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May 15, 2017

Senator Eric L. Brakey, Chair
Representative Patricia Hymanson, Chair
Joint Committee on Health and Human Services
100 State House Station
Augusta, Maine 04333-0100

**RE: Maine Maternal Fetal Infant Mortality Review
Panel Annual Report, FY 2016**

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

Enclosed is the *Maine Maternal Fetal Infant Mortality Review Panel Report for fiscal year 2016*.

The Maternal Fetal Infant Mortality Review Panel statute (22 M.R.S.A. Chapter 101 §261) directs the Panel to submit an annual report to the Department of Health and Human Services and to the joint standing committee of the Legislatures having jurisdiction over health and human to the Legislature. The report will identify factors contributing to maternal and infant death in the State, determine the strengths and weaknesses of the current maternal and infant health care delivery system and make recommendations to the department to decrease the rate of maternal and infant death.

This report will be posted on the Department's publically accessible webpage within 10 days. Here is the link: http://www.maine.gov/dhhs/data_reports.shtml

If you have any questions or would like further information, please feel free to contact Sheryl Peavey, Chief Operating Officer, Maine Center for Disease Control and Prevention at (207) 287-5177.

Sincerely,

Mary C. Mayhew
Commissioner

MCM/klv

**Maine
Maternal, Fetal
and Infant
Mortality Review
Panel (MFIMR)**



July 1, 2015 - June 30, 2016

Submitted to the Joint Standing Committee
on Health and Human Services

2016 Annual
Report



Paul R. LePage, Governor

Mary C. Mayhew, Commissioner

**Maine CDC/DHHS
Maternal, Fetal and Infant Mortality Review Panel (MFIMR)
2016 Annual Report to the Legislature**

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INTRODUCTION

Background

In 2005, the 122 Legislature passed *An Act to Establish a Maternal and Infant Death Review Panel* to examine issues related to maternal and infant deaths in Maine. In 2010, the 124 Legislature amended this statute to authorize the Maternal and Infant Death Review Panel to review fetal deaths occurring after 28 weeks gestation, i.e., stillborn infants. With this change, the Panel is now referred to as the Maternal, Fetal and Infant Mortality Review Panel.

This 2016 report summarizes relevant data contributing to perinatal outcomes, challenges, activities and plans for the MFIMR Panel.

Purpose

The overall purpose of the Maine CDC Maternal, Fetal and Infant Mortality Review Panel (MFIMR), using a public health approach, is to strengthen community resources and enhance State and local systems and policies affecting women, infants and families in order to improve health outcomes in this population and prevent maternal, fetal and infant mortality and morbidity. The infant mortality rate is a sensitive public health indicator of social health and well-being and of the extent to which a society invests in children as its most precious natural resource. By understanding the factors associated with maternal, fetal and infant deaths, we will improve our ability as a State to most effectively direct prevention efforts and to take actions to promote healthy mothers and infants.

The MFIMR Panel identified the following issues as needing in-depth investigation over the next five years (2013-2018):

- Factors that contribute to preterm birth, pregnancy loss, and strategies for prevention.
- Barriers to delivery of the highest risk infants (e.g. very low birth weight/premature) at Level III facilities.
- Sudden Infant Death and Sudden Unexpected Infant Death as emerging issues, including sleep related deaths.

Recommendations from Previous Years

- Increase awareness of the MFIMR Panel and related activities and resources for healthcare providers and bereaved families.
- Determine which recommendations to implement from the technical assistance provided by the National Fetal Infant Mortality Review (NFIMR) Technical Assistance in order to improve the MFIMR system.

For more information on activities of the MFIMR Panel:

Contact Madeline Orange MSN, RN, Panel Coordinator, Maine CDC, madeline.orange@maine.gov or 207-287-5005.

Background

In 2005, the 122 Legislature passed *An Act to Establish a Maternal and Infant Death Review Panel*. As stated in the Panel's *Procedures Manual and Guidelines* its purpose is to:

“...conduct thorough examinations of maternal and infant deaths in Maine. By understanding the factors associated with infant and maternal deaths, we will expand our capacity as a State to direct prevention efforts to the most effective and humane strategies possible and be able to take actions to promote healthy mothers and infants. The overall purpose of the program, using a public health approach, is to strengthen community resources and enhance state and local systems and policies affecting women, infants and families, in order to improve health outcomes in this population and prevent maternal and infant mortality and morbidity.”¹

In 2010, the 124th Legislature amended this statute to authorize the Maternal and Infant Death Review Panel to review fetal deaths occurring after 28 weeks gestation, i.e., stillborn infants. With this change, the Panel is now referred to as the Maternal, Fetal and Infant Mortality Review (MFIMR) Panel. The Legislature also repealed the sunset on the Panel allowing the Panel to continue its work beyond the original end date of January 1, 2011.

The Panel

The Maine CDC MFIMR Panel is a multidisciplinary group of health care and social service providers, public health officials, law enforcement officers, parents and other persons with professional expertise on maternal and infant health and mortality. The Panel is supported by a dedicated revenue account for a portion of the Panel coordinator's time. All Panel members are volunteers.

Purpose

The Panel takes a broad holistic approach to improving the quality of life for all of Maine's women, infants and families. The infant mortality rate is a sensitive public health indicator of social health and well-being. The Panel gathers and reviews information relevant to infant and maternal mortality, including factors contributing to mortality, considers the strengths and weaknesses of the current maternal and infant health care delivery system and makes recommendations to prevent future deaths and improve the overall health and safety of Maine's infants and mothers.

In 2013, the Panel identified the following issues as needing in-depth investigation over the next five years (2013 to 2018):

- Factors that contribute to preterm birth, pregnancy loss and strategies for prevention.
- Barriers to delivery of the highest risk infants (e.g. very low birth weight/premature) at hospitals with appropriate facilities and professionals to provide the best chance of survival for the infant (i.e. Level III facilities).
- Sudden Infant Death (SIDS) and Sudden Unexpected Infant Death (SUID) as an emerging issue, including sleep related deaths.

¹ Maine Department of Health and Human Services. (2008). *Maternal and Infant Mortality Review Panel Procedures Manual and Guidelines*. Augusta, ME: Maine Department of Health and Human Services, p 1.

MFIMR Activities in State Fiscal Year 2016

The Maine CDC MFIMR Panel has not met since SFY 2014. During that year, the Panel only reviewed two cases and it also focused on improving case ascertainment. Because of the challenges to ascertain cases the MFIMR Panel requested technical assistance from the National Fetal and Infant Mortality Review (NFIMR) on proven case ascertainment practices.

Challenges Experienced by the MFIMR Panel

- No MFIMR Panel meetings were held during fiscal year 2016 due to the very limited number of cases available for Panel review and unsuccessful outreach to families to obtain consent.
- Statutory requirements mandating a four-month waiting period before contacting the family and requiring family consent to review records present challenges to inviting families to participate in the review process.
- With the statutory restrictions requiring consent to review medical records and difficulty contacting families, it is unlikely that the Panel could assess preventable deaths and identify specific public health approaches to prevent future deaths.

Plans for Maine CDC MFIMR Panel in 2017

Prior to the release of this report, Maine DHHS appointed a new coordinator, and with leadership from the State Health Officer, Dr. Christopher Pezzullo, DO, has refreshed the process for family outreach and panel participation.

Past Panel discussions identified several activities to be addressed in the coming year:

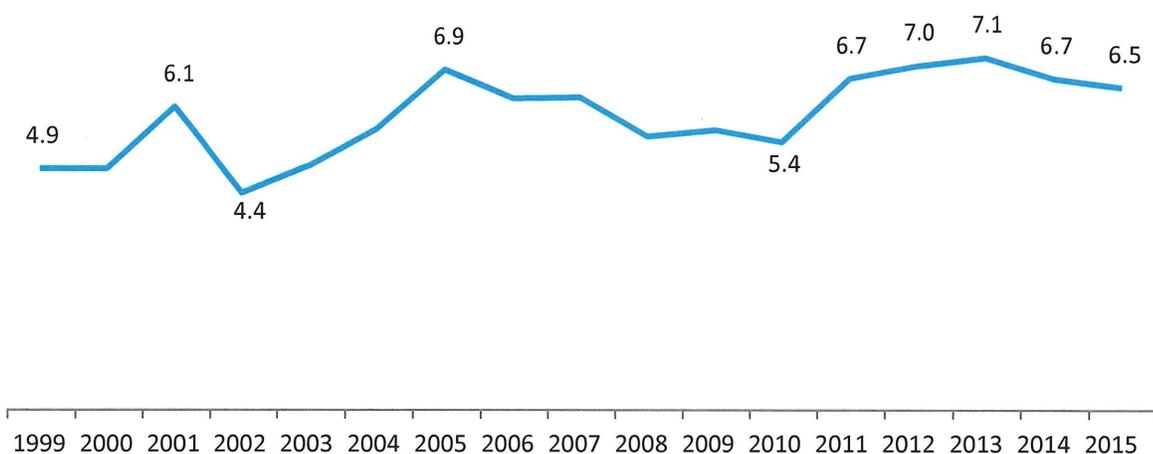
- Continue to monitor statistical data for trends in maternal, fetal and infant mortality. Specifically the Panel will look at the timing and adequacy of prenatal care, access to care for pregnant teens, impact of substance abuse and the appropriateness of care for infants with very low birth weight, including distance from a Level III facility.
- Complete a comprehensive analysis of data related to preterm births, including relevant risk factors such as smoking, substance abuse, and chronic disease, such as diabetes.
 - Review the findings of this analysis and identify opportunities for reducing preterm births and other causes of infant death.
- Work with the Maine CDC and DHHS leadership to follow up on recommendations and develop plans to implement system improvements.
- Explore with Maine CDC and DHHS leadership supporting a statutory amendment for MFIMR to repeal the requirement for family consent to review medical records related to maternal, fetal, and infant deaths.

Appendix A: Data Highlights

Data Highlights

The Maine CDC monitors statistical data for trends in maternal, fetal and infant mortality on an ongoing basis (Figure 1). Maine's infant mortality increased over the past fifteen years; the average annual percent change was about 2% per year. The rate reached a peak of 7.1 infant deaths per 1,000 live births in 2013 prompting increased attention to the issue. Recent data suggest that the rate is decreasing, but it remains higher than the U.S. rate of 5.9 per 100,000.²

Figure 1. Maine infant mortality rate per 1,000 live births, 1999-2015



Source: Maine Center for Disease Control and Prevention, Data Research and Vital Statistics Program, Death certificate data, Maine residents (Note: 2015 data are provisional)

The table below summarizes key infant, maternal and fetal mortality measures monitored by the Maine CDC on an ongoing basis.

Maine birth data from 2015, fetal death data from 2014, maternal mortality from 2014; infant mortality data from 2015 were the most recent data available at the time of these analyses; 2015 data are provisional and subject to change. Five year averages were used for some analyses with small numbers of events. Note that numbers and statistics may differ from other reports due to factors such as data file version and the analytic methods used such as handling of missing data and case definitions.

² Xu JQ, Murphy SL, Kochanek KD, Arias E. Mortality in the United States, 2015. NCHS data brief, no 267. Hyattsville, MD: National Center for Health Statistics. 2016.

Indicator	U.S.	Maine				
	2014 ³	2015*	2014 ⁴	2009-2013	2008-2012	2007-2011
Fetal mortality rate (fetal deaths at 20+ weeks per 1,000 live births and fetal deaths)	6.1	NA	4.3	4.4	4.2	4.4
Number of fetal deaths per year (20+ weeks gestation; average provided for combined years)	15,840	NA	55	57	56	60
Gestational age at fetal death						
Between 20 and 28 weeks	56.0%	NA	38.1%	45.9%	46.8%	48.0%
At 29 weeks or more	43.5%		60.0%	54.1%	53.2%	52.0%

³ User Guide to the 2012 Fetal Death Public Use File, Reproductive Statistics Branch, Division of Vital Statistics, NCHS. Hyattsville, MD: Accessed 10/18/14 from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/DVS/fetaldeath/2012FetalUserGuide.pdf and Centers for Disease Control and Prevention. National Center for Health Statistics. VitalStats. <http://www.cdc.gov/nchs/vitalstats.htm> on 12/2/2015.

MacDorman MF, Kirmeyer SE, Wilson EC. Fetal and perinatal mortality, United States, 2006. National vital statistics reports; vol 60 no 8. Hyattsville, MD: National Center for Health Statistics. 2012. Accessed 11/22/12 from http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_08.pdf.

⁴ User Guide to the 2012 Fetal Death Public Use File, Reproductive Statistics Branch, Division of Vital Statistics, NCHS. Hyattsville, MD: Accessed 10/18/14 from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/DVS/fetaldeath/2012FetalUserGuide.pdf and Centers for Disease Control and Prevention. National Center for Health Statistics. VitalStats. <http://www.cdc.gov/nchs/vitalstats.htm> on 12/2/2015.

MacDorman MF, Kirmeyer SE, Wilson EC. Fetal and perinatal mortality, United States, 2006. National vital statistics reports; vol 60 no 8. Hyattsville, MD: National Center for Health Statistics. 2012. Accessed 11/22/12 from http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_08.pdf.

Indicator	U.S.	Maine				
		2015*	2010-2014	2009-2013	2008-2012	2007-2011
Infant Mortality⁵	2015	2015*	2010-2014	2009-2013	2008-2012	2007-2011
Infant mortality rate (number of deaths under one year of age per 1,000 live births)	5.9	6.5	6.6	6.3	6.0	5.8
Neonatal mortality rate (number of deaths to infants less than 28 days per 1,000 live births)	3.9	4.1	4.2	4.2	4.0	4.1
Number of infant deaths per year (average provided for combined years)	23,455	82	84	81	78	78
Distribution of Timing of Death (percent)						
Early neonatal (Less than 24 hours)	42.0% ⁺	34.2%	39.9%	40.3%	42.3%	44.7%
Early neonatal (1-6 days)	13.1% ⁺	17.1%	14.1%	13.8%	12.2%	13.1%
Late neonatal (7-27 days)	12.5% ⁺	12.2%	11.0%	11.6%	12.4%	11.9%
Post neonatal (28 days or older)	32.2% ⁺	36.6%	35.1%	34.5%	32.9%	30.1%
Gestational Age at Birth among Infant Deaths (percent)						
Early preterm infant (< 34 weeks gestation)	56.7% ⁺	NA	50.9%	50.4%	56.1%	61.0%
Preterm (34-36 weeks gestation)	9.7% ⁺		10.2%	11.0%	9.4%	8.6%
Not preterm (37 weeks or more)	32.7% ⁺		37.3%	38.6%	34.5%	30.4%
Unknown	<1% ⁺		1.4%	-	-	-
Maternal Mortality⁶	2007⁷	2006-2015*	2005-2014	2004-2013	2003-2012	2002-2011
Number of maternal deaths due to pregnancy-related causes	548	5	--	4	4	3
Number of maternal deaths, women who died within one year of pregnancy, due to any cause	NA	45	40	38	38	39

⁵ 2007-2013: United States Department of Health and Human Services (US DHHS), Centers of Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics (DVS). Linked Birth / Infant Death Records 2007-2013, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program, on CDC WONDER On-line Database. Accessed at <http://wonder.cdc.gov/lbd-current.html> on 10/8/2016. 2014: Maine Mortality data from Maine Center for Disease Control & Prevention, Maine Vital Records Data, Provisional Linked Birth / Infant Death Records. 2014.

2015: Deaths: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016. Data are from the Multiple Cause of Death Files, 1999-2015, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html>.

2015: Births: Maine Center for Disease Control and Prevention, Maine Vital Records Data (Birth Certificates)

⁶ Maine maternal mortality data: Maine Center for Disease Control & Prevention, *Maine Vital Records Data (Death Certificates)*. 2005-2014.

⁷ Xu JQ, Kochanek KD, Murphy SL, Tejada-Vera B. Deaths: Final data for 2007. National vital statistics reports; vol 58 no 19. Hyattsville, MD: National Center for Health Statistics. 2010. Accessed 12/05/12 from http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_10.pdf.

Indicator	U.S. Data	Maine				
		2015*	2014	2013	2012	2011
Births**⁸	2014⁹					
Number of live births	3,988,076	12,592	12,671	12,777	12,692	12,700
Percent of very low birth weight infants delivered at facilities for high-risk deliveries and neonates (Level III facility)	NA	87.8%	78.4%	81.3%	80.5%	82.6%
Percent low birth weight births, <2500 grams	8.0%	6.9%	7.5%	7.1	6.7%	6.7%
Low birth weight birth status						
Very low birth weight (<1500 grams)	1.4%	1.3%	<1%	<1%	1.1%	1.1%
Moderate low birth weight (1500-2499 grams)	6.6%	5.7%	6.2%	6.6%	5.6%	5.6%
Normal birth weight (2500+ grams)	91.9%	92.9%	92.3%	92.8%	93.2%	93.2%
Unknown	<1%	<1%	<1%	<1%	<1%	<1%
Percent preterm birth (less 37 weeks gestation based on clinical estimate of gestation)	9.6%	8.4%	8.3%	8.1%	7.8%	8.3%
Infant Health	2011	2015	2014	2013	2012	2011
Sleep Position: Percent of new moms who most often placed their infants on their backs to sleep ¹⁰ percent and 95% confidence interval	9.9% ¹¹ 9.4- 10.4	NA	NA	84.2% 81.5-87.0	83.0% 79.3-86.1	81.2% 78.1-83.9
Number of drug affected infants reported to Maine's Office of Child and Family Services ¹²	NA	992	961	927	772	668

⁸ Maine Center for Disease Control & Prevention, *Maine Vital Records Data (Birth Certificates)*.

⁹ Hamilton BE, Martin JA, Osterman MJK, et al. Births: Final data for 2014. National vital statistics reports; vol 64 no 12. Hyattsville, MD: National Center for Health Statistics. 2015. Accessed at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_12.pdf on 10/8/2016.

¹⁰ Maine Department of Health and Human Services, Maine Center for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System, <http://www.maine.gov/dhhs/mecdc/public-health-systems/data-research/prams/>.

¹¹ Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. Accessed from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html> on 10/13/2016.

¹² Maine State Epidemiological Outcomes Workgroup. *Drug affected babies, by county and public health district (2006-2014)*. <http://www.maineoow.com/Documents/SEOW%20Brief%20-%20Drug%20Affected%20Babies%20by%20County%20and%20Public%20Health%20District%20-%2008.6.15.pdf>

2015: Personal communication with Maine Office of Child and Family Services, February 2016

*2015 Maine data are provisional and subject to change.

+ US age of infant at death from 2013 linked birth/infant death data; 2015 data not yet available.

**Maine birth data based on births to Maine residents only

NA= Data not available (data are either not yet available for that year or not available for the U.S.)

Appendix B: Indicators/Measures

Indicators/measures monitored by MFIMR

Critical to the work of the MFIMR Panel is maintaining an awareness of data and trends related to fetal, infant and pregnancy-related maternal deaths and birth outcomes in Maine, as well as nationally.

Fetal Mortality

In Maine, fetal mortality rates are based on deaths that occur in utero beyond 19 weeks gestation. There were 55 fetal deaths that occurred in 2014 among Maine residents; slightly more than a third (38 percent) of Maine's recorded fetal deaths occurred between 20 and 27 weeks gestation. Four leading causes of death account for nearly half of recorded fetal deaths in Maine.

Infant Mortality

The infant mortality rate includes all deaths of infants from birth to 365 days of life. Each year, an average of 84 Maine babies die before their first birthday. Five leading causes of death account for nearly two-thirds (61 percent) of infant deaths in Maine.

By rank, the leading causes of infant deaths in Maine between 2011 and 2015 were:¹³

1. Congenital malformations, deformations, and chromosomal abnormalities
2. Disorders related to short gestation and low birth weight, not elsewhere classified (low birth weight)
3. Sudden infant death syndrome (SIDS)
4. Newborn affected by maternal complication of pregnancy (maternal complications)
5. Newborn affected by complications of placenta, cord, and membranes
6. Unintentional injuries

Maternal Mortality

Across the country for every 100,000 births there are about 13 maternal deaths per year related to or aggravated by pregnancy or pregnancy management.¹⁴ Maternal deaths attributed to direct obstetric causes include eclampsia and pre-eclampsia, hemorrhage and placenta previa, obstetrical tetanus, obstetric embolism, and other direct causes. It is not clear why observed maternal deaths have been on the rise nationally. Changes in the way deaths are recorded and coded may have improved identification over time. Other factors include a rise in the number of caesarean sections, particularly among women who have undergone several previous C-sections, and the rise of chronic health conditions like hypertension, diabetes, heart disease, and obesity.¹⁵

¹³ Centers for Disease Control and Prevention. National Center for Injury Prevention and Control. WISQARS. <https://www.cdc.gov/injury/wisqars/>.

¹⁴ Xu JQ, Kochanek KD, Murphy SL, Tejada-Vera B. Deaths: Final data for 2007. National Vital Statistics Reports 2009, vol 58 no 19. Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System: Hyattsville, MD.2010. http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_19.pdf.

¹⁵ Centers for Disease Control and Prevention. Pregnancy Mortality Surveillance System. Accessed from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html> on 10/13/2016.

Maternal mortality can also be measured using a more inclusive definition - deaths to women within one year of pregnancy from any cause. Between 2006 and 2016 there were 45 deaths to Maine women who died in Maine within one year of pregnancy, average of 4 per year. Almost half (42.2 percent) of these deaths were attributed to illness or disease; 37.8 percent to unintentional injuries such as motor vehicle crashes or unintentional poisonings; 17.8 percent to assault or suicide; and 2.2 percent of undetermined intent. Of the deaths directly related or aggravated by pregnancy or childbirth in the last decade in Maine, there was one death each due to obstetric embolism, maternal hypertension, postpartum coagulation defect, and hemodynamic coagulopathic complication of pregnancy. There were three deaths caused by hemoperitoneum and two deaths due to peripartum cardiomyopathy.

Infant Birth and Health

Many infant birth and health indicators are associated with infant health, illness, disability and death, and they are among the objectives of Healthy People 2020¹⁶, Healthy Maine 2020 and the Maternal and Child Health Bureau's Title V Program.¹⁷ Emerging issues and those with the potential to improve infant outcomes through public health and policy approaches are monitored on a regular basis. Three of these issues are summarized below.

Delivery Facility for High Risk Births: Research has shown that very low birth weight and very preterm infants not born in level III hospitals are at increased risk of neonatal or pre-discharge death.¹⁸ Increasing the number of very low birth weight babies born at Level III hospitals may improve health outcomes for these infants. In Maine, 87.5% percent of very low birth weight infants were delivered at a Level III facility in 2015.

Sleep position: The American Academy of Pediatrics (AAP) has recommended that infants be placed on their backs to sleep, because infants who sleep prone have an increased risk of dying from sudden infant death syndrome (SIDS).¹⁹ More than eight of ten Maine mothers most often placed their infants on their backs to sleep (84.0 percent) in 2013. In Maine, no statistically significant differences are observed with use of the recommended sleeping position among mothers based on educational attainment, age, income or insurance status.

Drug affected babies: Another emerging issue that may impact infant and maternal health is the number of infants born who have been exposed to drugs in utero. This population is of concern because they are at increased risk for preterm birth, sudden unexpected infant death (SUID) and other causes of death. Since 2003, health care providers have been required by statute to report drug affected infants to

¹⁶ Department of Health and Human Services. *Healthy People 2020*. 2011. Accessed from <http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx> on 11/29/2011.

¹⁷ Maternal and Child Health Bureau. Title V Information System. Performance Measure and Indicators. Accessed from <https://perfdata.hrsa.gov/MCHB/TVISReports/default.aspx>.

¹⁸ Lasswell S. M., et al, Perinatal Regionalization for Very Low Birth Weight and Very Preterm Infants, *JAMA*. 2010; 304(9): 992-1000.

¹⁹ Moon RY; American Academy of Pediatrics, Task Force on Sudden Infant Death Syndrome. Policy statement: SIDS and other sleep-related infant deaths: expansion of recommendations for a safe infant sleeping environment. *Pediatrics*. 2011;128(5): 1030–103. Available at <http://pediatrics.aappublications.org/content/early/2011/10/12/peds.2011-2284>. Accessed 11/2/2011.

Maine's Office of Child and Family Services (OCFS). The percent of substance-affected infants reported to OCFS increased from 668 in 2011 to 1103 in 2015 – a 500% increase. It is difficult to determine whether this noted increase represents true change in the incidence of drug exposure in newborns or is due, at least in part, to required reporting resulting in better recognition and reporting in more recent years.

Appendix C: Infant Mortality Op-Ed

Dr. Christopher Pezzullo: How Maine is confronting infant mortality

[www.centralmaine.com /2016/09/06/dr-christopher-pezzullo-how-maine-is-confronting-infant-mortality/](http://www.centralmaine.com/2016/09/06/dr-christopher-pezzullo-how-maine-is-confronting-infant-mortality/)

By Dr. Christopher Pezzullo

For the last 20 years I have worked as a pediatrician caring for children, ensuring they receive appropriate treatments and providing families with tools they need to give their children a safe and healthy life. And I am heartbroken when I review our state and national infant mortality statistics. In the United States, now, nearly six out of every 1,000 babies will die before age 1 — and Maine's rate is even slightly higher than the national average. This is unacceptable, and both state and national efforts have been underway to reduce infant mortality rates.

Recently, there have been accusations that Maine had somehow been unaware of the recent increase in Maine's infant death rate — this is false.

Preliminary data shows that Maine's infant mortality rate has improved over the last two years. Our research has indicated that four primary issues seem to be driving the rate of infant death in Maine:

- Issues related to prematurity
- Congenital conditions
- Sudden Infant Death Syndrome (SIDS)
- Sudden Unintended Death Syndrome (SUIDS)

Maine is extremely proactive with its newborn screening and birth defects programs. However, prevention strategies for many congenital conditions often remain unclear. That is why Maine has chosen to focus its energy on prevention strategies that target premature birth, low birth weight and SIDS/SUIDS. In the last two years, more than 15 infant deaths have been associated with an unsafe sleep environment. This is unacceptable and could be avoided.

The Maine Department of Health and Human Services convened a safe sleep workgroup to address issues such as the dangers of bed-sharing, especially when drugs and/or alcohol are involved. Training has been given to Maine Families home visitors, public health nurses and child protective workers to help ensure that newborns will all have access to safe sleep environments.

The Maine CDC, through its perinatal outreach program, continues to educate parents, caregivers and birthing facilities about safe sleep practices, breastfeeding, and child abuse prevention endorsed by the American Academy of Pediatrics.

We know that smoking during pregnancy correlates strongly with low birth weight and prematurity. According to a National Vital Statistics Report, more than 18 percent of pregnant women in Maine smoke in the three months prior to their pregnancy. To help address the issue, Maine has trained home visitors to assess and refer pregnant women to smoking cessation programs, and our Partnership for a Tobacco Free Maine program has doubled down on practices proven effective in reducing smoking rates among pregnant women.

We are also studying low-risk C-section practices, working with hospitals that have high rates and offering guidance to reduce their rates, as a means of reducing premature births.

The department has strengthened substance abuse screening protocols and encouraged universal screening for all pregnant women to identify any substance abuse during pregnancy. We realize that Maine's substance abuse crisis severely impacts our children and we are working closely with providers about these initiatives and the importance of talking to all women about treatment options.

DHHS established a hotline for pregnant women who are ready to enter treatment through a partnership with 211.

More recently, we've implemented a "bridging program" that assigns nurses to coordinate with child and family services and home visitors to meet the needs of pregnant women with risk factors as well as those of infants with complex health issues. And we continue to support comprehensive home visiting to ensure that infants have the best possible start to life, using the national, evidence-based parent coaching model known as Parents as Teachers.

In an effort to reduce abusive head trauma implicated in SUIDs, more than 900 providers and all birthing hospitals in the state have completed trainings and adopted the Period of Purple Crying program to educate new parents about ways to cope with a crying infant in an effort to reduce the families' risk for child abuse and abusive head trauma.

And home visiting, nursing, child welfare and licensing staff all evaluate the safety of homes and daycares throughout the state.

Those who care for Maine's children are working tirelessly together to improve Maine's infant mortality rate. While it may take time for the data to reflect the impact of our work, I am confident that our commitment will save infants' lives.

Dr. Christopher Pezzullo is the state health officer at Maine Department of Health and Human Services.