Report to
The Vermont Legislature

Maternal Mortality Review Panel
2024 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 Levine, MD**
Commissioner, Vermont Department of Health

Prepared by: **Ilisa Stalberg,**
Division Director of Family and Child Health, Vermont Department of Health

Report Date: **January 15, 2024**

VERMONT
AGENCY OF HUMAN SERVICES
Department of Health

108 Cherry Street, PO Box 70
Burlington, VT 05402
802.863.7280
healthvermont.gov

Contents

Introduction

The Maternal Mortality Review Panel (MMRP) was established by Act 35 (2011) to conduct comprehensive, multidisciplinary reviews of perinatal deaths for the purpose of identifying factors associated with these deaths and creating recommendations for system changes for improving the health care and social services for individuals living in Vermont. Act 142 (2020) amended the MMRP's charge to include in their review, considerations of health disparities and social determinants of health, including race and ethnicity in perinatal death reviews.

Data Summary

Table 1: Maternal Mortality Causes of Death in Vermont, 2012 – 2023 Vermont Vital Statistics [1]

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022~	2023~	Total
Accidental overdose			1		1	1	1	1		1	5	1	12
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

Summary of Panel's 2023 Activities

Increased Access to Records

To accurately assess perinatal mortality data, the MMRP needed access to the decedent's medical and social service records. In past years of case review, access to records was limited; this past year, the panel made a concerted effort to access a broader range of records to create more robust reviews. In 2023, the MMRP gained access to the Vermont Health Information Exchange (VHIE) data network, to decedents' medical records in the electronic health records system EPIC, and the Vermont Department of Health's (Department) nurse home visiting program database.

[1] Data Notes: Vermont Vital Statistics, 2012-2022. 2022 and 2023 data are preliminary. Although only one death from 2023 was reviewed by the panel in 2023, additional deaths may be identified during the next year's review.

Vermont Information Technology Leaders (VITL) is a non-profit organization that operates the medical record database VHIE that aggregates health data and serves as a conduit for exchange of health information across the Vermont health system. VHIE is a secure, statewide data network that gives health care organizations in Vermont the ability to electronically exchange and access their patients' health information. This database facilitates information sharing between healthcare providers with no overlapping affiliation. The Department's nurse clinical abstractor for the MMRP requested and was granted access to relevant decedents' medical records. The data accessed by the Department's clinical nurse abstractor was reviewed, and information pertinent to the decedent's death, including contributing factors, were deidentified, and then shared with the full MMRP panel for further review and analysis. The data collected from these sources are essential to understanding the conditions in the decedent's lives. This data is pertinent to the MMRP's identification of trends and the subsequent recommendations for prevention of future deaths of perinatal people.

The MMRP also gained access to EPIC, the electronic medical record software used by the University of Vermont Medical Center and its affiliates. This access bolsters the information provided by VITL, as not all medical records are contained in the VITL database.

Additionally, the MMRP gained access to the Department's nurse home visiting program's database. The goal of the nurse home visiting program is to assist at-risk individuals who are pregnant or postpartum through information on perinatal health, parenting skills, child health and development, and family economic self-sufficiency. Nurse home visitors from Vermont's community and home health agencies help connect families with additional resources and screen for intimate partner violence, substance misuse, mental health conditions, and physical health. Access to this data helps the MMRP in their comprehensive review, providing insight into what type of supports, screenings, and education the decedent received.

Robust access to a wide range of records allows the Department's nurse clinical abstractor to present factors associated with a decedent's life, allowing for a more comprehensive development of prevention strategies.

Grant from the Centers for Disease Control and Prevention:

Since its inception, the MMRP has had limited capacity for case abstraction, data collection, data analysis, recommendation development, and robust dissemination of information. To address those challenges, the Department applied for and received a one-year capacity-building grant through the Centers for Disease Control and Prevention (CDC). This funding will directly support the Maternal Mortality Review Panel to identify, review, and characterize perinatal deaths, for the purpose of identifying prevention opportunities. This grant provides the Department with funds to strengthen MMRP's infrastructure. The MMRP will utilize the grant funding to implement the following activities:

- **Case Review Data Entry:** The MMRP began entering case review information into the Maternal Mortality Review Information Application (MMRIA). MMRIA is a database maintained by the CDC and contains data on perinatal mortality from multiple states. With increased state participation in the MMRIA, CDC is able to publish more robust information on perinatal deaths and their contributing factors. The use of MMRIA in Vermont will contribute to the MMRP's ability to review trends over time and will subsequently improve

the MMRP's recommendations for evidenced-based interventions and strategies for prevention of perinatal deaths.

- **Development of Informant Interview Guide:** National perinatal mortality review panel best practices recommend an interview with the decedent's family members to collect demographic and social information. Currently, Vermont does not implement this practice due to its current limited capacity and expertise to conduct these interviews. The MMRP plans to use a portion of this CDC funding to develop a trauma-informed informant interview guide. The interviews will be conducted by a newly hired Family Support Specialist, embedded in the Office of the Chief Medical Examiner. An overview of that position can be found below.
- **Increase Staffing to Support Panel Functions:** The funding will allow the Department to create several positions to support the MMRP functions. Positions include the following:
    - **.**25 FTE Fatality Data Analyst to support case finding, analyze maternal mortality data, and create data products for wide dissemination to internal and external stakeholders.
    - .25 FTE Family Support Specialist in the Office of the Chief Medical Examiner (OCME) to provide bereavement support to families impacted by a perinatal mortality, conduct informant interviews, and gather missing information not captured in a records review for the MMRIA database.
    - .5 FTE Public Health Specialist position to support the administrative and programmatic functions of the MMRP.

While this specific grant is only for one year, the CDC intends to fund all MMRPs who apply across the country, including Vermont's MMRP, for a five-year grant period beginning in October of 2024. This extended funding will allow the panel to maintain the roles and resources listed above, as well as enhancing engagement in activities for prevention recommended by the MMRP.

2023 Summary of Aggregate Data from 2012 to 2023

The Department analyzed aggregate data from a decade of perinatal mortality case reviews from 2012 to the preliminary data from 2023. Due to relatively few deaths annually, the eleven years of aggregate data aids in the identification of trends of perinatal mortality and complications of the perinatal period to better understand associated disparities.

Substance Use

Since 2012, 17 of the 28 cases (61%) reviewed by the panel were impacted by substance use. 12 of the 28 (46%) were the direct result of accidental overdose or substance misuse. Most of the accidental overdose deaths involved polysubstance use. Unfortunately, the number of deaths from substance use is increasing. Since 2012, Vermont has averaged 2-3 perinatal deaths per year from *any* cause; from 2022 through the preliminary results from 2023, there were 7 perinatal deaths, all directly related to substance use (either accidental overdose or infection resulting from intravenous 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, 11% were identified as being caused by suicide.

Timing of Death

In Vermont, the majority (71%) of perinatal deaths occurred in the postpartum period, with 77% of those deaths within 3-12 months postpartum. The MMRP has identified months 3-12 postpartum as a particularly vulnerable period for perinatal people in Vermont.

Poverty

Poverty disproportionally impacts Vermonters dying in the perinatal period. Data from 2012 through the preliminary data available from 2023, shows that at the time of birth, 88% of decedents had Medicaid as primary insurance and 69% were utilizing the Women Infant Children (WIC) program. Further, several of these decedents were homeless or unstably housed. Because perinatal people living in poverty must navigate public assistance programs while engaging in their own and the infant's medical care, this reduces a decedent's ability to engage in their own substance use recovery and mental health supports. Navigating complex medical and public support programs takes significant effort, which takes away from the perinatal person's critical post-birth period needed for recovery from pregnancy, birth, and to bond with their infant.

Race and Ethnicity

Data from 2012 to the preliminary data available from 2023, reflects the following perinatal deaths, disaggregated by race and ethnicity: 25 perinatal people identified as White, non-Hispanic (89%), 1 perinatal person identified as Native-American (4%), 1 perinatal person identified as Asian (4%), 1 perinatal person identified as Hispanic (4%), and zero perinatal people identified as Black. The distribution of race among those who died is similar to the distribution of race among Vermonters who gave birth during the same time period.

Key Findings from 2023 Summary of Aggregate Data from 2012 to Early 2023

The MMRP identified substance use disorder and mental health conditions as the primary risk factors for perinatal death. These identified risk factors cut across socioeconomic strata, gender identity, and racial and ethnic identities.

Case Review for the Reporting Period: October 2021 to Early 2023:[2]

From October 2021 to early 2023, there were eight perinatal deaths. The causes of death of the eight cases were identified as the following:

Accidental Overdose	7
Staphylococcus Aureus Endocarditis; Chronic Intravenous Drug Use	1

[2] Data from 2022 and 2023 are preliminary.

The MMRP reviews all perinatal deaths as information becomes available.[3] Out of the eight total deaths, the MMRP was only able to review seven of them due to one case being open for active investigation. The MMRP cannot review deaths under active investigation or litigation.

Key Findings from the Case Review and Recommendations

The MMRP's case fatality data, and the Department's Division of Family and Child Health surveillance data led to the identification of several areas of particular concern: substance use, housing insecurity, intimate partner violence, postpartum supports, and pregnancy loss. These concerns and the panel's corresponding recommendations are detailed below.

Substance Use

In 2022, Vermont saw an increase in perinatal deaths compared to previous years. All perinatal deaths in 2022 and early 2023 were caused by factors related to substance use and were exclusively in the postpartum period.

Peer support is a well-documented and successful strategy for substance use recovery. Peer supports with perinatal-specific focuses have shown to be successful in supporting access to prenatal care and reducing stigma for perinatal people with SUD.[4]

The Department's Division of Substance Use currently supports a statewide network of twelve peer-support recovery centers. However, access to specialized peer-support programs for parents is inequitable across the state. While seven sites specifically offer peer-support and recovery coaching for parents in recovery, no recovery centers currently offer peer support programs specialized for the perinatal population.

Recommendations:

1. Invest in recovery centers to establish and augment peer support programs, with an emphasis on parenting support for perinatal populations in every region across Vermont.

Housing Insecurity

From October 2021 to early 2023, over half of the decedents were experiencing significant housing insecurity and/or homelessness. While some decedents had custody of their infant at the time of death, other decedents did not. Regardless of custody, the postpartum period is a physically and emotionally vulnerable period for the perinatal person. Enhancements to emergency housing criteria, to include priority based on postpartum status, regardless of custody, and increased options for recovery housing, are necessary to provide stability and support to the perinatal person.

[3] The data on perinatal deaths is available to the Department's nurse clinical abstractor on a quarterly basis. Annually, the nurse clinical abstractor presents all perinatal deaths to the MMRP for case review. If a perinatal death occurs after the MMRP's annual review, the perinatal death is added to the following calendar year for case review.

[4] Amanda Fallin-Bennett, Alex Elswick, Kristin Ashford. Peer Support Specialists And Perinatal Opioid Use Disorder: Someone That's Been There, Lived It, Seen It. Addictive Behaviors, 102 (2020), Article 106204. https://www.sciencedirect.com/science/article/abs/pii/S0306460319309049

In Vermont, there are five certified recovery residences for those identifying as female, three of which cannot accommodate children living onsite. Furthermore, the distribution of female and/or family recovery housing is variable across Vermont, creating inequities in access for those in rural populations. Across Vermont, there are limited options for recovery housing. The Northeast Kingdom and the southern regions of Vermont, in particular, have very limited options for recovery housing.

Recommendations:

1. Increase access to postpartum emergency housing. This should include housing that allows entry for those with newborns up to a full year postpartum. This should cover both those with and without custody of their children during that time.

2. Increase financial support for substance use disorder housing, especially recovery housing for people identifying as female and female with children.

Postpartum Supports

From October 2021 to early 2023, all perinatal deaths were of individuals receiving Medicaid benefits who died during the postpartum period, a majority of them 3-12 months postpartum. Consequently, the extended postpartum period has been identified as a period of increased risk for perinatal people with substance use disorder.

Doula support is a well-recognized and evidence-based strategy for supporting perinatal mental health and preventing perinatal morbidity and mortality. Doulas are individuals trained to advise, inform, and offer emotional and physical comfort to a birthing person before, during, and after the birth of the child. Birthing people who have access to doula home visiting programs have improved perinatal and neonatal outcomes. However, access to doula support is often limited by financial factors.[5] Additionally, birthing people with access to trained, community-based doulas during the perinatal period have better outcomes.[6] Because Medicaid does not cover doula services, the individuals at greatest risk for perinatal mortality do not have equitable access to a known resource to prevent perinatal death.

Children's Integrated Services (CIS) is a state-funded system of services that offers supports and resources for healthy development and well-being of pregnant and postpartum people and families with young children. CIS is primarily Medicaid funded through a regional bundled payment system to provide prenatal through age five home visiting services. Providers are currently unable to bill for services provided to the postpartum person past two months after birth. At that time, services are billed under the child's name. With the emphasis and billing shifting to the infant at two months postpartum, the birthing person's health and wellbeing

[5] Hans SL, Edwards RC, Zhang Y. Randomized Controlled Trial of Doula-Home-Visiting Services: Impact on Maternal and Infant Health. Maternal Child Health J. 2018 Oct;22(Suppl 1):105-113. doi: 10.1007/s10995-018-2537-7. Erratum in: Matern Child Health J. 2018 Aug 20;: PMID: 29855838; PMCID: PMC6153776

[6] Thomas MP, Ammann G, Onyebeke C, Gomez TK, Lobis S, Li W, Huynh M. Birth equity on the front lines: Impact of a community-based doula program in Brooklyn, NY. Birth. 2023 Mar;50(1):138-150. doi: 10.1111/birt.12701. Epub 2023 Jan 10. PMID: 36625505.

become a secondary focus during the home visits. Additionally, providers are unable to visit postpartum people without the child present. A postpartum person without custody of their child would be ineligible to receive home visiting supports and the connection to other community resources their home visitor would facilitate.

Vermont has a high rate of well child visit attendance; 90% of Vermont's newborns have a well child visit within weeks of life. The Developmental Understanding and Legal Collaboration for Everyone (DULCE) model is a universal approach that proactively addresses social determinants of health, promotes the healthy development of infants from birth to six months of age, and provides support to families in the pediatric health care setting. With partners across the health, legal, and early childhood sectors, this strength-based approach helps parents navigate the challenges of caring for babies, while addressing gaps early so children have the very best start.

Currently there are six DULCE practices in Vermont, with an additional three more practices anticipated to open in the coming months. There are many pediatric practices in Vermont without access to DULCE supports and currently no DULCE supports exist in any Vermont Family Medicine practices, where many of Vermont's families receive care. An expansion of DULCE to a broader number of Vermont practices would have significant positive impacts on family and child well-being and early relational health, particularly in this critical perinatal period.

Recommendations:

1. Establish comprehensive coverage for doula services by all insurance payers in Vermont.

2. Support the expansion of Children's Integrated Services home visiting services for birthing parents up to one year postpartum, regardless of custody status and/or presence of child in the home.

3. Invest in the expansion of the DULCE model to more pediatric and family medicine practices in Vermont.

Pregnancy Loss

Since 2019, there have been three deaths after pregnancy loss. Evidence showed that all of these deaths demonstrated a worsening of substance misuse and mental health issues as a direct result of perinatal loss. In this reporting period, one individual died due to substance overdose after a long period of stable recovery. The panel determined the loss of her pregnancy directly contributed to her relapse. According to the CDC's National Center for Health Statistics, from 2019 to 2020, 20% of pregnancies ended in a pregnancy loss (including fetal deaths but not induced abortions).[7] The MMRP does not have a comparable statistic in Vermont, however, the MMRP estimates there is a similar percentage of pregnancies end in a pregnancy loss. Mental health services for pregnancy loss in Vermont are inadequate and there are no statewide funded supportive programs for perinatal loss. Currently, Empty Arms Vermont is the only organization offering statewide virtual and in-person supports for perinatal loss. This organization is currently

[7] Rossen LM, Hamilton BE, Abma JC, Gregory ECW, Beresovsky V, Resendez AV, et al. Updated methodology to estimate overall and unintended pregnancy rates in the United States. National Center for Health Statistics. Vital Health Stat 2(201). 2023. https://www.cdc.gov/nchs/data/series/sr_02/sr02-201.pdf

not sustainably funded and relies on small grants and fundraising activities.

Recommendations:

1. Sustainably invest in statewide resources for pregnancy loss support through Empty Arms Vermont.

Planned Activities for 2024

The MMRP is a panel of professional volunteers. The Department's work supplements and enhances the impact that the MMRP has on making targeted recommendations to prevent perinatal deaths. To this end, the Department is making strides to support the MMRP's charge. For example, the Department is currently waiting for the approval to hire the three positions: 1) the .25 FTE Fatality Data Analyst, 2) the .25 FTE Family Support Specialist in the Office of the Chief Medical Examiner (OCME), and 3) the .5 FTE Public Health Specialist position. Once hired, the MMRP will implement the activities of the CDC grant, including utilizing the MMRIA platform, establishing best practices for informant interviews, and analyzing and disseminating perinatal mortality data.

Additionally, the Department will partner with the Vermont Child Health Improvement Program through the Perinatal Quality Collaborative Vermont (PQC-VT) to support the following activities:

- **Support for Universal Nurse Home Visiting Referrals**: The PQC-VT will develop and support routes for universal referral to nurse home visiting for all postpartum people. Universal referral to nurse home visiting is a key to prevent perinatal death in the postpartum period. Universal referral can reduce the stigma of those accepting home visiting.[8] Universal referral to nurse home visiting also helps to reduce medical providers biases on perceived barriers for families accessing home visiting services. Some medical provider's perceptions of "who needs" home visiting services and "who will" accept services becomes a gatekeeping phenomenon and impacts which families are offered home visiting referrals.
- **Enhance and coordinate substance use disorder supports across clinical and community settings**: 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. The PQC-VT will assist implementation of the AIM's safety bundle on Care for Pregnant and Post Partum People with Substance Use Disorder. This safety bundle will be distributed to all hospitals in Vermont with hospital engagement on a voluntary basis. The hospitals will then adopt the recommendations of the safety bundle to improve outcomes for pregnant and postpartum people with substance use disorders.

[8] Kenneth A. Dodge, W. Benjamin Goodman, Robert A. Murphy, Karen O'Donnell, Jeannine Sato, and Susan Guptill, 2014: Implementation and Randomized Controlled Trial Evaluation of Universal Postnatal Nurse Home Visiting. American Journal of Public Health **104**, S136_S143, https://doi-org.ezproxy.uvm.edu/10.2105/AJPH.2013.301361

- **Substance use disorder education and support for partners and family members of perinatal people:** Enhanced access to substance use disorder treatment and supports for partners and family members of perinatal people with substance use disorder is critical to supporting perinatal people struggling with substance misuse. The Department of Health, the Department of Children and Families and other community and state partners are currently receiving support from the National Center on Substance Abuse and Child Welfare (NCSACW) in the form of In-Depth Technical Assistance (IDTA). This two-year effort works with a cross-systems collaborative team to address the gaps in care and enhance the system of care for perinatal people with substance use issues and their children. Additionally, the Department will explore education for partners and families on postpartum warning signs of declining mental health and substance use disorder.
- **Enhanced education around Intimate Partner Violence (IPV)**: The PQC-VT will review the AIMs safety bundle on IPV to determine the feasibility of implementation. Additionally, the Department will expand Connected Parents, Connect Kids, a universal education tool that health care and community-based providers can distribute as part of universal education with families to discuss Adverse Childhood Experiences (ACEs), relationships (healthy and unhealthy), and resilience. The training will be expanded to medical providers, office staff in provider offices, emergency medical service providers, and emergency department settings.