial/ethnic groups. These disparities exist in both stillbirths and infant deaths and are also evident in most of the underlying causes of deaths. There is significant research data available to suggest that most of these disparities are not related to genetic factors, but are primarily driven by social determinants of health, such as the chronic stress associated with racism, poverty, low educational attainment, unemployment, and the experience of discrimination, among other factors. Failure to address these disparities is not an option.

RECOMMENDATION
Identify unmet social service needs to connect patients and their families to resources, possibly through a ‘social determinants of health screening.’

Advocate for policies that improve overall social and economic health and wellbeing of populations across the life span.

Support community-sponsored health navigators to improve patient engagement, pregnancy and new family support groups, and doula programs to improve patient engagement.
HEALTHCARE ACCESS

POSTPARTUM MEDICAID COVERAGE

Issue
Medicaid coverage ends 60 days postpartum. This happens after a livebirth, an infant death, stillbirth or miscarriage. A postpartum visit should occur before the 60 days window closes but are sometimes delayed due to situations not fully within individual control. Chronic conditions between pregnancies may lead to problems in the next pregnancy. A postpartum appointment and continued follow-up are needed to help improve maternal health before the next pregnancy.

RECOMMENDATION
A Medicare policy change to expand Medicaid coverage to one year. The type of delivery requires definition according to the circumstances including a livebirth, an infant who died, a stillborn infant or a miscarriage.

Policy Makers
- Advocate for the expansion of Medicaid coverage to one year after delivery. Delivery needs to be defined as the delivery of a livebirth, an infant death, stillbirth or miscarriage.

Healthcare Systems
- Advocate for local and state policy makers to support this Medicaid expansion through governmental relations activities and regional and statewide collaborations including the Wisconsin Hospital Association.

The Individual
- Demonstrated knowledge of the importance of the postpartum appointment cannot be stressed enough!

OVERUSE OF EMERGENCY ROOMS OR URGENT CARES

Issue
Over 8% of FIMR mothers had repeated ED or urgent care visits during their pregnancy.

RECOMMENDATION
Provider knowledge of repeat ED or urgent care visits should trigger a provider/social service home visit and other appropriate referral.

Systems
- Hospital systems and insurance carriers should develop a model based on the Milwaukee Fire Department’s Mobile Integrated Care Healthcare Unit (MORI). With this model, professional caregivers can attempt to address the need at the source and move the patient to regular and adequate prenatal and postpartum care.

The Individual
- Emergency room and urgent care visits do not and cannot meet the level of care you will receive at regular prenatal visits. You should schedule prenatal care with a healthcare provider as soon as you find out you are pregnant.
HEALTHY BEHAVIORS

ONE KEY QUESTION AND REPRODUCTIVE LIFE PLANNING

Issue
Short intervals between delivery and the next pregnancy are linked to prematurity, intentional and unintentional injuries, and Sudden Unexpected Death in Infancy (SUDI). The report shows that 1 in 3 women who experienced an infant death or stillbirth had close pregnancy interval of 12 months or less. Less than half of women who had an infant death or stillbirth were not asked about their birth control decision at the time of discharge from the hospital or at their postpartum appointment. This limits their ability to plan for future pregnancies.

Policy Makers
- Long-Acting Reversible Contraception (LARC) devices and the medical procedures for insertion should be paid for by insurance, including T19.

Systems
- To fulfill obligations of reproductive justice and informed consent, information about how to access safe and timely contraception, including referrals, should be made available to all patients, including health systems with religious affiliations. All health systems should manage appropriate inventory of contraceptive medications and devices, and arrange for staffing that can fulfill contraceptive needs, paying attention to both outpatient needs as well as inpatient postpartum needs before leaving the hospital.

Healthcare Providers
- Providers should ask their patient ONE KEY QUESTION!! - Do you want to become pregnant within the next year? Your patient’s response to this question should inform you, their partner, and your practice about the next critical steps!

The Individual
- Developing a health and reproductive life plan can help you better manage your health and improve pregnancy outcomes. Ask your healthcare provider about pregnancy planning and birth control, if desired.

RECOMMENDATION
Health and reproductive life plans help women address health issues prior to the next pregnancy. Reproductive life planning is an individual right and should be promoted.
SUBSTANCE USE
- TOBACCO USE, VAPING AND MARIJUANA USE

Issue
1 in 3 women with an infant death or stillbirth smoked while pregnant, compared to 1 in 7 for all livebirths during this same time period. Tobacco use during pregnancy is associated with increased risk of preterm birth, low birthweight full term babies, stillbirth and infant death. Nearly 1/3 of all mothers who had experienced an infant death were using marijuana during their pregnancy and postpartum. Marijuana use increases the risk of infant death, stillbirth, preterm birth and low birthweight.

RECOMMENDATION
Improve resources for smoking cessation, address social norms to create a smoke-free culture, promote healthy ways to relieve stress and encourage everyone in contact with pregnant women and new families not to smoke.

Policy Makers
- Raise the smoking age to 21. Marijuana use and sale for social use should not be made legal in Wisconsin.

Systems
- Systems should direct providers to include cessation recommendations with all patient encounters and use their advocacy power to support the smoking age.

Healthcare Providers
- Providers should encourage tobacco and marijuana cessation at all patient encounters. Substance use or tobacco cessation resources like First Breath should be offered. Depression screenings should be conducted for patients who smoke, as well as discussing healthy alternatives to relieve anxiety and stress. Secondhand smoke exposure should also be discouraged.

The Individual
- Stop smoking tobacco and marijuana! Smoking cessation, tobacco or marijuana, is one of the principal lifestyles changes a woman can make to significantly reduce the risk of stillbirth and infant death. Ask for help if you cannot quit on your own. Don’t expose your baby to secondhand tobacco and marijuana smoke.
SAFE SLEEP PLACE FOR BABY

Issue
Infants are being placed in car seats, on boppy pillows, on inclined sleepers, couches, chairs, or an air mattress on the floor to sleep. They are dying in these places. These are NOT appropriate sleeping places for a baby at any time, whether for a nap or at regular bedtime.

RECOMMENDATION
The City of Milwaukee Health Department recommends that families follow the ABCs of Safe Sleep, where a safe sleep environment is one in which an infant sleep:
  A = Alone
  B = On his or her Back
  C = In a crib, bassinet or Pack N’ Play without pillows, blankets, bumper pads, sheets or toys
  S = In a smoke-free environment, including free of marijuana smoke

Systems
- Hospital systems need to teach new parents and other caregivers about the ABCs of Safe Sleep. Instruction should include examples of unsafe sleep places and unsafe sleep environments. Communities and families need to understand and encourage safe sleep practices.

Healthcare Providers
- Healthcare providers need to teach new parents and other caregivers about the ABCs of Safe Sleep. Prone or side sleeping positions or the use of boppy pillows, mattresses on floor, inclined sleepers, couches, or car seats are not recommended, even for naps.

The Individual
- Place your baby in a safe place to sleep and follow the ABCs of Safe Sleep.
- Educate everyone who cares for baby – family, friends, babysitters, childcare providers – about the ABC’s.
HEALTH AND WELL-BEING RISK FACTORS

Issue
Chronic health conditions and unhealthy behaviors directly affect maternal health and the ability to carry the pregnancy to term and give birth to a healthy baby. These conditions are often misunderstood and possibly underreported. Health issues are often made worse by poverty, social concerns, and chronic stress. Chronic conditions include:

- Acknowledgement of obesity and weight management follow through,
- Diabetes control,
- Blood pressure control,
- Mental Health and stress,
- Infection treatment/cure.
- Interpersonal Violence (psychological, physical or sexual abuse),
- Racism

RECOMMENDATION
Follow ACOG recommended care management guidelines and protocols.

Policy Makers
- Private and public insurance must cover chronic conditions and must support the resources needed to control or ameliorate these chronic conditions.

Systems
- Systems and Insurers need to mandate that all healthcare providers follow professionally tested guidelines for these chronic health conditions during and following a pregnancy, and throughout the intra-pregnancy period.
- 24/7 diagnostic, therapeutic and social service resources should be available to treat patients using emergency or urgent care departments.

Healthcare Providers
- Healthcare providers should follow recommended guidelines and care management protocols during and following a pregnancy, ensuring that their patients receive the resources and care needed to treat chronic conditions. Resources like the Periscope Project or the regular use of the Edinburgh Depression tool (or similar) should be part of the protocol for every prenatal or postpartum visit.

The Individual
- Please know that your management of your weight, your physical and mental health and your safety are important: to you, to your children, to your family and to your community!
FATHER/PARTNER ACKNOWLEDGEMENT AND INVOLVEMENT

**Issue**
Partner involvement and engagement during pregnancy, delivery, in the hospital and through the grief process is critical. Shared decision making, partners helping mothers with their own health decision making, and working through the isolation of grief is important work. Unfortunately, medical and social service providers often fail to document partner involvement. The benefit of fathers and partner presence and support is not seen in hospital documentation and presumably, not asked about. They are not routinely acknowledged as integral to the prenatal or delivery experience.

- Partner support is often essential to the patient well-being and care.
- It is hoped that more hospitals and providers will work to include partners in the mother’s care, when appropriate, and document the same.

**RECOMMENDATION**
More hospitals, clinics and providers need to work to include partners in the mother’s care, when appropriate, and document the same.

**Systems/Providers**
- Fathers and partners need to be included in the prenatal experience and throughout the delivery. Documentation of paternal engagement should be included in patient records.
- Father/partner inclusion needs to become normalized and recognized as regular, part of ordinary patient care protocol. Expectant families should be encouraged to attend prenatal visits and delivery and offered resources to address any barriers. Examples include virtual visits, assistance with transportation, convenient appointment times or group prenatal care.

**The Individual**
- Make plans with the provider to be included in the delivery. Be present at prenatal visits in person, on the phone or through video conferencing.
APPENDIX A. Prevalent Maternal Health Conditions and Behaviors

Maternal Hypertension - High blood pressure during pregnancy can have serious negative effects including less blood flow to the placenta and less oxygen/nutrients to the infant and compromised growth of the baby as the placenta may not be able to support fetal development. Additionally, hypertension is a risk factor for pre-eclampsia, a serious condition that can put stress on the mother’s kidneys causing headaches, visual problems, and swelling of the hands and face.

Maternal Diabetes - Type 1 or Type 2 diabetes during pregnancy is a major risk factor for poor birth outcomes and has been associated with increased risk of C-Section, preterm birth, large for gestational age births (macrosomia), heart and spine malformations, clefts and limb deficiencies. Blood sugar that is not in control before and during pregnancy can cause serious anomalies to the brain, spine or heart of the developing baby.

Obesity - Obesity is a major chronic health condition and is a risk factor for poor birth outcomes and other health conditions (e.g., hypertension and diabetes). The prevalence of obesity during pregnancy, defined by a Body Mass Index (BMI) over 30, has increased dramatically in the general population. Overweight or obese women are at a significantly increased risk of hypertensive disorders of pregnancy, diabetes, induction of labor, C-section, post-partum hemorrhage, and preterm delivery. Additionally, their infants were more likely to require neonatal resuscitation, neonatal intensive care unit (NICU) admission, and have lower Apgar scores at five minutes. Few providers comment on BMI or see it as a major risk factor. Providers need to include counselling about weight reduction in both the prenatal and postpartum period.

Maternal Sexually Transmitted Diseases/Maternal Infections (BV and UTI) - The prevalence of sexually transmitted diseases (STD) among women is disproportionately high in Milwaukee, especially for Chlamydia (65.5%) with Black women having the highest percentages (61.4%). Sexually transmitted diseases and maternal infections are serious risk factors for prematurity and stillbirth, leading to many maternal complications including infection of the membranes surrounding the fetus, premature rupture of the membranes, premature labor and delivery, post-delivery infection of the uterus, and post-partum complications for the baby. Again, providers rarely comment on the risk for prematurity or complications seen with STDs/infections.

Mental Health Issues - Although mental health issues are common during pregnancy, they often go undiagnosed and untreated. Unmet mental health needs and fragmented mental health services were frequently noted during the case review process. The World Health Organization (WHO) states that mental health issues are typically seen in 15.6% of pregnant women. The shortage of mental health providers and access to care both remain a challenge. Milwaukee’s Periscope project attempts to overcome this challenge but it is not available 24/7.

Tobacco Use - Smoking during pregnancy is associated with increased risk of preterm birth, low birthweight full term babies, stillbirth and infant death. It is also a risk factor for a variety of pregnancy related complications, such as placenta previa, placental abruption and difficulty getting pregnant overall. Smoking cessation is one of the principal lifestyle changes a woman can make to reduce the risk of stillbirth and infant death.

Marijuana Use - Marijuana use increases the risk of miscarriage, stillbirth, infant death, preterm birth and low birthweight, and impaired fetal brain development. Marijuana cessation education should be done at the same time as tobacco cessation education. It is rarely commented upon. Maternal marijuana use has nearly doubled when compared to the previous report.

Alcohol, Opioid, Methamphetamine or Cocaine Use - Alcohol and drug use (both prescribed and elicit) are associated with miscarriage, stillbirth, infant and maternal death and disability, preterm birth, low birthweight birth, placental separation and insufficiency, infant heart and brain abnormalities, and, for those infants who do survive, speech, language, behavior and learning problems and possible disability are common.

Reported Interpersonal Violence Issues - Interpersonal violence and abuse refers to the abuse that occurs within or outside of a family unit. It is often underreported. The Institute of Medicine recommends screening for interpersonal and domestic violence. Screening and counselling involved elicitation of information from women and adolescents about current and past violence and abuse in a culturally sensitive manner to address about safety and other health concerns.
APPENDIX B: Bibliography

2. Data from WISH, Wisconsin Interactive Statistics on Health https://www.dhs.wisconsin.gov/wish/index.htm
4. Detroit rates https://www.mdch.state.mi.us/osr/InDxMain/Tab5.asp
5. Minneapolis rates, personal correspondence
6. Pittsburgh rates, personal correspondence
7. Hennepin County rates, personal correspondence
8. Baltimore rates, personal correspondence
15. https://the-periscope-project.org/how-it-works/
24. See Appendix F: Grief Resources in Milwaukee
34. Median household income at http://www.census.gov/quickfacts/table/RTN131212/5553000,55079
35. Levine, M The state of Black Milwaukee in National Perspective: Racial Inequality in the Nation's 50 Largest Metropolitan Areas. In 65 Charts and Tables.
APPENDIX C: Definitions

**Accidental Suffocation:** refers to the sudden unexpected death of an infant due to overlay, positional asphyxiation or mechanical asphyxiation.

**BMI:** Body mass index (BMI) is a measure of body fat based on height and weight of adult women and adult men.

**Cause:** A relationship between two events where the second event is understood as a consequence of the first event.

**Fetal Death:** fetal death or stillbirth is “a fetus which does not breathe or show other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles.” By Wisconsin statute, a stillbirth of at least 20 weeks gestation or 350 grams must be reported.

**Fetal mortality rate:** the ratio of fetal deaths divided by the sum of the births (the live births + the fetal deaths) in that year.

**Gestational Age:** weeks of pregnancy and the number of weeks that elapses since the first day of a pregnant woman’s last menstrual period

**Incompetent Cervix:** a weakened cervix which could lead to preterm birth, infant death or stillbirth.

**Infant:** a child born alive and less than one year of age

**Infant Death:** a child death occurring before a child’s first birthday if the child was born alive, without regard to gestational age or weight.

**Infection category of death:** a category of death where the cause of death is found to be bacterial or viral in nature, such as meningitis or pneumonia.

**Interconceptional Care** refers to the time between pregnancies, after the delivery of a baby and before the mother becomes pregnant again

**Low Birth Weight (LBW):** infants who weigh less than 2500 grams (5.5 pounds) at birth

**Mechanical Asphyxia:** a type of accidental infant death where the position of the infant’s body was a cause of the death, i.e., becoming wedged between the back of a couch and a wall

**Perinatal Complications:** a category of death where the infant is born full term and cause of death is a complication of labor and delivery.

**Positional Asphyxia:** a type of accidental infant death where the position of the person sharing a bed with an infant was a cause of the death.

**Preterm Births:** infants born before 37 weeks of gestation, also called prematurity.

**Prone Sleep Position:** sleep position in which an infant is put to sleep on his/her stomach.

**Rates:** use of a base/denominator such as 1,000 or 10,000 or 100,000 to standardize comparisons

**Infant Mortality Rate (IMR):** The number of infant deaths per 1,000 live births

\[
\text{Formula: Infant Mortality Rate} = \frac{\# \text{ of infant deaths} \times 1000}{\# \text{ of live births}}
\]

**Risk Factor:** Risk is the probability that an event will occur. A risk factor exists where there is statistical evidence that an outcome is related to an exposure.

**Rolling Average:** a method used to smooth data by averaging several years of data.

**Stillbirth:** a baby who died prior to delivery. Wisconsin State Statute defines a stillbirth as 20 weeks gestation or more and/or 350 grams or more.

**Sudden Infant Death Syndrome (SIDS):** the sudden death of an infant where no cause of death can be found after an autopsy and death scene investigation.

**Sudden Unexpected Death in Infancy (SUDI):** the sudden death of an infant where unsafe sleep risk factors are present.

**Supine Sleep Position:** sleep position in which an infant put to sleep on his/her back.

**Undetermined Manner of Death:** used as a classification when the information pointing toward one manner of death is no more compelling than any others.

**Very Low Birth Weight (VLBW):** infants who weigh less than 1500 grams (3.3 pounds) at birth.
APPENDIX D: General Resources

American College of Obstetricians and Gynecologists (ACOG):
https://www.acog.org/

American Academy of Pediatrics (AAP):

State of Wisconsin Resources:
https://www.wellbadger.org/s/?language=en_US

Smoking Cessation Resources:
https://www.wwhf.org/first-breath/

Wisconsin Association for Perinatal Care:
https://perinatalweb.org/

March of Dimes:
https://www.marchofdimes.org/

CDC:
https://www.cdc.gov/publichealthgateway/didyouknow/topic/maternity.html
APPENDIX E: Grief Resources in Milwaukee

WHO TO CALL FOR URGENT HELP?
1. National Suicide Prevention Hotline: 1-800-273-8255
2. Milwaukee County 24-hour crisis line: 414-257-7222
3. Sojourner Truth Domestic Abuse 24-hour help line: 414-933-2722
4. Psychiatric Crisis Service: 414-257-7260

IN-PERSON SUPPORT
1. Infant Loss Support Group: In-person support group held at the Aurora West Allis Medical Center, 8901 W. Lincoln Ave. for parents who have experienced a miscarriage, stillbirth, or infant death. The group meets the 1st Wednesday, 7-8:30PM at the Aurora Women’s Pavilion. Contact Machelle at 414-329-5908.
2. Infant Loss Support Group: In-person support group held at Children's Hospital of Wisconsin in the Corporate Center, Suite 255 in Milwaukee parents who have experienced a miscarriage, stillbirth, or infant death. The group meets the 4th Monday, 6:30-8PM. Contact Nichole at 414-266-2995 or email NSchwerman@chw.org
3. The Compassionate Friends: group support for parents who have lost a child of any age. One group meets at the Mayfair Mall conference room, G150, on the 2nd Tuesday at 7PM. Contact number 317-224-8417. The other group meets at 8580 S. Howell Ave., Oak Creek on the 3rd Tuesday, 6:30-8PM. Contact Bob at 262-321-9242 or email docbob94@gmail.com
4. Healing Waters: support group through the African American Breastfeeding Network in Milwaukee. First Saturday of every month from 10 to 11 am at the Sojourner Family Peace Center, 619 Walnut St, Milwaukee, WI 53212. Free childcare is available. Call 414-617-3441 or go to AABNetwork.org.
6. Kyle’s Corner: support and aid for children who have experienced the death of a sibling or a parent. They are located at 7106 W. North Ave, Wauwatosa, WI. Call 414-777-1585 or go to https://www.kyleskorner.org/ for more information, or call your insurance company to find a counsellor in your network.

ONLINE OR PHONE SUPPORT
1. Children’s Health Alliance of Wisconsin: this organization helps families who have experienced an unexpected infant death (SUID) access grief support. Call Joanna at 414-337-4571 or email her at jodonnell@chw.org.
2. Children’s Hospital of Wisconsin Grief Resource Facebook Group: The group is moderated by a counsellor from Children's Hospital of Wisconsin. This is a closed, private group for parents who have experienced the loss of a baby or child. Send a request to this link: https://www.facebook.com/groups/190925344260580
3. Grieve Out Loud: Pregnancy loss and infant loss Facebook group. This is a national group. To join, head to https://www.facebook.com/groups/GrieveOutLoud and request to join the group.
4. First Candle: This is a national organization that has online support groups for miscarriage, stillbirth, and sudden infant death. They also have a grief support hotline at 1-800-221-7437. https://firstcandle.org/bereavement/online-support-groups/
5. Share Pregnancy and Infant Loss Support Facebook Groups: Peer support in both English and Spanish. These are closed groups with posts only visible to members. Send requests to the links below. SIDS/SUID Support Group at https://www.facebook.com/groups/150905431768099
6. Text for Hope: Support for bereaved parents. Texts are available in both English and Spanish. The program is free and open to any bereaved family member or friend. Participants need to have access to a smartphone and data or Wi-Fi coverage. To enroll in Text for Hope, email jodonnell@chw.org or text your request to 414-232-8461.
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WHO IS DRIVING COMMUNITY ACTION BASED ON FIMR RECOMMENDATIONS?

The City of Milwaukee’s Fetal Infant Mortality Review (FIMR) process has been the driving force for a much-needed focus on healthy birth outcomes within Milwaukee. FIMR recommends prevention guidelines through a unique evidence-based, quality improvement process which has played a significant role in building community partnerships, understanding community issues associated with health disparities, and developing culturally sensitive actions to address disparity. Examples of its accomplishments:

- Providing local hospital systems and HMOs de-identified infant death and stillbirth data on their own patients.
- Increasing the focus on community fetal and infant death prevention through community presentations and through participation in the statewide advisory workgroups on health disparities and data and evidence-based practices.
- Providing data to spur community action.

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<thead>
<tr>
<th>Name</th>
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City of Milwaukee Health Department
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Private Provider Practices
Ascension Healthcare
Aurora Healthcare
Greendale Health Department
Aurora Sinai Medical Center
Aurora Sinai Midwifery and Wellness Center
Black Health Coalition of Milwaukee
Children’s Health Alliance
Center for Urban Population Health
Children’s Community Health Plan (CCHP)
Children’s Hospital of Wisconsin
Cudahy Health Department
Ascension Columbia-St. Mary’s Hospital
Froedtert Hospital, Menomonee Falls
Sojourner Family Peace Center of Milwaukee
Easter Seals of Wisconsin
Froedtert Memorial Hospital
Independent Care Health Plan (I-Care)
Greenfield Health Department
Medical College of Wisconsin
Milwaukee Health Services

Milwaukee County Medical Examiner
Brown Deer Health Department
Pro-Care Medical Group
African American Breastfeeding Network
Progressive Community Health Centers
Oak Creek Health Department
Sixteenth Street Community Health Centers
Department of Health Services, State of Wisconsin
The United Way of Greater Milwaukee & Waukesha County
Northshore Health Department
University of Wisconsin School of Social Welfare
March of Dimes
United Healthcare/Optum Healthcare
University of Wisconsin College of Nursing
Franklin Health Department
Molina Healthcare of Wisconsin
South Milwaukee/St. Francis Health Department
Waukesha Memorial Hospital
West Allis Memorial Hospital
Ascension St. Francis Hospital
Ascension St. Joseph Hospital
Hope.