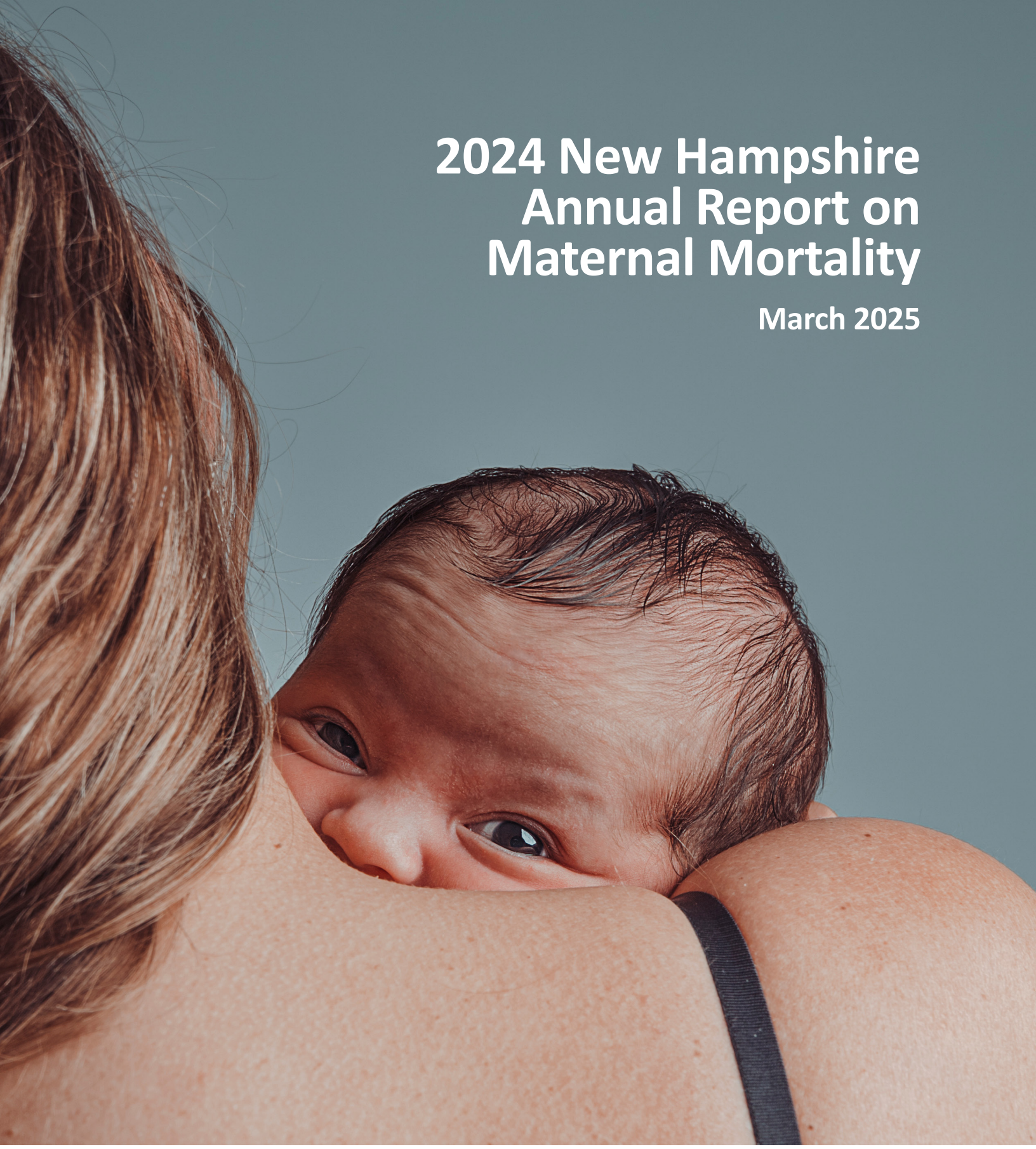

2024 New Hampshire Annual Report on Maternal Mortality

March 2025

Department of
HEALTH &
HUMAN SERVICES

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Executive Summary

In 2010, RSA 132:30 and the accompanying rule He-P 3013 established a New Hampshire Maternal Mortality Review Committee (MMRC). The function of the MMRC is to conduct comprehensive and multidisciplinary reviews of maternal deaths, identify contributing factors associated with these deaths, and make actionable recommendations to improve outcomes for New Hampshire women.

The World Health Organization defines maternal death as "the death of a woman while pregnant or within 42 days of the end of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."[1] The Centers for Disease Control and Prevention reports that in 2023, 669 women died of maternal causes in the United States compared with 817 in 2022 and 1,205 in 2021. The maternal mortality rate for 2023 decreased to 18.6 deaths per 100,000 live births, compared with a rate of 22.3 in 2022 and 32.9 in 2021.[2] Data from 38 Maternal Mortality Review Committees across the US indicate that out of 525 reviewed cases in 2020, mental health conditions, including overdose deaths due to substance use disorder, was the main underlying cause of death, accounting for 22.0% of pregnancy-related deaths, followed by cardiovascular causes (16.6%).[3]

In New Hampshire, there were six pregnancy-associated deaths in 2023 (deaths that occurred while pregnant or up to one year after the end of the pregnancy, regardless of cause). Two women died from cardiovascular conditions. There was one woman who died from homicide; that case has not yet been reviewed pending legal proceedings. Three women died from drug overdose in 2023 compared to five in 2022. Analysis of aggregated data indicates similar trends in the causes of maternal deaths over the last five years. Most of the deaths occurred among pregnant and postpartum women who were between 25 and 34 years old and about half of the women had acquired a high school diploma or less. Between 2019-2023, 50% of pregnancy-related deaths in New Hampshire were due to drug overdose. Among overdose deaths during this five-year period, 73% were Medicaid recipients. Among all pregnancy-related deaths, the MMRC determined that mental health conditions were the primary underlying cause of death for 58.3% of women. Among the pregnancy-related deaths that occurred between 2019-2023, the committee determined that 79.1% were preventable.

In 2023, MMRC recommendations focused on enhancing and sustaining projects designed to reduce morbidity and mortality from perinatal substance use disorder and mental health conditions, including the implementation of the Alliance for Innovation in Maternal Health (AIM) Patient Safety Bundles clinical quality improvement projects, building support to begin a statewide perinatal recovery coach program, and conducting clinical education sessions. Several recommendations also focused on enhancing MMRC membership, case reviews, and raising awareness about maternal mortality in New Hampshire.

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1 World Health Organization. International statistical classification of diseases and related health problems, 10th revision (ICD–10). 2008 ed. 2009.

2 Hoyert, Donna L. (2025). Maternal Mortality Rates in the United States, 2023. https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2023/maternal-mortality-rates-2023.htm

3 Centers for Disease Control and Prevention. (2024). Pregnancy-Related Deaths: Data From Maternal Mortality Review Committees in 38 U.S. States, 2020. https://www.cdc.gov/maternal-mortality/php/data-research/index.html

Key Findings in This Report

- **Drug Overdose**: The proportion of deaths related to drug overdose decreased from 62.5% in 2022 to 50% in 2023. 50% of pregnancy-related deaths in New Hampshire from 2019-2023 were due to drug overdose.
- **Demographics**: Most women were non-Hispanic White, between 25-34 years old, and about half had a high school diploma or less.
- **Postpartum deaths**: 62.3% of the deaths occurred postpartum while the majority (66.7%) of overdose pregnancy-related deaths occurred between 43 days and 1 year postpartum.
- **Medicaid Recipients**: 73% of those who died from overdose were Medicaid recipients.
- **Mental Health** conditions were identified as the primary underlying cause in 58.3% of pregnancy-related deaths.
- **Contributing Factors** to maternal deaths included substance use, mental health conditions, involvement with child protective services, intimate partner violence, socioeconomic challenges such as unemployment and lack of transportation, and inadequate care coordination.
- **Preventability**: 79.1% of the pregnancy-related deaths during 2019-2023 were preventable.

Key 2023 MMRC Recommendation Themes

- **Substance Use & Mental Health**: Focus on reducing morbidity and mortality from perinatal substance use disorder and mental health conditions.
- **AIM Patient Safety Bundles**: Implementation of clinical quality improvement projects.
- **Perinatal Recovery Coach Program**: Support for a statewide recovery coach program.
- **Clinical Education**: Conduct clinical education sessions for healthcare providers.
- **Membership & Awareness**: Recommendations to enhance MMRC membership, improve case reviews, and raise awareness about maternal mortality in the state.

Introduction

The New Hampshire Maternal Mortality Committee was established in 2010 with RSA 132:30 and the accompanying rule He-P 3013. Administered within the NH Department of Health and Human Services (DHHS), Division of Public Health Services (DPHS), Bureau of Family Health and Nutrition, Maternal and Child Health Section (MCH), the oversight and management of the NH MMRC is performed by the NH MCH Perinatal Nurse Consultant and the MCH Epidemiologist. Programmatic support is provided by the Northern New England Perinatal Quality Improvement Network (NNEPQIN), a program of Dartmouth Hitchcock Medical Center Population Health. DH-NNEPQIN is legislatively named as the clinical body to work with MCH to collect, abstract, and organize maternal death case reviews. DH-NNEPQIN's perinatal outreach nurse serves as the MMRC coordinator and abstractor of the case data. The NH MMRC conducts comprehensive and multidisciplinary reviews of maternal deaths, identifies contributing factors associated with these deaths, and makes actionable recommendations to improve health outcomes for pregnant and parenting New Hampshire citizens.

This report summarizes 2023 and 5-year aggregate data for pregnancy-related and pregnancy-associated deaths in New Hampshire. The NH MMRC reviews all maternal deaths that occur in the state of New Hampshire within 18 months of the death. A standardized Committee Decision form guides the discussion of the committee to determine the underlying cause of death, contributing factors, and preventability. A death is considered preventable if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and/or community factors.

Program Update: 2023

New Hampshire is one of 46 states participating in the five-year (2019-2024) Centers for Disease Control and Prevention (CDC) "Enhancing Reviews and Surveillance to Eliminate Maternal Mortality" grant (ERASE MM), which allows the program to continue program improvements in clinical case abstraction and data analysis, committee operations and membership, and dissemination of actionable recommendations.

Abstraction and Data Analysis

- Between 2019-2023, the NH MMRC improved timely, accurate, and standardized review of maternal deaths through partnerships with state vital records, and utilization of CDC technical assistance resources for improving abstraction, review, and development of committee decisions. These improvements help NH DHHS and its partner organizations to more fully understand the scope of maternal mortality in New Hampshire and to more effectively implement policy, community health, and clinical recommendations to reduce deaths among women during the pregnancy and postpartum periods. MMRC data is the most accurate source of information for providers and policymakers on the magnitude of substance use and mental health as a contributing factor to maternal deaths in New Hampshire.
- Between 2017 and 2023, numerous false positive cases were flagged, which required significant staff time and resources to confirm and close. A false positive is a case in which the woman was not pregnant at the time of death or within one year of death. Beginning in April 2023 the MCH Epidemiologist worked with New Hampshire State Vital Records and the Office of the Medical Examiner (OCME) to identify suspected false positive cases before data abstraction began, which saved time and resources. The MCH Epidemiologist also advocated for data quality by emphasizing to the OCME the importance of checking the "pregnancy checkbox" on the Death Certificate, thereby reducing the number of "unknowns" and unreported pregnancy-related deaths (mainly those occurring during pregnancy), since they are

Introduction (continued)

not captured during birth and death certificate linkages. The quality improvement work around case identification is ongoing with the MCH Epidemiologist identifying false positive and false negative cases which are shared with the OCME office for possibility amending the death certificate.

- Cross-Border maternal mortality record sharing: The MMRC team recognized a need to access records on NH maternal mortality cases that received care in other states to ensure thorough case review. A CDC supplemental grant allowed a legal consultant to research maternal mortality cross border data-sharing issues between bordering states in hopes of establishing a legal mechanism for improving this process. It was determined that there is no legal precedent for this work and the MMRC team continues to manage this challenge on a case-by-case basis and collaborate with the CDC to address this challenge at a larger system level.
- Aggregated NH MMRC data was highlighted in several reports published in 2023, including Pregnancy-Related Mortality Due to Cardiovascular Conditions: Maternal Mortality Review Committees in 32 U.S. States, 2017 to 2019[4], and The State of Maternal Health in New Hampshire.[5]

Committee Operations and Membership

- In 2023 the NH MMRC continued to meet in person, which helps in the facilitation of a nuanced review of the cases and development of recommendations. A virtual option is utilized to allow subject matter experts to provide consultation on cases.
- In 2023, a new MMRC Member orientation training was developed, which outlines the goal of the MMRC and orients member to the requirements and importance of their role on the MMRC. Additionally, a standardized MMRC Meeting Portfolio was developed, which includes definitions, guidance, flowcharts, and tools for committee members to utilize during the meeting to enhance comprehensiveness of the case review, to move towards consensus on committee decisions about preventability, and to standardize actionable recommendations.
- The MMRC maintained and grew its membership across the perinatal field, including people with lived experience with SUD and perinatal mental health conditions, clinical subject-matter experts, and community-based organizations with expertise in substance use disorder and mental health. See Appendix II for list of NH MMRC member organizations.

Raising Awareness of Maternal Mortality

- The NH Maternal Mortality Review Committee website was created in 2023 and later that same year was updated to include suicide loss survivor resources based on MMRC case reviews and recommendations.
- Social Media: In 2023 the Division of Public Health Services disseminated social media posts to raise awareness regarding warning signs of maternal morbidity and mortality and promote prevention resources. Posts included resources on Urgent Maternal Warning Signs, data on pregnancy-related deaths, and links to New Hampshire resources including Quit Now New Hampshire.
- In 2023, legislation was introduced to remove personal health information from birth certificate data before it's sent to DHHS. This would hinder linkages of Birth and Death Certificates used to identify cases of maternal deaths. The MCH Epidemiologist worked collaboratively with NH DHHS leadership to educate legislators on the importance of high-quality birth certificate data to monitor morbidity and mortality trends in New Hampshire.

4 Briller J, Trost SL, Busacker A, Joseph NT, Davis NL, Petersen EE, Goodman DA, Hollier LM. Pregnancy-Related Mortality Due to Cardiovascular Conditions: Maternal Mortality Review Committees in 32 U.S. States, 2017 to 2019. JACC Adv. 2024 Nov 8;3(12):101382. doi: 10.1016/j.jacadv.2024.101382. PMID: 39583867; PMCID: PMC11585746. Available at: https://pubmed.ncbi.nlm.nih.gov/39583867/

5 NH DHHS DPHS and NNEPQIN. 2023. State of Maternal Health in New Hampshire. Available at: https://www.nnepqin.org/wp-content/uploads/2024/05/State-of-Maternal-Health-NH_FINAL_FOR-DISTRIBUTION_2.25.24.pdf

Overview of 2023 Pregnancy-Associated Deaths

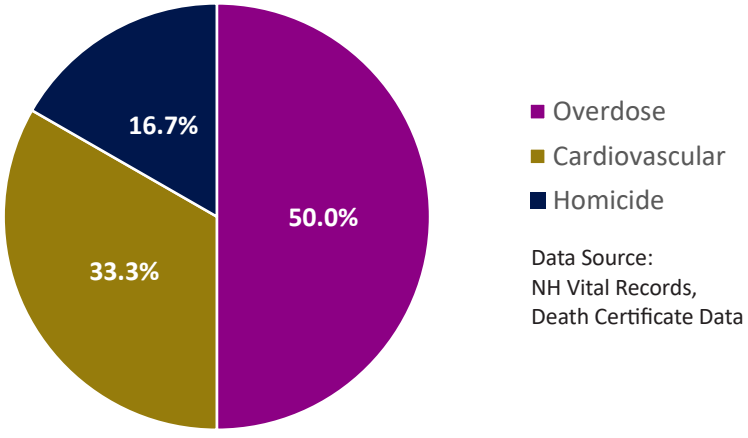
Pregnancy-associated death is an "umbrella" term for all deaths during or within one year of pregnancy, regardless of the cause. In 2023, six pregnancy-associated deaths were recorded in New Hampshire as shown in Table 1. Three of the deaths were due to drug overdose (compared to 5 in 2022). Two deaths were due to cardiovascular conditions, and one was due to homicide which is yet to be reviewed as the committee is awaiting approval of release of medical records given by Attorney General's office due to the nature of the death. Three of the deaths occurred during pregnancy and three occurred postpartum.

Table 1. 2023 NH Maternal Mortality Cases by Pregnancy Status and Timing of Death

Pregnancy Status	Number
Pregnant	3
Postpartum	3
Timing of 2023 Reviewed and Confirmed Cases	
During pregnancy	3
< 3 months postpartum	2
3-12 months postpartum	1

Data Source: Maternal Mortality Review Information Application

Figure 1. Cause of Death, 2023 Pregnancy-Associated Deaths



Overview of 2019-2023 Pregnancy-Related Deaths

This section includes **pregnancy-related deaths** reviewed by the NH MMRC over the past five years. A pregnancy-related death refers to death while pregnant or up to one year from the end of pregnancy, from any cause related to or aggravated by the pregnancy or its management. These deaths are categorized differently than pregnancy-associated deaths, which refer to all deaths during pregnancy or within 1 year of pregnancy, regardless of the cause. The Appendices contain the full dataset on all pregnancy-associated deaths.

The majority of pregnancy-related deaths in New Hampshire were among non-Hispanic White women (83.2%) followed by Black and African American women (12.5%) and women of Hispanic ethnicity (4.2%). Mental health conditions were the most prevalent underlying cause of death (58.3%), as determined by the MMRC. The committee also determined that mental health conditions and Substance Use Disorder (SUD) were the leading circumstance surrounding death, as shown in Table 4. The top five socio-stressors present in pregnancy-related deaths were the woman's history of substance use and treatment, psychiatric hospitalization or treatment, history of childhood trauma, history of child protective services involvement, and unemployment.

Fifteen out of 24 (62.5%) pregnancy-related deaths were mothers enrolled in Medicaid. The majority (73.3%, 11) died from drug overdose as compared to those enrolled in private insurance as highlighted on Figure 5.

The NH MMRC determined that 24 of the 35 (68.5%) pregnancy-associated deaths that occurred between 2019 and 2023 were pregnancy-related, as shown on Table 2 below.

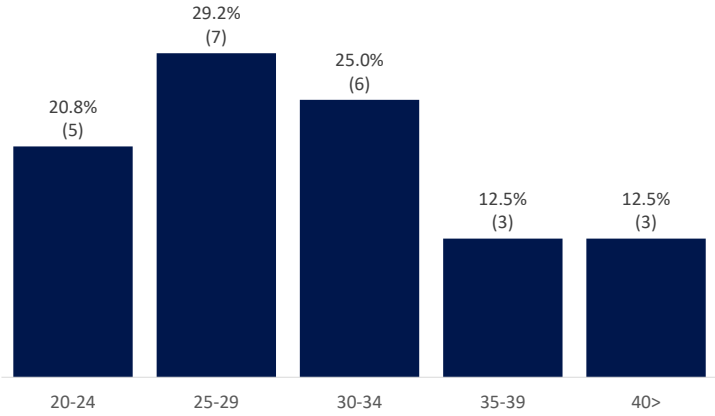
Table 2. NH MMRC Decision on Pregnancy-Relatedness, 2019-2023 NH Resident Deaths

Number of deaths by pregnancy-relatedness	Number of deaths	Percent
Pregnancy-related	24	68.5%
Pregnancy-associated but not -related	8	22.9%
Pregnancy-associated but unable to determine pregnancy-relatedness	3	8.6%
Total	35	100.0%

Data Source: Maternal Mortality Review Information Application

Overview of 2019-2023 Pregnancy-Related Deaths (continued)

Figure 2. Pregnancy-Related Deaths by Mother's Age, 2019-2023 NH Resident Deaths



Data Source: Maternal Mortality Review Information Application

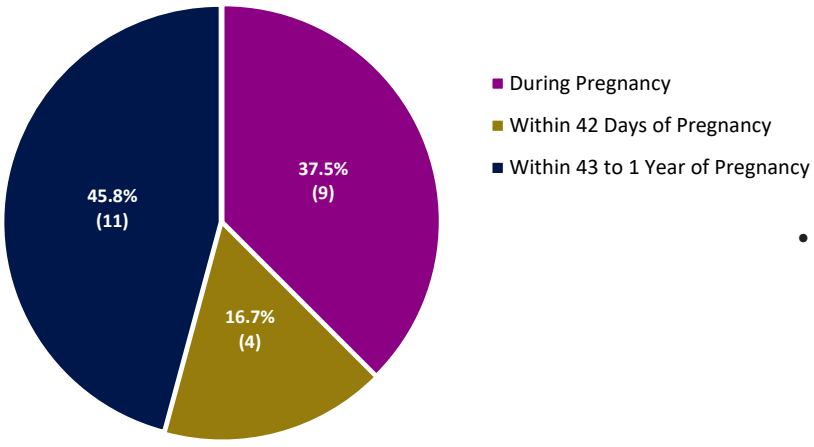
- Most deaths occurred among women aged 25-34 years old (Figure 2).
- The majority of pregnancy-related deaths occurred among pregnant and postpartum women who had attained high school education or less as compared to women who had more than a high school education, Table 3.

Table 3. Pregnancy-Related Deaths by Mother's Education Level, 2019-2023

Education Level	Number of Deaths	Percent
High school diploma equivalent or less	17	62.5%
Completed some college	2	8.3%
Associate, bachelor's or advanced degree	5	20.8%
Total	24	100.0%

Data Source: Maternal Mortality Review Information Application

Figure 3. Deaths by Timing of Death in Relation to Pregnancy, 2019-2023

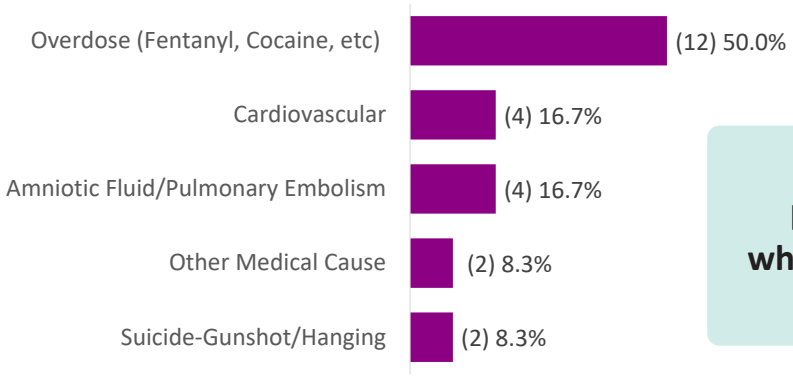


- The majority (62.3%) of the pregnancy-related deaths occurred during the postpartum period. Eight (66.7%) of the 12 overdose deaths which were pregnancy-related occurred between 43 days to 1 year postpartum.

Data Source: Maternal Mortality Review Information Application

Overview of 2019-2023 Pregnancy-Related Deaths (continued)

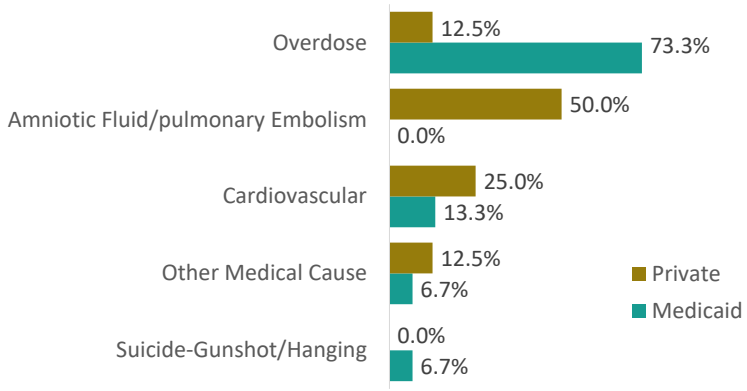
Figure 4. Causes of Pregnancy-Related Deaths, 2019-2023



Drug overdose (50.0%) was the leading cause of death (Figure 4) which is a 2.5% decrease as compared to 2018-2022 aggregate data.

Data Source: Maternal Mortality Review Information Application

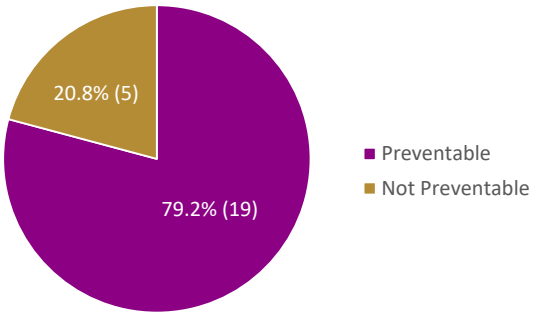
Figure 5. Causes of Pregnancy-Related Deaths by Principal Payor During Delivery, 2019-2023



- Fifteen out of 24 (62.5%) of the pregnancy-related deaths were people enrolled in Medicaid, and the majority (11; 73.3%) died from drug overdose as compared to those enrolled in private insurance as highlighted on Figure 5.

Data source: NH Vital Records Death Certificate Data

Figure 6. NH MMRC Decision on Death Preventability of Pregnancy-Related Deaths, 2019-2023

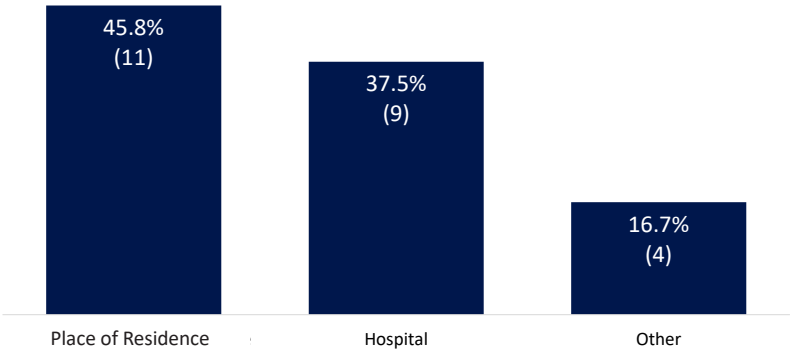


- The Committee determined that 19 (79.1%) of the pregnancy-related deaths were preventable (Figure 6).
- Most deaths occurred at the woman's residence, mainly due to overdose or suicide.

Data Source: Maternal Mortality Review Information Application

Overview of 2019-2023 Pregnancy-Related Deaths (continued)

Figure 7. Location of Death, 2019-2023 Pregnancy-Related Deaths



Data Source: Maternal Mortality Review Information Application

6 (50%) out of the 12 overdose deaths had documentation that finances and transportation were barriers to health care access.

Table 4. Committee Determinations on Circumstances Surrounding Pregnancy-Related Deaths, 2019-2023

Committee determinations	Yes	No	Probably	Unknown
Did obesity contribute to the death?	4	19	0	1
Did mental health conditions contribute to the death?	11	11	2	0
Did substance use disorder contribute to the death?	11	11	2	0
Was this death a suicide?	2	17	0	5

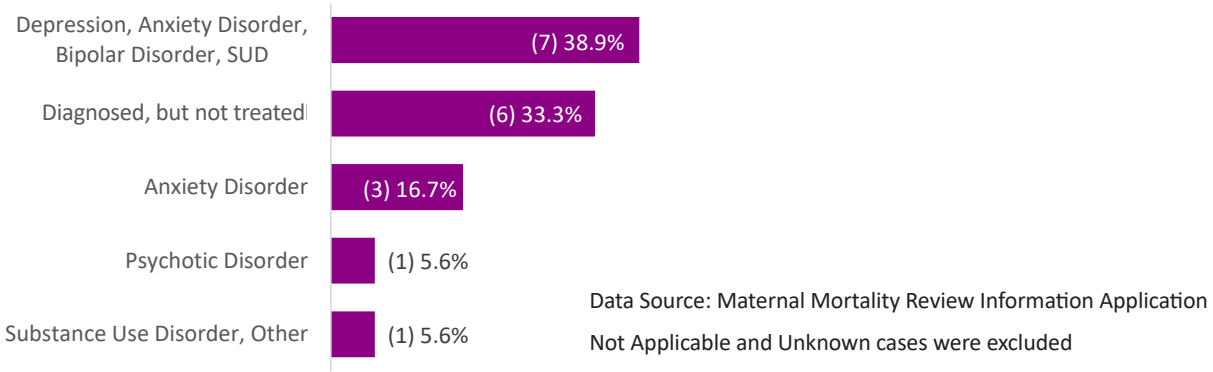
Data Source: Maternal Mortality Review Information Application

History of Social and Emotional Stressors for 2019-2023 Reviewed Cases

The following are descriptions of the identified social and emotional stressors and their impact on maternal mortality in New Hampshire:

- **Substance Use and Addiction**: Substance Use Disorder characterized by recurrent use of alcohol and/or drugs causing clinically and functionally significant health and psychosocial issues, and the need for care coordination, harm reduction, and trauma-informed services.
- **Mental Health Conditions**: History of psychiatric hospitalizations, prior suicide attempts, and ongoing mental health treatment, or lack of access to diagnostic and treatment services for mental health conditions.
- **Child Protective Services Involvement**: Removal of children during the postpartum period, and the need for peer support and reunification support if applicable.
- **Cycle of Trauma**: The pattern of ongoing childhood and adult trauma, including domestic violence, sexual violence, and recent trauma were recorded, including the intergenerational impact of childhood adverse experiences and the long-term sequelae of trauma.
- **Socioeconomic Struggles**: Unemployment is a persistent issue, highlighting economic instability and related stressors like loss of health insurance or financial hardship. These factors, rather than noncompliance, affected women's ability to care for themselves. For example, some did not seek medical services because they could not afford postpartum visits after their insurance expired or could not miss work. Additional challenges included insurance non-eligibility, provider shortages, and lack of public transportation.
- **Reproductive Health**: Stressors associated with the management of pregnancy, including unplanned pregnancies, amidst numerous psychosocial and economic stressors.
- **Sequelae of Intimate Partner Violence, Domestic Violence, and Sexual Assault**: The health, mental health, and psychosocial stressors of physical or emotional abuse perpetrated by current or former intimate partner, family member, friend, acquaintance, or stranger are particularly significant during the pregnancy and postpartum periods.

Figure 8. Woman's Treatment History for Mental Health Conditions, 2019-2023 Pregnancy-Related Deaths



Contributing Factors

A key function of a Maternal Mortality Review Committee is to identify factors that contributed to the maternal death, which allows the committee to make actionable recommendations.

The following is a summary of the contributing factors identified over eight years of MMRC meetings.

Substance Use Disorder and Harm Reduction

- Need for interventions focused on harm reduction, including home fentanyl testing kits, and Narcan distribution and education.
- Limited access to medications for opioid use disorder (MOUD) for incarcerated individuals and during transitions of care.
- Need for provider training on use of validated instruments to assess for substance use disorder.
- Need for specialized care related to the link between substance use disorder, post-traumatic stress disorder, sexual violence, and adverse childhood experiences.
- Need for continuity of care after discharge from residential treatment programs and care coordination between obstetrics and addiction treatment providers.
- Need for recovery peer support programs. For example, Recovery Coach peer support programs for people in recovery who also work in healthcare.

Mental Health Care

- Need for mental health crisis navigation in community settings.
- Need for grief support for surviving family members.
- Need for trauma-informed care coordination, especially for historical sexual abuse and trauma.
- Need for provider screening tools, community education, and harm reduction on access to lethal means (e.g., unsecured firearms in the home).
- Need for continuity of care for perinatal mental health conditions including tools, education, and interventions specific to suicidal ideation.
- Care coordination between perinatal health providers and community mental health providers.

Clinical Workflows and Care Coordination

- Need for clinical improvements in cardiac evaluation/consult in pregnancy and postpartum due to cardiac risk factors.
- Need for clinical guidelines and training on labor and post-operative pain management for patients with SUD.
- Need for clinical education on prophylaxis for deep vein thrombosis in pregnant and postpartum patients.
- Need for clinical education on cervical cancer consideration due to a focus on more likely postpartum bleeding causes.
- Need for safety planning on discharge and lack of care coordination related to domestic violence and other safety concerns.
- Missed opportunities for referral to genetic counseling.
- Missed referrals to cardiovascular specialist post-delivery.
- Need for clinical education and care coordination on perinatal health and urgent maternal warning signs with urgent care centers and primary care offices.

Contributing Factors (continued)

Assessment of Vital Conditions for Health

- Need for assessment by perinatal health providers on the vital conditions for health.
- Need for follow-up and care coordination regarding patient's circumstances, contributing to delays or gaps in care.
- Perceived lack of standardized and compassionate care, documentation, and referral to MOUD for patients with SUD.
- Perceived lack of standardized and compassionate care, documentation, and referral for patients with perinatal mental health conditions.

Child Protective Services

- Perceived lack of support for mothers/parents when child custody is removed.
- Barriers to disclosure of substance use and/or perinatal mental health symptoms due to concerns over prosecution or child custody loss.
- Need for improvements in care coordination between the DHHS Division for Children, Youth, and Families and perinatal health providers.

Corrections

- Need for more focused assessment on pregnancy history for women during incarceration.
- Care coordination between the Department of Corrections and healthcare on postpartum complications up to 1 year postpartum.

2023 NH MMRC Recommendations, Interventions, and Current Progress

The following recommendations are the result of the NH MMRC's comprehensive and multidisciplinary review of the five pregnancy-associated deaths recorded in New Hampshire in 2023. The NH MMRC uses a standardized Committee Decisions process utilized by maternal mortality review committees nationally to identify underlying cause of death, contributing factors, preventability, and actionable recommendations. These recommendations are disseminated to partner organizations in public health, healthcare, and community organizations.

	Recommendations for 2023 Cases	Status
1	NNEPQIN to create proposal for implementation of Peer Support liaisons in perinatal settings and emergency departments by September 2025	In progress
2	NNEPQIN will collaborate with JSI to identify addiction/SUD family support programs and present findings to the Perinatal Substance Exposure Collaborative and invite MMRC members to attend by June 2025.	In progress
3	DH Perinatal Outreach Nurse to coordinate an educational session for the MMRC on the medical evaluation expectations within different levels of correctional institutions in New Hampshire by March 2025	Scheduled for March 2025
4	NH DHHS Perinatal Nurse Consultant and DH Perinatal Outreach Nurse MMRC Abstractor to meet with New Hampshire Hospital Associations (NHHA) to develop MMRC communication strategy for family interviews by March 2025.	In progress
5	NH DHHS Perinatal Nurse Consultant to request information for DHHS Joint Fatality Review coordinators to understand other key informant interview processes in place, assessing feasibility of texting service, and ensuring availability of interpretation services for key informant interviews by March 2025.	In progress
6	NNEPQIN to provide staff education about access to OUD treatment by Nov 2026.	In progress
7	NNEPQIN and relevant MCH Grantees will provide Perinatal Mental Health & Suicide screening, interventions and documentation education to all healthcare settings and wrap-around services/programs involved in perinatal care starting prenatally through 1 year postpartum starting in March 2026.	In progress
8	NNEPQIN creates proposal for implementation of Peer Support liaisons within the Perinatal settings and Emergency Departments by September 2025	In progress

Follow-up Actions from Past NH MMRC Recommendations

The following activities were implemented in New Hampshire by several NH MMRC member organizations and partners, utilizing a variety of funding sources. These projects operationalize MMRC data and recommendations through clinical care quality improvements and interventions focused on SUD, perinatal mental health conditions, postpartum support, and cardiac/cardiovascular causes of maternal death.

Implementation of Alliance for Innovation in Maternal Health (AIM) Perinatal Mental Health Conditions Patient Safety Bundle

In 2022, the NH MMRC recommended the implementation of a quality improvement patient safety bundle focused on perinatal mental health conditions (PMHC). This was implemented in October 2023 and is ongoing into 2025. Currently NH's 15 birthing hospitals participate in the monthly trainings and data collection of outcome, process, and structure measures to monitor the progress of bundle implementation activities.

Based on additional MMRC recommendations regarding mental health, suicide loss survivor resources have been added to the NH MMRC website and a Counseling on Access to Lethal Means (CALM) training is scheduled for rollout in the AIM webinar series in 2025 as assessment for access to lethal means has been identified as a contributing factor several times by the MMRC.

AIM Patient Safety Bundle: Care for Pregnant and Postpartum People with Substance Use Disorder (SUD)

The implementation of the SUD patient safety bundle at all birthing hospitals in New Hampshire continues to be a key mechanism for reducing maternal mortality in New Hampshire.

2023 AIM Webinars

- *Plan of Safe Care Updates & Discussion* (July 2023)
- *Antenatal/Peripartum Drug Testing Policies and Procedures* (August 2023)
- *The Role of WIC in Reducing Maternal Mortality* (Sept 2023)
- *Perinatal Mental Health Bundle Rollout* (Oct 2023)
- *Pain Management Guidelines* (November 2023)
- *NH AIM SUD Bundle Wrap Up and Mental Health Bundle Next Steps* (Dec 2023)

Clinical Education at NNEPQIN Conferences

February, June and November 2023

- Screening and Intervening for Perinatal SUD and Mental Health Concerns: Optimizing the Role of Perinatal Providers
- Profound Cardiac Decompensation During Labor and Delivery
- NNEPQIN's ESC Care Tool Journey: Improving Outcomes for Opioid-Exposed Newborns in NH, ME, & VT
- Words Matter: Using a trauma informed approach when speaking with and about patients affected by SUD
- Experience a Mock Maternal Mortality Review & Consider How Actionable Recommendations to Prevent Future Deaths are Created
- Prevention and Treatment of Thromboembolism
- NNEPQIN Perinatal Community Advisory Council (PCAC): Taking Good Care: "What you need to know about me before you start."
- Profound Cardiac Decompensation During Labor and Delivery (Conference presentation, team simulation including OB, anesthesia, nursing, and perioperative staff, and webinar)

Follow-up Actions from Past NH MMRC Recommendations (continued)

Birthing Hospital Needs Assessment

Along with the recommendation to implement SUD and PMHC patient safety bundles, several recommendations focused on understanding the scope of screening for SUD and PMHC at New Hampshire birthing hospitals. NH MMRC tasked NNEPQIN with exploring:

- Strategies for birth hospitals to work with perinatal clinics to adopt validated instruments to assess for SUD in pregnant and postpartum patients.
- Identify which hospitals had peer recovery coach staff.
- Explore how many perinatal clinics and birth hospitals offer Narcan to all patients.

Birthing hospitals were surveyed and reported that 14 out of 15 birthing hospitals are utilizing the Screening, Brief Intervention, and Referral to Treatment (SBIRT) screening tool, 6 out of 15 have full time recovery coach positions, with another 4 of the 15 having access to Recovery Coaches through other community-based programs. 9 out of 15 birthing hospitals have universal Narcan distribution policies to offer Narcan to all patients. The hospitals that do not staff Recovery Coaches or offer universal Narcan participate in NNEPQIN learning collaboratives with other birthing hospitals to share best practices.

Urgent Maternal Health Warning Signs

Several NH MMRC recommendations focused on promoting clinical education around Maternal Urgent Warning Signs among perinatal providers, primary care offices, and urgent care centers. This project is in progress beginning with pilot sites in birthing hospitals and then moving to outpatient clinics. Social media posts were disseminated in 2023 raising awareness about urgent maternal health warning signs. Urgent Maternal Warning Signs materials are integrated into the postpartum discharge planning at birthing hospitals in NH, and NNEPQIN is in the process of implementing broad community-based dissemination of these materials to increase awareness across health settings.

Cardiac and Cardiovascular Causes of Maternal Mortality

There were several recommendations on providing clinical education on cardiovascular and cardiac causes of maternal mortality. These were completed through education sessions on the Treatment and Prevention of Thrombosis in Pregnancy in 2023 and planned sessions on Profound Cardiac Decompensation During Labor and Delivery.

Expanding MMRC Membership

NH MMRC has recommended that key organizations be included, including staff from the Division of Children Youth and Families (DCYF), the Department of Corrections, and Emergency Medical Services (EMS) providers. NH MMRC staff have made connections with these organizations and have begun the process of including them in the NH MMRC. Additional recommendations on case abstraction included requesting police reports and EMS records. This is now included in the chart abstraction process.

Postpartum Support

Since 2016, 9.3% of MMRC recommendations have called for expansion of postpartum coverage and services in New Hampshire. Beginning in 2017, the NH MMRC specifically recommended to expand Medicaid coverage for postpartum women at the yearly Maternal Mortality Annual Report presentation to the Health and Human Services Legislative Oversight Committee. Additionally, in 2023, members of the MMRC provided testimony to the NH legislature to expand postpartum supports. That same year, the NH Momnibus bill was signed into law which increased Medicaid coverage to 1 year postpartum (increased from 60 days of coverage). NH MMRC member organizations continue to work to increase awareness among Medicaid recipients about these resources and develop interventions to improve pregnancy and postpartum outcomes.

Follow-up Actions from Past NH MMRC Recommendations (continued)

NH Perinatal Quality Collaborative (PQC), Perinatal Community Advisory Council, and Maternal Health Task Force

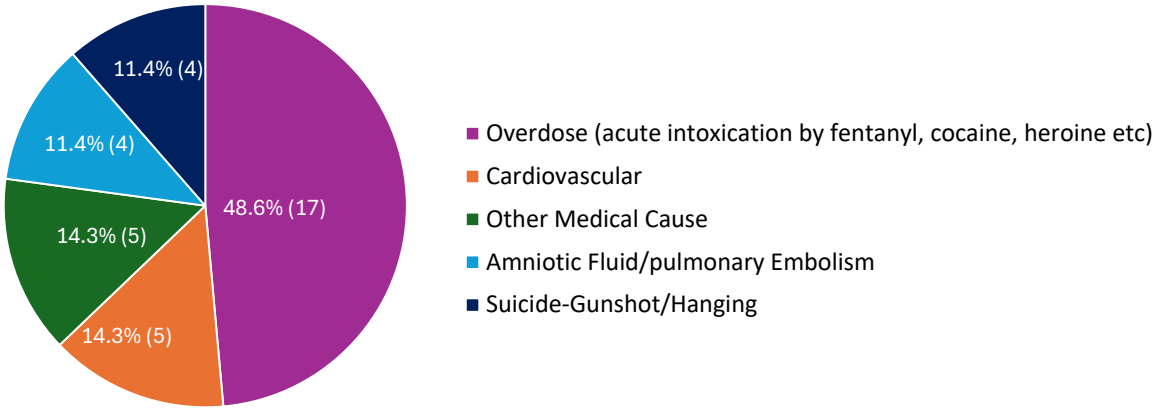
NNEPQIN continues to run a Perinatal Community Advisory Council, comprised of 10 community advocates across New Hampshire who were either currently pregnant or had been pregnant in the past two years. The group provides input into clinical education programming, serves as patient voices on NNEPQIN education panels, and provides guidance on implementation of MMRC recommendations. NNEPQIN has also established 8 local coalitions of perinatal providers and community members to work on regional perinatal quality improvement initiatives.

Conclusion

The NH MMRC is committed to the ongoing comprehensive review of all cases of maternal death in New Hampshire. With the next funding cycle of the CDC ERASE MM grant, the NH MMRC intends to enhance key informant interviews and family support resources, leverage key partnerships throughout New Hampshire to implement public health and clinical interventions and develop and enhance evaluation capacity of the maternal mortality prevention program. Through timely case review and systematically identifying opportunities for prevention, the NH MMRC continues its commitment to eliminating maternal mortality in New Hampshire.

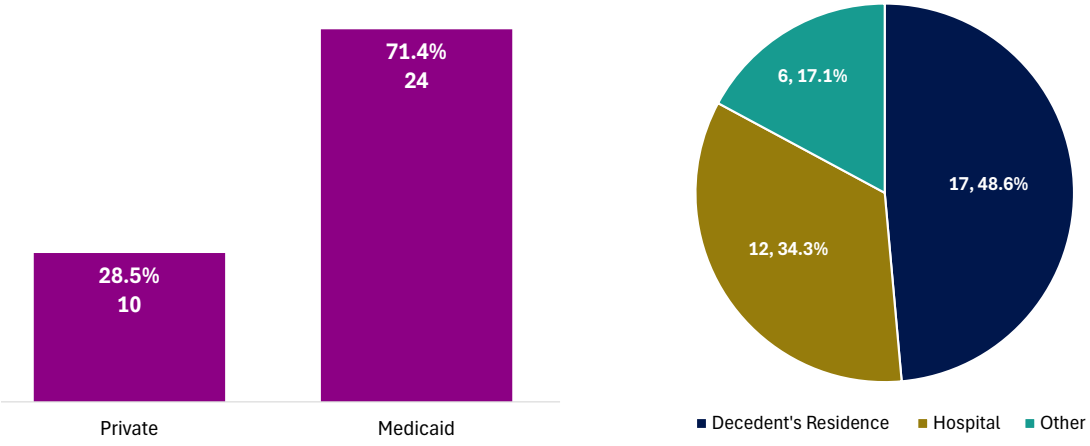
Appendix I: Maternal Mortality Review Information Application (MMRIA) Informed Tables and Figures

Figure 9. Causes of Pregnancy-Associated Reviewed Deaths, 2019-2023



Data Source NH Vital Records Death Certificate Data and MMRC

Figure 10. Pregnancy-Associated Deaths by Payor During Delivery and Location of Death, 2019-2023



Data Source NH Vital Records Death Certificate Data and MMIRA

Appendix I: Maternal Mortality Review Information Application (MMRIA) Informed Tables and Figures (continued)

Table 6. Characteristics of Pregnancy-Associated Deaths 2019-2023 Cases

Indicator	Number of deaths	Percentage
Death Timing		
During pregnancy	12	34.3%
Within 42 days of pregnancy	5	14.3%
Within 43 days to 1 year of pregnancy	18	51.4%
Total	**35**	**100.0%**
Education attainment of the mother		
High school diploma equivalent or less	22	62.8%
Completed some college	3	8.6%
Associate Bachelor or Advanced degree	8	22.9%
Unknown	2	5.7%
Total	**35**	**100.0%**
Age group of the mother (years)		
<25	7	20.1%
25-29	9	25.7%
30-34	11	31.4%
35-39	4	11.4%
40 and more	4	11.4%
Total	**35**	**100.0%**
Mother's living arrangement at time of death		
Own	3	12.0%
Rent	7	28.0%
Live with relative	8	32.0%
Homeless	2	8.0%
Other or unknown	5	20.0%
Total (Missing 10) *	25	**100.0%**

Data Source: MMRIA
*The field in MMRIA was left blank due to lack of information on the women' housing status.

Appendix I: Maternal Mortality Review Information Application (MMRIA) Informed Tables and Figures (continued)

Table 7. Frequency of Selected Committee Determinations on Circumstances Surrounding Death for Pregnancy-Associated Reviewed Cases, 2019-2023

Committee determinations	Yes	No	Probably	Unknown
Did obesity contribute to the death?	5	27	0	3
Did mental health conditions contribute to the death?	15	12	3	5
Did substance use disorder contribute to the death?	16	9	5	0
Was this death a suicide?	4	23	0	8
Was this death a homicide?	1	34	0	0

Data Source MMRIA aggregates

Figure 11. Types of Substances Identified on Toxicology Results

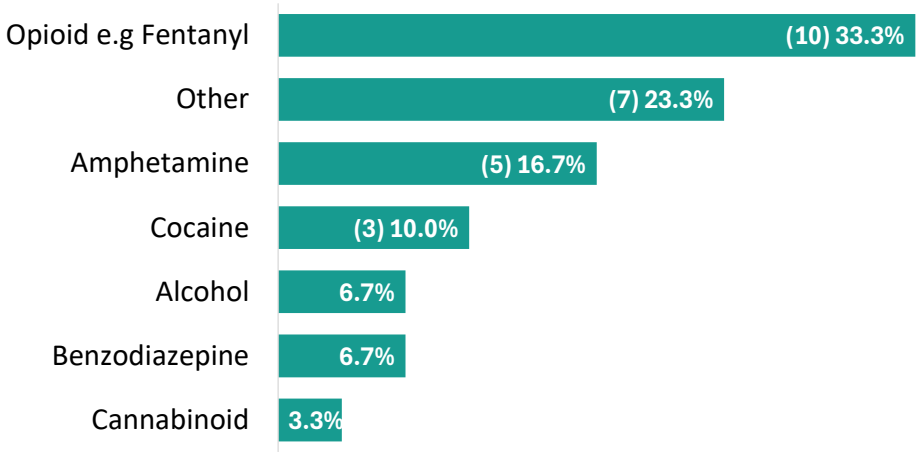
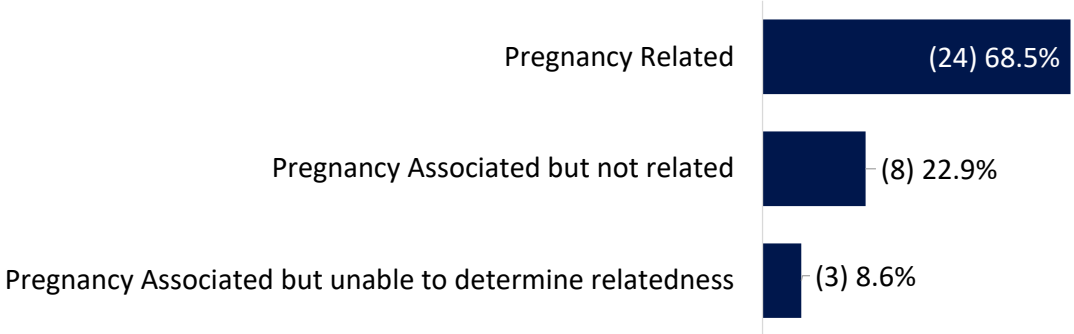
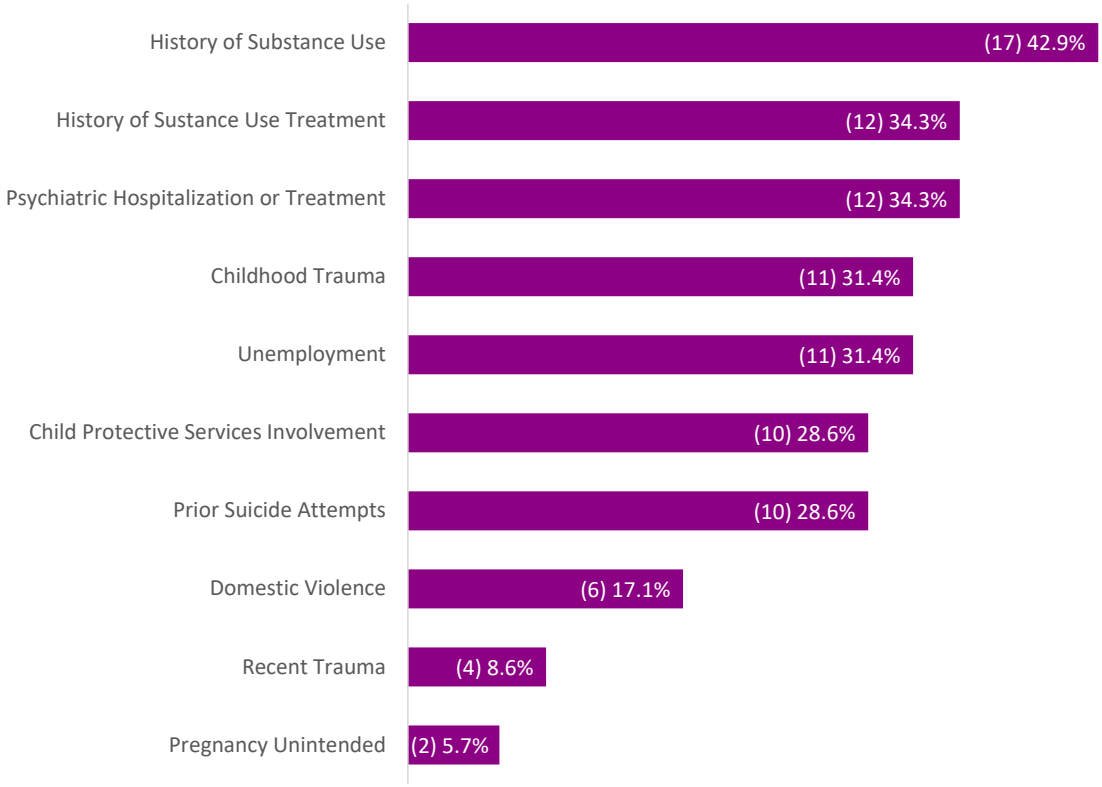


Figure 12. MMRC Determinations on Pregnancy-Relatedness



Appendix I: Maternal Mortality Review Information Application (MMRIA) Informed Tables and Figures (continued)

Figure 13. History of Social and Emotional Stress for 2019-2023 Reviewed Cases



Data Source: MMRIA aggregates

Appendix II. NH Maternal Mortality Review Committee Members

Member	Organization
Alison Palmer	Women's Health OBGYN and Psychiatric-Mental Health Nurse Practitioner
April Henry	Chair, NH AWHONN & Director The Family Center, Center for Reproductive Care & Maternal-Fetal Medicine, Exeter Hospital
Carolyn Nyamasege	Epidemiologist, NH DHHS Division of Public Health, Maternal and Child Health
Cheri Breyer	Public member with lived experience & Recovery Coach/CRSW
Colleen Whatley	Senior Quality and Safety Specialist & MMRC Recommendations Facilitator, Dartmouth Health
DaNae Belt	Nurse Manager, Labor & Delivery Unit, Elliot Hospital
Emily Baker	Maternal Fetal Medicine, Dartmouth Health
Jennifer Vallier	Community Health Worker, Elliot Hospital
Jess Bacon	Chair, NH ACNM & Nursing Practice Specialist, Wentworth Douglass Hospital
Jessica Bates	Administrative Support, NH DHHS Division of Public Health, Maternal and Child Health
Johanna Cobb	Medical Director of Obstetric Anesthesia, Dartmouth Health
Julia Frew	Psychiatrist and Addiction Medicine Physician, Dartmouth Health
Julie Bosak	CNM & Executive Director, NNEPQIN/NH PQC
Kerry Norton	Director, Hope on Haven Hill
Kiera Latham	Overdose Response Strategist, New England High Intensity Drug Trafficking Area (HIDTA)
Kim Fallon	Chief Forensic Investigator, Office of Chief Medical Examiner
Kris Hering	Vice President of Quality Improvement, NH Foundation for Healthy Communities
Kimberly Koschek	Perinatal Social Worker, Catholic Medical Center
Kristen Kraunelis	Mental Health Center of Greater Manchester
Nicole Robbins	NH DHHS Bureau of Drug and Alcohol Services
Lauren Lessard	Chair of the NH Chapter of ACOG & Obstetrician/ Gynecologist, Wentworth Douglass Hospital
Lissa Sirois	Interim Bureau Chief, Expert in Nutrition, WIC and Breastfeeding, NH DHHS Division of Public Health, Bureau of Population Health and Community Services
Melissa Martinez-Adorno	OBGYN, Women's Care of Nashua
Melissa Devine	Director, Women's & Children's Services, Concord Hospital
Mitchell Weinberg	Deputy Chief Medical Examiner, NH Office of Chief Medical Examiner
Petrice DiDominic	Perinatal Outreach RN, MMRC Case Abstractor, Population Health, Dartmouth Hitchcock Medical Center
Rhonda Siegel	Title V Director, NH DHHS Division of Public Health, Maternal and Child Health
Suzanne LaMontage	DHHS Sentinel Review Committee, NH DHHS Division Program Quality and Integrity
Wanda Joshi	Obstetrical Anesthesiologist, Dartmouth Health
Victoria Flanagan	MMRC Case Abstractor & NNEPQIN Director of Operations, Dartmouth Health
Allison Power	Perinatal Nurse Consultant, Maternal and Child Health Section, NH DHHS Division of Public Health

Appendix III. Qualitative Summary of NH MMRC Recommendations Maternal Deaths 2016-2023 with MMRC Review Dates 2017-2023

2016-2023 MMRC Recommendations	Percent
SUD services, training, education, treatment, clinical care	38.0%
Mental health conditions and suicide	15.3%
Postpartum coverage and support, including Medicaid/MCOs	9.3%
DCYF and/or social work collaboration	8.0%
Corrections/law enforcement	6.0%
Cardiac and cardiovascular	6.0%
Collaboration w/ PCPs and urgent care centers	2.7%
Abstraction/records recommendations	2.7%
Fatality review coordination	2.0%
COVID/flu/respiratory/ID	2.0%
Grief support for surviving family	1.3%
Delayed or inadequate prenatal care	1.3%
Public awareness around maternal health warning signs	1.3%
EMS	1.3%
Housing	0.7%
Cancer	0.7%
MMRC legislation	0.7%
Trauma-informed care, ACES, sexual violence	0.7%