Maine's Maternal, Fetal, and Infant Mortality Review Panel

2024 Annual Report

Required by:

22 MRS § 261; PL 2017, c. 203

Submitted by: Department of Health and Human Services
Maine Center for Disease Control and Prevention,
Maternal and Child Health Program

Table Of Contents

Testimonials

“I once read somewhere that the measure of a healthy society is life expectancy at birth. With this metric in mind, the MFIMR Panel – composed of a team from diverse personal and professional backgrounds – is uniquely positioned to study and learn from tragic circumstances on how to improve the prenatal, perinatal, and postnatal care of our fellow citizens in Maine.”

– MFIMR Co-Chair Alan P. Picarillo, MD

"It has been an honor to collaborate with the dedicated community members and professionals of the MFIMR Panel as we continue to examine the complex conditions and factors contributing to maternal, fetal, and infant mortality in Maine. The Panel members have shown deep consideration for the profound impact of these losses on Maine families, and we remain committed to ensuring that Mainers will benefit from the insights and recommendations of the MFIMR panel.”

– MFIMR Co-Chair Amanda Taisey

“Maternal and child health is an indicator of the State’s overall health. The MFIMR Panel reviews maternal, fetal and infant death cases to look for ways the perinatal system of care can be improved. The Panel plays an important role in Maine’s goal of improving MCH health by identifying gaps in the system and making recommendations to help spare Maine families from experiencing the loss of a loved one.”

– Maine CDC’s MCH Director Maryann Harakall

EXECUTIVE SUMMARY

As required by 22 MRS § 261(5), the Maine Center for Disease Control and Prevention's Maternal, Fetal and Infant Mortality Review (MFIMR) Panel presents this 2024 annual report which highlights the status of maternal, fetal and infant mortality in Maine and the activities that the Panel has performed in the form of case reviews and recommendations. The report is structured in two separate parts – an *Epidemiology Brief* and a *Report of Panel Activities*. The first part is a high-level data analysis; the other is an explanation of the Panel's work grappling with complex individual stories to craft recommendations for prevention. Over 18 months of reviews, trends remain similar to previous reports. The quality of recommendations from the Panel has improved with additional staff assigned to MFIMR. For this report, the Panel highlights nine recommendations. They are prioritized in the areas of mental health, substance use, and cultural/linguistic support which were deemed priority areas. There are seven additional policy level recommendations that came from case reviews that are included in Appendix C. In 2025, the MFIMR Panel will continue to build on its experience and work on constructing strong, actionable recommendations, supporting ongoing Maternal Child Health efforts, building trust with communities, and improving Panel processes.

INTRODUCTION

The Maine Center for Disease Control and Prevention's (Maine CDC) Maternal, Fetal and Infant Mortality Review Panel is a multidisciplinary group of health care and social service providers, public health officials, and other people with professional expertise in maternal, fetal and infant health and mortality. Appointed MFIMR Panel members are authorized to review de-identified summary information relevant to maternal, fetal and infant death case reviews. The Panel's purpose is to gain an understanding of the factors associated with these deaths to expand the State's capacity to direct prevention efforts and be able to take actions to promote the health and wellbeing of Maine's families. (22 MRS § 261.) Using a public health approach, the overarching goal is to strengthen community resources and enhance systems and policies affecting growing families to improve health outcomes in this population and prevent maternal and infant mortality and morbidity. This report summarizes the MFIMR Panel's activities for the 18-month period of July 2023-December 2024. It outlines recommendations, relevant data contributing to perinatal outcomes, and ongoing plans for the MFIMR Panel for the 2025 calendar year.

BACKGROUND and HISTORY

In 2004, a group of concerned citizens and clinicians came together because they were seeing women and babies dying and wanted to understand what was happening. They decided to follow other states' leads and encouraged the legislature to establish a panel or committee that would work to prevent deaths during pregnancy and infancy. Pursuant to PL 2005, chapter 467, the Department of Health and Human Services (Department) established a Maternal and Infant Death Review Panel to review data presented on cases of maternal and infant deaths, which, initially, included all cases of women who died during pregnancy or within 42 days of giving birth and the majority of deaths of infants under one year of age. The Panel was charged with presenting, annually, a report of findings related to factors contributing to maternal and infant death in the State and recommendations to decrease the rate of maternal and infant death.

After four years, it became clear that there was a fine line between early neonatal deaths (those occurring from only moments after birth to one week of life) and those born still. As a result, the 124th Maine Legislature enacted emergency legislation (PL 2009, chapter 531), amending the statute to authorize the Maternal and Infant Death Review Panel to review late fetal deaths – or stillbirths occurring after 28 weeks gestation. With this change, the Panel was referred to as the Maternal, Fetal and Infant Mortality Review (MFIMR) Panel, formally changed in statute in 2017. Additionally, the Panel's sunset provision was repealed effectively in 2010, allowing the Panel to continue its work beyond the original end date of January 1, 2011.

PL 2017, chapter 203 amended 22 MRS § 261, sub-§ 4 by repealing the provision requiring the Panel Coordinator to obtain permission from the family prior to accessing health care records of a woman who died during pregnancy or within 42 days of giving birth, an infant who died within one year of birth, and fetal deaths after 28 weeks of gestation.

In its 2019 annual report, the Panel recommended statutory changes to include access by the Panel Coordinator to health care information for maternal deaths up to one year following the end of a pregnancy, in accordance with the guidance of the United States (US) CDC Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) program. This change was approved by the 129th Maine Legislature and reviews expanded the following year. (PL 2019 chapter 671.)

In 2021, the Maine Medical Association Center for Quality Improvement (MMA-CQI), in cooperation with the Maine CDC, applied for US CDC grant funding under the ERASE MM program. MMA-CQI was awarded this 2-year grant beginning September 30, 2022, allowing for the expansion of capacity to review all maternal deaths in Maine. MMA-CQI was awarded an additional 5-year grant beginning September 30, 2024. The principal goals of the first year of this 5-year grant are to increase the availability, quality and timeliness of MFIMR data, to improve the multi-disciplinary, population-level review of pregnancy-related deaths and documentation of recommendations for prevention, and to improve the dissemination, access to, and employment of quality maternal death data to drive opportunities for prevention.

EPIDEMIOLOGY BRIEF

In support of the MFIMR Panel, funding is provided for epidemiologic analyses of maternal, fetal, and infant mortality through the Maternal and Child Health Block Grant (MCHBG) and the CDC ERASE-MM grant to help the Panel understand patterns and trends associated with maternal, fetal, and infant deaths. Over the last 18 months, MCH epidemiologists provided quarterly analyses of provisional infant death data and annual analyses of fetal death data and pregnancy-associated death data collected by Maine CDC's Data Research and Vital Statistics (DRVS) program. This workflow ensures periodic and consistent surveillance of the infant and fetal death data in our state and the opportunity to detect emerging or differing trends to alert other State agencies as needed. As seen below, these trends over the past year are not necessarily new, but important to highlight areas that are statistically significant.

This section of the report includes 3 parts: 1) "Fetal Death Summary", 2) "Infant Death Summary" and 3) "Pregnancy-Associated Mortality Summary". The "Fetal Death Summary" and the "Infant Death Summary" explains Maine's finalized 2023 death data. These data are finalized by DRVS and reviewed by the MCH epidemiology team as of November 2024. The MFIMR Panel will use this data to inform case selection of fetal and infant deaths for reviews in calendar year (CY) 2025.

In contrast, MFIMR is required by statute to review all pregnancy-associated deaths. The goal, based on national guidance, is to review within two years of death. Prior to ERASE-MM grant funding there had been no review of pregnancy-associated deaths. In July 2022 this changed, but there was a backlog of cases as the Panel attempted to start with 2020 deaths. Over the last 18 months, the Panel has reviewed the remainder of the 2021 pregnancy-associated deaths and thus finalized that data set. Additionally, the Panel has reviewed the majority of 2022 pregnancy-associated deaths and, through death certificates, have identified 2023 and 2024 pregnancy-associated deaths. However, this data is not finalized until MFIMR case reviews and determinations on preventability, pregnancy-relatedness and specific contributing factors are made by the Panel. The report's "Pregnancy-Associated Mortality Summary includes 2021 finalized data along with a one-pager of this data in Appendix A as well as the provisional data for 2022 and 2023.

In the MFIMR Activities Report section, the cases reviewed for this annual report do not align perfectly with the calendar years of this Epidemiology Brief. The goal for CY 2025 is to finalize the 2022 and 2023 pregnancy-associated death data to better synchronize the 2025 MFIMR Annual Report.

Data from DRVS that includes linked birth and death certificate data for fetal and infant deaths, are not finalized until late fall of the following calendar year (CY). For example, the 2023 death data for both populations were finalized in November 2024. The below data includes Maine's finalized fetal and infant death data from 2023, and this Panel will use this epidemiologic information to better inform infant and fetal death case selection for reviews in 2025 as a cohort with the full analytic support of the Maternal and Child Health (MCH) epidemiologists. For the past year (CY 2024), the 2022 finalized infant and fetal data sets were used for sampling cases for

Panel review. The Panel’s case review timetable keeps within the national guidance of no more than two years from the date of death and ensures families have the opportunity to participate voluntarily in family interviews.

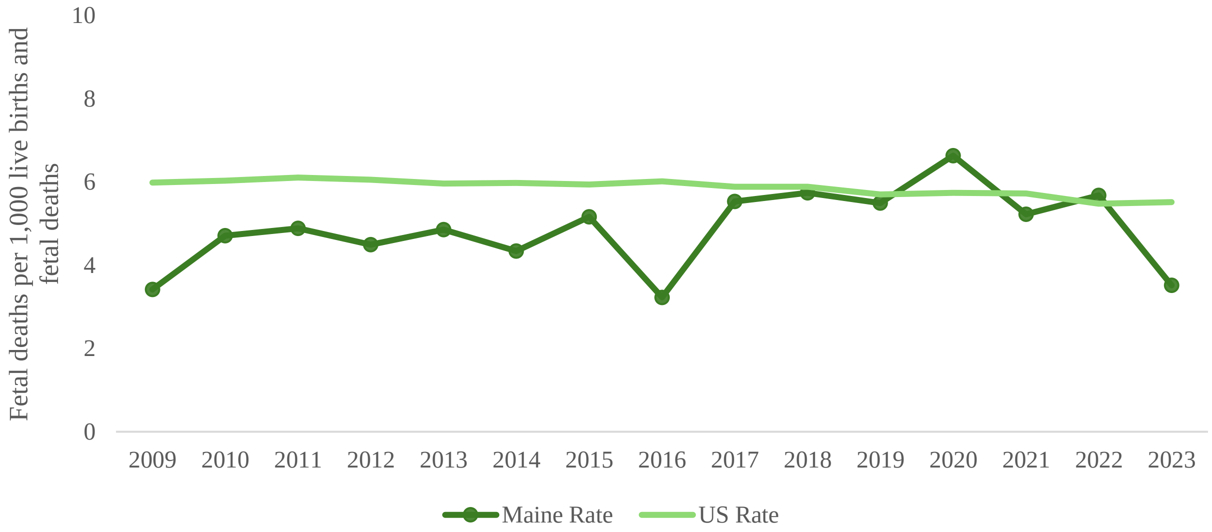
Fetal Death Summary

A fetal death is the spontaneous death of a fetus in utero that occurs at 20 weeks of gestation or later. Early fetal deaths are those occurring between 20-27 weeks gestation; late fetal deaths are those occurring at 28 or later weeks gestation. In Maine, healthcare providers are required to complete a fetal death certificate and register any fetal death occurring at 20 weeks or later. While the following summary includes all 2023 fetal deaths registered with DRVS, the MFIMR Panel reviews only *late fetal* deaths.

The State's 2023 fetal mortality rate was 3.5 fetal deaths per 1,000 live births plus fetal deaths to Maine residents, almost a 40% decrease from the 2022 fetal mortality rate of 5.7. Maine's 2023 early fetal mortality rate was 1.8 per 1,000 live births plus fetal deaths, and the late fetal mortality rate was 1.7 per 1,000 live births plus fetal deaths.[1]

In comparison, the US total provisional 2023 fetal mortality rate was 5.5 fetal deaths per 1,000 live births plus fetal deaths, the early fetal mortality rate was 2.9 and the late fetal mortality rate was 2.6.[2]

Figure 1. Fetal mortality rate, Maine and US, 2009 – 2023



Source(s): US: Birth and Fetal Death Records, CDC WONDER; ME 2023: Maine Fetal Death and Birth certificates, DRVS. The 2023 US rate is provisional and subject to change.

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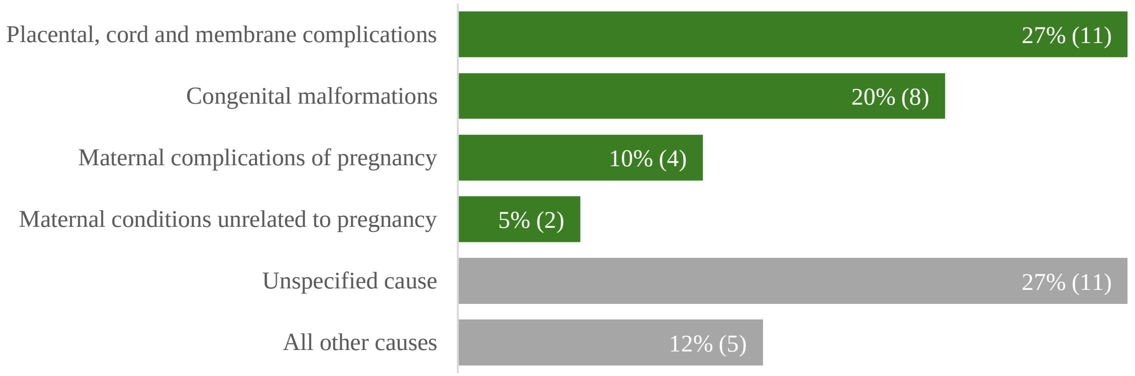
[1] Fetal deaths for which gestational age was unknown were excluded from both the numerator and denominator when calculating early and late fetal mortality rates.

[2] Gregory ECW, Valenzuela CP, Hoyert DL. Fetal mortality: United States, 2021. National Vital Statistics Reports; vol 72 no 8. Hyattsville, MD: National Center for Health Statistics. 2023.

Major causes of fetal death in the US include complications of the placenta or umbilical cord, complications of pregnancy, and congenital anomalies. Across the US, a large proportion of fetal death certificates are registered with an unspecified cause (about 31%).[3] In 2023, 27% of Maine fetal deaths were due to placental, cord, or membrane complications; 27% were due to an unspecified cause; and 20% were due to congenital malformations.

Figure 2. Initiating causes of fetal deaths (ICD-10), Maine, 2023



Source: Maine Fetal Death Certificates, DRVS

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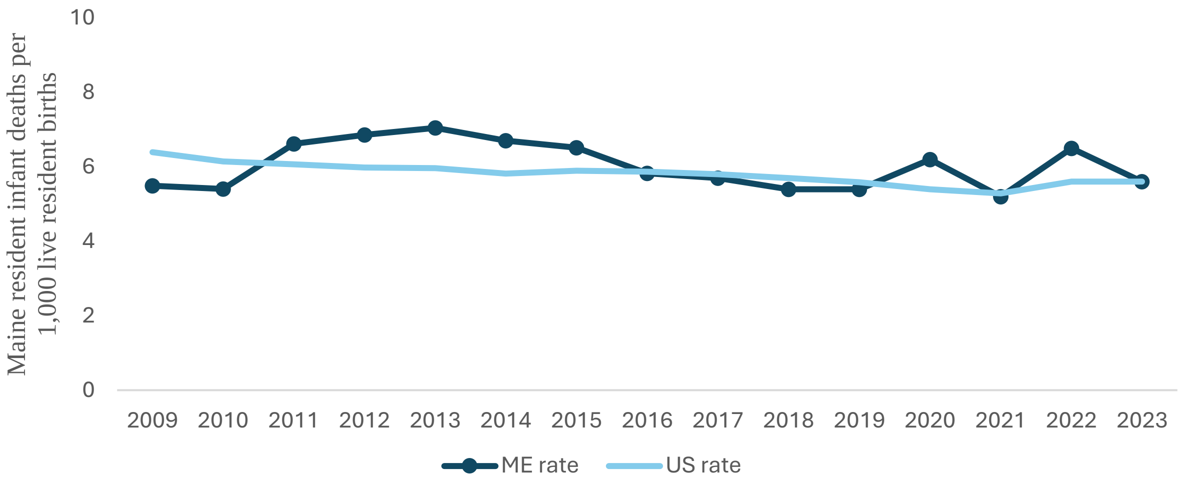
[3] Gregory ECW, Valenzuela CP, Hoyert DL. Fetal mortality: United States, 2021. National Vital Statistics Reports; vol 72 no 8. Hyattsville, MD: National Center for Health Statistics. 2023.

Infant Death Summary

Infant death is defined as any death to a live born infant prior to their first birthday. After declining between 2020 and 2021, Maine's infant mortality rate increased in 2022 to the highest it has been since 2015. In 2023, there were 65 deaths among Maine resident infants, and the State's infant mortality rate decreased to 5.6 deaths per 1,000 live births to Maine residents (Figure 3). The Maine 2023 infant mortality rate matched the US 2023 provisional infant mortality rate of 5.6 deaths per 1,000 live births.

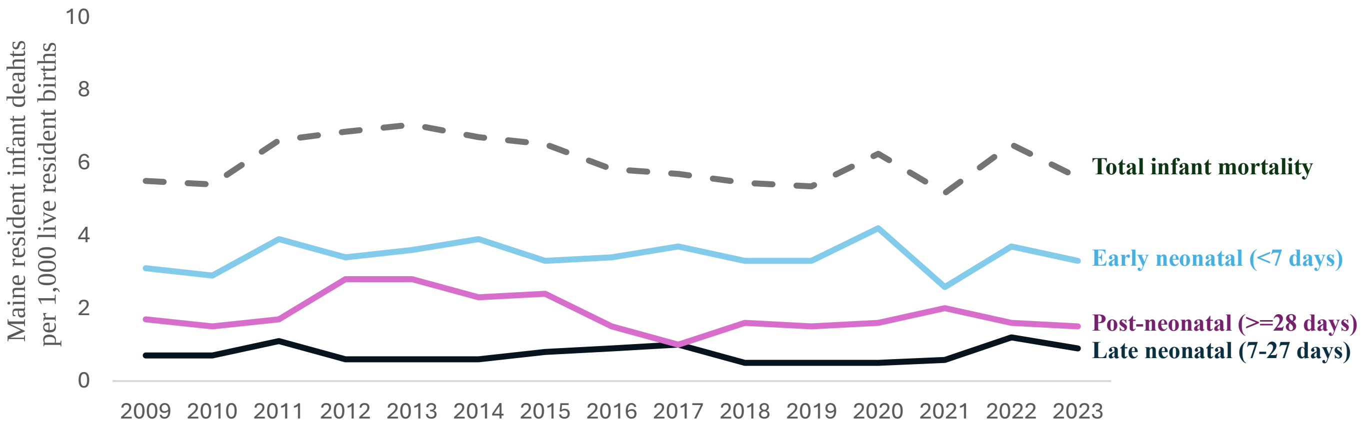
Figure 3. Infant mortality rate, Maine and US, 2009-2023



Source(s): US: Linked Birth / Infant Death Records, CDC WONDER; Maine: Death and Birth certificates, DRVS. The 2023 US rate is provisional and subject to change.

A majority of Maine's infant deaths occur in the early neonatal period (i.e. between 0-6 days of life). In 2023, 58.5% of Maine infant deaths occurred during the early neonatal period. The decrease in Maine's total infant mortality rate between 2022 and 2023 was driven largely by the decrease in early neonatal mortality and late neonatal mortality (Figure 4).

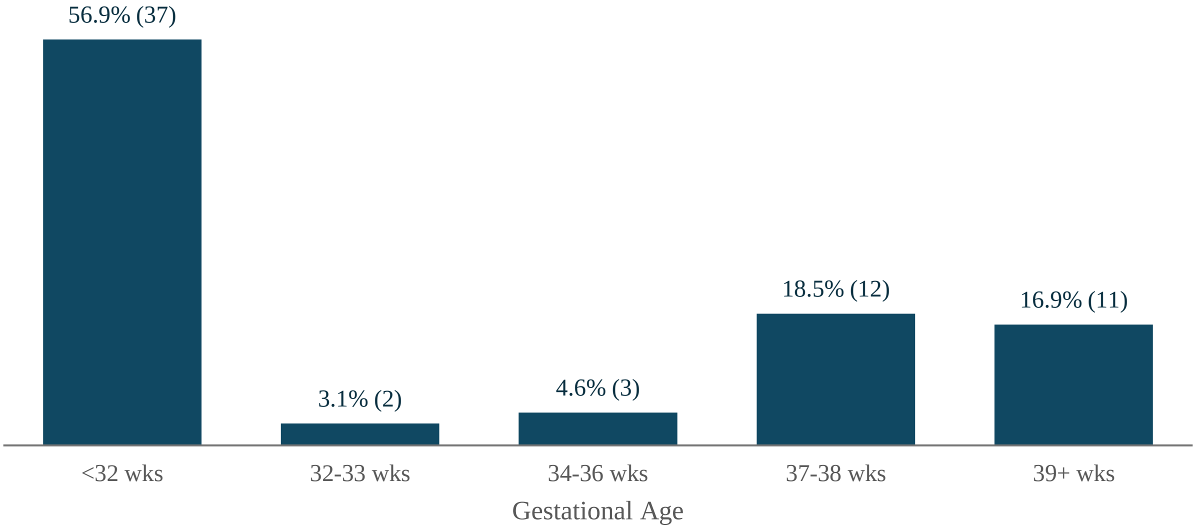
Figure 4. Infant mortality rate by age group, Maine, 2009-2023



Source: Maine CDC Death and Birth certificates

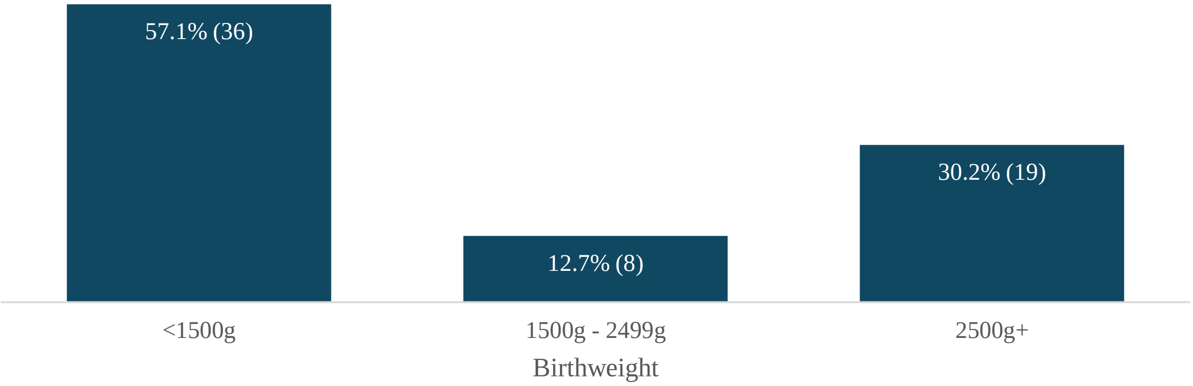
Preterm and low birthweight infants are at increased risk of morbidity and mortality compared to their term and normal birthweight peers.[4] In 2023, more than one in two infant deaths occurred among infants born before 32 weeks gestation (Figure 5). Over half of infant deaths occurring in 2023 were among infants weighing less than 1,500 grams (g) at birth (Figure 6).

Figure 5. Proportion and count of infant deaths by gestational age at birth, Maine, 2023



Source: Linked Birth-Death Certificates, DRVS

Figure 6. Proportion and count of infant deaths by weight at birth, Maine, 2023*



*Infant deaths for which birthweight was unknown were excluded from both the numerator and denominator of proportion calculations. *Source: Linked Birth-Death Certificates, DRVS*

The most common causes of infant deaths in Maine are preterm-related. These are deaths to infants born at less than 37 weeks of gestation in which the cause of death was a direct consequence of preterm birth. In 2023, 62% of deaths among infants born before 37 weeks gestation were due to

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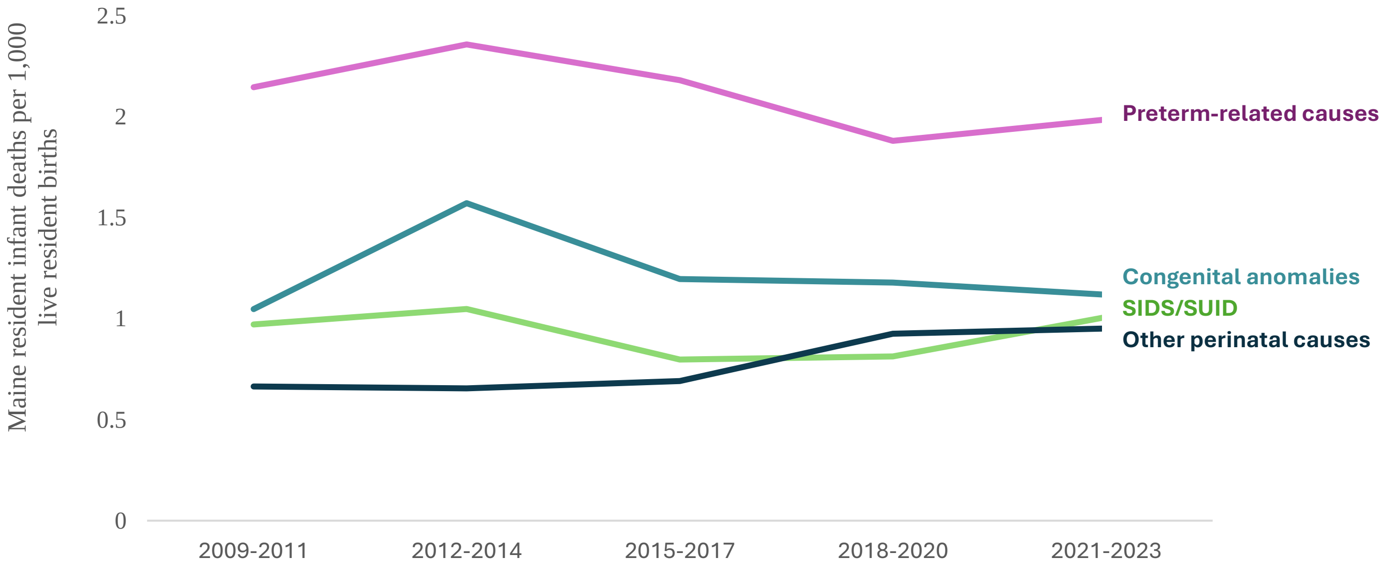
[4] Behrman RE and Butler AS, eds. Preterm Birth: Causes, Consequences and Prevention, National Academies Press: Washington, DC; 2007.

a preterm-related cause. Congenital anomalies (i.e., birth defects) and Sudden Infant Death Syndrome (SIDS)/Sudden Unexpected Infant Deaths (SUID) have historically been the second and third most common cause of infant death in Maine. In 2020, the SIDS/SUID mortality rate in Maine dropped to its lowest level since 2008. However, in 2022, the SIDS/SUID rate increased to 1.4 infant deaths per 1,000 live births. The SIDS/SUID rate in 2023 decreased to 0.9 infant deaths per 1,000 live births.

Figure 7. Leading causes of infant mortality, Maine, 2009-2023



Source: Linked Birth-Death Certificates, DRVS

Infant mortality risk varies by demographic, geographic, socioeconomic, and maternal health factors. Smoking during pregnancy is associated with both preterm birth and low birthweight, as well as other poor birth outcomes and SIDS/SUID.[5] In 2019-2023, the mortality rate among infants born to Maine birthing persons who smoked during the last trimester of pregnancy was 10.9 deaths per 1,000 live births compared to the mortality rate among infants born to non-smoking birthing persons of 5.1 deaths per 1,000 live births. In Maine, some population groups experience a disproportionately high rate of infant mortality. In 2019-2023, infants born to birthing persons with a high school diploma/GED or less education died at more than two times the rate of infants born to birthing persons with at least some college education (9.0 deaths per 1,000 births versus 4.0 deaths per 1,000 births, respectively). Infants whose births were covered by MaineCare (Medicaid) also experience a significantly higher mortality rate compared to infants whose births were covered by other payer types. Pregnant Maine residents are eligible for MaineCare coverage at incomes at or below 214% of the Federal Poverty Level. MaineCare coverage for a birth may be an indication that a birthing person had a low income in the prenatal period. In 2019-2023, the mortality rate

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[5] U.S. Department of Health and Human Services. The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014. Printed with corrections, January 2014.

among infants whose births were covered by MaineCare was 7.5 deaths per 1,000 births compared to infants whose births were covered by other payer types at 4.5 deaths per 1,000 births.

Like the rest of the United States, infants born to Black/African American and Indigenous/American Indian/Alaska Native birthing persons in Maine experience a higher mortality rate compared to White infants. Disparities in infant mortality by race in Maine and the US are due to complex and interrelated factors, including inequitable access to resources (e.g., healthcare, education, employment, housing) and other impacts of discrimination, structural racism, and colonialism.[6] For more information on racial inequities that impact maternal and child health in Maine, see the Permanent Commission on the Status of Racial, Indigenous, and Tribal Populations' State of Racial Disparities report[7] as well as their legislative report outlining racial disparities in prenatal care access in Maine.[8]

In 2019-2023, the mortality rate among infants born to Maine resident Black/African American birthing persons was 11.6 per 1,000 live births; among infants born to Indigenous birthing persons it was 9.8 per 1,000 live births; among infants born to White birthing persons it was 5.2 per 1,000 live births; and among infants born to Asian birthing persons it was 6.1 per 1,000 live births (Figure 8). Infants born to Black/African American birthing persons experienced a significantly higher infant mortality rate compared to infants born to White birthing persons. Although differences were not statistically significant due to small sample sizes, infants born to American Indian/Alaska Native and Asian birthing persons also experienced higher infant mortality rates compared to infants born to White birthing persons. These racial disparities in infant mortality are observed nationwide as well.[9]

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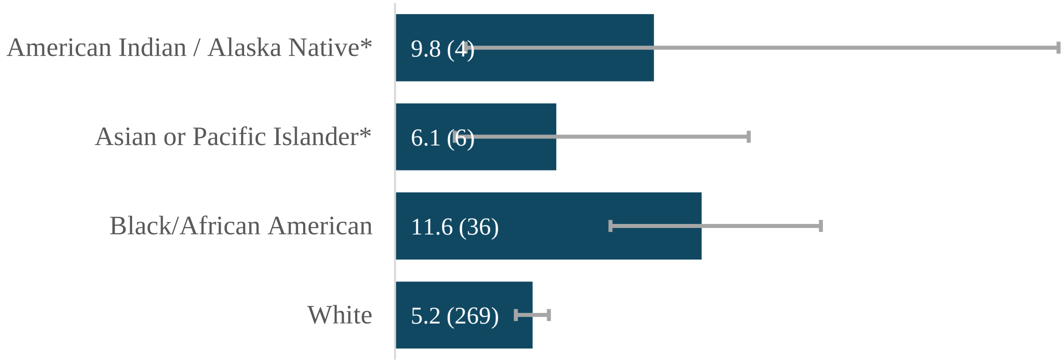
[6] Artiga S, Pham O, Orgera K, Ranji U. Racial Disparities in Maternal and Infant Health: An Overview: Issue Brief, Kiser Family Foundation. https://www.kff.org/report-section/racial-disparities-in-maternal-and-infant-health-an-overview-issue-brief/. November 2020.

[7] Permanent Commission on the Status of Racial, Indigenous, and Tribal Populations. (2024, November). The State of Racial Disparities: A Report on Racial Inequality in Maine. https://www.pcritp.me/sites/pcritp.me/files/inline-files/State_of_Disparities.pdf

[8] Permanent Commission on the Status of Racial, Indigenous, and Tribal Populations. (2022, January). LD 1113: Racial Disparities in Prenatal Access in Maine. https://legislature.maine.gov/doc/7888#:~:text=In%202021%2C%20the%20Maine%20Permanent,to%20prenatal%20care%20in%20Maine.

[9] Jang, C. J., & Lee, H. C. (2022). A Review of Racial Disparities in Infant Mortality in the US. *Children (Basel, Switzerland)*, *9*(2), 257. https://doi.org/10.3390/children9020257

Figure 8. Infant mortality rates per 1,000 live births and counts by birthing person race, Maine, 2019-2023



*Interpret with caution: rates calculated with fewer than 20 individuals in the numerator.
Note: Error bars represent 95% confidence interval.
Source: Linked Birth-Death Certificates, DRVS. Race is self-reported by the birthing person on the parent worksheet of the birth certificate via a combination of checkbox and open text fields, which are later combined into race categories by the US CDC National Center for Health Statistics (NCHS).

Additional data on the prevalence of select risk factors for infant mortality among Maine residents, and additional infant mortality data stratified by demographic, maternal health status, and geographic factors are included in Appendix B.

Pregnancy-Associated Mortality Summary

There are several related terms that describe different categories of deaths to birthing persons during or soon after the end of pregnancy. For the purposes of MFIMR, these are:

- Pregnancy-Associated Death: any death to a birthing person while pregnant or within one year of the end of pregnancy, regardless of cause.
- Pregnancy-Related Death (ERASE-MM definition): a death during or within one year of pregnancy, from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.
- Pregnancy-Associated, but Not Related Death: a death during or within one year of pregnancy, from a cause that is not related to pregnancy.

Additionally, *maternal mortality* is a term used by the World Health Organization (WHO) and the US CDC National Center for Health Statistics (NCHS) to describe a subgroup of pregnancy-associated deaths that occur to individuals within 42 days of delivery or termination and are due to “any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."[10] Deaths that fall within the WHO/NCHS definition of maternal mortality are identified by NCHS using information from death certificates and are very rare in Maine.

Pregnancy-Associated Deaths in 2021

Type and Preventability of Death. In 2024, the MFIMR Panel completed reviewing all Pregnancy-Associated Deaths occurring in 2021 (a total of nine deaths). The MFIMR Panel determined three of the nine deaths were Pregnancy-Related; three were Pregnancy-Associated, but Not Related; and was unable to determine the pregnancy-relatedness of the remaining three deaths. The Panel determined that all nine deaths met the ERASE-MM definition of preventable, i.e. there was "at least some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and/or community factors."[11]

Timing of Death. Six of the nine 2021 Pregnancy-Associated Deaths occurred between 42 days and one year after the end of the decedent's pregnancy. One Pregnancy-Associated death in 2021 occurred while the decedent was pregnant, and two deaths occurred within 42 days of delivery/termination.

Cause of Death. The MFIMR Panel identifies the underlying cause of death for Pregnancy-Related Deaths based on all available information, including cause of death information recording on the decedent's death certificate, as well as information from medical records, family interviews, and other sources. The underlying cause of death for Pregnancy-Associated, but Not Related Deaths and deaths with undetermined pregnancy-relatedness is obtained from Maine Death Certificates only. The US CDC Pregnancy Mortality Surveillance System classification system is used to categorize pregnancy-related deaths (Table 1).

Table 1. Causes of 2021 Pregnancy-Associated Deaths

Cause category	**Pregnancy-Related Deaths**	**Pregnancy-Associated, but Not Related Deaths**	**Unable to Determine Pregnancy-relatedness**	**Total**
Infection	0	1	0	1
Mental health condition / suicide	1	1	0	2
Motor vehicle accident	0	1	2	3
Overdose	1	0	1	2
Sepsis	1	0	0	1

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[10] US CDC National Center for Health Statistics, "How NCHS Measures Maternal Deaths". Retrieved from https://www.cdc.gov/nchs/maternal-mortality/faq.htm on 11/25/2024.

[11] US CDC Division of Reproductive Health, Maternal Mortality Review Committee Decisions Form V23

Circumstances Surrounding Death. As part of the review process for Pregnancy-Associated Deaths, the MFIMR Panel considers whether discrimination, obesity, mental health, and/or substance use contributed to a death, and whether a death was a homicide or suicide. The Panel's determinations for Pregnancy-Associated Deaths occurring in 2021 are outlined below (Table 2).

Table 2. MFIMR Panel Determinations on Circumstances Surrounding 2021 Pregnancy-Associated Deaths

Committee determinations	Yes	Probably	No	Unknown
Did obesity contribute to the death?	1	0	7	1
Did discrimination contribute to the death?	1	3	4	1
Did mental health conditions contribute to the death?	2	4	0	3
Did substance use disorder contribute to the death?	3	0	4	2
Was this death a suicide?	1	0	4	4
Was this death a homicide?	0	0	7	2

Decedent Demographics. Eight of nine Pregnancy-Associated Deaths in 2021 were to White decedents, and seven of nine were to decedents living in a rural area at the time of their deaths. Additional demographic information is detailed below (Table 3).

Table 3. Demographic Characteristics of 2021 Pregnancy-Associated Deaths

Demographic Characteristic	Count
Age	
< 20	0
20-24	2
25-29	3
30-34	2
35-39	1
40-44	1
45+	0
Total	9
Delivery payer	
CHAMPUS/TRICARE	0
Indian Health Service	0
Medicaid/MaineCare	5
Other	0
Other government payer	1
Private Insurance	1
Self-pay	0
Unknown	2
Total	9

Education	
High school diploma equivalent or less	4
Completed some college	1
Associate or bachelor's degree	1
Completed advanced degree	1
Unknown	2
Total	9
Ethnicity	
Hispanic	0
Non-Hispanic	9
Total	9
Race	
American Indian or Alaska Native	0
Asian	0
Black or African American	1
More than one race	0
Native Hawaiian or Pacific Islander	0
Other Race	0
White	8
Total	9
Rural residence at death	
Rural	7
Urban	2
Total	9

Pregnancy-Associated Deaths: Provisional Data

Pregnancy-Associated Deaths are identified using vital records data maintained by the Maine CDC DRVS program. While vital records data are key source of information about potentially Pregnancy-Associated Deaths, pregnancy-associated mortality data are not considered final until MFIMR has reviewed all Pregnancy-Associated Deaths identified as occurring in a death year. Vital records data indicate that:

- 8 Pregnancy-Associated Deaths occurred in 2022
- 11 Pregnancy-Associated Deaths occurred in 2023

The MFIMR Panel aims to review all Pregnancy-Associated Deaths within 18 months of the date of death. Detailed data on 2022 Pregnancy-Associated Deaths will be included in the 2025 MFIMR Panel Annual Report.

MFIMR ACTIVITIES REPORT

Reporting Period: July 2023 – December 2024

The 2023 annual MFMIR report presented to the Maine's joint standing Committee of Health and Human Services was for the State Fiscal Year (SFY) activities of the MFIMR Panel. This 2024 report seeks to outline the activities for the timeframe of SFY 2024 plus six months in order to sync up with a calendar year (CY). This is intended for two reasons 1) for a timelier sharing of the report to partners in action and 2) to better reflect the operations of the Panel which looks at CY mortality data that transitions from provisional to finalized late in the 4th quarter of the calendar year. As such, the next annual report (2025) will encompass the 12 months of January – December 2025.

From July 2023-December 2024, the MFIMR Panel reviewed a selection of fetal and infant deaths occurring in 2022 and pregnancy-associated deaths from 2021 and 2022. Per statute, MFIMR reviews all pregnancy-associated deaths and a majority of late fetal and infant deaths. The Panel completed the 2021 maternal cases and proceeded through the majority of 2022 deaths by the end of this reporting period.

Case selection of fetal and infant deaths: Based off the 2022 data analyses by MCH epidemiologists, the MFIMR Panel Leadership Team decided to review a selection of fetal and infant cases based on factors including race and rurality (determined from death certificate data). This was done in an attempt to more fully understand the underlying risk factors associated with poor infant and fetal outcomes in communities disproportionally impacted. As reflected in the Panel activities and recommendations sections to follow, culturally and linguistically appropriate care and support navigating systems as well as resource distribution to those disproportionately impacted is crucial to overturning these negative trends.

CASE REVIEW MEETINGS

22 MRS § 261 requires the Panel to meet at least twice in a state fiscal year, however, the panel members agreed upon meeting at least four times when possible. All meetings included a provisional report from the Maine CDC MCH Epidemiologists on most recent deaths (fetal and maternal deaths provided on an annual basis, infant deaths reported quarterly), updates from the Panel Coordinator and members, and comprehensive case reviews including input from subject matter experts when applicable.

The meetings were held virtually over Zoom and took place as follows:

- July 18, 2023, 1-4pm
- October 17, 2023, 1-4pm
- January 16, 2024, 1-4pm
- April 30, 2024, 1-4pm
- July 16, 2024, 1-4pm
- October 15, 2024, 1-4pm

Reviews consisted of the following cases:

- Maternal: Seven 2021 deaths and five 2022 deaths
- Fetal: Three 2022 deaths
  Infant: Seven 2022 deaths

OTHER RELATED PANEL ACTIVITIES

Over the last 18 months, the Panel has worked to refine the Panel review process in order to prioritize the Panel recommendations and move more clearly from review to action. The Panel gathered stories heard in Panel reviews, the expertise provided by Panel members based on their personal and professional experience, and the concerns heard from communities around perinatal mortality and distilled these three sources of information through a priority-setting process to define next steps for action. To build that foundation, the majority of the Panel's time and effort focused on gathering stories from the families of the deceased, building trust and connections with communities most impacted, and creating a diverse Panel membership.

Informant Interviews

In September 2023 the Maine CDC hired a part-time Family Interviewer*, funded by the State Maternal Health Innovations grant through MMA-CQI* in order to listen to the stories of those directly impacted by maternal and infant deaths and stillbirths. These interviews are crucial to developing a fuller understanding of the systems of care that influence these fatal outcomes. By weaving family voice into the case narratives alongside medical and social service records, the Panel honors individuals and communities impacted by loss. A Family Interview Protocol was developed and executed using combined templates from the federal CDC and National Center for Fatality Review and Prevention (NCFRP). Staff were successful in completing five family interviews since the Family Interviewer was hired.

Panel Membership

During the reporting time period, 18 new Panel members were onboarded in an effort to have full, diverse, and broad-based reviews. At the time of this report, the Panel is comprised of 35 members representing 12 of 16 counties with ongoing recruitment for specific roles, voices, and geographic areas not already represented. Some of these new members have replaced positions previously held by colleagues and/or community members who have left, but the majority were new members recruited to fill positions outlined in the MFIMR Panel Charter that were not previously defined roles. The onboarding process involves an orientation to the review process and materials, discussion of member commitments and expectations, relationship building, and support for diving into the vicarious trauma that comes with case reviews. MFIMR leadership also invites subject matter experts to join review meetings as needed. Over the last 18 months, nine subject matter experts have joined review meetings and four have gone on to become full Panel members.

Based on national guidance, the Panel strives to maintain a balance between clinical and community perspectives on the Panel, and to support those members who are from or represent communities most impacted by perinatal mortality or those with lived experience. Some Panel members participated in the MoMMA's Voices trainings (www.mommasvoices.org) to support this process, the Panel Coordinator completed the Lived Experience Integration training, and community Panel members completed the Patient Family Partner training. Panel member satisfaction and comfort with voicing perspective, as well as participating in case discussions during each meeting were tracked to monitor whether Panel members felt respected and that their ideas are taken into account. Lastly, stipends were implemented for members participating as community members bringing their lived experience and not representing a professional role or expertise.

Community Conversations with Stakeholders, Communities Disproportionately Impacted, Individuals with Lived Experience

It is important to the Panel that this work is transparent to communities most impacted by perinatal mortality, but the Panel recognizes that many Mainers are not aware that the MFIMR Panel exists. Over the last year, the Panel focused on outreach and held fifteen community conversations. Ten of these conversations were with local organizations, and five were with statewide organizations. The focus was on groups that represent or serve those disproportionately impacted by perinatal mortality – those with substance use disorder, those from immigrant, refugee, and asylee communities, and those in rural communities, for example. The Panel's goal was to build understanding of the work of the MFIMR Panel, to hear from these groups about the successes and challenges that they see for families, and to begin to build trust and a foundation for working together to end perinatal mortality. This work was funded by ERASE-MM grant through MMA-CQI.

Following these conversations, the Panel mapped themes from the community conversations onto the themes from its recommendations to look for potential alignment and partnerships in bringing recommendations to action and sharing this information back with Panel members and the community groups.

MFIMR Retreat

Recognizing that having remote Panel meetings with packed agendas left limited time for creating a strong Panel culture and group bonding, an annual "retreat"/meeting was established as a way to come together in-person for the first time since the pandemic began to build upon conversations of process, direction, health equity and to build relationships among panel members. The first annual meeting was held in November 2023 and featured presentations from national partners at the US CDC and NCFRP and the establishment of a Charter to guide MFIMR work. The second annual meeting, held in September 2024, featured a system to identify and rank our prioritized recommendations as a Panel for inclusion in this report.

PANEL RECOMMENDATIONS

Note: these are recommendations discussed by the panel and are not necessarily supported or endorsed by the Maine Center for Disease Control and Prevention or Department of Health and Human Services. They do not reflect policy commitments and further do not confer support from the Executive Branch for specific legislative initiatives. Policy proposals will be reviewed and commented on as they arise.

RECOMMENDATION PRIORITIES

Over the past 18 months, the Panel produced a total of 124 recommendations across the 22 cases reviewed. Prior to the annual meeting, the recommendations were refined down to 98 and a thematic analysis was done to group these recommendations into 32 topic areas. At the annual meeting the Panel members were given this list as well as a thematic analysis of the Community Conversations (see Panel Activities). The Panel considered 1) quantitative data – i.e. how often each recommendation topic area was used, 2) qualitative data (community feedback), and 3) their individual experience and expertise, to evaluate and prioritize recommendations. Through a process of reflection, discussion, and ranking, the following priorities were identified:

Mental Health

a. Universal mental health screening should be part of comprehensive obstetric (OB) care done at the first prenatal visit, towards the end of pregnancy, and postpartum by the prenatal care provider, using a validated tool.

b. Prenatal care providers and primary care providers to create a mental health safety plan for high-risk patients including a "warm handoff" to an integrated mental health clinician, external mental health clinician, or telehealth partner. Safety plan may also include involvement of trusted support people.

c. Psychiatric and primary care providers who care for women of childbearing age who take medications to treat mental health should talk with patients about safety of mental health medications and risk/benefit ratios in the event of pregnancy. Enhanced education for these providers about prescribing psychiatric medications in pregnancy, particularly as it pertains to Substance Use Disorder (SUD).

Substance Use

d. Universal SUD screening should be part of comprehensive OB care done at the first prenatal visit and as needed by the prenatal care provider, using a validated tool.

e. Health systems to implement quality improvement initiatives that address SUD, including universal naloxone distribution, information about "Never Use Alone" resource[12], and potential to implement the Alliance for Innovation on Maternal Health (AIM) Bundle on Care of Pregnant and Postpartum People with SUD.[13]

f. State policymakers to look at ways to increase the number of drug and alcohol rehabilitation services, facilities, and workforce to be more accessible for people with children, have longer term options, and make them more inclusive of co-occurring disorders, particularly for those from small or rural communities.

Cultural and Linguistic Support

g. Policymakers to look at ways to support the development and ongoing funding for a statewide peer support/navigator/cultural broker program for birthing and postpartum people in Maine to help navigate the health care and legal systems for those new to Maine.

h. Policymakers to look at ways to support increasing culturally and linguistically appropriate integrated mental health services across perinatal and primary care settings, as well as infrastructure that supports better and more expedient access to mental health services including increasing access to telehealth and immediately or urgently available providers in case of emergency.

Cross-Cutting Recommendation

When reflecting on the last 18 months of case reviews the Panel members agreed that there was an additional cross-cutting recommendation that needed to be addressed. This was:

> *To combat stigma within the healthcare system - health systems need to take a multifaceted approach: educational training for healthcare staff, feedback and reporting mechanisms, establishment of consumer committee/patient advisory council that includes people with lived experience, new policy in Emergency Departments (EDs) and inpatient units including labor and delivery, and long-term cultural shift as part of new and ongoing quality improvement efforts.*

Please refer to Appendix C for the list of all policy level recommendations.

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[12] Never Use Alone 877-696-1996 is an Overdose Prevention Call Line. https://neverusealone.com/

[13] *Care for Pregnant and Postpartum People with SUD*. Alliance for Innovation in Maternal Health (AIM). https://saferbirth.org/psbs/care-for-pregnant-and-postpartum-people-with-substance-use-disorder/

STATUS OF 2023 LEGISLATIVE REPORT ACTIVITIES

Full-time Panel Coordinator Position

The Maternal Health Block Grant (MHBG) allowed the Maine CDC MCH Program to hire a full-time MFIMR Panel Coordinator via outside contract who began in October 2023. However, per MFIMR Statute and the rules and regulations, the Panel Coordinator position must be held by a Maine CDC employee. During SFY 2024, advocacy for a state line for the full-time Panel Coordinator position to be hired as an employee of the State continued. In addition to the full-time Panel Coordinator position, there is an FTE position out of the Maine Medical Association-Center for Quality Improvement (MMA-CQI) funded through the ERASE-MM to manage the ERASE-MM grant project. There continues to be ongoing need for funding and leadership for MFIMR to operate successfully.

NFR-CRS Database

Maine CDC and the MFIMR Panel Coordinator successfully established a Data Use Agreement to utilize the National Fatality Review-Case Reporting System (NFR-CRS) for Fetal and Infant Case abstraction. Case abstraction into the NFR-CRS will begin in January 2025.

Central Registry of Resources

The Panel Coordinator updated the MFIMR website to include a central registry/resource page with perinatal bereavement supports, mental health talk lines, and prevention initiatives from the MCH program that have tied back to MFIMR recommendations. The team also created a Family Support resource document to send to families with an offer for a voluntary family interview.

Information Sharing

MFIMR Panel staff held meetings with State agencies to better collaborate on record sharing (workflows, updating MOUs, relationship building) to enhance the Panel's understanding of the social determinants of health that are at play in this work. Meetings were held with Maine CDC's Women, Infants, and Children (WIC) and Public Health Nursing (PHN) programs, Office of Child and Family Services (OCFS), Emergency Management Services (EMS), Office of the Chief Medical Examiner (OCME), and Office of MaineCare Services (OMS). Staff also held an additional meeting with Maine Families Home Visiting (MFHV) Program.

ADDITIONAL ACTIVITIES AND PANEL ACCOMPLISHMENTS

On the National Stage

- Panel staff were accepted into the National Strategic Storytelling Learning Collaborative/Technical Assistance Program, an opportunity from March-July 2024 organized through the NCFRP to better utilize family voice and infuse storytelling into data communication around MFIMR work.

- Panel staff presented at the NCFRP Conference on Enhancing Equity in Fatality Review and at the Maternal Mortality Review Information Application (MMRIA) Database User Meeting held by our funders at the US CDC.

Resource Creation by the Panel Coordinator

- Created fetal and infant case selection tools to screen out cases where there may have been less opportunity for intervention/prevention (for example: congenital anomalies incompatible with life) and to ensure that the Panel work is as focused and effective as possible.

- Created a tool to facilitate expedited maternal reviews, which often are deaths due to vehicle accidents so that the Panel can focus its full reviews of deaths where there may be more opportunity for pregnancy-related prevention.

- Developed a recommendation library for Panel members to help facilitate more efficient reviews and enable a strong recommendation to be repeated should it arise again.

PLANS FOR CALENDAR YEAR 2025

Improving maternal and child health is one of Maine's public health goals. The Panel is looking forward to continuing to foster an effective Panel that builds trust with communities, works to bring its recommendations to action, and uses its findings to support other ongoing MCH efforts aimed at reducing infant, fetal and maternal morbidity and mortality. The Panel will focus these efforts the following ways:

Fostering an Effective Panel

- Develop a process for improved subject matter expert onboarding and debriefing.

- Update Panel member onboarding training to reflect most recent national mortality statistics and most recent updates to Panel processes.

- Continue to work towards data clarity and logic by ongoing quality improvement of our facilitation process in review meetings and forming actionable recommendations.

- Expand records access to ensure full review of cases.

- Continue to support a Diverse Panel Membership – the federal CDC and NCFRP have guidance around membership representation, and to be working to add new voices and perspectives and bring people along in this work. This also includes resources to Panel members to manage effects of vicarious trauma.

- Convene a subcommittee to review the cases of infant mortality from SIDS/SUID to better understand the contributing and protective factors for infants in Maine.

Building Trust with Communities

- Work towards listening sessions with communities most affected by perinatal mortality to build trust, share existing publicly available mortality data, invite feedback on community needs, and identify creative collaborations on preventing deaths in Maine.

- Ongoing focus on equity including continuing our previous efforts (see Appendix D) – equity one-pager). MFIMR Leadership has identified the need to build capacity to understand and dismantle discrimination and oppression through education and training for Panel members, as well as create a more robust system for feedback about experience on the Panel from members who represent or are from disproportionately impacted communities or have lived experience with perinatal loss.

Bringing Recommendations to Action

- Develop a recommendation pipeline in collaboration with other statewide groups like the Perinatal Quality Collaborative for Maine (PQC4ME), the Maternal Health Task Force (MHTF), and the Perinatal Systems of Care (PSOC) group.

Supporting Other Ongoing Maternal Child Health Efforts

- Build MFIMR de-identified data as an important qualitative data source to support other ongoing MCH efforts. For example, "Perinatal Mental Health in Maine" report will be available on the MFIMR website early in 2025.

Improved Reporting & Data Dissemination

- Prior annual reports placed a heavier emphasis on the epidemiology reporting as the activities of the MFIMR Panel were limited due to a number of reasons, but mainly funding and staffing. In future years, it may be advantageous for clarity's sake to submit two separate reports to the legislature 1) MFIMR Annual Report and 2) Epidemiology Brief on Fetal, Infant and Pregnancy-Associated Mortality.

ACKNOWLEDGEMENTS

The MFIMR Panel would like to thank the following groups and people who made this past 18 months of work possible:

- Our supporters at the US CDC and the NCFRP, especially Christine Cooper-Nowicki and Susanna Joy for their technical assistance.
- The staff at the Maine CDC, including Maryann Harakall, Meghan Henshall, Fleur Hopper, Andrea Lenartz, and Emily Misner, who were vital in the writing of this report and the behind the scenes of MFIMR operations.
- Our partners at the MMA-CQI, including Mariah Pfeiffer, Kelley Bowden, and Liz Winterbauer, and Katy Finch, who contributed to the writing of this report and the running of MFIMR generally.
- The MFIMR Leadership Team, especially the Co-Chairs Alan Picarillo and Amanda Taisey.
- Our consultant and facilitator, Carol Kelley from Pivot Point, Inc.
- All members of the MFIMR Panel past, present and future for their devotion to objective reviews of the tragedies of our beloved state and ongoing work to recommend prevention efforts.

The MFIMR Panel honors all Mainers who have experienced
a fetal, infant, or maternal loss.

APPENDIX A – Infographics on Maine's Mortality Data

MAINE CENTER FOR DISEASE CONTROL AND PREVENTION

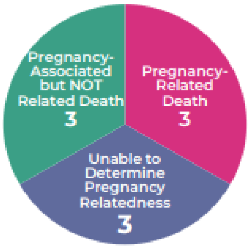
Pregnancy-Associated Deaths, 2021

In 2021, nine pregnancy-associated deaths occurred in Maine. All nine deaths were reviewed by the Maternal, Fetal, and Infant Mortality Review (MFIMR) panel in 2023-2024 to identify contributing circumstances and develop recommendations to prevent future occurrences. Further details on findings and recommendations will be included in the 2024 MFIMR annual report.

Timing of Deaths

Death occurred **during pregnancy**	1
Death occurred **within 42 days** of delivery or termination	2
Death occurred **between 42-365** days of delivery or termination	6

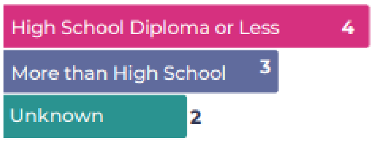
Pregnancy-Relatedness*



Preventable* Deaths

The MFIMR panel determined **9 of 9** deaths were **preventable**

Decedent's education**



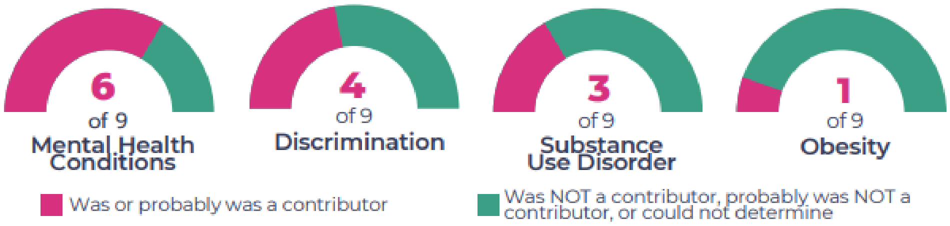
Decedent's race**

Primary underlying cause of death***

	Pregnancy-Related	Pregnancy-Associated but Not Related	Unable to Determine
Infection		1	
Sepsis	1		
Mental health condition/suicide	1	1	
Overdose	1		1
Motor vehicle accident		1	2

Contributing circumstances*

The MFIMR panel found the circumstances below were at least **probable contributors** to pregnancy-associated deaths in 2021. Deaths may have more than one contributing circumstance.



* See Background and Technical Notes (page 2) for definitions.

**Decedent race and education data for all deaths are obtained from Maine Death Certificates and/or Birth Certificates, MECDC Data, Research and Vital Statistics (DRVS).

***Underlying cause of death for *pregnancy-related deaths* is determined by the MFIMR panel based on all available information. The US CDC Pregnancy Mortality Surveillance System classification system is used to categorize pregnancy-related deaths. The underlying cause of death for pregnancy-associated but not related and deaths with undetermined pregnancy-relatedness is obtained from Maine Death Certificates only.

APPENDIX A – Infographics on Maine's Mortality Data

MAINE CENTER FOR DISEASE CONTROL AND PREVENTION

Background and Technical Notes

ABOUT MATERNAL MORTALITY REVIEW IN MAINE
Maine's MFIMR is convened and administered by the Maine Center for Disease Control and Prevention (MECDC), with support for the maternal mortality review process from the Maine Medical Association Center for Quality Improvement (MMA-CQI), and made possible by a grant from US Centers for Disease Control and Prevention's Enhancing Reviews and Surveillance to Eliminate Maternal Mortality program (ERASE-MM). Data in this report are drawn from Maine's Maternal Mortality Review and Information Application (MMRIA), and include information obtained from Maine vital records (birth certificates, death certificates, and fetal death certificates), medical and social service records, family interviews, and panel deliberations.

DEFINITIONS: TYPE OF DEATH

Maternal death: A maternal death is defined by the World Health Organization and the US CDC National Vital Statistics System as a death to a birthing person during or within 42 days of the end of pregnancy due to causes directly related to or aggravated by pregnancy, *excluding* accidental or incidental causes (e.g. deaths due to homicide, suicide, drug overdose, motor vehicle accidents, etc.) [1]

Pregnancy-associated death: A pregnancy-associated death is *any* death to a birthing person while pregnant or within one year of the end of pregnancy, regardless of the cause of death. The MFIMR panel began to routinely review all Maine resident occurrent pregnancy-associated deaths in 2023, beginning with 2021 deaths. [2]

Pregnancy-related death: A pregnancy-related death is defined by US CDC ERASE-MM as a death during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy. Maine's MFIMR panel uses this definition to determine whether a pregnancy-associated death was also pregnancy-related. [2]

Preventable death: Maine's MFIMR panel applies the ERASE-MM definition of preventability when reviewing pregnancy-associated deaths: A death is considered preventable if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and/or community factors. [2]

DEFINITIONS: CONTRIBUTING CIRCUMSTANCES
Maine's MFIMR panel is tasked with determining if discrimination, obesity, mental health, and/or substance use contributed to a death. The definitions of each circumstance are outlined below.

Discrimination: MFIMR determines whether discrimination contributed to the death using Hardeman's definition of discrimination: treating someone less or more favorably based on the group, class or category they belong to resulting from biases, prejudices, and stereotyping. Discrimination can manifest as differences in care, clinical communication and shared decision-making. [3]

Mental health conditions: MFIMR determines whether a mental health condition contributed to the death, and not just whether the person had a mental health condition. Mental health conditions are defined as present when the individual had a documented diagnosis of a psychiatric disorder. If a formal diagnosis is not available, subject matter experts (e.g., psychiatrist, psychologist, licensed counselor) may determine whether the criteria for a diagnosis of substance use disorder or another mental health condition are met based on the available information. [2]

Obesity: MFIMR determines whether obesity contributed to the death, not just whether the person was obese. The committee may determine that obesity contributed to the death when the condition directly compromised an individual's health or health care. BMI is calculated from weight and height (weight [kg]/ height [m^2]); a BMI of 30 or higher is considered obese.. [4]

Substance use disorder (SUD): MFIMR determines whether SUD contributed to the death, and not just whether the individual had SUD. SUD is characterized by recurrent use of substances causing clinically and functionally significant impairment, such as health problems or disability. The panel may determine that substance use disorder contributed to the death when the disorder directly compromised their health status. [2]

FOR MORE INFORMATION
Maine's MFIMR panel: https://www.maine.gov/dhhs/mecdc/population-health/mch/perinatal/maternal-infant/
US CDC ERASE-MM: https://www.cdc.gov/maternal-mortality/index.html

[1]US CDC, National Center for Health Statistics, *How NCHS Measures Maternal Deaths?* Retrieved from https://www.cdc.gov/nchs/maternal-mortality/faq.htm

[2]US CDC, Enhancing Reviews and Surveillance to Eliminate Maternal Mortality, Maternal Mortality Review Committee Decisions Form, version 24. Retrieved from https://www.cdc.gov/maternal-mortality/media/pdfs/2024/05/mmria-form-v24-fillable-508.pdf

[3] Hardeman RR, et al. Developing Tools to Report Racism in Maternal Health for the CDC Maternal Mortality Review Information Application (MMRIA): Findings from the MMRIA Racism & Discrimination Working Group. Matern Child Health J. 2022.

[4] US CDC, Division of Nutrition, Physical Activity, and Obesity, Obesity and Weight Status, Retrieved from https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/help/npao_dtm/definitions.html

APPENDIX B – Infant Mortality Detailed Tables

Table B-1. Prevalence of select risk factors associated with infant mortality, Maine and US

Risk factor	Maine (year)	US (year)
Percent of births to birthing persons who smoked during pregnancy[1]	7.2% (2023)	3.7% (2022)
Percent of births to birthing persons with diabetes[1]		
Pre-pregnancy diabetes	1.2% (2023)	1.2% (2022)
Gestational diabetes	9.6% (2023)	8.1% (2022)
Percent of births to birthing persons with hypertension[1]		
Preexisting hypertension	9.1% (2023)	2.9% (2022)
Gestational hypertension	12.1% (2023)	9.5% (2022)
Percent of birthing persons who received late or no prenatal care[1]	4.8% (2023)	6.8% (2022)
Percent of births to birthing persons with a pre-pregnancy BMI of 30.0+ [1]	33.1% (2023)	31.6% (2022)
Percent of infants born low birthweight (<2,500 grams)[1]	8.0% (2023)	8.6% (2022)
Percent of infants born very low birthweight (<1,500 grams)	1.1% (2023)	1.4% (2022)
Percent of infants born preterm (<37 weeks gestation)[1]	9.6% (2023)	10.4% (2022)
Percent of births to birthing persons with HS diploma/GED or less education[1]	31.2% (2023)	37.7% (2022)
Percent of birthing persons who received WIC during pregnancy[1]	24.3% (2023)	30.2% (2022)
Percent of new birthing parents who experienced depression during pregnancy[2]	16.3% (2022)	16.8% (2022)
Incidence of neonatal abstinence syndrome (rate per 1,000 birth hospitalizations)[3]	14.1 (2022)	6.2 (2021)
Percent of new birthing parents who report always/often placing infant on back to sleep[2]	89.5% (2022)	82.4% (2022)
Percent of new birthing parents whose prenatal care was covered by Medicaid[2]	34.8% (2022)	35.0% (2022)
Percent of new birthing persons who had no insurance coverage for prenatal care[2]	0.6% (2022)	2.3% (2022)

Sources:

[1] *ME: birth certificates, DRVS; US birth certificates, National Vital Statistics Reports Volume 73, Number 2, US CDC WONDER*

[2] *ME: Maine Pregnancy Risk Assessment and Monitoring Survey (PRAMS); US: PRAMS, participating US states*

[3] *ME: USDHHS Agency for Healthcare Research and Quality; US: USDHHS Agency for Healthcare Research and Quality*

APPENDIX B – Infant Mortality Detailed Tables

Table B-2. Maine resident infant deaths by select factors, 2023

Maine 2023 Infant deaths	Count*	Percent (%)*
Total infant deaths	65	100%
DEMOGRAPHICS OF BIRTHING PERSONS		
Age of birthing person		
Under 25	18	27.7%
25-34	35	53.9%
35 and over	12	18.5%
Education of birthing person		
HS diploma/GED or less	33	54.1%
Some college or higher	28	45.9%
Ethnicity of birthing person		
Non-Hispanic	62	98.4%
Hispanic	1	1.6%
Race of birthing person		
White	43	72.9%
Black/African American	14	23.7%
American Indian/Alaska Native	0	0.0%
Asian	2	3.4%
Native Hawaiian or Other Pacific Islander	0	0.0%
Other race	0	0.0%
Two or more races	0	0.0%
Birthing person's country of birth		
US state or territory	49	75.4%
Elsewhere	16	24.6%
Birthing person received WIC during pregnancy		
Yes	10	16.1%
No	52	83.9%
BIRTHING PERSON HEALTH STATUS AND ACCESS-TO-CARE FACTORS		
Pre-pregnancy weight (4-level)		
Underweight (<18.5)	1	1.7%
Normal weight (18.5 - <25.0)	21	36.2%
Overweight (25.0 - <30.0)	16	27.6%
Obesity (30.0+)	20	34.5%
Smoked last trimester of pregnancy		
No	54	83.1%
Yes	11	16.9%

APPENDIX B – Infant Mortality Detailed Tables

Maine 2023 Infant deaths	Count*	Percent (%)*
Adequacy of prenatal care		
Adequate and adequate plus	45	72.6%
Inadequate and intermediate	17	27.4%
Principal payer for delivery		
MaineCare/Medicaid	30	46.2%
Other payer	35	53.9%
INFANT HEALTH FACTORS		
Plurality		
Multiple birth	13	20.0%
Singleton birth	52	80.0%
Birthweight		
<1000 g	32	50.8%
1000-1499 g	4	6.4%
1500-2499 g	8	12.7%
2500+ g	19	30.2%
Gestational age at birth		
<32 weeks	37	56.9%
32-33 weeks	2	3.1%
34-36 weeks	3	4.6%
37-38 weeks	12	18.5%
39+ weeks	11	16.9%
Birth location		
Hospital	62	95.4%
Home	3	4.6%
Other	0	0.0%
GEOGRAPHIC FACTORS		
Urban-rural (2-level) residence at birth		
Urban	29	49.2%
Rural	30	50.9%

Source: Linked Death-Birth certificates, DRVS

*Infant deaths are excluded from counts and percent calculation if stratification characteristic is missing/unknown; counts and percents may not sum to total.

APPENDIX B – Infant Mortality Detailed Tables

Table B-3. Maine resident infant deaths, counts and rates per 1,000 live births by select factors, 2019-23

Maine 2019-2023 infant deaths	Count†	Rate per 1,000 live births	95% CI
Total	341	5.8	5.18 – 6.43
Demographics of birthing persons			
Age of birthing person			
Under 25	85	7.6	6.11 – 9.46
25-34	181	5.0	4.32 – 5.82
35 and over	70	5.9	4.59 – 7.45
Education of birthing person			
HS diploma/GED or less	165	9.0	7.68 – 10.48
Some college or higher	162	4.0	3.42 – 4.68
Ethnicity of birthing person			
Non-Hispanic	329	5.8	5.20 – 6.47
Hispanic*	5	3.4*	1.09 – 7.86*
Race of birthing person			
American Indian/Alaska Native*	4	9.8*	2.67 – 25.10*
Asian*	6	6.1*	2.26 – 13.38*
Black/African American	36	11.6	8.15 – 16.11
Native Hawaiian or Other Pacific Islander	0	0	0
Other race*	1	2.6*	0.07 – 14.62*
Two or more races*	11	9.2*	4.60 – 16.50*
White	269	5.2	4.57 – 5.82
Birthing person's country of birth			
US state or territory	291	5.5	4.84 – 6.12
Elsewhere	45	8.0	5.82 – 10.68
Birthing person received WIC during pregnancy			
Yes	92	6.5	5.26 – 8.00
No	238	5.3	4.67 – 6.05
Birthing person health status and access-to-care factors			
Pre-pregnancy weight (4-level)			
Underweight (<18.5)*	8	7.3*	3.15 – 14.37*
Normal weight (18.5 - <25.0)	104	4.8	3.91 – 5.79
Overweight (25.0 - <30.0)	76	4.8	3.80 – 6.04
Obesity (30.0+)	119	6.4	5.26 – 7.60

APPENDIX B – Infant Mortality Detailed Tables

Smoked last trimester			
No	278	5.1	4.56 – 5.79
Yes	54	10.9	8.20 – 14.25
Adequacy of prenatal care			
Adequate and adequate plus	242	4.9	4.27 – 5.52
Inadequate and intermediate	78	9.0	7.14 – 11.27
Principal payer for delivery			
MaineCare	168	7.5	6.40 – 8.71
Other payer	164	4.5	3.86 – 5.27
Infant health factors			
Plurality			
Multiple birth	52	25.8	19.25 – 33.81
Singleton birth	284	5.0	4.42 – 5.60
Birthweight			
<1000 g	160	522.9	445.00 – 610.47
1000-1499 g*	19	51.5*	31.00 – 80.41*
1500-2499 g	47	12.2	8.94 – 16.17
2500+ g	100	1.8	1.49 – 2.23
Gestational age at birth			
<32 weeks	186	235.4	202.82 – 271.82
32-33 weeks*	14	23.6*	12.93 – 39.68 *
34-36 weeks	34	8.3	5.75 – 11.60
37-38 weeks	41	2.6	1.84 – 3.48
39+ weeks	60	1.6	1.22 – 2.06
Birth location			
Hospital	326	5.7	5.09 – 6.34
Home*	10	6.9*	3.30 – 12.67*
Other	0	0	0
Geographic Factors			
Urban-rural (2-level) residence at birth			
Urban	124	6.1	5.04 – 7.22
Rural	196	5.3	4.61 – 6.14

APPENDIX B – Infant Mortality Detailed Tables

Urban-rural (4-level) residence at birth			
Metro	124	6.1	5.04 – 7.22
Large rural	105	5.0	4.10 – 6.07
Small rural	46	5.9	4.35 – 7.93
Isolated rural	45	5.6	4.08 – 7.48
Birthing person's county of residence			
Androscoggin	41	7.2	5.19 – 9.82
Aroostook*	18	6.0*	3.56 – 9.50*
Cumberland	71	5.1	3.97 – 6.41
Franklin*	10	9.1*	4.36 – 16.73*
Hancock*	8	4.0*	1.74 – 7.96*
Kennebec	39	7.2	5.15 – 9.89
Knox*	8	5.7*	2.45 – 11.16*
Lincoln	DSP	DSP	DSP
Oxford*	16	6.4*	3.66 – 10.38*
Penobscot	36	5.7	4.00 – 7.91
Piscataquis	DSP	DSP	DSP
Sagadahoc*	7	4.7*	1.89 – 9.69*
Somerset*	15	6.7*	3.74 – 11.01*
Waldo*	9	5.4*	2.49 – 10.34*
Washington	DSP	DSP	DSP
York	42	4.6	3.34 – 6.26

Source: Linked Death-Birth certificates, DRVS
†Infant deaths excluded from counts if stratification characteristic is missing/unknown; counts may not sum to total
**Interpret with caution; rates calculated with less than 20 individuals in the numerator.
DSP: Data suppressed for privacy

APPENDIX C – Policy Level Recommendations

Appendix C – Policy Level Recommendations
Note: these are recommendations discussed by the panel and are not necessarily supported or endorsed by the Maine Center for Disease Control and Prevention or Department of Health and Human Services. They do not reflect policy commitments and further do not confer support from the Executive Branch for specific legislative initiatives. Policy proposals will be reviewed and commented on as they arise.

The following recommendations were taken from a larger list of 98 recommendations that the MFIMR Panel developed over the last 18 months based on the case reviews and in honor of the individuals and families impacted by maternal, fetal and infant loss in Maine. For the purposes of this annual legislative report, the following 10 policy level recommendations (*3 of which are repeated from the Prioritized Recommendations) have been highlighted for this audience. The remaining recommendations will be made publicly available on the MFIMR website following the release of this legislative report. The Panel members and Leadership believe it crucial not to leave any recommendations behind that could make a difference in the lives of Maine families and direct our partners in the work of prevention to read the full list of recommendations on the MFIMR website when it becomes available.

Maine MFIMR Website

Cultural / Linguistic Support

*Policymakers to look at ways to support the development and ongoing funding for a statewide peer support/navigator/cultural broker program for birthing and postpartum people in Maine to help navigate the health care and legal systems for those new to Maine.

*Policymakers to look at ways to support increasing culturally and linguistically appropriate integrated mental health services across perinatal and primary care settings, as well as infrastructure that supports better and more expedient access to mental health services including increasing access to telehealth and immediately or urgently available providers in case of emergency.

Emergency Medical Services (EMS)

State policymakers to look at ways to provide funding and support for increased EMS staffing for maternal responses, particularly in rural areas where additional help can be significantly distant.

Medications

Federal Policymakers to look at ways to ensure the existence of an "override" is available for all insurance types and that a 72 hour emergency medication supply can be issued by pharmacies in cases of true emergency for all insurance types.

APPENDIX C – Policy Level Recommendations

State Policymakers to look at ways to ensure that a list of types of medications which should be filled for 30 days while Prior Authorizations (PA) are being sorted out for emergency access and/or list of types of medications and situations that should be PA exempt. The state and/or insurance companies to contribute to a "back-up fund" to cover the gap like the Maine Guaranteed Access Reinsurance Association.

Social Determinants of Health

Policymakers to look at ways to increase funding and availability of emergency housing for individuals prenatally and postpartum and for longer-term affordable housing options for Maine residents.

Policymakers to look at ways to increase funding for, availability of, and knowledge of public transportation options in Maine, particularly for pregnant and postpartum patients and their families.

Substance Use

Policymakers to look at ways to increase funding and availability for housing options like McCauley house or other residential treatment/supports for women with SUD in pregnancy.

*Statewide policymakers to look at ways to increase the number of drug and alcohol rehabilitation services, facilities, and workforce to be more accessible for people with children, have longer term options, and make them more inclusive of co-occurring disorders, particularly for those from small or rural communities.

State policymakers to look at ways to increase funding for toxicology testing through the Office of the Chief Medical Examiner.

* prioritized recommendations – see Panel Recommendations section of this report.

APPENDIX D – Equity One-Pager

SIX
WAYS WE’VE MADE EQUITY* A PRIORITY

1 MEMBERSHIP STIPENDS

Offered critical income loss stipends to all members who are participating as a community member bringing their lived experience and are not participating representing their professional role or expertise.

2 PANEL MEMBERSHIP ANALYSIS

Assessed our Panel membership to make recruiting transparent with regard to geographic distribution, self-ID of members representing or from disproportionately affected communities, and vacant positions.

3 MEANINGFUL PARTICIPATION

Tracked Panel member satisfaction and comfort with making recommendations and participating in case discussion during each meeting.

4 COMMUNITY OUTREACH

Held community conversations with groups that represent or serve those who are disproportionately impacted. Conversations include sharing information about Panel processes for transparency, and asking about community needs and ideas for collaboration.

5 FAMILY INTERVIEWS

Reached out to families for every case we reviewed via multiple methods to help ensure they were offered a chance to speak from their perspective. A stipend was provided for families who completed an interview for their time and input.

6 SAMPLING METHODS

By oversampling for fetal and infant cases from historically marginalized populations and those living in rural areas where we now see perinatal health care deserts, we can better change outcomes and understand inequities.

MFIMR Sept. 2024

MMA CENTER FOR QUALITY IMPROVEMENT

* **Equity** is the active promotion of justice, impartiality, and fair treatment of all people. It includes consideration of individual needs and differences, such as gaps in opportunity, and acknowledges that disparate impacts require solutions that address the disparities to improve outcomes. Equity requires an understanding of the root causes of disparities, with associated remedial actions. These actions can occur within institutions and their systems, processes, procedures, and how resources are distributed. (PQC4ME DEIB Advisory Group Definition)