Maternal Mortality Review Panel Annual Report
2025 Report to the Legislature

In Accordance with 18.V.S.A . § 1552.

Submitted to:	**House Committee on Human Services** **Senate Committee on Health and Welfare**
Submitted by:	**Mark A. Levine, MD** **Commissioner, Vermont Department of Health**
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VERMONT AGENCY OF HUMAN SERVICES
DEPARTMENT OF HEALTH

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Maternal Mortality Review Panel Annual Report

Introduction

The Maternal Mortality Review Panel (MMRP) was established by Act 35 (2011) to conduct comprehensive, multidisciplinary reviews of maternal deaths for the purpose of identifying factors associated with these deaths and creating system change recommendations for improving the health care and social services for Vermonters. Act 142 (2020) amended the MMRP's charge to include in their review, considerations of health disparities and social determinants of health (SDoH), including race and ethnicity in maternal death reviews. In 2024, the MMRP welcomed a community member with relevant lived experience.

Acknowledgement

The MMRP acknowledges Vermont residents who died during and after pregnancy, their loved ones, and the community who cares for them.

Response to Previous MMRP Recommendations

The Family Child Health (FCH) Division is responsive to MMRP data and findings. FCH has aligned its priorities with the recommendations from last year's MMRP report, and the following activities address perinatal substance use and supporting perinatal mental health. Nurse home visiting, doula support, and peer recovery resources were identified as key interventions by FCH. Nurse home visiting is a key community-based intervention for perinatal people in Vermont. Additional FCH projects will increase access to doula services in Vermont, address prenatal referral workflows to nurse home visiting, provide continued intimate partner violence (IPV) educational curriculum, develop perinatal peer recovery support, and engage parent advisors to develop and inform the work.

Partnerships to support these priorities include:

- In 2024, the Vermont Department of Health received a five-year Center for Disease Control and Prevention (CDC) Enhancing Reviews and Surveillance to Eliminate Maternal Mortality(ERASE MM) grant to maintain and grow the work of the panel and to continue engaging with the Maternal Mortality Review Information Application (MMRIA) platform.[1] The new funding cycle continues the foundational work of the panel and aims to develop a communication plan for information dissemination on the drivers of maternal mortality in Vermont. During this cycle, the MMRP will incorporate the voices of people with relevant lived experience, and community-based organizations while also addressing the panel's recommendations for prevention.
- In 2024, the Vermont Department of Health invested funds from the CDC's Perinatal Quality Collaborative grant to support the Perinatal Quality Collaborative Vermont (PQC-VT). The MMRP partnered with the PQC-VT for a birth certificate accuracy quality improvement project.[2] The focus was to engage Vital Statistics and hospital staff and providers from every birthing hospital in Vermont. These training courses

[1] MMRIA is a database maintained by the CDC and contains data on perinatal mortality from multiple states. With increased state participation in MMRIA, the CDC is able to publish more robust information on perinatal deaths and their contributing factors.

[2] The Perinatal Quality Collaborative Vermont (PQC-VT) mobilizes state networks to implement quality improvement efforts and improve care for mothers, babies and their families through various projects. This collaborative is led by the Vermont Child Health Improvement Program (VCHIP) and the Family and Child Health (FCH) division. The mission is to optimize health access, treatment and outcomes in pregnancy and infancy through collaboration and continuous quality improvement.

provided best practices and workflow suggestions to ensure uniformity and consistency in the completion of birth certificates throughout all birthing hospitals. This project improved the quality of data the MMRP utilizes during case abstractions and case reviews. Information from birth charts highlight aspects of a decedent's life that might otherwise go unrecorded or be difficult to access.

- The Vermont Department of Health invested CDC Overdose Data to Action and PQC grant funds into the creation of the Bidirectional Learning for Improved Support and Services for Birthing People with Substance Use Disorder (BLISS initiative). This upcoming PQC-VT project will focus on creating perinatal specific educational resources on substance use for community based perinatal providers (such as nurse home visitors, doulas, peer recovery) and engaging partners in a community of learning to develop partnering across organizations. This initiative aims to enhance community-based organization's knowledge regarding perinatal populations with SUD, improve coordination of community services and develop cross-cutting partnerships to better serve families.
- FCH staff are collaborating with the PQC-VT and the Vermont Alliance for Innovations in Maternal Health (AIM) team to plan and implement the Perinatal Substance Use Patient Safety Bundle.[3] The bundle guides Vermont birthing hospitals through technical assistance, training, and webinars with best practices and resources to serve perinatal populations with SUD. The bundle will incorporate nurse home visitors and other community services to better connect perinatal people with additional support. The bundle implementation is slated for 2025 across all birthing hospitals in Vermont.
- The Vermont Department of Health utilized funds from the ERASE MM grant to invest in trauma responsive training. Through a collaboration between the PQC-VT, AIM, and FCH teams, perinatal trauma and respectful care education were offered statewide to providers and nurses from hospitals and home health organizations. These trainings increase awareness, empathy, and skills in delivering trauma-informed care, and improving patient-provider communication. Overall, these trainings will address provider stigma, enhance patient trust, and improve health outcomes.

Data Summary: Key Findings of Aggregate Data

The Department analyzed aggregate data spanning over a decade of maternal mortality[4] case reviews from 2012 to 2023. Due to relatively few annual deaths, analyzing trends in maternal mortality and perinatal complications requires aggregating data over eleven years. This allows for better identification of trends and disparities not apparent when examining only single cases.

Substance Use Since 2012, nearly half (45%) of the 29 cases reviewed were directly caused by accidental overdose or endocarditis related to IV drug use. Additionally, the MMRP observed substance use impacting decedents even when not a direct cause of death—17 of the 29 cases (59%) involved substance use. Most of the accidental overdose deaths involved polysubstance use. Since 2012, Vermont has averaged 2-3 perinatal deaths per year from any cause; since 2022

[3] The Alliance for Innovation on Maternal Health (AIM) is a national data-driven perinatal safety and quality improvement initiative based on interdisciplinary practices to improve perinatal safety and outcomes. The program provides implementation and data support for the adoption of evidence-based patient safety recommendations. AIM works through state teams and health systems to align national, state, and hospital level engagement efforts to improve overall perinatal health outcomes.

[4] In this report, "maternal" and "perinatal people" is used to be consistent with the language used in the obstetrical field. Though, not all people who become pregnant, are of reproductive age or give birth identify as mothers or women.

there were eight perinatal deaths directly related to substance use (either accidental overdose or endocarditis[5] related to IV drug use).

Mental Health More than 90% of perinatal deaths in Vermont occurred among people with a diagnosis of a mental health disorder; most with multiple diagnoses. Since 2012, 10% of deaths were identified as being caused by suicide.

Timing of Death Since 2012, a majority (72%) of perinatal deaths have occurred in the postpartum period.[6] Among 72% of deaths occurring in the postpartum period, 76% occurred 43 days to 1 year after being pregnant. The MMRP has identified this time frame as a particularly vulnerable period for perinatal people in Vermont. See appendix Figure 2: Timing of Perinatal deaths at National levels and State levels

Social Determinants of Health Poverty disproportionally impacts Vermonters dying in the perinatal period. At the time of birth, where data was available, 83% of decedents had Medicaid as primary insurance and 83% were utilizing the Women Infant Children (WIC) program.[7] Although homelessness and IPV were not identified as factors in this year's case review, homelessness or unstable housing, and IPV were co-occurring issues in previous cases reviewed by MMRP.[8]

Rurality The death reviewed this year was also to a resident of a rural county, following a pattem seen in previous Vermont maternal deaths. Since 2012, 90% of perinatal deaths have occurred among residents of rural counties. Rural counties experience a maternal mortality rate three times higher than Vermont's metropolitan county.

Race and Ethnicity Racial disparities in maternal mortality have been well identified on a national level. The MMRP is unable to conclusively analyze how race impacts the risk of maternal mortality in Vermont due to small population size and Vermont specific racial demographics. Given the national context, however, Vermont cannot be excluded from the internalized and systemic biases contributing to negative health outcomes of birthing people identifying as persons of color. Data from 2012 to 2023 reflects the following perinatal deaths, disaggregated by race and ethnicity: 26 perinatal people identified as White, non-Hispanic (90%), 1 perinatal person identified as Native-American (3%), 1 perinatal person identified as Asian (3%), 1 perinatal person identified as Hispanic (3%), and zero perinatal people identified as Black. See Figure 3: Race/Ethnicity by percent nationally and statewide in general population and perinatal deaths.

Key Findings from the 2024 Case Review

Timing of case identification impacts in what year a case is reviewed. While there were three maternal deaths in 2023[9], one case was reviewed in 2023, one case was reviewed in 2024, and one case will be reviewed in the upcoming year.

[5] Endocarditis is defined as a life-threatening inflammation of the inner lining of the heart's chambers and valves. Without treatment, the heart valves can be irreparably damaged.

[6] The postpartum period is defined as the period directly after pregnancy ends and through the first year after birth.

[7] Due to inconsistencies in the availability of data in decedent records, this report reflects data where it was accessible.

[8] While there were three maternal deaths in 2023, one case was reviewed in 2023, one case was reviewed in 2024, and one case will be reviewed in the upcoming year.

[9] The panel's ability to review cases within the same year is restricted or delayed if there are ongoing law enforcement investigations associated with the case. Additionally, the decedent identification process is done on a quarterly basis.

The case reviewed this year by the MMRP was a poly-substance overdose death after pregnancy loss. The MMRP's review of case fatality data found concerns around human trafficking, substance use, and pregnancy loss. Additionally, barriers to data collection, investment in public health education campaigns around substance use, and support for primary care were identified by the panel for recommendations.

Recommendations

Fund Bereavement Support Services: This year the MMRP reviewed one death from a substance overdose within a month of perinatal loss. Although overdose deaths have been identified throughout the history of the MMRP, a theme recognized in the last five years of case reviews is death after a pregnancy loss. In all cases reviewed after a pregnancy loss, substance use was present regardless of the cause of death. National studies show women with SUD have a higher vulnerability to experiencing perinatal loss, as they are 3-4 times more likely to suffer fetal or infant death compared to the general population. For bereaved parents, this experience can result in unresolved grief triggering relapses of substance misuse, and "addiction can also hinder the resolution of the grieving process in subsequent losses."[10] Vermonters experiencing loss face sparse bereavement services and rural isolation. In 2024, FCH invested in trauma informed perinatal loss training for medical and community-based support as one intervention to address gaps in supports. Empty Arms Vermont presently serves as the only organization for perinatal loss support in most regions of the state. They serve statewide with two employees and volunteers. Additional funding to this organization would help to expand their workforce capacity and further scale their reach into more rural areas of the state.

Recommendation: Invest in organizations specializing in bereavement peer support, such as Empty Arms Vermont.

Combat Vermont's Human Trafficking: In the case reviewed by the MMRP this year, the case abstraction process indicated the decedent was a survivor of human trafficking. However, limited access to information hindered the MMRP's full understanding of the decedent's experience. Presently, only two statewide case managers working through VT law enforcement oversee the entirety of the state. They report an increase in trafficking in the most rural parts of Vermont, and upticks in traffickers forcing criminal activity during the trafficking. The Vermont Human Trafficking case managers support anti-trafficking effort through intense case management, advocacy support with the social and legal system, and statewide trauma responsive trainings for providers. Providing additional support for Vermont's human trafficking workforce would enhance the existing ability to address the issue statewide and increase capacity for data collection. Additionally, there is a need for the creation of a state-level human trafficking database to support engagement in data collection regarding the gaps and effectiveness of interventions. The impact of a human trafficking experience reverberates through all areas of survivors' lives, requiring tailored approaches to care, best supported through additional case managers.

[10] Scott, Lisa F., Carol Shieh, Rachel A. Umoren, and Teri Conard. JOGN Nursing. September 23rd,2017. Care Experiences of Women Who Used Opioids and Experienced Fetal or Infant Loss

Recommendation: Advance policy and operational improvements for the creation of a state-level human trafficking database[11] to securely facilitate confidential information sharing among law enforcement agencies, victim service providers, and government agencies.

Recommendation: Allocate funding to expand the state's human trafficking response workforce by 2-4 additional human trafficking case managers in high-impact areas and develop multidisciplinary teams across the state as recommended by Vermont's Human Trafficking taskforce.[12]

Perinatal Substance Use Public Health Campaign: For the third consecutive year, substance overdose in the postpartum period was identified as a leading cause of maternal mortality in Vermont. This year's case review specifically highlighted xylazine in the decedent's overdose. According to the National State Unintentional Drug Overdose Reporting System, "xylazine is emerging as an adulterant in illicit drug mixtures, exacerbating the opioid overdose crisis and resulting in opioid overdose deaths in numerous states."[13] In Vermont, the rise in fatal opioid overdoses involving xylazine in Vermont rose in the general population from 5% in 2019,[14] to 32% in 2022.[15]

This year's case demonstrates the need for continued public education around substance use, harm reduction, and recovery services with a tailored approach towards perinatal populations, and families with young children. National studies reveal the increased vulnerabilities birthing parents face: "higher rates of opioid relapse, overdose, and death increase substantially [in the first year postpartum] as compared to the year before delivery."[16]

The Department of Health has a comprehensive surveillance program that tracks substance use, polysubstance use and the presence of xylazine in overdose cases. This data is reported to the public via briefs and virtual databases.[17] These are instrumental in identifying long term trends and emerging vulnerabilities within state drug use patterns. While Vermont has a robust public health campaign—Know Overdose— around harm reduction services and substance use, a tailored approach for the perinatal population would help to destigmatize treatment and support for birthing people and parents of young children. This strategy would amplify community resources, provide education on appropriate harm reduction and reduce return-to-use associated with increased risk of fatal and non-fatal overdose for the perinatal population.

Recommendation: Invest in a public education campaign for perinatal populations and families of young children on proper administration of naloxone and other harm reduction pack essentials; the risk of unintentional polysubstance use; the lethality of xylazine consumption; and information on prevention, treatment, and recovery services available to perinatal populations.

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[11] The National Human Health Services Task Force to Prevent and End Human Trafficking strategic goals include data collection methods, surveillance system, and database creation for guidance.
[12] The Vermont Human Trafficking Taskforce reestablished itself in 2024 and is being led by Vermont State Human Trafficking Caseworkers. The taskforce is comprised of a subcommittee of professionals dedicated to victim services, trainings, outreach and advocacy.
[13] Ayub, Shahana, Shanli Parnia, Karuna Poddar, Anil K Bachu, Amanda Sullivan, Ali M Khan, Saeed Ahmed, and Lakshit Jain. Cureus. March 29th,2023. Xylazine in the Opioid Epidemic: A Systematic Review of Case Reports and Clinical Implications
[14] Center on Rural Addiction. University of Vermont. July 2022. Increasing Prevalence of Xylazine in Fatal Opioid Overdoses Research Spotlight the Problem: A Growing Number of Overdoses Involve Xylazine and Require Emergency Medical Care.
[15] Ibid.
[16] Rankin, Lela, Natasha S. Mendoza, and Lisa Grisham. Clinical Social Work Journal. May 19,2022. Unpacking Perinatal Experiences With Opioid Use Disorder: Relapse Risk Implications
[17] Vermont Department of Health Division of Substance Use. 2024 Surveillance & Reporting by Topic | Vermont Department of Health

Sustain Funding for Office of Chief Medical Examiner: Historically Vermont's MMRP has been unable to connect with families of decedents for interviews, limiting the panel's ability to gain a holistic understanding of the decedent's life. The informant interviewer role is crucial for the MMRP as it provides insight into the social determinants of health, mental health factors, and other important details not documented in medical records. This year the Office of Chief Medical Examiners (OCME) hired a support service specialist in the role of informant interviewer and a Vermont specific informant interview guide was developed. This role additionally offers bereavement support coordination for the families impacted and supports families beyond those impacted by maternal death. The support service specialist position is unique in playing a critical role in supplementing data required by the MMRP and supporting the panel work. It is also the only position of its kind in the state, with no equivalent in other communities. However, this position currently lacks permanent funding sources within state government,[18] which has led to delays in hiring as candidates expressed concern around job security and experienced nurses and social workers have declined the job due to lower pay than available elsewhere.

Recommendation: Ensure sustained funding to the OCME for bereavement support services for families.

Support Primary Medical Homes and Primary Care Provider's Benefits: Medical records repeatedly indicate the decedent in this year's case accessed care through emergency services in situations where a Primary Care Provider (PCP) would have been a more appropriate resource. Additionally, most MMRP decedents have lacked a PCP and/or medical home. In Vermont, PCPs are increasingly utilized as spoke providers for Medications for Opioid Use Disorder (MOUD). They serve as vital touch points for postpartum people to access and maintain connections to mental health and substance use treatment. The American College of Obstetricians and Gynecologist recommends the development of a postpartum care plan and encourages follow-up for patients with chronic medical conditions.[19] The MMRP acknowledges that strengthening connections between obstetrical and primary care should be incentivized, prenatally, to increase referrals between the two offices for care management and coordination, addressing gaps in care. An important first step would be to support pilot programs focusing on successful establishment of medical homes during the prenatal period. Funding for educational loan forgiveness programs would assist in strengthening the primary care workforce of Vermont. According to the Vermont Medical Society, 33% of PCP's are over the age of 60 and 16% plan to retire within this year.[20] Supporting initiatives to increase the number of PCPs in Vermont is key to ensuring postpartum care and improving health outcomes for all Vermonters.

Recommendation: Invest in the creation of a pilot program offering financial incentives to encourage perinatal continuity of care between obstetrical offices and primary care providers.

Recommendation: Support ongoing initiative to increase funding for primary care provider educational loan forgiveness.

[18] Funding for this position is contingent on the coordination of three separate grants. If any one grant is lost, the position will be jeopardized. Ongoing funding is critical for its stability.
[19] American College of Obstetrics and Gynecology. Obstetrics and Gynecology. April 24, 2018. ACOG Committee Opinion No.736: Optimizing Postpartum Care.
[20] Vermont Medical Society. Vermont Medical Society. April 2024. Lets make primary care a Vermont Priority.

Appendix: Maternal Mortality Review Panelists

Statue	Organization	Panelists
(b)(1)A	American College of Obstetricians and Gynecologists - General Obstetrician	Horan, Colleen MD
(b)(1)A	American College of Obstetricians and Gynecologists - Maternal Fetal Medicine Specialist	Meyer, Marjorie MD
(b)(1)B	American Academy of Pediatrics VT Chapter - Neonatology specialist	Mercier, Charles MD
(b)(1)D	Midwife licensed pursuant to 26 VSA chapter 85	Kaplan, Jade MN, MPH, CPM, LM, APRN, CNM
(b)(1)E	Association of Women's Health, Obstetric, and Neonatal Nurses VT Chapter (AWHONN)	Panko, Kayla BSN, RNC-MNN
(b)(1)F	Director, Division of Family & Child Health or designee	Stalberg, Ilisa MSS, MLSP
(b)(1)F	Division of Family & Child Health designee	Robles, Elena MPH
(b)(1)G	Epidemiologist from VDH - exp. Analyzing perinatal data, or designee	Ling, Audrey MPH
(b)(1)H	Chief Medical Examiner or designee	Bundock, Elizabeth MD
(b)(1)H	Chief Medical Examiner or designee	Amoresano, Elaine MD
(b)(1)I	Representative of the Community Mental Health Centers	Mitchell, Danielle MSW
(b)(1)J	Member of the public	Beaulac, Arial
(b)(2)B	Expert in Pharmaceutical Management of Mental Health	Guth, Sarah MD
(b)(2)C	Social Worker*	Knutson, Sarah Mental Health Counselor* LCMHC, LADC
	MMRP Case Abstractor	Leffel, Katy RN, BSN, IBCLC
	Panel Member (Injury and Violence Prevention Program Manager)	Fredette, Emily BA
	Panel Member (Perinatal Quality Collaborative Project Director)	Parent, Julie MSW, MPH

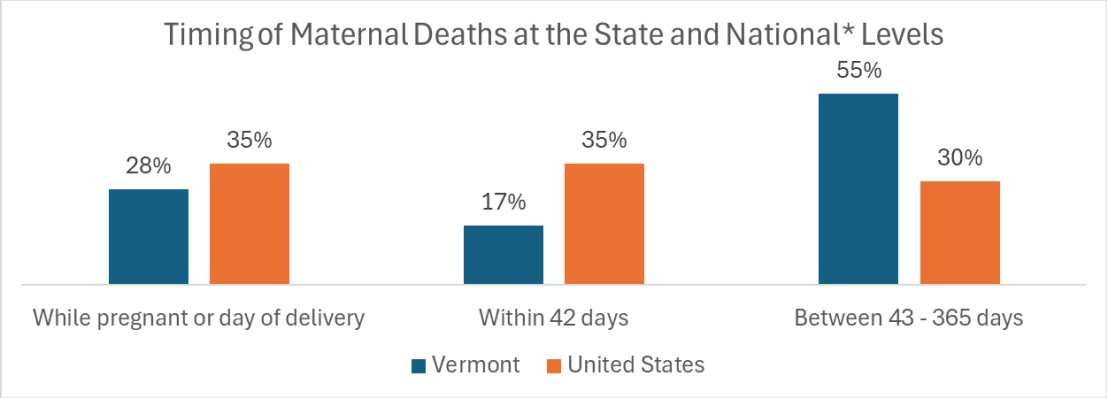
**Note: The Division of Maternal and Child Health changed its name in 2023 to the Division of Family and Child Health

Figure 1: Maternal mortality among Vermont residents by cause of death and year, Vermont Vital Statistics, 2012 – 2023*.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Accidental overdose			1		1	1	1	1		1	5	2	**13**
Complications of pregnancy, childbirth, and the puerperium				2	4	1		1					**8**
Motor vehicle accident	2								1				**3**
Suicide		1				1	1						**3**
Diseases of the heart							1						**1**
Acute and subacute endocarditis											1		**1**

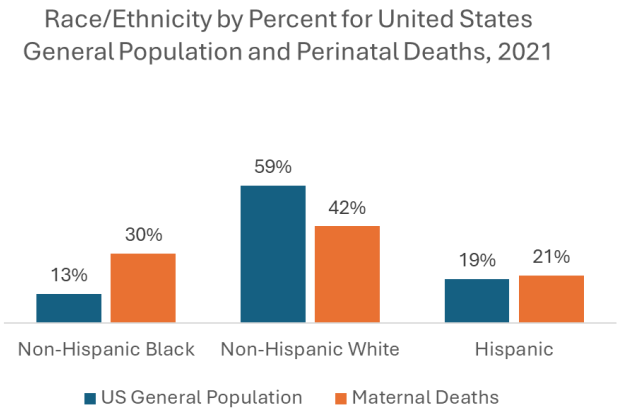
**Note: As of 2023, Vermont resident deaths occurring out of state are included in panel review and are reflected*

Figure 2: Timing of Perinatal Deaths at the State and National Level

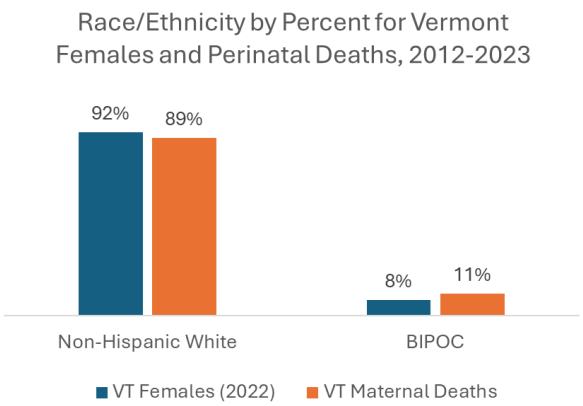


*At the time of data collection, 36 states were reporting maternal deaths.
Sources: U.S. Centers for Disease Control and Prevention (2017 – 2019), Vermont Vital Statistics (2012 – 2023)

Figure 3: Race/Ethnicity by percent nationally and statewide in general population and perinatal deaths



Source: National Center for Health Statistics (2021), National Vital Statistics System, Natality and Mortality (2021), U.S. Census Bureau via USA Facts (2021)



Source: Vermont Vital Statistics (2012 – 2023), Vermont Population Estimates (2022)