Janet T. Mills
Governor

Jeanne M. Lambrew, Ph.D.
Commissioner

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January 10, 2020

Senator Geoff Gratwick, Chair
Representative Patricia Hymanson, Chair
Joint Standing Committee on Health and Human Services
100 State House Station
Augusta, Maine 04333-0100

Dear Senator Gratwick, Representative Hymanson, and Members of the Joint Standing Committee on Health and Human Services:

Enclosed please find the 2019 Annual Report to the Legislature by the Maine Center for Disease Control and Prevention's Maternal, Fetal and Infant Mortality Review Panel. The Department of Health and Human Services submits this report as required under Title 22 of the M.R.S.A., Chapter 101, Section 261. It summarizes relevant data contributing to perinatal outcomes, and presents recommendations, plans, and identified needs for SFY 2020.

Thank you for the opportunity to provide the Joint Committee on Health and Human Services with a report on the activities and accomplishments of the Maine CDC Maternal, Fetal and Infant Mortality Review Panel.

Sincerely,

Jeanne M. Lambrew, Ph.D.
Commissioner

JML/klv

Enclosure

Maine

Maternal, Fetal and Infant Mortality Review Panel (MFIMR)

Maine CDC/DHHS

July 1, 2018 - June 30, 2019

Submitted to the Joint Standing Committee on Health and Human Services SFY2019

Annual Report

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INTRODUCTION

The Maine Center for Disease Control and Prevention's (Maine CDC) Maine Maternal, Fetal and Infant Mortality Review Panel (MFIMR) is a multidisciplinary group of health care and social service providers, public health officials, and other persons with professional expertise in maternal, fetal, and infant health and mortality. All Panel members are volunteers. The Panel's purpose is to gain an understanding of the factors associated with fetal, infant, and maternal deaths in order to expand the state's capacity to direct prevention efforts and to be able to take actions to promote healthy mothers and infants. Using a public health approach, the program's goal is to strengthen community resources and enhance state and local systems and policies affecting women, infants, and families to improve health outcomes in this population and prevent maternal and infant mortality and morbidity. This State Fiscal Year (SFY) 2019 report summarizes relevant data contributing to perinatal outcomes, and outlines challenges, activities, and future plans for the MFIMR Panel.

HISTORY

In 2005, the 122nd Maine Legislature passed *An Act to Establish a Maternal and Infant Death Review Panel*. In 2010, the 124th Maine Legislature amended this statute to authorize the Maternal and Infant Death Review Panel to review fetal deaths occurring after 28 weeks gestation (stillborn infants). With this change, the Panel was referred to as the Maternal, Fetal and Infant Mortality Review Panel. The Legislature also repealed the Panel's sunset provision allowing the Panel to continue its work beyond the original end date of January 1, 2011.

The MFIMR Panel did not meet between SFY 2014, and SFY 2016. In 2016, the following areas were modified to improve the function of the MFIMR Panel process:

- The process of contacting families for interviews and consent for record reviews was revamped and families were contacted.
- Records were reviewed on the few cases with family consent.
- The Office of Child and Family Services was tasked with conducting interviews for families interested in sharing their experience with delivery of care, challenges, and recommendations.

In 2017, an amendment to modify the MFIMR statute was approved and went into effect November 1, 2017. The changes to the statute are as follows:

- It formally changed the Maternal and Infant Death Review Panel to the Maternal, Fetal and Infant Mortality Review Panel.
- It provides that "director" in the laws governing the Panel refers to the medical director of the Maine Center for Disease Control and Prevention.
- It allows the Panel coordinator to obtain, without the individual's or family's consent, the health information of a woman who died during pregnancy or within 42 days of giving birth, a child who died within one year of birth, including fetal deaths after 28 weeks of gestation.
- It provides that the Panel is required to meet at least twice per year.

See Appendix A for formalization of Maternal, Infant & Infant Mortality Review Panel MCH Roles & Responsibilities Guided by Title 22 MFIMR Statute Language.

MFIMR PANEL ACTIVITIES IN STATE FISCAL YEAR 2019

In SFY18, the MFIMR Panel was housed within the Division of Licensing and Certification (DLC). In July of 2018, the Panel was moved under Maternal and Child Health as part of Maine CDC's Division of Disease Prevention. In addition to this change, DHHS appointed a new Director for Maine CDC in October 2017. The new Director identified a misalignment with the current process and the national standards. The National FIMR provided technical assistance and efforts were placed on reconstituting the Maine MFIMR Panel to adopt standards that align with national standards and to become more systems focused. The Panel also began review of maternal deaths.

In order to efficiently implement recommendations and to ensure that the guidance provided by the national program is followed, Maine CDC made two structural changes to the MFIMR Panel. First, Dr. Alan Picarillo became chair of the Panel. Dr. Picarillo is board-certified in Neonatal-Perinatal Medicine and is affiliated with Maine Neonatal Associates and Maine Medical Center in Portland. He has been a very active member of Maine's MFIMR Panel. Secondly, a subcommittee was created to help plan Panel meetings and advise on topics to be discussed at meetings, including case selection.

The Panel officially added fourteen new members during this SFY. Some of the new members had been attending the meeting as guests but received official designation by the CDC Director in SFY2019. In addition to several medical experts in the area (physicians and nurses), multiple stakeholder organizations are represented on the Panel: Office of Child and Family Services, Medical Examiner's Office, State Police, CDC Substance Abuse and Prevention, Public Health Nursing, Epidemiology, WIC, Perinatal Outreach, Maine Children's Trust, and Maine Families.

The Panel is required by statute to meet at least twice in a state fiscal year, however, the Panel members agreed upon meeting at least four times. The SFY2019 meetings took place on a quarterly basis as follows:

- July 18, 2018, 2-4pm at 45 Commerce Drive – Francis Perkins Conference Room
- October 23, 2018, 2-4pm at 286 Water Street - Room # 16
- January 22, 2019, 2- 4pm at 221 State Street - Main Conference Room
- April 23, 2019, 2-4pm 286 at Water Street - Room # 16

At the July meeting, as planned, the Director of the Fetal and Infant Mortality Review section of the National Center for Fatality Review and Prevention gave a presentation on processes to more efficiently and effectively review cases using tools recommended by the national program and used by other states.

Three presentations occurred at the October meeting: 1) Stephanie Barrett, BS, LSW, provided an overview of the OCFS Child Death and Serious Injury Review Panel process, 2) Erika Lichter, PhD, reviewed the use of the Perinatal Periods of Risk (PPOR) being adopted by the Maine Panel to assist in infant case review selection, and presented baseline data from Data, Research and Vital Statistics Program (DRVS) on maternal deaths in Maine, and 3) Dr. Jennifer Hayman, MD, FAAP, and Kelley Bowden, MS, RN, gave an update on the Infant Deaths and Unsafe Sleep project.

At the January meeting, additional discussions and decisions were made about processes and review materials for maternal death cases. At this meeting, the Panel also reviewed one fetal death and one

At the January meeting, additional discussions and decisions were made about processes and review materials for maternal death cases. At this meeting, the Panel also reviewed one fetal death and one infant death. At the April meeting, the first review of a maternal death was conducted along with an infant case death review.

MATERNAL REVIEW GRANTS

Maine CDC submitted two grant applications. The first was to the Supporting Maternal Mortality Review Committees from the US Centers for Disease Control and Prevention. The purpose of this grant was to provide the infrastructure needed to adequately train home interviewers and to ensure that all maternal deaths are reviewed. It would also create linkages with and among community-based resources, including mental health, substance use disorder treatment, primary care, and other ancillary services to implement recommendations of the panel. Unfortunately, Maine was not awarded this grant.

The second grant application went to the State Maternal Health Innovation Program through the Health Resources & Services Administration (HRSA). The State of Connecticut submitted a proposal on behalf of all six New England states to build on efforts taken by each state's Maternal and Child Health Title V Programs that deliver statewide maternal health programs and each state's Maternal Mortality Review Programs (MMRP) to optimize resources to implement specific activities to address disparities in maternal health and improve maternal health outcomes. Ultimately, the goal was to build capacity to prevent and reduce maternal mortality (MM) and severe maternal morbidity (SMM) in each state to effect change throughout New England. Unfortunately, Connecticut was not awarded this grant.

MFIMR EPIDEMIOLOGY REPORT

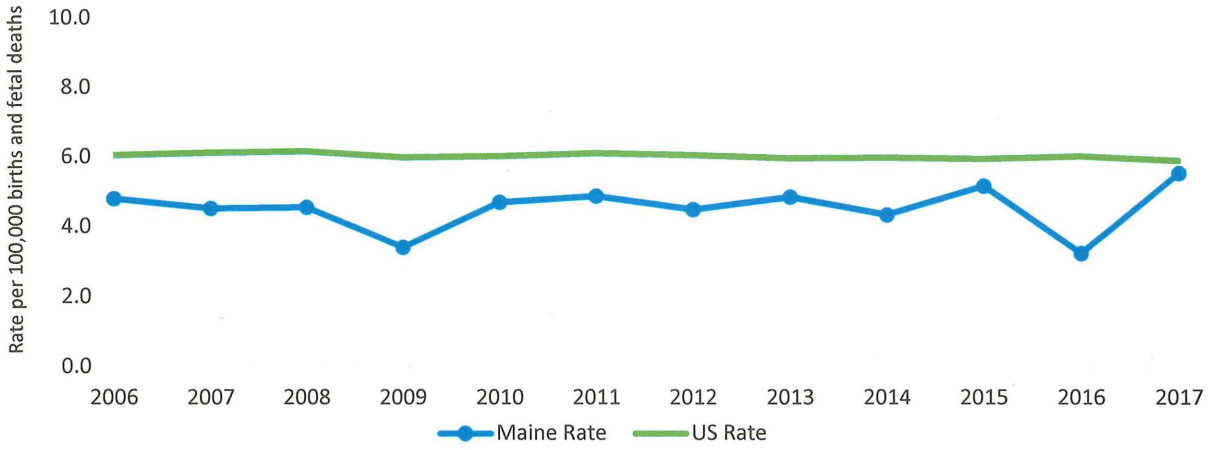
In support of the MFIMR Panel, funding is provided for epidemiologic analyses of maternal, fetal, and infant mortality through the Maternal and Child Health Block Grant (MCH BG) to help the Panel understand patterns and trends associated with maternal, fetal, and infant deaths.

In the current fiscal year, MFIMR epidemiologists provided quarterly analyses of provisional birth data, fetal, and infant death data, and maternal death data from Maine CDC's DRVS program. In addition, Maine's MFIMR panel staff continue to work with DRVS to follow best practices for maternal mortality case ascertainment[10,11] -- linking death certificates of women of reproductive age to birth certificates and fetal death certificates from the 12 months prior to her or after her death to determine if the woman was pregnant at the time of death or within 12 months of a birth.

Fetal Death Summary

A fetal death is the spontaneous death of a fetus in utero that occurs at 20 weeks of gestation or greater. Major causes of fetal death include maternal health conditions, complications of the placenta or umbilical cord, other complications of pregnancy, fetal anomalies, and fetal injury. Fetal death data are maintained by Maine CDC's DRVS program. Maine's 2017 fetal death rate was 5.5 fetal deaths per 1,000 live births plus fetal deaths (68 fetal deaths); the U.S. fetal death rate in 2017 was 5.9 fetal deaths per 1,000 live births plus fetal deaths.[2] Maine's fetal death rate has consistently been lower than the U.S. rate (Figure 1).

Figure 1. Fetal mortality rate, Maine and US, 2006 – 2017.

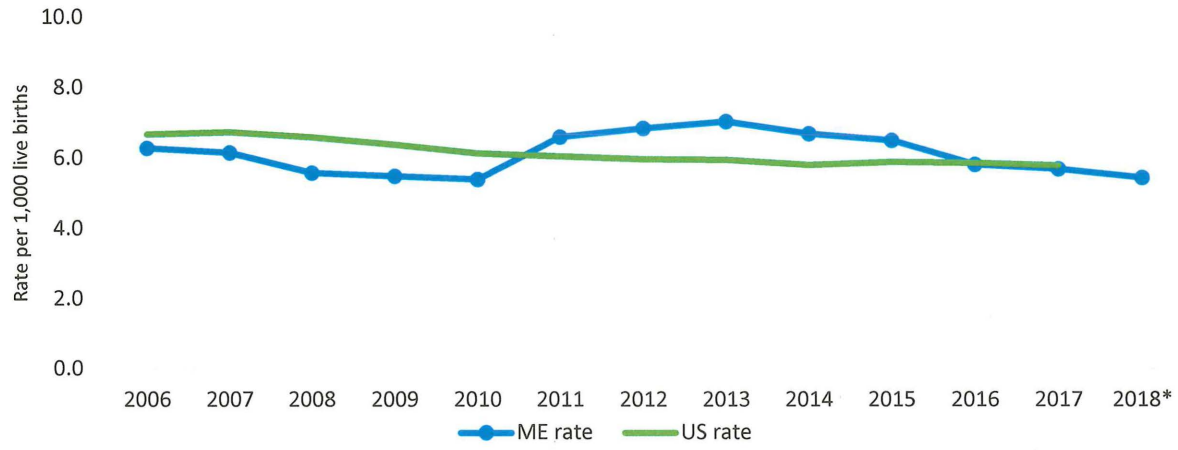


Source: CDC WONDER Online Database

Infant Death Summary

An infant death is defined as any death to a live born infant prior to their first birthday. Maine's infant mortality rate peaked in 2013 but has been declining since that time. In 2018, there were 67 deaths among Maine resident infants, and the State's infant mortality rate was 5.5 deaths per 1,000 live births (Figure 2). In 2017, Maine's infant mortality rate was the 21th lowest in the U.S.[3]

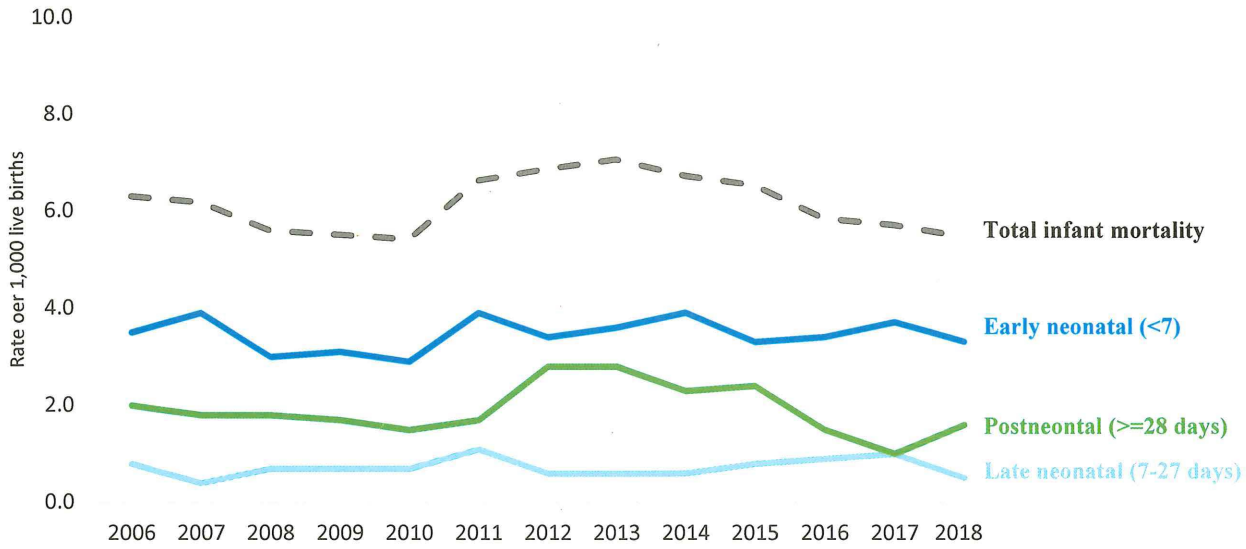
Figure 2. Infant mortality rate, Maine and US, 2006 – 2018*.



*Data for 2018 are provisional and subject to change.
Sources: US: 2006-2017 Linked Birth / Infant Death Records, CDC Wonder; Maine: Maine CDC death certificate and birth certificate data (non-linked). 2016: CDC National Center for Health Statistics

A majority of Maine's infant deaths occur in the early neonatal period (i.e., the first seven days of life) followed by the post-neonatal period (Figure 3). In 2018, more than 60 percent of deaths to Maine infants occurred during the early neonatal period.

Figure 3. Infant mortality by age group, Maine, 2006 – 2018*.

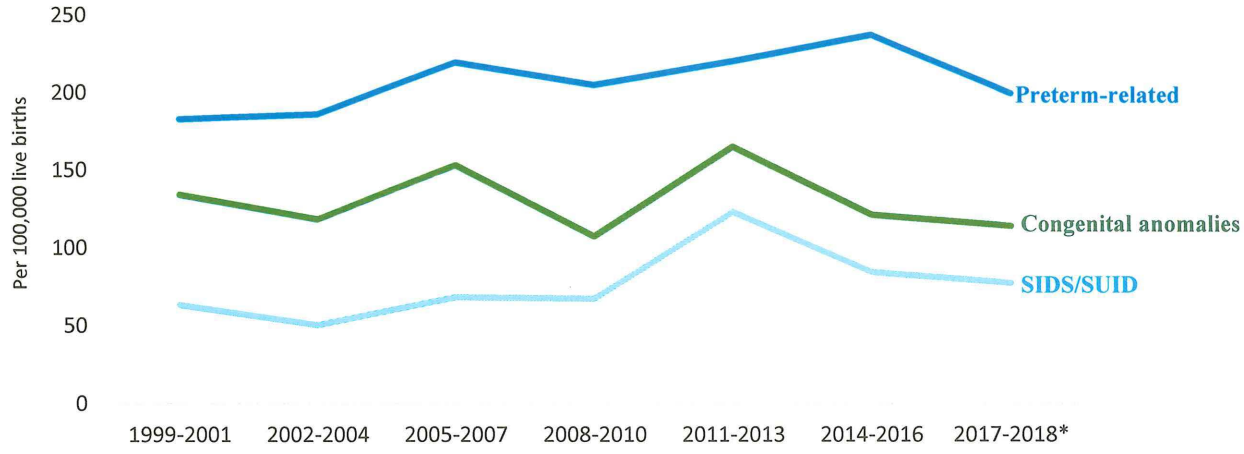


*Data for 2018 are provisional and subject to change; Source: Maine CDC Death Certificate data.

Infant mortality risk varies by certain demographic, geographic and maternal health, and other factors. In Maine, slightly higher infant death rates are found for women under the age of 25 and for women with a HS diploma/GED or less. The majority of infant deaths occur in Level III hospitals. Non-Hispanic women have slightly higher infant death rates compared to Hispanic women. Black women had higher rates of infant deaths than all other women between 2003 and 2007, but this difference has decreased in more recent years. There has been an increase in infant deaths among babies born to women who live in isolated rural areas in the period from 2013 to 2017. See Appendix B for detailed data (maternal demographics, infant characteristics, and birth location information) on infant deaths in Maine (counts and mortality rates – deaths per 1000 live births) by 5-year groupings, 2003 to 2017.

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. Congenital anomalies (i.e., birth defects) and Sudden Infant Death Syndrome (SIDS)/Sudden Unexpected Infant Deaths (SUID) were the second and third leading causes, respectively (Figure 4).

Figure 4. Leading causes of infant mortality, Maine, 1999 – 2018*.



*Data for 2018 are provisional and subject to change. Source: Maine CDC death certificate data.

Maternal Mortality Summary

There are three ways of conceptualizing deaths to women during or soon after the end of pregnancy:

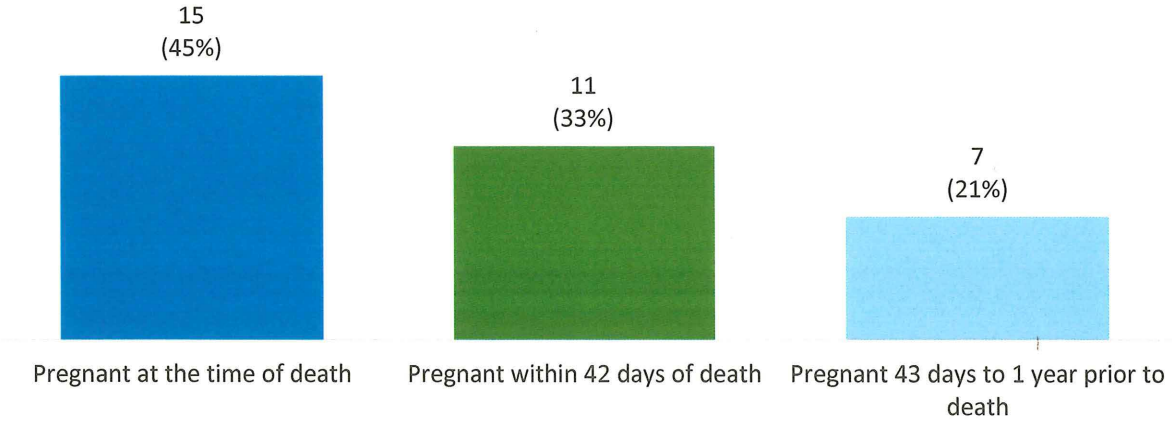
- **Pregnancy-associated death:** A pregnancy-associated death is any death to a woman while pregnant or within one year of the end of pregnancy, regardless of cause. [13]

- **Pregnancy-related death:** A pregnancy-related death is defined by the CDC as the death of a woman while pregnant or within one year of the end of a pregnancy -- regardless of the outcome, duration or site of the pregnancy -- from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.[14]

- **Maternal death:** A maternal death is defined by the World Health Organization as any death to a woman within 42 days of the end of her pregnancy and due to causes related to or aggravated by pregnancy, excluding accidental or incidental causes. [15]

In 2019, an examination of pregnancy associated deaths occurring in 2014-2018 was conducted using data from the Maine death certificate pregnancy status field. Based on data collected in this field, 33 Maine resident women died during or within one year of being pregnant between 2014 and 2018. Half of these deaths occurred during the decedent's pregnancy (Figure 5).

Figure 5. Deaths to Maine women during pregnancy and up to one year postpartum, 2014-2018.



Over half of the pregnancy-associated deaths were due to injury-related causes (e.g., overdose, homicide, suicide, car crash). More than one third were due to a cause related to or aggravated by pregnancy occurring either while the decedent was pregnant or within 42 days of the end of her pregnancy. These types of deaths are often related to cardiovascular diseases, infection, hemorrhage, cardiomyopathy, and embolism.[12]

The MFIMR team has used this information, as well as the findings of a recently completed review of maternal morbidities in Maine, to inform maternal death review case selection and prevention recommendations. The first review of a pregnancy-related death by the Panel occurred in April of 2019.

Risk Factors for Fetal and Infant Mortality: Perinatal Period of Risk

To gain a better understanding of the causes of infant and fetal deaths in Maine, a Perinatal Period of Risk (PPOR) study was conducted in 2017 using vital records data from 2013 to 2015. PPOR is a multi-phase, multi-disciplinary approach for examining the causes of infant and fetal deaths. The PPOR approach allows states and communities to identify the "risk period(s)" in which infant and fetal deaths are higher than would be expected.[4] In 2019, Maine CDC's Maternal and Child Health Program updated the PPOR Phase 1 analysis with vital records data from 2014 to 2017.

A key element of the PPOR Phase 1 analysis is the creation of a feto-infant mortality map in which infant and fetal deaths are divided into four risk period groups based on the age and birthweight of the infant at death.

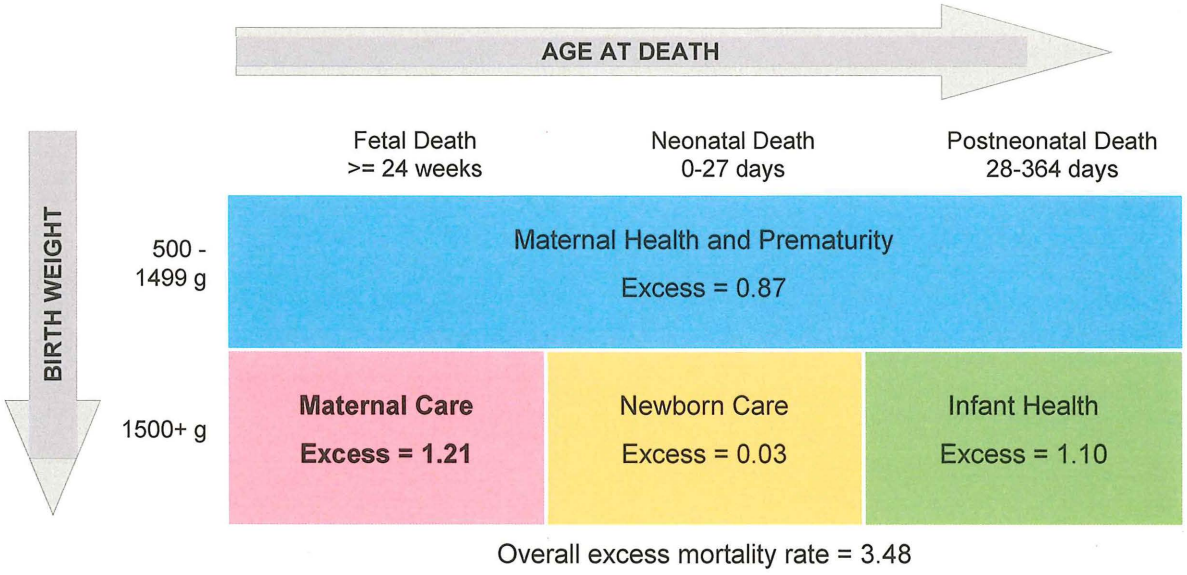
- **Maternal Health and Prematurity** (deaths of fetus and infants weighing 500-1499g): Factors contributing to fetal and infant deaths in this period include preconception health care; preconception health behaviors, such as tobacco use; and timely access to prenatal care.
- **Maternal Care** (deaths to fetuses weighing 1500g or more): Factors contributing to fetal demise in this period include access to appropriate prenatal care and high-risk obstetric care, as well as proper management of chronic maternal health conditions.
- **Newborn Care** (deaths to infants age 0-27 days weighing 1500g or more): Factors contributing to infant deaths in this period include risk-appropriate neonatal medical care.

- **Infant Health** (deaths to infants age 28-365 days, weighing 1500g or more) Factors contributing to infant deaths during this period include a range of social and environmental factors, such as access to safe sleep environments, maternal mental health, access breastfeeding support, and family violence.

To conduct PPOR Phase 1 analyses, a reference population (e.g., lower risk group) is chosen and compared to all other infant and fetal deaths. The overall and period specific rates of excess death are obtained by comparing the reference group to the higher risk group.

In Maine, the selected reference group was white mothers between the ages of 24 and 34 and who had completed at least some college education. Nationally, this demographic group generally experiences the best birth outcomes. The infant mortality rate of the reference group was subtracted from the infant mortality rate of all other women to determine the excess mortality in each period of risk. These excess mortality rates are presented in the feto-infant map below (Figure 6).

Figure 6. PPOR Phase 1 Feto-Infant Morality Map, Maine, 2014-2017.



Findings from this analysis indicated that the excess infant and fetal deaths were most likely to occur in the Maternal Care period (35%), followed closely by the Infant Health (32%) period, and the Maternal Health/Prematurity (25%) period.

Table 1 highlights key risk factors contributing to excess fetal and infant deaths in Maine. Maine's rates of smoking during pregnancy, obesity prior to pregnancy, pre-pregnancy depression, and neonatal abstinence syndrome, are areas for potential prevention and intervention efforts. Additionally, while safe sleep practices in Maine are improving, preventing injury and SIDS/SUID deaths continues to be key to efforts in reducing overall infant mortality in the state.

Table 1. Select risk factors for infant mortality, Maine and US.

Select risk factors	ME	US	Year
Percent of women who smoke during pregnancy [5]	11.9%	6.5%	2018
Percent of births to women with diabetes (any type) [5]	8.4%	7.6%	2018
Percent of women who received late or no prenatal care [5]	4.0%	6.2%	2018
Percent of infants born low birth weight (<2,500 grams) [5]	7.2%	8.3%	2018
Percent of infants born very low birth weight (<1,500 grams) [5]	1.0%	1.4%	2018
Percent of infants born premature (<37 weeks gestation) [5]	8.6%	10.0%	2018
Percent of births to women with less than a high school education [5]	6.6%	12.7%	2018
Percent of births to women with a pre-pregnancy BMI of >25.0 [5]	59.0%	54.7%	2018
Percent of new mothers depressed in 3 months prior to pregnancy (self-report) [7]	20.1%	12.8%	2017
Incidence of neonatal abstinence syndrome (rate per 1,000 live births) [8]	33.1	7.0	2016
Percent of infants most often laid on back to sleep [7]	89.2%	79.5%	2017
Percent of women who were enrolled in Medicaid/MaineCare during pregnancy [7]	36.9%	35.6%	2017

Risk Factors for Maternal Mortality

Multiple factors have been identified by national organizations as risk factors for maternal or pregnancy-related mortality:[7,10,13,14]

- Chronic medical conditions (e.g. hypertension, diabetes, obesity, mental health, substance use disorder)
- Patient lack of knowledge of warning signs and non-adherence to medical regimens
- Unstable housing
- Limited access to transportation
- Misdiagnosis and delays in diagnosis and effective treatment (inadequate provider training, lack of coordination between providers, health facility lack of experience with obstetric emergencies and appropriate personnel or services)
- Failure to screen and failure in follow-up
- Inadequate or absent systems of care policies and procedures

Approximately three in five pregnancy-related deaths in the U.S. are preventable.[14] Maine's rates of maternal chronic health and behavioral issues, poverty, and provider, institutional, community, and state systems of care, are areas for potential prevention and intervention efforts, and will be examined in all future maternal death reviews.

RECOMMENDATIONS, PLANS, AND IDENTIFIED NEEDS FOR FY2020

In SFY 2018, Panel members agreed that, in order to review more cases, the time for the meetings would be extended by an hour and they would review a fetal, an infant, and a maternal case at each meeting. In addition to reviewing three cases at each meeting, the Panel Coordinator will be looking for ways to review and summarize all infant and maternal deaths, and report to Panel members on themes of like cases. This will enable the Panel to identify any consistencies between cases to help inform policy more effectively.

Other activities to be conducted during SFY2020 include:

1. Finalizing a data use agreement with the National FIMR data repository (involving coordination with the Maine Child Death and Serious Injury Review Panel - CDSIR) and investigating use of the CDC's Maternal Mortality Review Information Application (MMRIA) to help track data and recommendations of the Panel.
2. Continuing to recruit members for the Panel to ensure a statewide representation of all stakeholders who provide services related to prevention and intervention efforts and complete an orientation guide for new members. A special effort will be made to locate a parent member.
3. Updating listings of bereavement resources and coordinating with first responders and care providers for fetal, infant, and maternal deaths to expedite the quick and complete referral of families to bereavement resources with follow-up, and to introduce the work of the MFIMR panel.
4. Beginning development of a robust home interview program, including 1) introduction of the work of the MFIMR Panel at the time of death by first responders and care providers, 2) revision of outreach letters of invitation for home interviewing, 3) determination of appropriate personnel for conducting interviews, and 4) training of interviewers in the fetal, infant, and maternal death interview process. We plan to work closely with the Maine OCFS CDSIR Panel in this effort.
5. Pursuing changes to the current MFIMR legislation to include access to health care information for maternal deaths up to one year following the birth of a child by the Panel Coordinator. Review of Maine DRVS maternal death data revealed several deaths that occurred after 43 days following the birth of a child where the cause of death was listed as obstetric. In addition, the national benchmark for maternal death reviews is up to one year following the birth of a child.

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Appendix A

Maternal, Infant & Infant Mortality Review Panel
MCH Roles & Responsibilities
Guided by Title 22 MFIMR Statute Language
September 2018

1. Meeting (review panel) Membership: The panel must consist of health care and social services providers, public health officials, law enforcement officials, and other persons with professional expertise on maternal /infant death and mortality.

2. Panel Member Appointment: The Maine CDC Director appoints.

3. Panel Member Tracking and Communication: Panel Coordinator or designee

4. Panel Coordinator: The Maine CDC Director appoints.

5. Panel Meetings: Shall meet twice per year.

6. Family Contact: No sooner than four months by letter from the State Health Officer with letterhead "of the center (Maine CDC)" and includes invitation to participate in review of death from MFIMR.

7. Panel Coordinator duties:
   - Review deaths of all women during pregnancy or within 42 days of giving birth;
   - "Majority" of cases in which fetal death occurs after 28 weeks gestation;
   - "Majority" of deaths of infants under one year of age
   - Selection of cases of infant death based on the need to review causes of death; or
   - Obtain a representative sample of all deaths
   - Prepare a deidentified summary or abstract of relevant information regarding the case, as determined to be useful to the panel

8. Access to death certificates for deceased persons and for fetal deaths occurring after 28 weeks; Panel coordinator or designee * *Epidemiology with Data, Research & Vital Statistics (DRVS) staff*

9. Access to health care information: Granted to the Panel Coordinator or designee of support, staff assigned to abstraction and clinical staff assigned for review and summary documents for panel review.

10. Permission to interview family: Panel Coordinator or designated qualified staff

11. Voluntary family interview: To gather information or data for the purposes of panel abstract or summary (deidentified). Interviewer must meet the qualifications for panel coordinator and have professional training and experience in bereavement and may make referral to bereavement counseling.

12. Case Summary or abstraction (de-identified): Relevant information regarding the case, as determined to be useful by the panel.

13. Panel Duties:
    - Comprehensive Multidisciplinary Review of data presented.
    - Annual report to the department and Joint Standing Committee of the Legislature having jurisdiction over Health and Human Services matters. The report must identify factors contributing to maternal, fetal, and infant mortality. In addition, it must identify strengths and weaknesses of the care delivery system and recommendations for improvement.
    - Offer report to the person or persons who grant permission for interviews.
    - Provide a copy of the report, data reviews, and recommendations to *the Child Death & Serious Injury Review Panel. * MFIMR Panel may request/review data from the Child Death & Serious Injury Review Panel*

14. Confidentiality: All records are maintained as confidential.

15. Funding: The Department may accept any public and private funding to carry out duties.

16. Rulemaking (8/18 need updates): "The Department … "shall adopt rules to implement, inclusive of:
    - Collection of information and data
    - Selecting members of the panel, collecting; use of individually identifiable information
    - Conducting reviews
    - Assure access to PHI is restricted
    - Establish protocols for confidentiality

**Current rules call for a central registry of statewide organizations dedicated to improving the health of mother and infants by preventing birth defects, premature births, and maternal and infant mortality. The rules also state access to the privileged medical information is limited to the Panel Coordinator and Designee and all panel members will sign confidentiality statements. Areas in the rule that may need updating include reference to family unwillingness to participate. The rule currently indicates the department shall not gather data relative to such cases.*

Appendix B

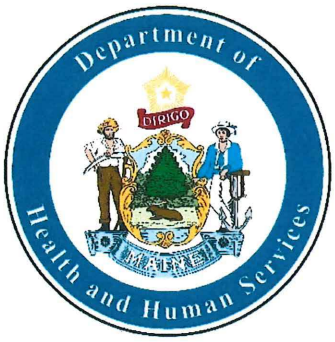
Infant deaths (count and infant mortality rate (deaths per 1,000 live births among Maine residents by year of death (5-year summaries)

	2003-2007	2008-2012	2013-2017
Total	420 6.0	388 5.9	401 6.4
Maternal age			
Under 25	162 7.0	154 7.3	109 6.7
25-34	177 4.8	170 4.8	221 5.9
35 and over	60 6.0	53 6.0	64 6.7
Maternal education			
HS diploma/GED or less	229 7.3	211 7.5	182 8.1
Some college or higher	178 4.6	168 4.6	207 5.2
Maternal ethnicity*			
Non-Hispanic	408 5.9	372 5.8	290 5.9
Hispanic	4 4.2	8 7.7	6 6.6
Maternal race (bridged)[1]			
White (alone or bridged)	392 5.8	357 5.8	274 5.9
Black (alone or bridged)	14 10.8	14 7.1	13 6.7
AIAN (alone or bridged)	1 1.9	4 6.7	3 5.3
API (alone or bridged)	7 6.3	6 5.3	5 5.8
Other race alone	0 0.0	1 9.7	0 0.0
Maternal place of birth			
US state or territory	373 5.8	354 6.0	356 6.2
Elsewhere	26 6.2	23 5.1	40 8.2
Urban-rural (4-level) maternal residence at birth			
Metro	136 5.8	141 6.2	142 6.5
Large rural	151 6.0	130 5.6	127 5.8

Small rural	95 5.8	92 6.1	94 6.7
Isolated rural	16 4.7	12 3.9	27 8.7
Maternal county of residence at birth			
Androscoggin	47 6.9	46 6.8	39 6.2
Aroostook	23 6.6	20 5.9	33 10.0
Cumberland	86 5.7	77 5.5	76 5.4
Franklin	7 5.0	11 8.0	6 4.8
Hancock	10 3.8	9 3.8	12 5.1
Kennebec	34 5.5	33 5.4	40 6.9
Knox	11 5.3	13 7.1	11 6.5
Lincoln	DSP[2]	7 4.9	10 7.1
Oxford	19 6.6	13 4.9	12 4.7
Penobscot	53 6.6	44 5.8	51 7.1
Piscataquis	DSP	8 10.7	DSP
Sagadahoc	13 6.2	7 4.0	10 6.0
Somerset	17 6.3	22 8.8	16 6.8
Waldo	12 5.9	14 7.1	13 7.5
Washington	9 5.1	DSP	8 5.4
York	52 4.9	46 4.8	48 5.2
Plurality			
Multiple birth	70 29.8	58 27.9	67 31.7
Singleton birth	348 5.1	326 5.1	331 5.4
Birth weight			
VLBW (<1500 g)	233 276.7	206 304.7	210 280.4

MLBW (1500-2499 g)	46 12.2	54 15.0	40 10.6
NBW (2500+ g)	131 2.0	122 2.0	141 2.4
Birth weight (4 groups)			
<1000 g	210 489.5	187 532.8	187 522.3
1000-1499 g	23 55.7	19 58.5	23 58.8
1500-2499 g	46 12.2	54 15.0	40 10.6
2500+ g	131 2.0	122 2.0	141 2.4
Gestational age			
<32 weeks	240 247.9	208 260.3	209 243.6
32-33 weeks	10 13.1	13 19.3	12 20.4
34-36 weeks	38 8.2	27 6.9	27 7.0
37-38 weeks	45 2.8	44 3.2	48 3.5
39+ weeks	81 1.7	89 1.9	96 2.2
Birth location			
Hospital	414 6.0	382 5.9	384 6.2
Home	4 5.5	2 2.1	11 9.0
Other	0 0.0	0 0.0	1 7.6
Hospital level			
Level III	254 12.2	237 11.4	241 11.0
Critical access	38 3.9	22 2.8	23 3.4
Other hospital	100 2.7	111 3.2	101 3.2

[1]The 2013-2017 column for maternal race and maternal ethnicity only includes 2014-2017.
[2]Data Suppressed for Privacy



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