

2017 CITY OF MILWAUKEE

FETAL
INFANT
MORTALITY
REVIEW (FIMR)
REPORT

STATUS REPORT ON 2012-2015
STILLBIRTHS AND INFANT DEATHS

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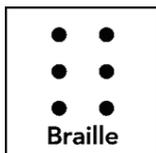
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ACKNOWLEDGMENTS

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. Thank you, Anneke Mohr, for your patience and many hours interviewing mothers dealing with loss and many challenging issues. We greatly appreciate your work. Many thanks to Dr. Swain and Sarah DeRoo for reviewing and providing feedback for this report. Nancy Hills, thank you for your outstanding work on the layout, formatting and graphic design of this report. Finally, we would 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

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A LETTER FROM THE MAYOR AND THE COMMISSIONER OF HEALTH

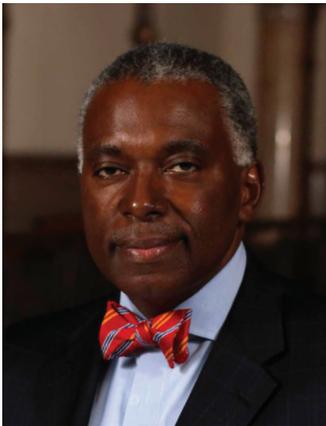


Dear Friends,

Infant mortality has long been used worldwide as a barometer to determine the health of a community. In Milwaukee, we are proud to report that progress has been made. Yet infants continue to die at an unacceptable rate in our city.

In 2011, we set a goal to reduce the city's overall infant mortality rate by 10% and by 15% for African-American babies by the release of our 2017 data.

We have one year to go, and while we have recorded a more than 13% decline in the city's overall infant mortality rate since setting this bold goal, we cannot declare victory. 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 Infant Mortality Review (FIMR) project for more than two decades. Since its inception, FIMR has provided Milwaukee with guiding recommendations to better 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 who reviewed the medical and social circumstances surrounding stillbirths and infant deaths and developed the recommendations outlined in this report.

Through this report, it is our goal to provide our community with the data and recommendations needed to continue existing efforts, focus new efforts, and prioritize the steps we can take to prevent infant and fetal deaths.

While we must address all recommendations in this report, we stress that Milwaukee must recognize the factors that profoundly affect a baby's chance to be healthy that go beyond health care and individual behaviors. We must continue to improve access to quality health care and individual health behaviors, and simultaneously improve the socioeconomic drivers of poor birth outcomes. This means making strides around poverty, unemployment or low-wage employment, housing instability, racism and other socioeconomic factors. These are root causes that affect the infant mortality rates of entire neighborhoods – and our entire city.

We thank everyone in Milwaukee and beyond who has made the reduction of infant mortality a priority. We need more of you. We need action on all levels, from one-on-one conversations that promote safe sleep, to health care interventions that improve women's health before, between, and beyond pregnancy, to policy-level interventions that can reduce premature births by affecting change around poverty, neighborhood safety, educational attainment and racism.

No single organization can do this alone. We must work together, and we must align our individual efforts to build greater collective impact. The lives of our most precious community residents depend on it.

Sincerely,

A handwritten signature in black ink that reads "Tom Barrett". The signature is fluid and cursive.

Tom Barrett
Mayor

A handwritten signature in black ink that reads "Bevan K. Baker". The signature is fluid and cursive.

Bevan K. Baker, FACHE
Commissioner of Health

A LETTER FROM DR NGUI AND KAREN MICHALSKI



Dear Friends,

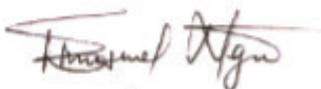
The Fetal and Infant Mortality Review (FIMR) process provides a systematic way of examining fetal and infant losses suffered by families. For more than two decades, the City of Milwaukee Fetal Infant Mortality (FIMR) Program has been dedicated to understanding why Milwaukee's babies are dying and developing 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. The maternal interviews conducted by the FIMR Program provide timely information from families who have suffered the loss of an infant; together they inform the review process, which in turn helps shape improved health care, prevention, and services to families at risk. These 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 this report together, 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" and lose sight that behind each statistic, each number, is a life and a family's story of grief. Every fetal loss and infant death marks a life dimmed too early.

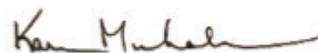
This report provides the latest 2012-2015 data, and highlights some key recommendations and strategic prevention strategies to reduce fetal and infant deaths in our community. We would like to draw attention to enormous toll of infant deaths attributed to prematurity (births before 37 weeks of completed gestation) for all racial/ethnic groups, and particularly for black infants. These deaths contribute significantly to our city's overall high rates of fetal and infant mortality. We hope this report will be a call to action to prioritize prevention of premature births in Wisconsin. Most of the infant deaths in our city are preventable and require the willingness to act and active engagement of the community, health care providers, policy makers and all stakeholders. We hope this report will inform local and state efforts to address fetal and infant mortality and improve birth outcomes. Although most of the recommendations included in the report apply to all partners needed to address this vexing public health issue, some target specific partners whose actions can significantly contribute to changes and improvements. The report findings suggest the need to examine and act on the underlying social and economic determinants of poor birth outcomes in Milwaukee.

On behalf of the City of Milwaukee FIMR program, we extend our sincere thanks and gratitude to our review team, whose members diligently have 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. The City of Milwaukee Fetal Infant Mortality Review (FIMR) Program is committed to ensuring that all infants in our community are born alive, healthy and thrive.

For more information, please contact the program staff.



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



Karen Michalski, MA, MSW
FIMR Project Manager

TABLE OF CONTENTS

- A Message from the Mayor and Commissioner of Health
- A Message from Dr. Emmanuel Ngui
- Executive Summary 3
- What is Fetal Infant Mortality Review (FIMR)? 4
- Introduction 5
- Milwaukee’s infant mortality rate, 3 year rolling averages 6
- Milwaukee’s infant mortality rank compared to selected cities. 7
- Infant Deaths: Causes of Death, overall and by race/ethnicity 8
- Milwaukee’s stillbirth rate, 3 year rolling averages 9
- Stillbirths: Causes of Death, overall and by race/ethnicity 10
- Maps by Zip Code and Aldermanic District 11
- Risk Factors associated with stillbirth and infant death 13
 - Gestational Age and Prematurity 14
 - Maternal Health Conditions and Behaviors 15
 - Late or No Prenatal Care 17
 - Close Interval Pregnancy 18
 - Lack of Postpartum Care 19
 - Maternal Age and Education 20
 - Interpersonal Violence Issues 20
- Sleep Environment 22
- Grief and Bereavement 24
- Social Determinants of Health 25
- Recommendations for Action 30
- Community Action Driven by FIMR Recommendations 31
- Appendices
 - Appendix A Practice Guidelines, Standards of Care 37
 - Appendix B Resources 38
 - Appendix C Bibliography 39
 - Appendix D Disparities by Zip Code 41
 - Appendix E Definitions 42
- Case Review Team Members 44
- Agencies and Institutions that Support FIMR 45
- Authors and Acknowledgements 46

EXECUTIVE SUMMARY

BACKGROUND

This Fetal Infant Mortality Review (FIMR) report provides an overview of stillbirths and infant deaths in the city of Milwaukee from 2012-2015. The report also summarizes what is known about the main contributing factors to these deaths and current efforts aimed at reducing and/or eliminating these deaths and related disparities. This is the seventh report since FIMR began in 1993. FIMR case review analyses are conducted by a diverse group of providers, academic, health system and community stakeholders. Each report seeks to inform and encourage new and improved programs and policies to prevent infant deaths and stillbirths in our community.

SUMMARY FINDINGS

In the four year period of 2012 through 2015, the city of Milwaukee recorded 390 infant deaths and 262 stillbirths. This represents about 98 infant deaths per year and about 66 stillbirths per year during this time period.

Data from 2015 alone indicate that while the city of Milwaukee had 15% of all births in the state of Wisconsin, it also had:

- A quarter (24.7%) of all infant deaths in the state, and
- 21.8% of all the stillbirths in the state

Infant Mortality Rate (IMR) and Stillbirth Rate per 1,000 Births, City of Milwaukee 2012–2015			
Race/Ethnicity	IMR	Race/Ethnicity	Stillbirth
Overall rate	9.8	Overall rate	6.5
Non-Hispanic Black	14.9	Non-Hispanic Black	9.7
Non-Hispanic White	4.9	Non-Hispanic White	4.2
Hispanic	4.4	Hispanic	3.3
Most Common Causes			
Complications of Prematurity	55.6%	Maternal Disease/Infection	33.2%
Congenital Anomalies	20.8%	Congenital Anomalies	9.9%
Combined SIDS, SUDI, and Accidental Suffocation	15.9%	Undetermined	30.5%

RECOMMENDATIONS

Prematurity and stillbirth are complex and costly problems. Long-term reductions in both overall rates and in the racial disparity in poor birth outcomes will require sustained action on many levels.

To reduce infant deaths and stillbirths in Milwaukee, the FIMR Case Review Team recommends three overarching 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

Although access to quality health care and maternal health behaviors remain important to address, there is significant research available to suggest that racial disparities in prematurity and stillbirth are primarily driven by the underlying social determinants of health, or the social and economic factors that shape the environments in which we live, work, play, and age. The chronic stress associated with poverty, low educational attainment, unemployment, and the experience of discrimination, among other factors, must be considered. If we do not address the root causes of chronic stress, it will be challenging to reduce our infant mortality and stillbirth rates, or eliminate the racial and ethnic disparities seen in these deaths.

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 action. Every stakeholder must ask themselves, 'what can we do, who should take action, and what action will be most effective?' However, the responsibility to improve birth outcomes citywide lies with all of us.

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:

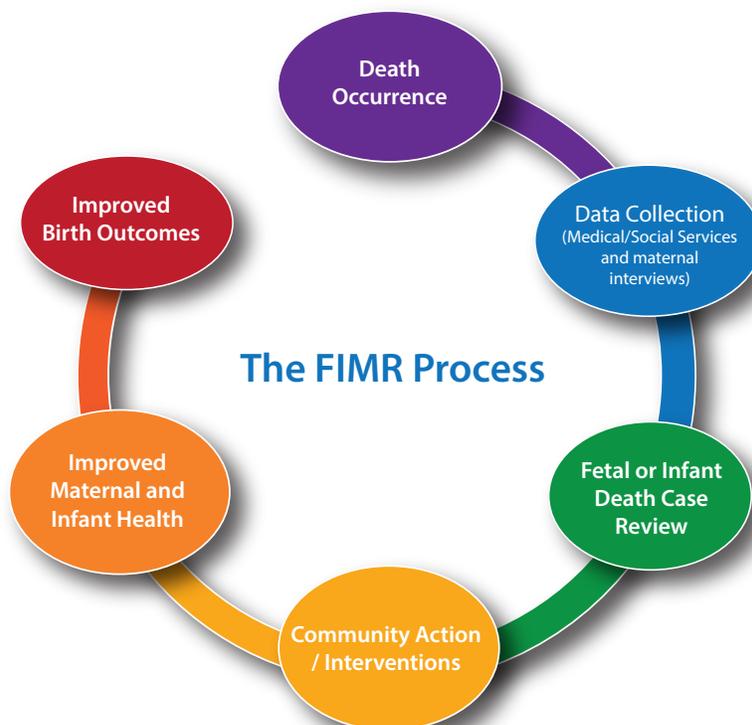
1. Examine factors associated with stillbirths and infant deaths through case reviews
2. Identify specific areas of action and make recommendations for action
3. Assist in planning interventions and policies to address and improve service systems and community resources
4. Assist and participate in community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

The FIMR Process

As shown in the figure below, the FIMR process/cycle of improvement includes data collection, case review and recommendations, community action and changes in community systems.

Death Occurrence: The process begins when a stillbirth or infant death occurs.

Data Collection: FIMR collects data from multiple sources, including vital statistics, medical and social service records. Maternal interviews are conducted, when possible. FIMR abstracts all birth, medical care, social service and other agency records, as available. Data are only presented in aggregate fashion to protect the privacy of families. All records are treated with absolute 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 they might permit identification of an individual.



CYCLE OF IMPROVEMENT

Case Reviews: Information from the stillbirth and infant death cases is summarized and presented to the FIMR Case Review Team (CRT) without any identifying information. An analysis is done on all stillbirths and all infants who die before their first birthday.

Community Action and Intervention: After reviewing the case summaries, the FIMR Case Review Team identifies health system, social service system, individual and community factors that may have contributed to the death, and makes recommendations for change. The Case Review Team members, policy makers, institutions, and community agencies translate these recommendations into specific actions for both collaborative and individual implementation within their spheres of influence.

INFANT MORTALITY AND STILLBIRTH RATES

Infant mortality and stillbirth rates are commonly considered a marker or barometer of the general health and well-being of a population. **Infant mortality** refers to the number of infants who die during their first year of life. The 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,⁷ which categorizes stillbirths into 17 groups based on underlying conditions and associated diagnosis, including an “undetermined” category. The stillbirth rate is calculated as the number of stillbirths per 1,000 births (live births and stillbirths) during a given period of time.

This report is based on the most recent four-year pooled data from 2012 to 2015 for the city of Milwaukee. The overall report includes analyses of stillbirths (fetal deaths) and infant deaths in the city. We include analyses of stillbirths because we want to emphasize the significant burden of these deaths and better understand their causes and develop effective interventions to prevent these losses.

To provide the most current rates, this report also includes preliminary infant mortality rate data in Figure 1 from 2016 released by the City of Milwaukee Health Department. The rest of this report is based on data from 2012 to 2015, because the 2016 abstracted data on causes of death were not available.

Overall, from 2012 through 2015, there were 390 infant deaths and 262 stillbirths, and 39,890 live births in the city of Milwaukee (Table 1). This translates to an overall infant mortality rate of 9.8 and stillbirth rate of 6.5 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. Summary of Infant Deaths and Stillbirths in Milwaukee between 2012 and 2015

	Infant deaths	Stillbirths
Total live births (N)	39,890	39,890
Total deaths (N)	390	262
Overall rate*	9.8	6.5
Non-Hispanic White rate	4.9	4.2
Non-Hispanic Black rate	14.9	9.7
Hispanic rate	4.4	3.3
Other race/ethnicities rate	8.3	4.3

*All rates are per 1,000 births

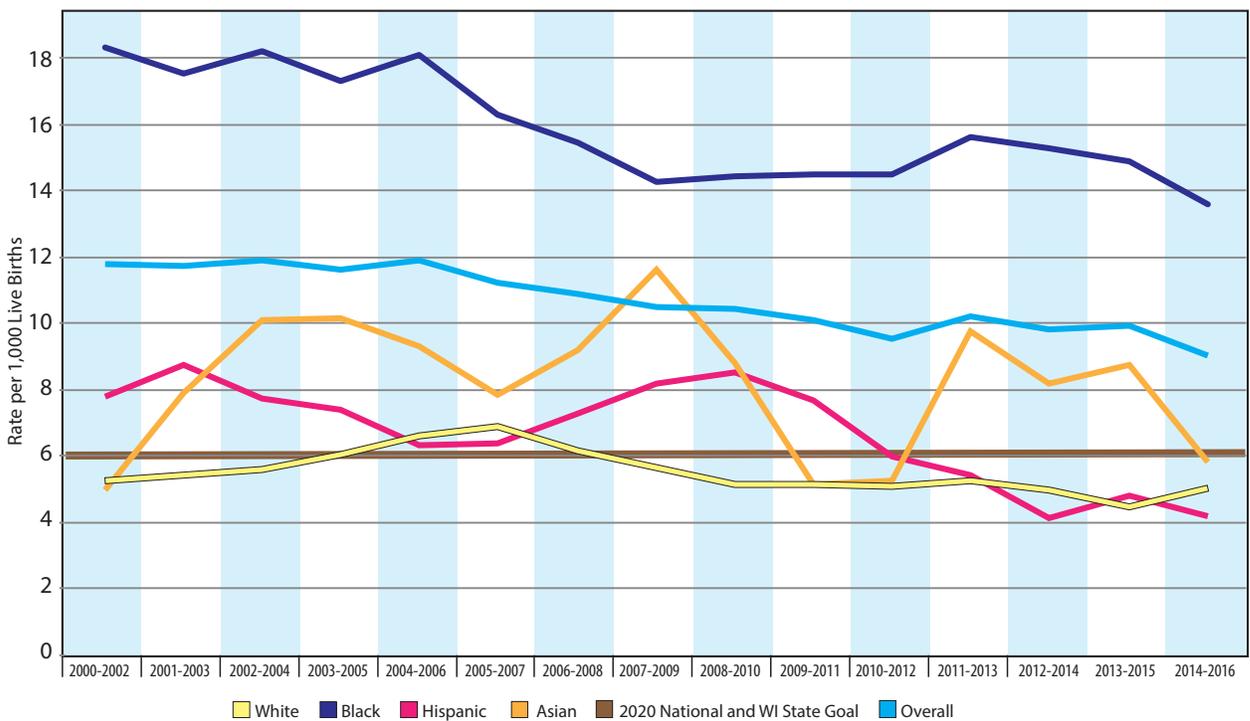
INFANT DEATHS

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 1 shows the trend in infant mortality rates (3 year rolling averages) from 2000-2016. Between 2000 and 2016, the city of Milwaukee averaged about 10,500 births per year. The number of births, however, has been slowly declining in Wisconsin and Milwaukee consistent with similar declines nationwide.¹ The decline in infant mortality in Milwaukee is evident among Whites, Blacks, and Hispanics from about 2005 through 2016. However, significant racial/ethnic disparities in infant mortality continue to persist in Milwaukee.

The disparity ratio in infant mortality rates in Milwaukee for the years 2012-2016:

- Black/White disparity ratio is3.0
- Hispanic/White disparity ratio is0.9
- Asian/White disparity ratio is1.5

Figure 1. Infant Mortality Rates by Race/Ethnicity (3-year rolling averages), City of Milwaukee, 2000-2016*



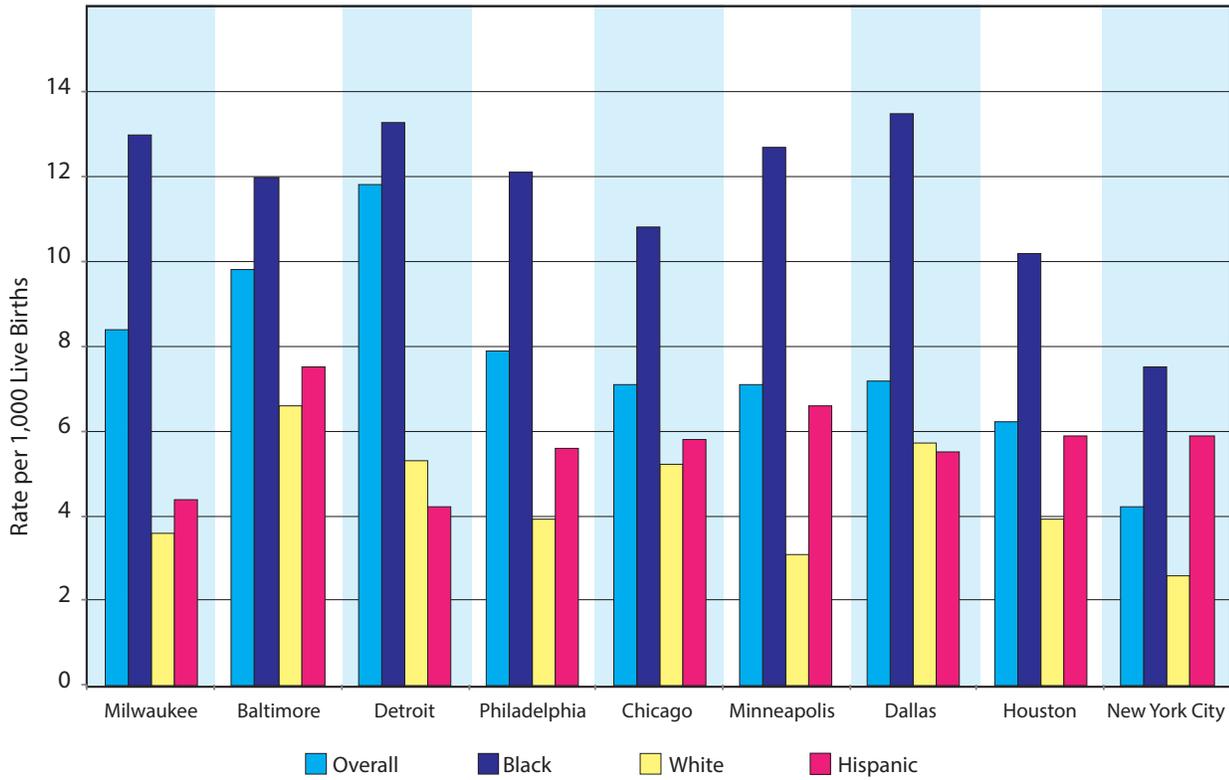
*Note: 2016 rates are preliminary

INFANT DEATHS

How Does Milwaukee Compare Nationally on Infant Mortality?

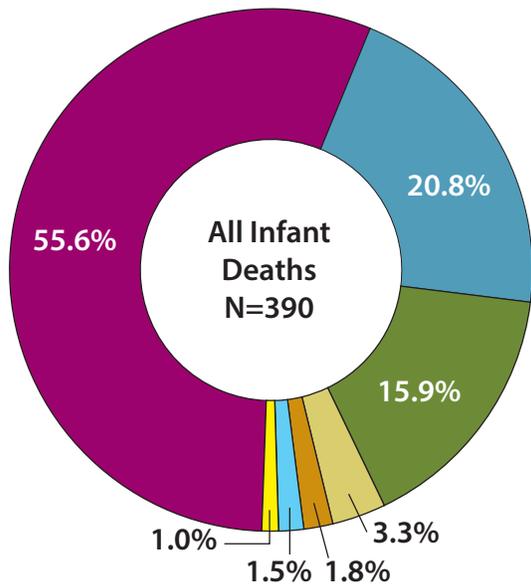
The following graph (Figure 2) compares the infant mortality rates for the city of Milwaukee with other selected large cities with similar racial/ethnic and economic make up.²⁻⁶ Milwaukee's Black infant mortality rate in 2014 was most comparable to the Black rate in Detroit, Dallas, and Minneapolis and was higher than the Black rate in Baltimore, Philadelphia, Chicago, Houston, and New York City.

Figure 2. Infant Mortality Rate Comparison Across Selected Cities, 2014



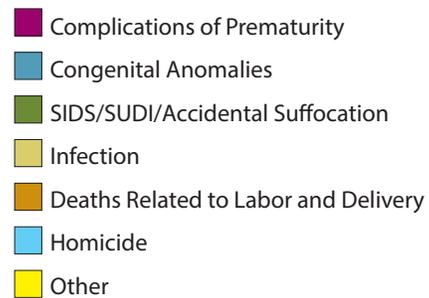
INFANT DEATHS

Figure 3. Leading Causes of Infant Deaths in Milwaukee by Race/Ethnicity

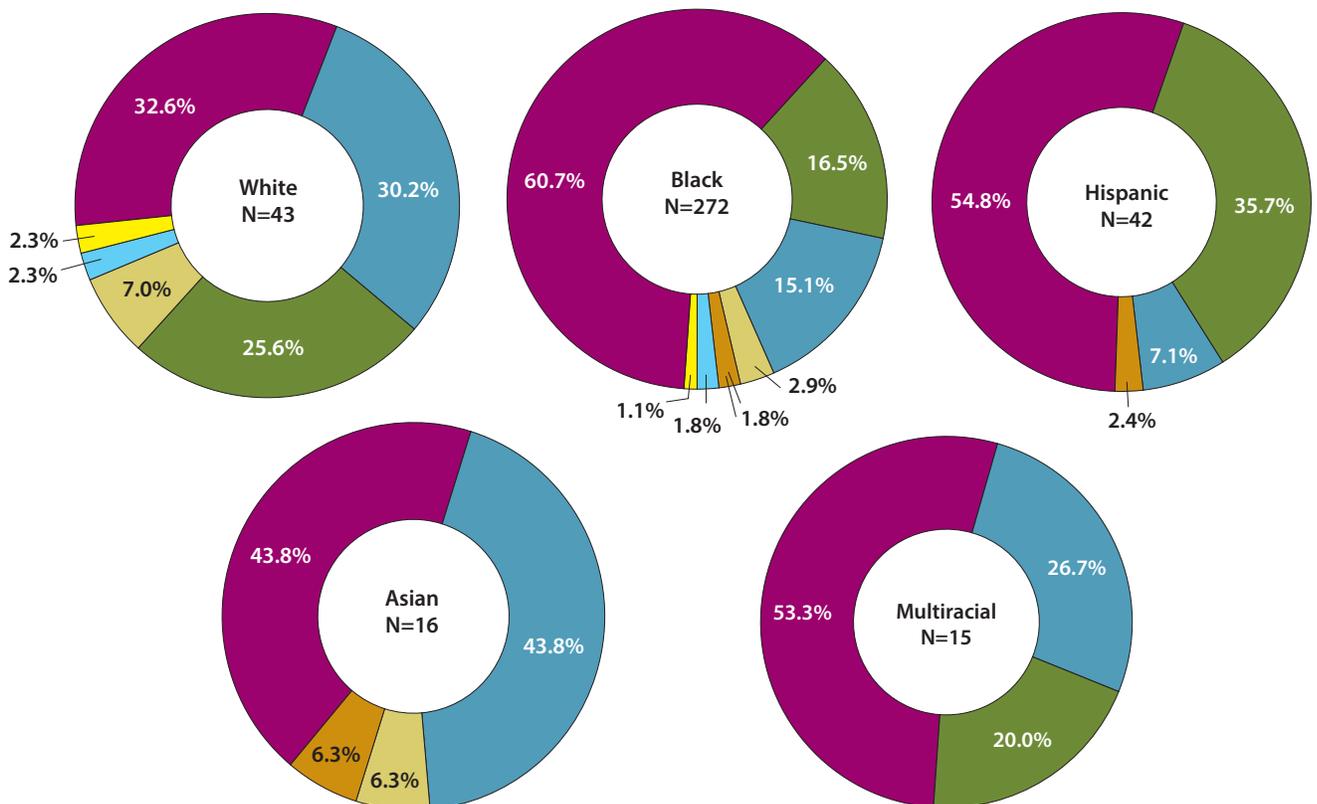


The leading causes of infant deaths (Figure 3) included: Complications of prematurity, accounting for 55.6% of all infant deaths.

- Congenital anomalies, (e.g., heart defects, genetic anomalies) accounting for 20.8% of all infant deaths.
- Sudden Infant Death Syndrome (SIDS), Sudden Unexpected Death in Infancy (SUDI) and Accidental Suffocation, accounting for 15.9% of all infant deaths.
- Other factors such as infections, labor/delivery related factors, and homicides accounting for about 8% of the infant deaths combined.



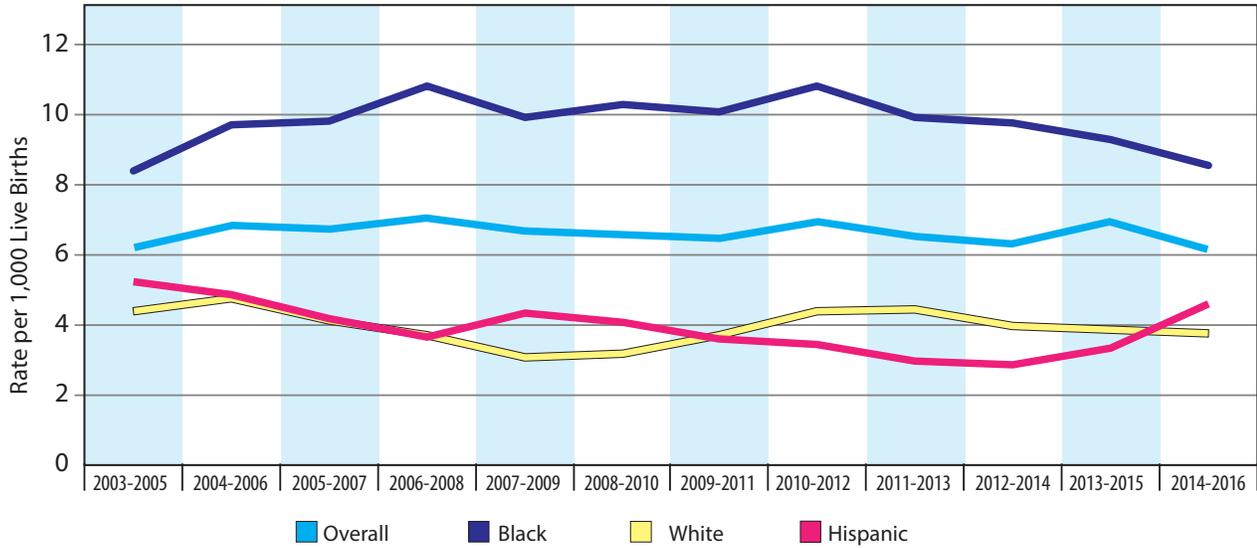
Across all racial and ethnic groups, prematurity remains the leading cause of infant deaths, with a disproportionate burden found among Black mothers. Note this report does not include data for Native Americans due to small numbers.



STILLBIRTHS (FETAL DEATHS)

Figure 4 presents the three-year rolling average trend data for stillbirths from 2003-2005 to 2014-2016. Although the rates of stillbirths for Blacks have declined slightly after a peak in 2010-2012, they remain about double those of Whites and Hispanics.

Figure 4. Stillbirth Rate by Race/Ethnicity (3-Year Rolling Averages), City of Milwaukee, 2003-2016*



Note: *2016 data are preliminary, rates for other races and ethnicities were not included due to small numbers.

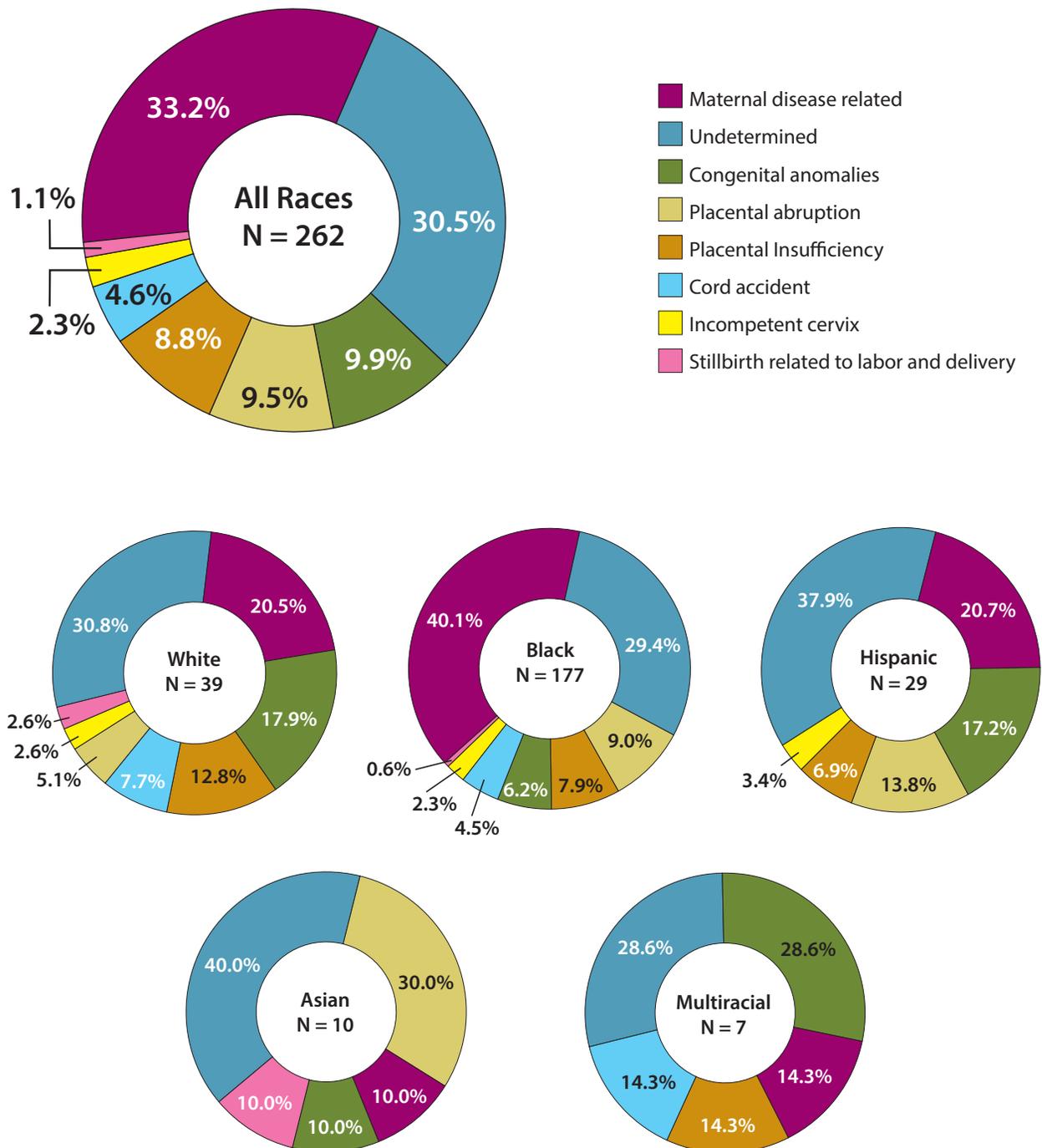
STILLBIRTHS (FETAL DEATHS)

Leading causes of stillbirths in Milwaukee

Figure 5 presents a profile of the leading causes of the 262 stillbirths (fetal deaths) in Milwaukee within different racial/ethnic groups during the 2012 to 2015 period. Overall, the main causes of stillbirths in 2012-2015 were:

- **Complications associated with maternal disease/infection**, accounting for 33.2% of stillbirths
- **Undetermined**, accounting for 30.5% of stillbirths
- **Congenital anomalies and placental abruption**, accounting for 9.9% and 9.5% of stillbirths, respectively.
- **Placental insufficiency** accounting for about 9% of stillbirths followed by cord accidents, incompetent cervix and labor/delivery-related causes accounting for 8% of the stillbirth causes combined.

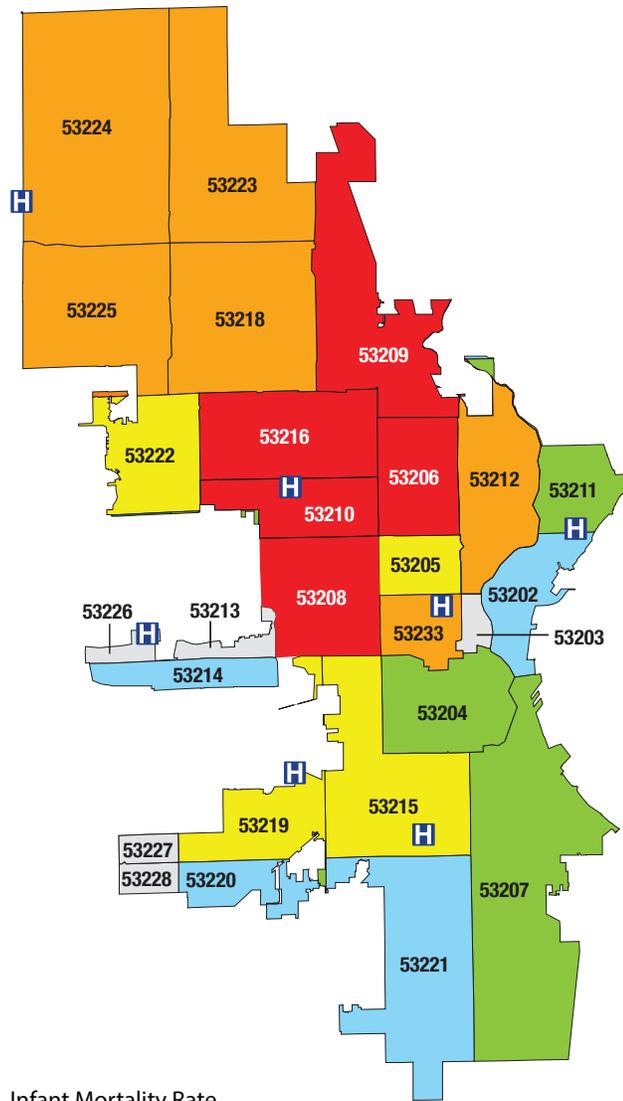
Figure 5. Leading Causes of Stillbirths by Race/Ethnicity in Milwaukee



WHERE ARE INFANT DEATHS & STILLBIRTHS OCCURRING?

The rates of infant deaths and stillbirths vary by Zip Code and aldermanic district as shown in Figures 6 through 9. These maps show the occurrence of city of Milwaukee infant deaths and stillbirths.

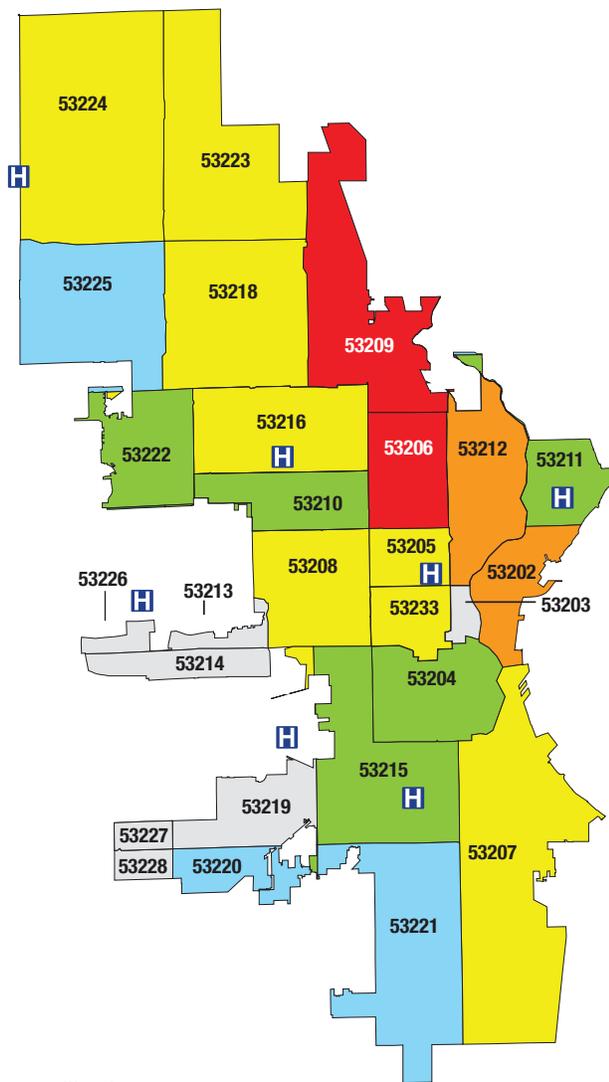
Figure 6. Infant Mortality Rate by Zip Code 2012–2015



Infant Mortality Rate per 1,000 Live Births

- 1.9 - 3.9
- 4.0 - 6.9
- 7.0 - 8.9
- 9.0 - 11.9
- 12.0 - 16.2
- Insufficient numbers for analysis*
- Birthing Hospitals

Figure 7. Stillbirth Rate by Zip Code 2012–2015



Stillbirth Rate per 1,000 Live Births

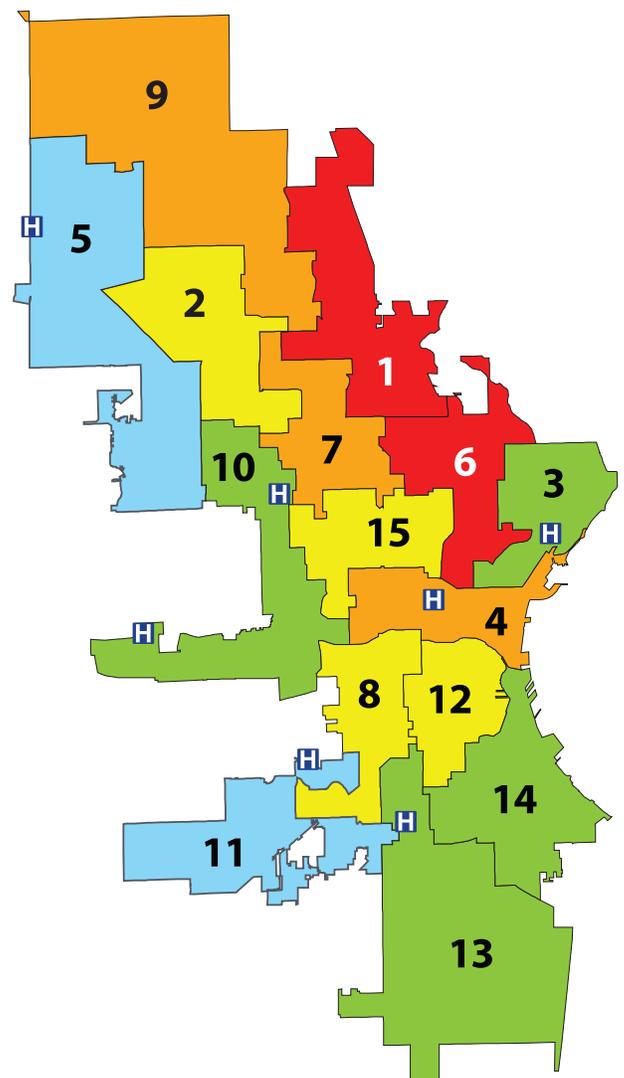
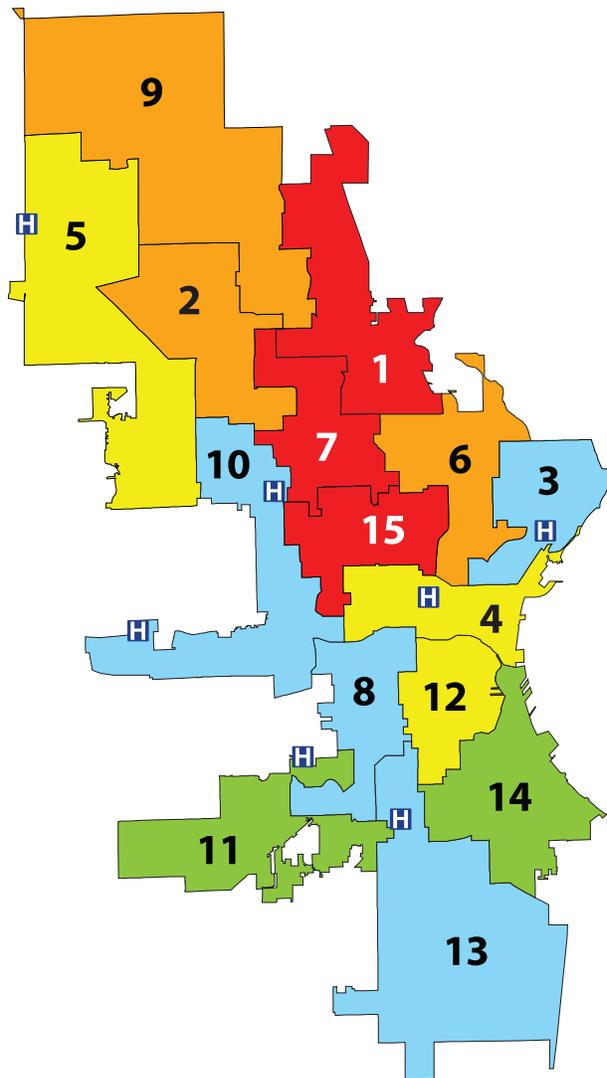
- 1.5 - 3.9
- 4.0 - 5.9
- 6.0 - 7.9
- 8.0 - 9.9
- 10.0 - 12.9
- Insufficient number for analysis*
- Birthing Hospitals

* Insufficient numbers for analysis – These are shared Milwaukee city/Milwaukee county ZIP codes with insufficient live births from Milwaukee city for analysis.

WHERE ARE INFANT DEATHS & STILLBIRTHS OCCURRING?

Figure 8. Infant Mortality Rate by Aldermanic District

Figure 9. Stillbirth Rate by Aldermanic District



Infant Mortality Rate per 1,000 Live Births

- 3.1 - 6.4
- 6.5 - 8.0
- 8.1 - 9.6
- 9.7 - 13.6
- 13.7 - 17.9
- Birthing Hospital

Stillbirth Rate per 1,000 Live Births

- 2.2 - 4.0
- 4.1 - 5.0
- 5.1 - 7.3
- 7.4 - 9.5
- 9.6 - 12.5
- Birthing Hospital

Note: 2012 aldermanic districts are used in these maps.

INFANT DEATH & STILLBIRTH: MILWAUKEE RISK FACTORS

Risk Factors Associated with infant Death and Stillbirths in Milwaukee

What is a risk factor? A risk factor is something that would make an infant death or stillbirth more likely to occur. Some of the risk factors contributing to both infant deaths and stillbirths are shown in Table 2.

Table 2. Common maternal risk factors for live births, infant deaths and stillbirths

Infant and Maternal Risk Factors	Infant Deaths	Stillbirths	City of Milwaukee live births
Premature delivery, birth before 37 weeks	76.7%	83.6%	10.8%
Previous preterm birth	52.8%	51.5%	8.6%
Maternal infection (STD or UTI) during pregnancy	51.5%	49.6%	9.2%
No postpartum visit	44.0%	37.8%	◆
Mother exposed to secondhand smoke during pregnancy	43.6%	20.2%	15.8%
Maternal pre-pregnancy BMI equal to or greater than 30	43.5%	43.5%	32.6%
Close interval pregnancy, less than 18 months	36.8%	29.4%	14.1%
Maternal tobacco use during pregnancy	34.5%	27.9%	16.5%
Mother has less than a high school education	28.2%	35.9%	24.2%
Maternal mental health issues during pregnancy	23.1%	25.6%	◆
Maternal marijuana use during pregnancy	18.3%	17.9%	◆
Late or no prenatal care	12.2%	11.5%	6.9%
Maternal Age			
• 35 years or older	12.1%	11.5%	11.4%
• Less than 18 years old	3.6%	5.0%	2.2%
Maternal hypertension	11.5%	17.2%	3.9%
Reported interpersonal violence	10.0%	8.8%	◆
Maternal opioid use during pregnancy	6.9%	8.8%	◆
Maternal diabetes	4.6%	8.0%	1.4%

Note: these risk factors are not mutually exclusive; multiple risk factors can occur at the same time.

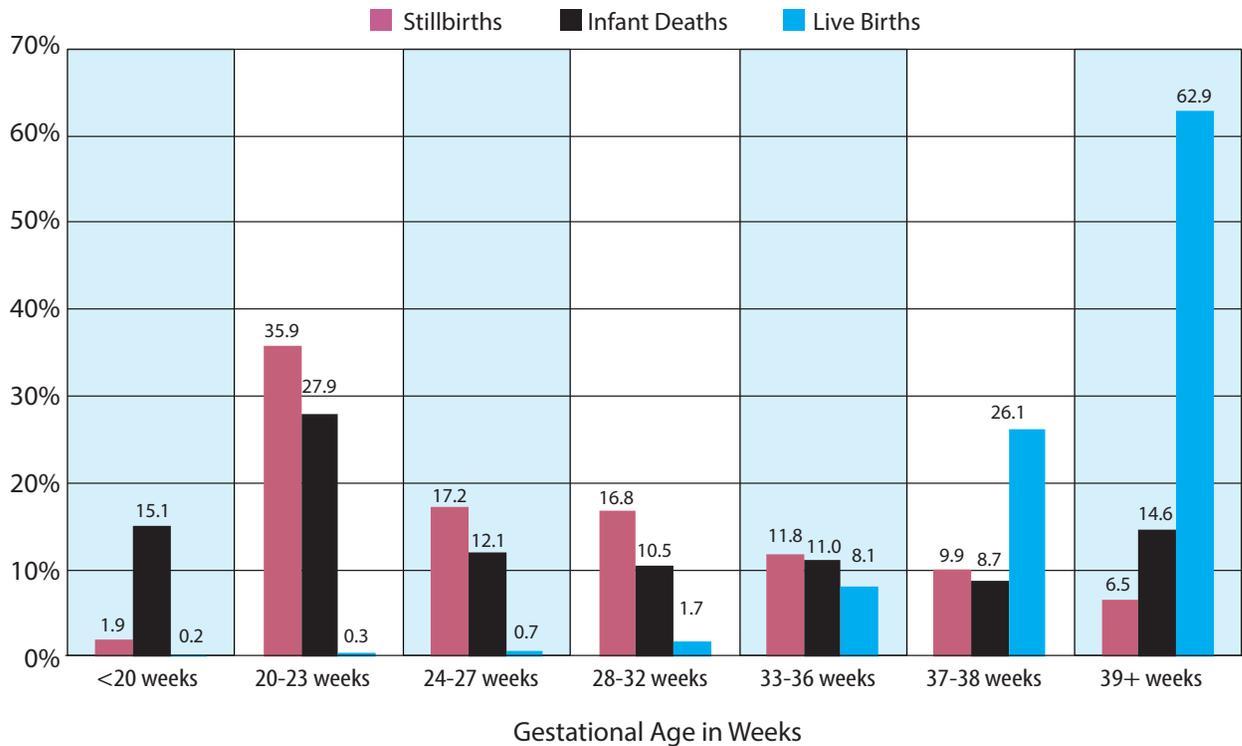
◆ Live birth comparisons are not available

INFANT DEATH & STILLBIRTH: MILWAUKEE RISK FACTORS

Comparison of Gestational Age for Infant Deaths, Stillbirths and Live Births

The gestational age of a pregnancy is defined as the number of weeks since the mother’s last menstrual period. This is the time when the baby grows and develops between conception and birth. Infants born before 37 weeks are considered premature. Figure 10 shows the breakdown of stillbirths, infant deaths and live births by gestational age categories. Most stillbirths occur around 20-23 weeks and steadily decline with increasing gestational age. Similarly, most of the infant deaths occur around 20-23 weeks of completed gestation and also decline as gestational age increases, with the exception of 39 weeks or more which shows a slight increase. Over 60% of Milwaukee’s live births occur at 39 weeks or more, with fewer births in earlier gestational age categories.

Figure 10. Gestational Age (in weeks) Comparison for Stillbirths, Infant Deaths and Live births, 2012-2015



Gestational Age and Prematurity

Prematurity or preterm birth, defined as a birth before 37 weeks, is the **leading** cause of infant death and is a major contributing factor for the majority of stillbirths in Milwaukee. Preterm birth and stillbirth is a complex problem requiring multidisciplinary research and creative solutions. “Globally, a staggering 2.6 million infants die just before birth.”⁸

Almost **two-thirds (60.7%)** of infant deaths among African American women in Milwaukee are due to prematurity compared to about **one-third (32.6%)** of White women. The underlying reason for the increased rates of preterm births remain unclear, however, research suggests that a combination of economic, social, and environmental factors, including higher levels of chronic, toxic stress play a role. (See Social Determinants section.)

THE COST OF PRETERM BIRTH

What is the Estimated Cost of Preterm Birth?

Prematurity is a complicated and costly issue that requires action on many levels. Health care costs for premature and low birth weight babies are considerably higher for both the mother and child compared to an uncomplicated, full term delivery. Overall, there were 3,180 premature babies born alive in Milwaukee between 2012 and 2015. A large proportion of births in the city of Milwaukee are covered through the state's Medicaid program. According to the State of Wisconsin Medicaid data⁹, among the 24,328 children born in 2013-2015 who were Medicaid eligible during their first year of life, 2,873 were born preterm and 21,455 were born full term.

*The average cost of birth event inpatient stay was **\$29,907.26** for preterm compared to **\$1,981.14** for full term babies.*

The overall economic burden associated with preterm births is substantially greater when hospital, social services and educational costs are included. Babies who are born preterm and survive often face a greater risk of serious health problems. They have a higher risk of death or lifelong disabilities, such as:

- Learning disabilities
- Mental retardation
- Cerebral palsy
- Vision and hearing loss
- Lung and gastrointestinal problems

*The average length of inpatient stay for those covered by Medicaid was **20.1 days** for preterm compared to **3.5 days** for full-term babies.*

MATERNAL HEALTH CONDITIONS

Chronic health conditions and unhealthy behaviors directly affect maternal health and the well-being of her baby and her ability to carry her pregnancy to term and give birth to a healthy baby.^{10,11} These health issues may include:

Maternal Hypertension

High blood pressure during pregnancy can have serious negative effects¹² 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, vision problems, and swelling of the hands and face.

In 2012-2015, chronic hypertension during pregnancy was reported in 17.2% (n=45) of mothers of stillbirths, and 11.5% (n=45) of mothers who had an infant death.

- Of the mothers of stillborn babies, this is **over four times** the percent of mothers of live births (3.9%) with chronic hypertension.
- Of the mothers who had an infant death, this is **almost three times** the percent of mothers of live births (3.9%) with chronic hypertension.

***1 in 7 women with an infant death or stillbirth had chronic hypertension**
(compared to 1 in 25 of all live births)*

Maternal Diabetes

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), etc. During 2012-2015, 8% (n=21) of mothers of stillborn infants had Type I or Type II insulin-dependent diabetes during their pregnancies.

- This is **six times** the percent of mothers of live births (1.39%) with Type I or Type II diabetes.

Of the mothers who had an infant death, 4.6% (n=18) had Type I or Type II insulin dependent diabetes during their pregnancies.

- This is **over three times** the percent of mothers of live births (1.39%) with Type I or Type II diabetes.

***1 in 16 women with an infant death or stillbirth had diabetes**
(compared to 1 in 71 of all live births)*

MATERNAL HEALTH CONDITIONS

The American Congress of Obstetricians and Gynecologists (ACOG) best practice recommendations include:¹³

- An explanation of possible maternal and infant complications.
- Beginning and maintaining glycemic control throughout the pregnancy through blood glucose monitoring, diet, and exercise.

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) of 30 or more, has increased dramatically in the general population. Overweight or obese women are at a significantly increased risk¹⁴ of hypertensive disorders of pregnancy, diabetes, induction of labor, C-section, postpartum 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.

From 2012-2015, obesity was reported at the beginning of pregnancy in:

- Over 43% (n=113) of mothers of stillborn infants,
- About 36% (n=137) of mothers who had an infant death,
- About a third (32.6%) of City of Milwaukee live births and 27.9% of Wisconsin live births.¹⁵

Maternal Infections

(Sexually Transmitted Diseases and Urinary Tract Infections)

The prevalence of sexually transmitted diseases (STD) among women 15-44 years of age is disproportionately high in Milwaukee, especially for Chlamydia (4,124/100,000 population) and Gonorrhea (1,159/100,000 populations). Black and Hispanic women bear a disproportionate burden of STDs in Milwaukee..¹⁶

Sexually transmitted diseases and urinary tract infections (UTI) are serious risk factors for stillbirth. These infections can lead 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 postpartum complications for the baby.

- 9.2% of mothers of live births had an STD during the pregnancy as reported on the birth certificate.
- 49.6% percent (n=130) of mothers of stillborn infants and 51.5% percent (n=201) of mothers who had an infant death, had an STD or UTI during the pregnancy. This is **more than five times** the percent seen in mothers of live births.

1 in 2 women with a stillbirth or infant death had a STD or UTI infection compared to 1 in 10 mothers of live born infants.

To address the high rates of STDs in Milwaukee, treatment must target all partners. Although the Expedited Partner Therapy law went into effect in 2010, implementation remains a challenge to both providers and patients.

Mental Health Issues

Although mental health issues are common during pregnancy and are frequently mentioned during FIMR case reviews, they often go undiagnosed and untreated. Unmet mental health needs and fragmented mental health services were frequently noted during the case review process. In Milwaukee, between 2012 and 2015, about one quarter of the mothers of stillborn babies (n=66) and the infants who died (n=99), had reported mental health issues.

Wisconsin 2012-2013 PRAMS data¹⁵ indicate that 11.3% of Wisconsin mothers surveyed report depression before becoming pregnant. Perinatal mental health literature states that mental health issues are typically seen in 10-15% of pregnant women.¹⁷ Screening and referral for mental health disorders is recommended during pregnancy.

- The shortage of mental health providers and access remain a challenge.
- Anecdotal information from Milwaukee mental health providers indicates that there is a 2-4 month wait for a non-emergency mental health appointment.

MATERNAL BEHAVIORS DURING PREGNANCY

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.

Research suggest that the risk of stillbirths is 47% higher among women who smoke during pregnancy, with increasing levels of smoking associated with increasing risk of stillbirths.¹⁸

During 2012-2015, maternal smoking was reported in:

- 16.5% of live births
- 34.4% (n=134) of infant deaths
- 27.9% (n=73) of stillbirths

Smoking cessation is one of the principal lifestyle changes a woman can make to reduce the risk of stillbirth and infant death.

1 in 3 women with an infant death or stillbirth smoked while pregnant
(compared to 1 in 6 for all live births)

Drug Use

Drug use increases the risk of miscarriage, stillbirth, infant death, preterm birth and low birth weight, and can negatively impact fetal and infant development.

Marijuana use during pregnancy has been associated with a five-fold increase in prematurity, low birth weight^{19,20,21} and with behavior and cognitive problems including impulsivity, inattention and academic underachievement. During 2012-2015, Marijuana use during pregnancy was reported in 18% of mothers of stillborn infants and infants who died. There were no live birth comparisons.

Some mothers may feel it is acceptable to smoke marijuana because it is a 'natural' product and therefore less harmful than tobacco.

Opioid abuse is becoming more prevalent and is likely to be underreported in most records. Maternal opioid use can cause increased risk of fetal growth restriction, abruption, preterm labor, and fetal death. Opioid use during pregnancy was reported in 8.8% of mothers of stillborn infants and 6.9% of mothers of infants who died. According to the Wisconsin Association for Perinatal Care, between 2000 and 2009, antepartum maternal opioid use increased in Wisconsin from 1.19 to 5.63 per 1,000 hospital births per year. In addition, the incidence of neonatal abstinence syndrome diagnosed before newborn discharge increased from 1.20 to 3.39 per 1,000 hospital births per year.²²

1 in 6 women with an infant death or stillbirth used marijuana during their pregnancy

Cocaine and alcohol use were reported in fewer than 8% of FIMR mothers.

Late or No Prenatal Care

1 in 8 women with an infant death or stillbirth had late or no prenatal care (compared to 1 in 14 of all live births)

Access to and availability of quality prenatal care is important for pregnant women. Adequate prenatal care is determined not only by the onset of care, and the number of visits to a provider that a woman has during her pregnancy, but also by the quality of care delivered and the respect shown by healthcare providers. Too often the only information documented is when care started and how many prenatal visits a woman received.

From 2012-2015, late (3rd trimester) or no prenatal care was reported in:

- 6.9% of live births
- Over 11% (n=30) of mothers of stillborn infants and the mothers who had an infant death (n=47)

MATERNAL BEHAVIORS DURING PREGNANCY

According to the Wisconsin Pregnancy Risk Assessment Monitoring System (PRAMS) for 2012-2013¹⁵, some of the common reasons that women report for not receiving prenatal care as early as wanted or not at all were:

- 41.9% - I didn't know I was pregnant.
- 32.0% - I couldn't get an appointment when I wanted one.
- 29.4% - The doctor or my health plan wouldn't start my care as early as I wanted to.
- 21.0% - I didn't have my Medicaid, BadgerCare, or BadgerCare Plus card.
- 11.8% - I didn't have anyone to take care of my children.
- 11.7% - I couldn't take time off of work or school.
- 11.5% - I didn't have transportation to get to the clinic or doctor's office.
- Only 3.8% reported that they did not want prenatal care.

Close Interval Pregnancy

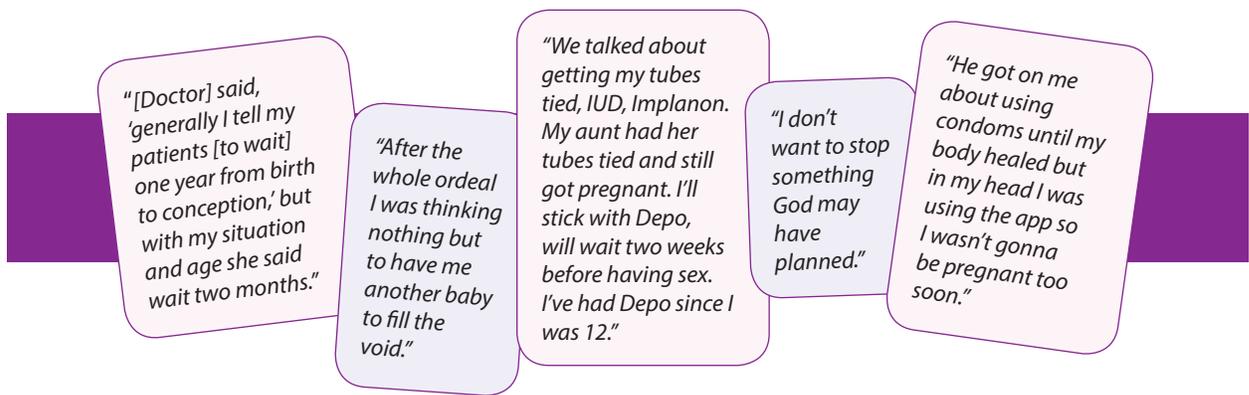
A close interval pregnancy is defined as a pregnancy with fewer than 18 months between the previous delivery and the date of the last menstrual period signaling beginning of the next pregnancy.²³ Short intervals between delivery and the next pregnancy are linked to prematurity, intentional and unintentional injuries, and Sudden Unexpected Death in Infancy (SUDI). As shown in Table 3, about 1 in 5 women who experienced an infant death or stillbirth had a close pregnancy interval of 6 months or less. About 16% and 12% of women who experienced an infant death had an interpregnancy interval of 6-11 months and 12-18 months, respectively. About 11% and 8% of women who experienced a stillbirth had an interpregnancy interval of 6-11 months and 12-18 months, respectively.

Table 3.
Pregnancy Interval among Women who Experienced an Infant Death or Stillbirth in Milwaukee, 2012-2015

Interval Between Pregnancies	Infant Deaths	Stillbirths
Fewer than 6 months	21.0% (n=61)	20.6% (n=40)
6-11 months	15.8% (n=46)	10.6% (n=17)
12-18 months	12.4% (n=36)	8.1% (n=13)

Although birth control is closely tied to close interval pregnancy, it is often not mentioned or documented in the hospital chart or postpartum provider notes. Birth control was not reported in over 40% of FIMR stillbirth or infant death abstracted medical records.

Sample comments from mothers who experienced an infant death included:



MATERNAL BEHAVIORS DURING PREGNANCY

Sample comments from mothers of stillborns included:

"The Doctor said 'You're not leaving without Depo.' She just wanted my body to rest. I'm gonna be 40, can't wait too long." She later noted that she was told to wait a year to try again.

"She never told me to wait no period of time or anything. She told me I was good."

"After delivery I had asked how long to wait, she said wait 2-3 months [to try again]. I wasn't given any other referrals. I was offered contraceptives but I didn't want any because I would like to get pregnant."

Lack of Postpartum Care

Postpartum visits are recommended four to six weeks after delivery. These visits are needed²⁴ to discuss complications that occurred during pregnancy, plan for follow-up of any medical or mental health conditions, and discuss sexual activity and plans for contraception. When a stillbirth has occurred, it is also necessary to discuss the baby's death and cause of death and try to answer the question, "will it happen again?"

From 2012-2015, only 66.9% of the mothers of stillborn babies and 57.6% of the mothers who experienced an infant death had a documented postpartum visit.

FIMR maternal interviews revealed diverse views of postpartum care among mothers:

- "Unable to be seen, insurance was cut off."
- "It was kinda bad. Doctor was pushing birth control on me, me being a pharmacy person I know the effects. Doctor was saying you don't want to have it happen again. Was trying to push counseling, I knew I could do it through UW-M."
- "I didn't talk to doctors about nothing. My baby's here in a freezer. My baby died in this d*** hospital. I didn't want to go back."
- "When I'm not pregnant I guess I ignore my problems, I take care of everyone else."

Some women reported positive postpartum visit experiences:

- "I had a two week follow up visit. My doctor is a hugger, he explained what happened. He's very nurturing. I was referred to a perinatologist but saw his partner instead – a younger woman, a friend of the family. She had suggested another treatment."
- "She said everything looked good, healed well." Talked about postpartum depression. "Has gotten worse since I'm home. It doesn't help that we're not allowed to leave because of [Twin B's] health. I can't do lunch, date night."

MATERNAL DEMOGRAPHICS AND OTHER FACTORS

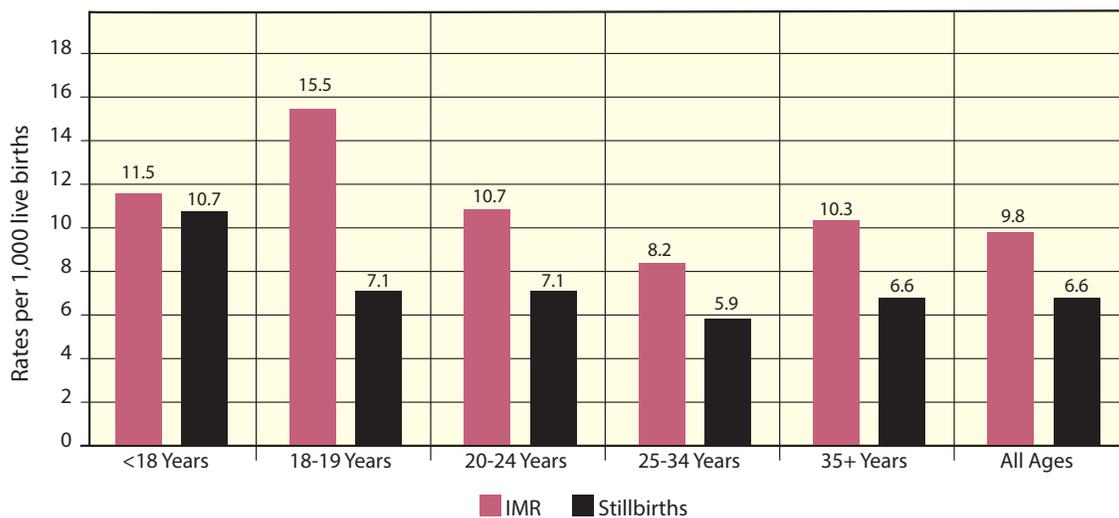
Maternal Age

A maternal age of fewer than 18 years 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. They make less money, have little to no job skills, and have fewer opportunities, in general. 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.²⁵

As shown in Figure 11, mothers 18 years or younger have a higher infant mortality rate than all other age groups except for mothers 18-19 years old.

- Stillbirth rates were higher for mothers 18 years or younger than all other age groups
- Both stillbirth and infant mortality rates increased slightly for mothers ages 35+ years compared to those 25-34 years of age.

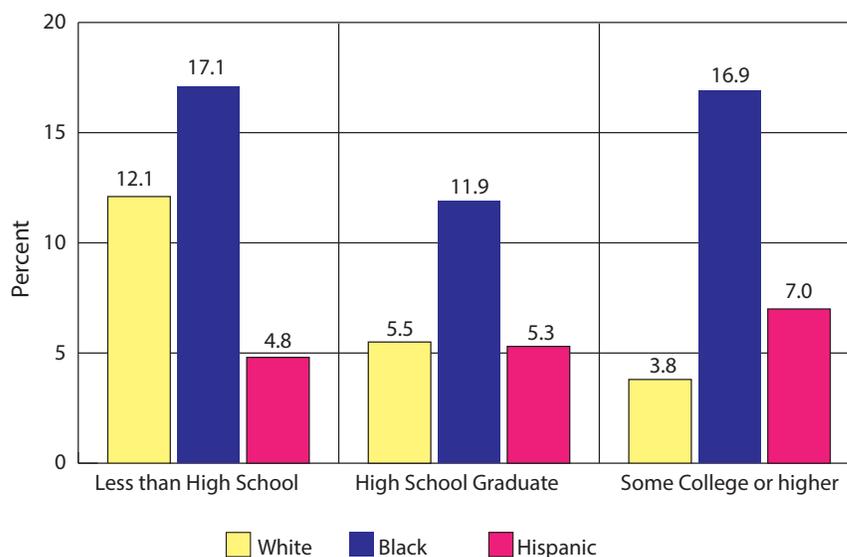
Figure 11. Infant Mortality and Stillbirth Rates by Maternal Age Groups



Maternal Education

Increasing maternal education is often associated with improved birth outcomes, however, as shown in Figure 12, Black mothers with some college or higher educational attainment in Milwaukee have a higher infant mortality rate than White mothers with less than a high school education. This pattern however, is not found in stillbirths (Figure 13). Indeed, among White mothers, increasing maternal education is associated with steady decline in infant mortality, a pattern not found among Black mothers.

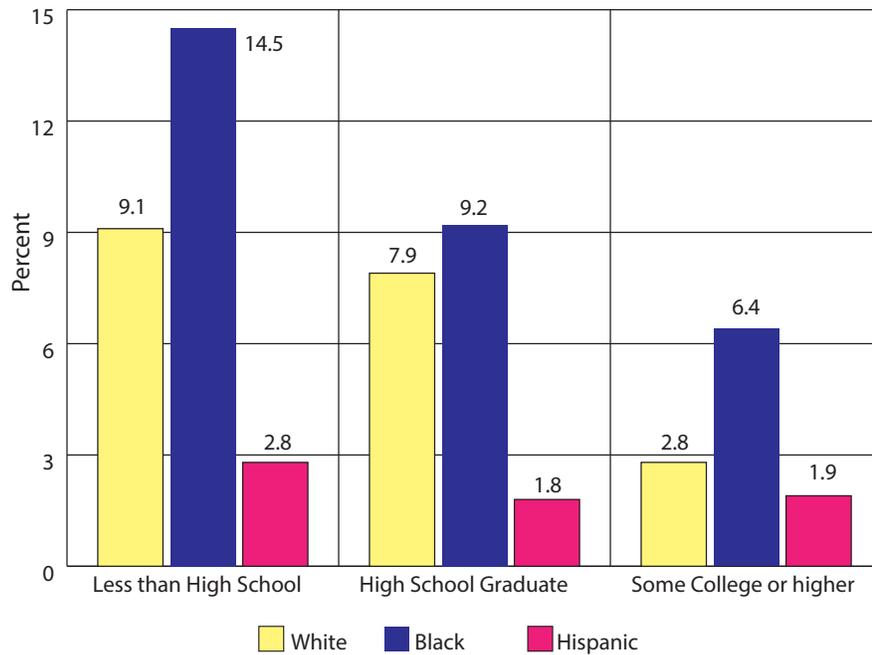
Figure 12. Infant Mortality Rate by Maternal Education Status Among Racial/Ethnic Groups, City of Milwaukee



MATERNAL DEMOGRAPHICS AND OTHER FACTORS

For stillbirths, increasing maternal education is associated with decreasing rates of stillbirths for both Black and White mothers (Figure 13)

Figure 13. Stillbirths by Maternal Education Status Among Racial/Ethnic Groups, City of Milwaukee



Interpersonal Violence

Interpersonal violence and abuse refers to the abuse that occurs within or outside of a family unit. Interpersonal violence and abuse are stressful life events, that are often underreported^{26,27} but have been associated with increased risk of adverse birth outcomes including stillbirths and preterm birth.²⁸ The Institute of Medicine recommends screening for interpersonal and domestic violence. Screening and counseling involves elicitation of information from women and adolescents about current and past violence and abuse in a culturally sensitive manner to address safety and other health concerns.

From 2012-2015,

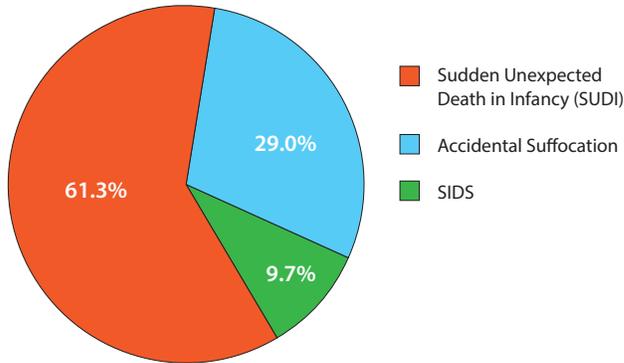
- Interpersonal violence was reported in 8.8% (n=23) of the mothers who had a stillborn baby and in 10% (n=39) if the mothers who had an infant death.
- Interpersonal violence screenings were not documented in 48.9% (n=128) of the mothers who had a stillborn baby and 42.6% (n=166) of mothers who had an infant death.

SLEEP ENVIRONMENT

Sleep Environment

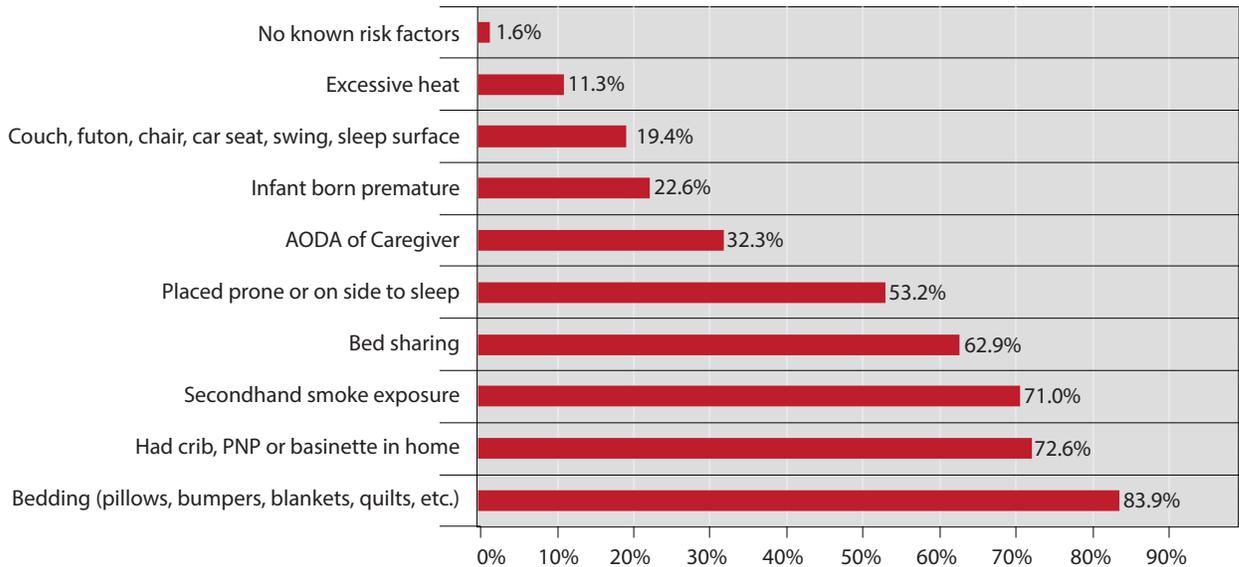
Sleep-related deaths are the third leading cause of infant death in Milwaukee. Sleep related deaths, which include Sudden Infant Death Syndrome (SIDS), Sudden Unexpected Death in Infancy (SUDI) and Accidental Suffocation, accounted for 15.9% of all 2012-2015 infant deaths (Figure 14).

Figure 14. Subcategories of Sleep-Related Deaths



The underlying risk factors associated with sleep-related deaths are often seen in combination and are not mutually exclusive in Figure 15.

Figure 15. Risk Factors reported in 2012-2015 Sleep-related Deaths (n=62)*

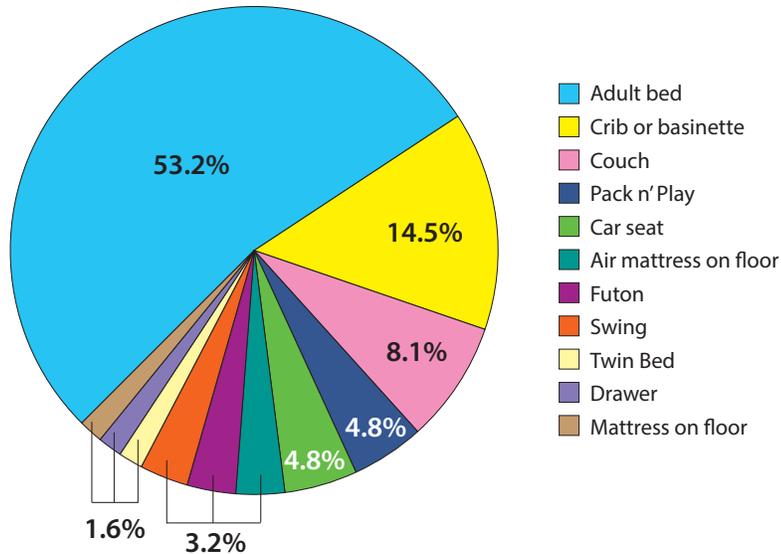


*Note: These risk factors are not mutually exclusive. One or more risk factor could be found at the same time.

SLEEP ENVIRONMENT

Figure 16: Places Babies Slept When They Died

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)³⁰ 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

B = On his or her **B**ack

C = In a **C**rib, bassinette or Pack N' Play without pillows, blankets, bumper pads, sheets or toys

S = In a **S**moke-free environment, including free of marijuana smoke

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

GRIEF AND BEREAVEMENT

Bereavement support is important to help families cope with fetal or infant loss. From 2012-2015, support was documented in:

- 96.2% of stillborn deaths
- 90.5% of infant deaths

There remains a gap in bereavement support for those families whose babies died after being discharged from the hospital.

Grief and bereavement are personal experiences that vary from person to person. Best practices³⁰ 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.

Things you can say to someone after a stillbirth or infant loss

- "I can't imagine how you must feel"
- "What happened was not your fault"
- "You are not to blame for what happened"
- "You deserve help in dealing with something so difficult. Would you like me to connect you with someone you could talk to about this?"

In Milwaukee, several hospitals also have pregnancy loss support groups. Parents with in-hospital losses most often meet with nurses or chaplains trained in Resolve Through Sharing (RTS)³¹ who follow best practices in bereavement care. Community grief support is also available through funeral homes, social media, Facebook groups and other online platforms.

3 in 5 women said family was the most helpful source of support after a loss

1 in 5 women found it difficult to see pregnant women or babies after a loss



SOCIAL DETERMINANTS AND ADVERSE BIRTH OUTCOMES

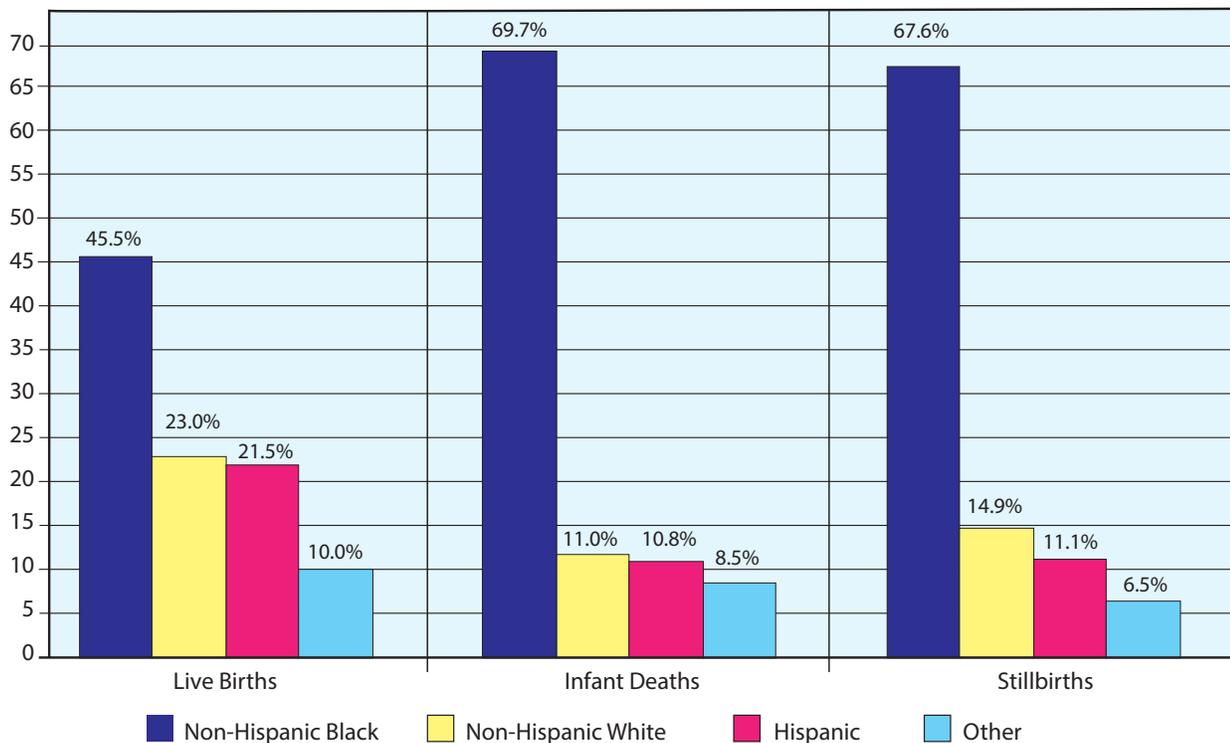
Racial/Ethnic Disparities in birth outcomes (what are the underlying determinants?)

As data in this report shows, 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 poverty, low educational attainment, unemployment, and the experience of discrimination, among other factors.

In 2012-2015, Black infants died nearly three times more often than White infants. Figure 17 show 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.

Figure 17. Disparity in Infant Death and Stillbirth compared to live births by race/ethnicity



SOCIAL DETERMINANTS AND ADVERSE BIRTH OUTCOMES

Table 4 shows the disparity in the 2012-2015 period compared to the disparity reported in previous Milwaukee FIMR reports. For 2012-2015, Black infants were 3 times more likely to die than White infants in Milwaukee.

Table 4. Disparity in Infant Deaths Compared to Live Births

Race/Ethnicity	1995-1999	2000-2004	2005-2008	2009-2011	2012-2015
Black	16.5	18.1	15.7	14.4	14.9
White	7.4	5.4	6.4	5.2	4.9
Hispanic	8.4	6.9	7.4	7.5	4.4
Disparity Ratio					
Black/White	2.2	3.4	2.5	2.8	3.0
Hispanic/White	1.1	1.2	1.1	1.4	0.9
Note: *Other Races/Ethnicities are not included due to small numbers					

Social Determinants of Health Perspective

Improving birth outcomes and eliminating the persistent racial disparities in infant mortality in Milwaukee will require concerted efforts at all levels (local, state and national). Infant mortality is considered a “barometer” or the “canary in the mine” of the overall health and well-being of a community. It reflects the underlying social determinants – “the material living and working conditions and social environmental conditions in 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.”³² 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.^{33,34} Race is considered a social construct, a social idea rather than a biological entity and is often a proxy for these other social cultural and economic conditions.

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.

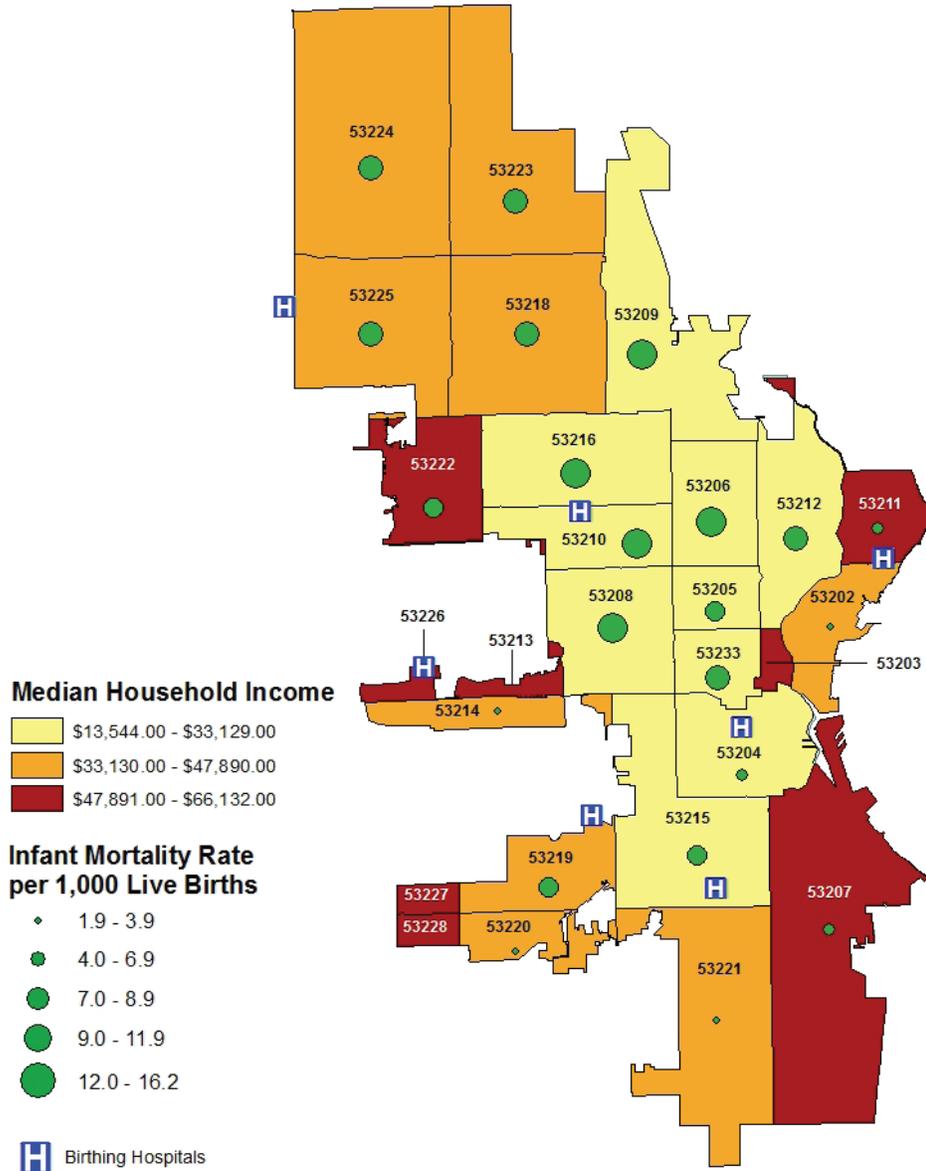
Economic issues and other forms of psychosocial stress are more likely to affect racial/ethnic minority women than White women. Poverty and social inequality are inextricably linked with race, particularly in Milwaukee.

- 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 2015.³⁵
- 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.^{36,37,38}
- The 2015 median household income in the city was \$35,958 compared to \$43,873 in Milwaukee county and \$55,638 in the state.³⁹

Figures 18 and 19 show the median income distribution and rates of infant deaths and stillbirths in the Zip Code. The size of the circle in each Zip Code is proportionate to the rate of deaths, with bigger circles indicating more infant deaths than smaller circles. The median Zip Code income in the city of Milwaukee is categorized from low (\$13,544-\$33,129), mid-low (\$33,130-\$47,890) and high (\$47,891-\$66,132). As shown by Figure 18 the highest concentration of infant deaths was in the low (yellow) to mid-low (orange) median income Zip Codes. For stillbirths (Figure 19), two low median income Zip Codes (53206 and 53209) had the highest rates.

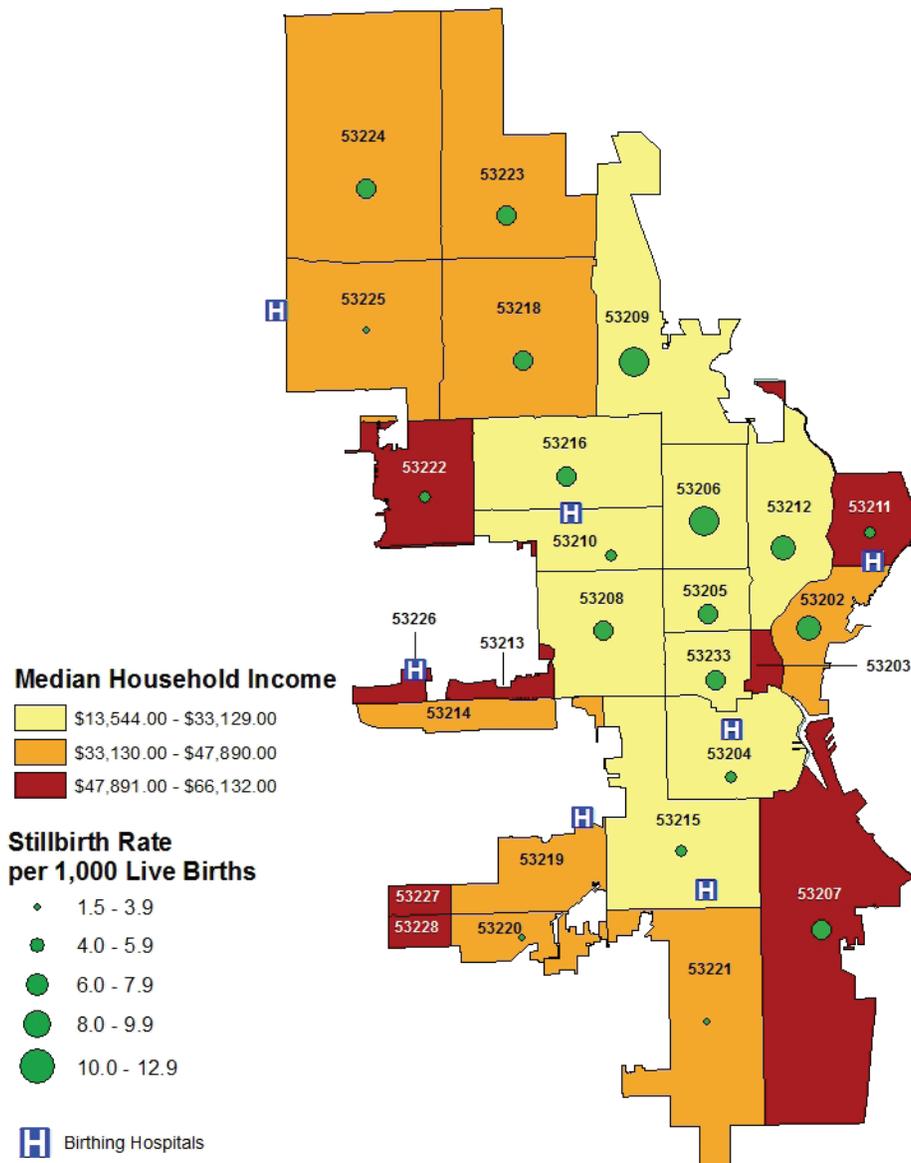
SOCIAL DETERMINANTS AND ADVERSE BIRTH OUTCOMES

Figure 18. Median ZIP Code Household Income and Infant Death Rate in the City of Milwaukee



SOCIAL DETERMINANTS AND ADVERSE BIRTH OUTCOMES

Figure 19. Median ZIP Code Household Income and Rate of Stillbirths in the City of Milwaukee



Strategies to reduce infant deaths and related disparities are complex and multi-layered. Many of those strategies would also be effective at improving other types of health outcomes. According to the Wisconsin PRAMS (2009-2011):

- About 1 in 5 Black (18%) and 14% of Hispanic mothers in Wisconsin report feeling they have been treated unfairly in the past 12 months because of their race/ethnicity compared to only 3% of White mothers.
- Similarly, low income mothers (<100% of the federal poverty level (FPL)) are over three times more likely to report experiencing three or more stressors in the past 12 months than non-poor mothers (>200% FPL).⁴⁰

SOCIAL DETERMINANTS AND ADVERSE BIRTH OUTCOMES

Living in socioeconomically deprived conditions, including exposure to chronic stress associated with low educational attainment, poverty, violence or discrimination, can increase levels of stress hormones in the body, including cortisol and adrenaline.⁴¹ 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 go into preterm labor. Hormonal reaction to stress can, in turn, influence how glucose is metabolized in the body thereby increasing the risk of several chronic health conditions (e.g., hypertension, diabetes, heart diseases, obesity, and other chronic health conditions) and immune system functioning (increasing the risk of cancer and other chronic diseases).⁴²

- In pregnant women, these same stress hormones can affect placental blood flow, maternal glucose metabolism, blood pressure, and uterine irritability, all of which can lead to abnormal birth weight and premature birth.⁴¹

Research suggests that the continued exposure to unrelenting chronic stress has a “weathering” effect on women’s health which in turn adversely affects pregnancy outcomes.⁴³ There is a close relationship between socioeconomic position and infant deaths, with most deaths occurring among those who live at the lower ends of the socioeconomic ladder.⁴⁴

- The high infant deaths among Blacks and other minority groups is closely linked to higher rates of poverty, unemployment, limited access to services and geographical location.
- Research indicates that these socioeconomic conditions contribute significantly to the higher disease burden and excess deaths among Blacks and some of the other racial/ethnic minority groups.^{33,34}
- In Milwaukee and the US in general, poverty, unemployment, and economic status are strongly tied to race. As shown in Figure 18, the Zip Codes in Milwaukee with the highest rate of infant deaths are also the Zip Codes which are the most socioeconomically deprived based on poverty, crime, poor performing schools etc., and they also have the higher concentration of Blacks and other minority residents.

To be successful in improving and reducing racial/ethnic disparities in birth outcomes, concerted, multi-sector and interdisciplinary efforts must target some of the broader underlying social determinants of health across the life course.¹⁰ Approaches to improve birth outcomes in Milwaukee and the US, must aim at improving the overall conditions that broadly promote health, including addressing the persisting socioeconomic, employment, housing and educational conditions associated with the historical legacy of racism, discrimination and trauma.

RECOMMENDATIONS FOR ACTION

Table 5 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.

Table 5. FIMR Recommendations for Action to Improve Birth Outcomes in Milwaukee

Recommendations	Individuals/ Families	Communities	Service Providers (Health Plans, Clinics/Provider Groups, Private Practices)	Policy Makers
Ask the ONE KEY QUESTION!! - Do you want to become pregnant within the next year? Your response should inform you, your partner, your healthcare provider and social systems about the next critical steps	◆	◆	◆	◆
Stop smoking, Get Help to Quit, or Do Not Start!	◆	◆		
Be intentional in your health and reproductive life plans	◆	◆		
Maintain good health before, during and after pregnancy including: 1) Weight management 2) Diabetes control 3) Blood pressure control 4) Infection eradication 5) Healthy relationships 6) Stopping drug and alcohol abuse	◆	◆	◆	
Prevention and quality care/management of health conditions among providers: a. Diabetes b. Hypertension c. Infections – UTIs/STDs d. Mental health e. Smoking and marijuana use f. Weight management	◆	◆	◆	◆
Social Issues ARE Health Issues. <ul style="list-style-type: none"> Identify the unmet social service needs of patients and connect them to resources 	◆	◆	◆	◆
<ul style="list-style-type: none"> Advocating for policies that improve overall social and economic health and wellbeing of populations across the life span. 	◆	◆	◆	◆
Assure and increase patient centered prenatal and infant case management, both on the phone and in person		◆	◆	◆
Support community-sponsored health navigators to improve patient engagement		◆	◆	◆
Promote and teach reproductive life planning, pregnancy prevention including LARC, and condom availability		◆	◆	◆
Promote healthy relationships to eliminate coercion, rape and sex-trafficking	◆	◆	◆	◆
Promote and integrate in-house health education and health promotion across the life span		◆	◆	◆
Support and respect families' reproductive life plans, including family planning	◆	◆	◆	◆

COMMUNITY ACTION DRIVEN BY 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 in 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 hospitals 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 participation in the statewide advisory workgroups on health disparities and data and evidence-based practices
- Providing data to spur community action
- Our partner organizations have done much to improve birth outcomes in Milwaukee. The following are some of their accomplishments.

City of Milwaukee Health Department (www.milwaukee.gov/health or 414-286-3521)

The City of Milwaukee Health Department (MHD) is the largest local public health department in Wisconsin and has been providing public health nursing home visitation services to the Milwaukee community for more than 120 years. Infant mortality reduction is the highest priority of the MHD. MHD's programs include:

- Clinic services: immunizations, health checks, and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC)
- Infant mortality education: To increase awareness of infant mortality in Milwaukee and identify how individuals and organizations can assist in reducing the risk for the populations they serve, the MHD offers infant mortality education to members of the public, professionals in the nursing and medical community at hospitals, and local clinics
- Cribs for Kids Program: Provides Pack N' Play® portable cribs alongside education about safe sleep and other Sudden Infant Death Syndrome (SIDS) reduction strategies
- Home visitation: Four home-visitation programs, Empowering Families of Milwaukee (EFM), Nurse Family Partnership (NFP) and Parents Nurturing and Caring for their Children (PNCC), and Direct Assistance for Dads (DAD) project provide home-based services to at-risk pregnant women, dads and their infants to support families around child care and development, child health and safety, positive parenting skills, parental health and well-being. www.homevisitmke.com
- Plain Talk: A teen pregnancy prevention initiative designed to assist parents and other influential adults in developing the skills they need to communicate effectively with youth and children about abstinence, healthy relationships, and sexuality
- Men's Health Program: Provides assistance and referrals for a broad range of preventive health and social service issues to individuals and groups, including health check-ups and prevention education as well as assistance with enrollment in health benefits, fatherhood, and parent service programs.
- Community Healthcare Access Program (CHAP) provides assistance to pregnant women for enrollment in all public programs including the Healthcare Marketplace.

Joseph J Zilber School of Public Health (www.uwm.edu/publichealth or 414-227-3001)

The Joseph J. Zilber School of Public Health is a research facility, a world-class learning environment, and an advocate for the Greater Milwaukee community. The mission of the school is to advance population health, health equity and social and environmental justice throughout Milwaukee, the state of Wisconsin and beyond. The school provides leadership, support, continuity and evaluation to the FIMR process.

COMMUNITY ACTION DRIVEN BY FIMR RECOMMENDATIONS

Center for Urban Population Health (CUPH) (www.cuph.org or 414-219-5100)

The Center for Urban Population Health works to improve the health of urban communities across the life course and is a collaboration of the University of Wisconsin School of Medicine and Public Health, the University of Wisconsin-Milwaukee, and Aurora Health Care, Inc. The Center facilitates community work in these areas in several different ways:

- Maintains a “catalog” of community and research initiatives and workgroups focused on improving infant health outcomes, including infant mortality. In 2017, the catalog will go live as a searchable database.
- Established the Lifecourse Initiative for Healthy Families (LIHF) Regional Program Office (RPO), addressing the high incidence of African American infant mortality in Racine, Kenosha, and Milwaukee.

Milwaukee County Medical Examiner (<http://county.milwaukee.gov/MedicalExaminer> or 414-223-1200)

The Milwaukee County Medical Examiner’s Office investigates and determines the cause, circumstances and manner in each case of sudden or unexpected infant death. The Medical Examiner also participates in prevention of infant death in the following manner:

- Thoroughly investigating infant deaths by conducting a scene investigation and by the use of doll re-enactment, gathering medical history, and completing an autopsy
- Gathering and sharing statistical information on infant deaths
- Participating in FIMR and infant death review committees both at the local and state level
- Promoting and maintaining the highest professional standards in the field of death investigation
- Enhancing public health and safety through education in the reduction of preventable deaths
- Protecting deceased individuals, their loved ones, and the communities we serve

Aurora Sinai Midwifery and Wellness Center (<http://www.aurorahealthcare.org/services/womens-health-care/obstetric-services/midwife-services> or 414-219-6649)

The Aurora Sinai Midwifery & Wellness Center provides high-quality, personalized care, before, during and after childbirth. All of the midwives are registered nurses with nurse midwife certification who have completed a master’s degree or higher. Our providers:

- Routinely provide Expedited Partner Treatment (EPT) for sexually transmitted infections, when appropriate.
- Encourage and assist in smoking cessation through First Breath.
- Promote safe sleep practices, including a safe crib on display at the Birth Center’s greeter’s desk and a sleepsack swaddle gift to all newborns on the postpartum unit.
- Promote breastfeeding through the initiation of an online educational program. Lactation services are also offered by IBCLC certified CNMs in the office.
- Encourage adherence to the 6-week postpartum follow-up visit by scheduling the appointment prior to hospital discharge and offering a mom/baby or family photo at the postpartum visit.
- Adhere to best practice guidelines promoting the use of progesterone supplementation for women at risk of preterm birth.
- Provide RN follow-up calls for missed visits, promoting adherence to prenatal care standards.

United Healthcare Community Plan (<http://www.uhcommunityplan.com/wi/wi-healthplan> or 800-504-9660)

UnitedHealthcare (UHC) is dedicated to helping people live healthier lives by simplifying the health care experience, meeting consumer health and wellness needs, and sustaining trusted relationships with care providers. UHC healthy birth outcome initiatives include:

- Enrolling members with high risk pregnancies into our Healthy First Steps™ (HFS) program.
- Enrolling identified members in our Care Management program during the interconception period.

COMMUNITY ACTION DRIVEN BY FIMR RECOMMENDATIONS

- Members who receive Care Management may be referred, based on needs, to home visiting programs, behavioral health, smoking cessation, domestic violence support and safe sleep programs with the City of Milwaukee Health Department Cribs for Kids program.
- Promoting Text4baby, a free educational service to pregnant members.
- Offering our Baby Blocks™ reward program to promote prenatal, postpartum and well-child check-ups.

Department of Health Services, State of Wisconsin (www.dhs.wisconsin.gov or 608-261-0653)

The Wisconsin Division of Public Health of the Department of Health Services (DHS), through the Keeping Kids Alive initiative, is sponsoring the expansion and coordination of fetal and infant mortality reviews (FIMR) and child death reviews (CDR). Wisconsin's Maternal and Child Health (MCH) Program and MCH stakeholders continue to support prevention efforts with performance measures and local health department contracts in the areas of safe infant sleep, breastfeeding, maternal mental health, PRAMS, maternal well visits, adolescent injury and suicide prevention and health equity.

Columbia-St. Mary's Hospital (www.columbia-stmarys.org or 414-585-4921)

Columbia-St. Mary's (CSM) exists to make a positive difference in the health status and lives of individuals and our community, with special concern for those who are vulnerable. It is a recognized leader in addressing the health care needs of Milwaukee area women. CSM has worked to improve women's health and infant health through:

- Collaboration with Sixteenth Street Community Health Center in labor and delivery for their OB patients.
- Sponsorship of the CSM OB/GYN Clinic to serve impoverished or otherwise vulnerable communities in women's health needs.
- Implementation of the CSM Level III Neonatal Intensive Care Unit on an all-private room model to improve infection control while offering a less stressful setting for family privacy and bonding.
- Sponsorship of the Strong Baby Sabbath to communicate principles of Safe Sleep and avoidance of prematurity across the community through the leadership of area clergy.
- Distribution of Pack n' Play™ cribs to assure safe sleep space for CSM born infants.
- Development of the Strong Baby Sanctuary program in partnership with the City of Milwaukee, March of Dimes, and the City of Milwaukee Health Department to designate 15 central city churches as sanctuaries of mentorship and support for pregnant women.
- Expansion of the Blanket of Love prenatal education into Sanctuary churches
- Development of the Seton Dental Clinic Prenatal Oral Health program to improve oral health of pregnant women, reducing inflammation and infection that may be related to prematurity.

Children's Health Alliance of Wisconsin (www.chawisconsin.org or 414-337-4560)

Children's Health Alliance of Wisconsin, affiliated with Children's Hospital of Wisconsin, is a statewide organization working to ensure children are healthy, safe and able to thrive. We are Wisconsin's voice for children's health. We raise awareness, mobilize leaders, impact public policy and implement programs proven to work. Our key initiatives are asthma, early literacy, emergency care, grief and bereavement, injury prevention and death review, medical home and oral health.

- The Alliance has led efforts to create a comprehensive statewide child death review (CDR) system.
- The Alliance also builds collaboration between CDR and fetal infant mortality review (FIMR).
- The Alliance leads the Infant Death Center (IDC) which reaches out all families statewide who experience a sudden and unexpected death of an infant to better understand their unique grieving needs and provide them with appropriate resources. Staff works closely with professionals serving grieving families to provide additional resources, as well as self-care information for the professional.
- The IDC also collaborates with Marshfield Clinic to encourage use of the Wisconsin Stillbirth Service Program (WISSP), and to reach stillbirth families in need of grief and bereavement resources.

COMMUNITY ACTION DRIVEN BY FIMR RECOMMENDATIONS

Children’s Community Health Plan (childrencommunityhealthplan.org or 1-877-227-1142)

Children’s Community Health Plan (CCHP), an affiliate of Children’s Hospital of Wisconsin, is dedicated to providing access to the highest quality health care and services to our members. Children’s Community Health Plan offers two products to our Wisconsin members:

- **BadgerCare Plus:** HMO offered in 13 counties in eastern Wisconsin, and
- **Together with CCHP:** A Marketplace health insurance plan for individuals and families. CCHP’s Healthy Mom Healthy Baby Program helps pregnant women get the support and services needed to have a healthy pregnancy and a healthy baby.

Initiatives addressing infant mortality include education and support regarding:

- **Prenatal and interconception care.** The importance of a postpartum visit and birth control planning through the life course has been the focus of the Healthy Birth Outcomes workgroup and community outreach
- **Dental Health.** Access to professional care and education regarding the importance of dental health and hygiene during pregnancy and the first years of a child’s life are part of a joint initiative with Children’s Health Alliance
- **Smoking cessation.** Members are offered the Wisconsin Women’s Health Foundation First Breath risk reduction program as well as programs for members during all phases of life
- **Safe Sleep Practices.** The ABCs of safe sleep are taught throughout the program and included in all mailings to pregnant and postpartum members of CCHP and Pack n’ Plays™ and the Newborn Nest are available. All participants receive swaddle sacks
- **Breastfeeding.** Staff of HMHB includes Certified Lactation Counselors. All members have access to the Breastfeeding Education Support Team, which can provide phone and home visit guidance during pregnancy and in the postpartum period

United Way of Greater Milwaukee & Waukesha County (www.unitedwaygmwc.org or 414-263-8100)

United Way of Greater Milwaukee & Waukesha County’s (UWGMWC) mission is to change lives and improve our community by mobilizing people and resources to drive strategic impact in education, income and health. Since 1909, it has been helping people build and sustain better lives. United Way’s core strategies – Education, Income and Health – are the building blocks to a good life.

CORE STRATEGIES:

Together with our partners, we are committed to helping reach the community-wide goal to reduce Milwaukee’s overall infant mortality rate by 10% and the African-American infant mortality rate by 15% by 2017.

- Infant Mortality Reduction through Prematurity Prevention
- Teen Pregnancy Prevention

Milwaukee Lifecourse Initiative for Healthy Families (LIHF) Collaborative with United Way of Greater Milwaukee & Waukesha County (www.unitedwaygmwc.org/MilwaukeeLifecourse or 414-263-8154)

The Milwaukee LIHF Collaborative is dedicated to improving community conditions that support healthy birth outcomes. Our vision is to eliminate the racial disparity in birth outcomes ensuring that all babies get to blow out their first birthday candle. All committees are focused on prematurity prevention, as we see this as our greatest opportunity to improve birth outcomes and reduce infant mortality.

To change these racial disparities, the collaborative focuses on three main objectives:

- Reducing poverty
- Strengthening African-American families
- Increasing access to health care

The strategy for meeting the goal is to bring together those who want to eliminate racial disparities in birth outcomes and improve community conditions by convening four action committees:

COMMUNITY ACTION DRIVEN BY FIMR RECOMMENDATIONS

- Faith Roundtable
- Health Care Access
- Policy, Systems and Environmental Change (Social Determinants of Health)
- Strengthening African American Families/Fatherhood and Male Engagement

Independent Care Health Plan (i-Care) (<http://www.icare-wi.org/> or 800-777-4376)

Independent Care Health Plan (iCare) offers specialized programming for pregnant and postpartum women through our iCare for Mom and Baby Program. Milwaukee County members are offered home visitation, health education, assistance with obtaining baby supplies, and coordination of care. Spanish and Hmong speaking staff are available.

The Black Health Coalition of Wisconsin, Inc. (www.bhcw.org or 414-933-0064)

The Black Health Coalition of Wisconsin (BHCW) has been in existence since 1988. The mission of BHCW is to improve the health status of African Americans and all underserved populations in the State of Wisconsin. The BHCW has always utilized the World Health Organization's philosophy of health which understands that good health is a community necessity. Therefore, in addition to disparities in medical services and public health, the BHCW focuses on issues of housing, jobs, advocacy, community empowerment and increasing community voice. In 1998, the BHCW received a grant from the federal Maternal and Child Health Bureau to address disparities in African-American birth outcomes. BHCW created the Milwaukee Healthy Beginnings Project (MHBP). Current services include:

- The provision of services to pregnant and postpartum women in the Milwaukee County Jail and the House of Corrections.
- Targeted case management and advocacy services, including home visiting, to women and families who have had their children removed.
- Conduct Historical Trauma and Culturally relevant Trauma informed care educational sessions to providers and community.

Froedtert and the Medical College of Wisconsin (www.froedterthealth.org or 414-805-3666)

- Infant Safety classes including safe sleep with parents participating in a demonstration of a made up crib
- Pathway to Parenthood Classes in OBC – increased patient participation in prenatal education classes from 7% up to 26%
- Designated Care Coordinator in OBC for ALL high-risk pregnancy patients
- RTS/perinatal bereavement program for all who have a perinatal loss as well as regular RTS trainings
- Full time psychologist and psychiatrist in High Risk OB clinic
- Child Life Specialists who provide grief support to children when their parents are hospitalized
- Increased efforts in encouraging father of baby participation in prenatal education classes

Sixteenth Street Community Health Center Milwaukee Clinic (www.ssche.org or 414- 672-1353)

Since 1969, Sixteenth Street Community Health Centers has provided quality health care, health education and social services to residents of Milwaukee's near South Side and Waukesha. In 2015, Sixteenth Street served more than 39,000 people, with over 160,000 individual visits made to the centers.

- Primary Medical Care, with 50 bilingual providers in family practice, pediatrics, internal medicine, women's health, Certified Nurse Midwives, advanced practice nurse practitioners and physician's assistants.
- Behavioral Health, providing the full range of outpatient mental health services for all ages, including individual and family therapy, group therapy and medication management, with a staff of psychiatrists, psychologists, psychotherapists and doctoral student interns.
- WIC (Women, Infants and Children Program), nutrition education and supplemental food vouchers for pregnant women, infants and children up to age five.

COMMUNITY ACTION DRIVEN BY FIMR RECOMMENDATIONS

- Prenatal and pediatric nurse case management, case management aimed at improving the health of maternity patients, their newborns and all pediatric patients.
- Supplemental Services
 - Parenting Resource Center, classes on child development, family planning, prenatal care and parenting skills.
 - Healthy Choices, obesity prevention in the form of family-based nutrition education and community advocacy.
 - Chronic Conditions Health Education, diabetes and asthma management and support.
 - HIV, offering prevention, outreach, case management and medical care within an integrated care team.
 - Social Services, patient advocacy, crisis intervention, counseling, insurance eligibility and enrollment and information and referral to other agencies.

March of Dimes (www.marchofdimes.com and www.marchofdimes.com/wisconsin or 414-203-3125)

The mission of the March of Dimes is to improve the health of babies by preventing birth defects, premature birth and infant mortality. Prematurity is the #1 killer of babies in the United States and Milwaukee. March of Dimes is working to change that and help more moms have full-term pregnancies and healthy babies through community programs, advocacy, research, education and support to families affected by prematurity.

Wheaton Franciscan Healthcare-St. Joseph (<http://www.mywheaton.org> or 414-647-5000)

Wheaton Franciscan-St. Joseph Campus and the Women's Outpatient Center (WOC) are dedicated to reducing the rate of fetal and infant mortality. There are numerous ways that we address this through prematurity prevention, the application of evidence based practices for maternity care, as well as evidence based care that is given for preterm infants. In addition:

- At Wheaton Franciscan-St. Joseph Campus, all expectant families are asked if there is a safe place for the infant to sleep. If the infant does not have its own safe place to sleep, the family is given a "pack-and-play" to take home.
- Within the WOC, Safe Sleep classes are offered, and "pack-and-plays" are given to each class participant.
- Within the WOC, the First Breath program is offered and supported.
- The WOC is a certified Centering Pregnancy site.
- Car Seat safety classes are offered in the WOC by certified trainers. At the end of the class, a car seat is given to each participant.

Sojourner Family Peace Center (www.familypeacecenter.org or 414-933-2722)

Sojourner Family Peace Center is the largest nonprofit provider of domestic violence prevention and intervention services in Wisconsin, serving over 9,500 clients each year. Sojourner provides an array of support aimed at helping families affected by domestic violence achieve safety, justice and well-being. Established in 1975, Sojourner's mission is to transform lives impacted by domestic violence. Our primary goals are to ensure the safety of victims of family violence and provide a pathway out of violence for victims and abusers through opportunities to make positive and lasting changes for themselves and their children. Case management, policy advocacy and home visits are included in the array of domestic violence services provided by Sojourner. In 2015, Sojourner and Children's Hospital of Wisconsin opened the doors of the Family Peace Center located at 619 W. Walnut Street in Milwaukee. Based on the Family Justice Center model, the Family Peace Center co-locates family violence and child advocacy services and is the largest center of its kind in the United States. Other on-site partners co-located at the Family Peace Center include the Milwaukee Police Department Sensitive Crimes Unit, the Milwaukee County District Attorney's Office, Milwaukee Public Schools and Aurora Healthcare.

UWM College of Nursing (www.uwm.edu or 414-229-5047)

The University of Wisconsin-Milwaukee College of Nursing has faculty with expertise in the study of infant sleep environments and mental health screening in pregnant and postpartum women. Faculty are available for consultation on developing screening practices in agencies, health facilities and systems and are also available for research collaborations.

APPENDIX A: ONLINE PRACTICE GUIDELINES AND STANDARDS OF CARE

National Institutes of Medicine

Children's Health	http://www.iom.edu/Reports/2009/FocusChildrensHealth.aspx
Women's Health	http://www.iom.edu/Reports/2011/Clinical-Preventive-Services-for-Women-Closing-the-Gaps.aspx
Preterm Birth	http://www.iom.edu/Reports/2006/Preterm-Birth-Causes-Consequences-and-Prevention.aspx
Obesity	http://nationalacademies.org/hmd/reports/2016/assessing-prevalence-and-trends-in-obesity.aspx
Oral Health	http://www.iom.edu/Reports/2011/Improving-Access-to-Oral-Health-Care-for-Vulnerable-and-Underserved-Populations.aspx
Public Health	http://www.iom.edu/Reports/2012/For-the-Publics-Health-Investing-in-a-Healthier-Future.aspx

NACCHO guidelines

Health Inequalities	http://toolbox.naccho.org/pages/tool-view.html?id=4715
Infant Mortality	http://www.naccho.org/toolbox/tool.cfm?id=2579
Safe Sleep	http://www.naccho.org/toolbox/tool.cfm?id=2224
Late Preterm Infant	http://www.naccho.org/toolbox/tool.cfm?id=2487
Infections during Pregnancy	http://www.naccho.org/toolbox/tool.cfm?id=2685
Domestic Violence	http://www.naccho.org/toolbox/tool.cfm?id=3029
Pregnancy Spacing	http://www.naccho.org/toolbox/tool.cfm?id=2563
Lifecourse	http://www.naccho.org/toolbox/tool.cfm?id=2078
Smoking Cessation	http://www.naccho.org/toolbox/tool.cfm?id=3215
Performance Measurement	http://toolbox.naccho.org/pages/tool-view.html?id=2932
Using Social Media	http://toolbox.naccho.org/pages/tool-view.html?id=2575

American Academy of Pediatrics (AAP)

Child health guidelines	https://brightfutures.aap.org/materials-and-tools/guidelines-and-pocket-guide/Pages/default.aspx
Safe Sleep	https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/AAP-Expands-Guidelines-for-Infant-Sleep-Safety-and-SIDS-Risk-Reduction.aspx

American Congress of Obstetricians and Gynecologists (ACOG)

Hypertension and pregnancy	http://www.ohsu.edu/som/obgyn/programs/ACOG%20Practice%20Bulletin%20125%20Feb%202012.pdf
Diabetes and pregnancy	http://www.acog.org/Resources%20And%20Publications/Committee%20Opinions/Committee%20on%20Obstetric%20Practice/Screening%20and%20Diagnosis%20of%20Gestational%20Diabetes%20Mellitus.aspx
Stillbirth management	http://www.acog.org/About_ACOG/News_Room/News_Releases/2009/ACOG_Issues_New_Guidelines_on_Managing_Stillbirths
Depression	http://www.acog.org/About_ACOG/ACOG_Sections/Ontario_Section/Lets_Talk_about_Perinatal_Depression
Adolescent care	http://www.acog.org/About_ACOG/ACOG_Departments/Adolescent_Health_Care
Previaible birth	http://www.acog.org/Resources-And-Publications/Obstetric-Care-Consensus-Series/Periviable-Birth

Other Agencies

Centering Pregnancy	https://www.centeringhealthcare.org/
CDC Pregnancy and Reproductive health guidelines	http://www.cdc.gov/pregnancy/index.html
Literature, research and guidelines on stillbirth	http://stillbirthalliance.org/

APPENDIX B: GENERAL RESOURCES

Northern Manhattan Perinatal Collaborative	http://sisterlink.com/
Association of Maternal and Child Health Programs	http://www.amchp.org/programsandtopics/womenshealth/Pages/default.aspx . .
Hypertension and pregnancy	http://emedicine.medscape.com/article/261435-overview
Diabetes and pregnancy	http://www.cdc.gov/pregnancy/diabetes.html
Inter-conceptional health	http://www.cdc.gov/preconception/overview.html
	http://www.hrsa.gov/communitiesofpractice/AtaGlance/interconceptioncae.pdf
Policies and Programs to Improve Wisconsin's Health	https://www.dhs.wisconsin.gov/mch/index.htm https://www.dhs.wisconsin.gov/search?search=COIIN+&=Submit

WISCONSIN ASSOCIATION FOR PERINATAL CARE (WAPC) http://perinatalweb.org/index.php?option=com_content

STATE OF WISCONSIN

Pregnant women who do not have insurance should call the MCH hotline at 1-800-722-2295 or go to <http://www.mch-hotlines.org/?id=4569&sid=33> for information on where and how to sign up for insurance.

CITY OF MILWAUKEE HEALTH DEPARTMENT

STD posters:	http://city.milwaukee.gov/ImageLibrary/Groups/healthAuthors/MCH/PDFs/InfantMortality/2009_std_posters.pdf
Safe Sleep posters at	http://city.milwaukee.gov/Safe-Sleep-for-baby
Zip code and aldermanic district data	http://city.milwaukee.gov/health/Infant-Mortality#.WCyk9mczWUk
Specific healthy birth outcome recommendations	http://city.milwaukee.gov/Infant-Mortality

SMOKING CESSATION

In Wisconsin, pregnant women who are interested in quitting can enroll in a program called **First Breath**. Providers who would like to refer their patients to First Breath can find referral forms at: <https://www.wwhf.org/first-breath-online-forms/>

Family members or anyone else interested in quitting can call **1-800-QUIT-NOW** for free counseling and nicotine replacement therapy (NRT). Medical providers can set up a phone counseling session for their patients through Fax 2 Quit.

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APPENDIX D: DISPARITY DATA BY ZIP CODE

Zip Code	2012-2015 infant Mortality Rate*	2012-2015 Minority (not White) Infant Mortality Rate*	2015 Teen Birth Rate**	Males 18-24 without HS diploma	Females 18-24 without HS diploma	Female Single Parent Households with Children <18	Families below the poverty level	Median Income
53202	NA	NA	21.4	1.80%	0.20%	9.00%	7.20%	\$47,890
53203	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	\$57,870
53204	5.7	5.5	88.7	44.10%	28.70%	40.50%	43.10%	\$24,580
53205	8.1	8.2	74.4	28.30%	25.20%	64.60%	37.90%	\$25,388
53206	15.9	16.1	72	34.50%	30.50%	76.30%	45.70%	\$22,468
53207	6.2	NA	32.8	18.50%	9.50%	25.30%	10.30%	\$54,889
53208	10.6	15.2	71.3	31.70%	20.30%	54.10%	10.40%	\$30,318
53209	14.8	13.7	57.8	35.20%	21.20%	61.00%	25.80%	\$32,376
53210	14.7	14.3	94.5	27.70%	21.60%	62.60%	28.00%	\$32,177
53211	0	0	2.3	1.90%	1.60%	17.50%	5.20%	\$53,482
53212	11.5	8.3	56.7	25.60%	11.80%	59.70%	33.40%	\$30,003
53213	NA	NA	NA	6.80%	8.20%	23.30%	4.60%	\$65,950
53214	NA	NA	31.7	8.00%	13.10%	32.10%	15.00%	\$42,209
53215	7.7	7.2	61.6	35.00%	28.70%	34.30%	29.20%	\$33,129
53216	13.3	13.3	57	25.30%	10.30%	67.60%	26.70%	\$32,388
53217	NA	NA	NA	9.60%	3.50%	11.10%	3.30%	\$97,690
53218	9.9	9.6	43.6	31.00%	16.90%	57.60%	27.00%	\$35,901
53219	9.1	NA	33.8	18.10%	7.90%	29.00%	9.60%	\$46,241
53220	1.6	NA	28.7	8.30%	16.30%	38.00%	8.70%	\$46,786
53221	3.8	NA	98	9.20%	9.70%	22.40%	13.40%	\$47,109
53222	7.2	3.6	52.3	15.70%	10.60%	25.20%	11.90%	\$52,842
53223	11	10.5	28.9	22.80%	9.20%	40.60%	15.20%	\$41,462
53224	9	8.5	43.9	25.30%	16.70%	50.70%	25.30%	\$40,571
53225	11.9	13	75.2	21.90%	6.90%	58.80%	18.90%	\$39,348
53226	NA	NA	NA	9.70%	2.30%	18.90%	3.10%	\$66,132
53227	NA	NA	NA	8.90%	5.30%	27.20%	7.10%	\$48,347
53228	NA	NA	NA	2.70%	3.30%	21.40%	5.40%	\$54,071
53233	7	NA	NA	8.20%	3.60%	74.10%	59.50%	\$13,544

Zip code data from 2010-2014 5-year American Community Survey at www.americanfactfinder.gov

*Infant mortality data source: City of Milwaukee Health Department

**Teen birth numerator data source: City of Milwaukee Health Department

NA=IMR calculated for greater than 5 deaths as numerator and/or greater than 300 live births as denominator

APPENDIX E: 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.

Deaths Related to Labor and Delivery: a category of death where the infant is born near term or full term and there was a complication of delivery. Examples include abnormal presentation, macrosomia or cord compression.

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

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

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

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.

APPENDIX E: DEFINITIONS

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 is 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

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 are:

- Non-Hispanic Black or African American
- Non-Hispanic White
- Other= Other races/ethnicities, including Bi-racial
- Hispanic/Latino/a (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.

AREAS OF CONCERN

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.

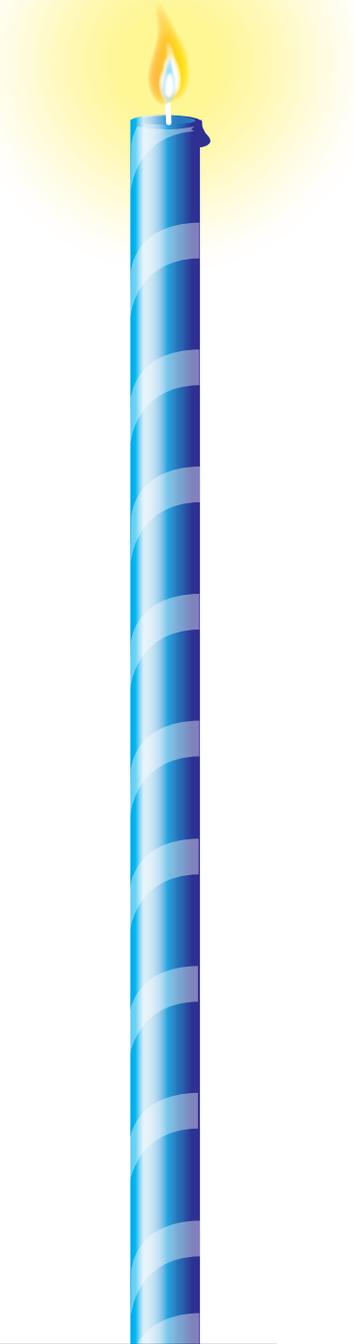
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AGENCIES AND INSTITUTIONS THAT SUPPORT FIMR

City of Milwaukee Health Department
Zilber School of Public Health
Aurora Healthcare
Aurora Sinai Medical 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
Columbia-St. Mary's Hospital
Community Memorial Hospital, Menomonee Falls
Sojourner Family Peace Center of Milwaukee
Froedtert Memorial Hospital
Independent Care Health Plan (I-Care)
Medical College of Wisconsin
Milwaukee Health Services
Milwaukee County Medical Examiner
Pro-Care Medical Group
Progressive Community Health Centers
Sixteenth Street Community Health Centers
Department of Health Services, State of Wisconsin
The United Way of Greater Milwaukee
United Healthcare/Optum Healthcare
University of Wisconsin – Milwaukee
Waukesha Memorial Hospital
West Allis Memorial Hospital
Wheaton Franciscan Healthcare
Wheaton Franciscan – St. Francis Hospital
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