Annual Report on Maternal Mortality to
New Hampshire Health and Human Services Oversight Committee

2017 Update

Maternal and Child Health Section
Bureau of Population Health and Community Services
Division of Public Health Services
Department of Health and Human Services

November 17, 2017

NH DIVISION OF
Public Health Services
Improving health, preventing disease, reducing costs for all

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I. Introduction

RSA 132:30 established a maternal mortality review panel (MMRP) to conduct comprehensive, multidisciplinary reviews of maternal deaths in New Hampshire for the purpose of identifying factors associated with the deaths and to make recommendations for system changes to improve services for women in the state.

This is the annual report on Maternal Mortality as required under RSA 132:30 V.

II. Definition of Maternal Death

NH Administrative Rule He-P 3013.02 defines maternal death as any of the following:

- **Pregnancy-associated** death means the death of a woman while pregnant or within one year of the end of pregnancy, irrespective of cause.
    - **Pregnancy-associated, but not pregnancy-related** death means the death of a woman while pregnant or within one year of the end of pregnancy due to a cause unrelated to pregnancy. For example, the death of a woman from a motor vehicle collision.
    - **Pregnancy-related** death means the death of a woman while pregnant or within one year of the end of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by her pregnancy or its management, but not from accidental or incidental causes. For example, the death of a woman from postpartum hemorrhage or amniotic fluid embolism.

III. Methods

Case Findings

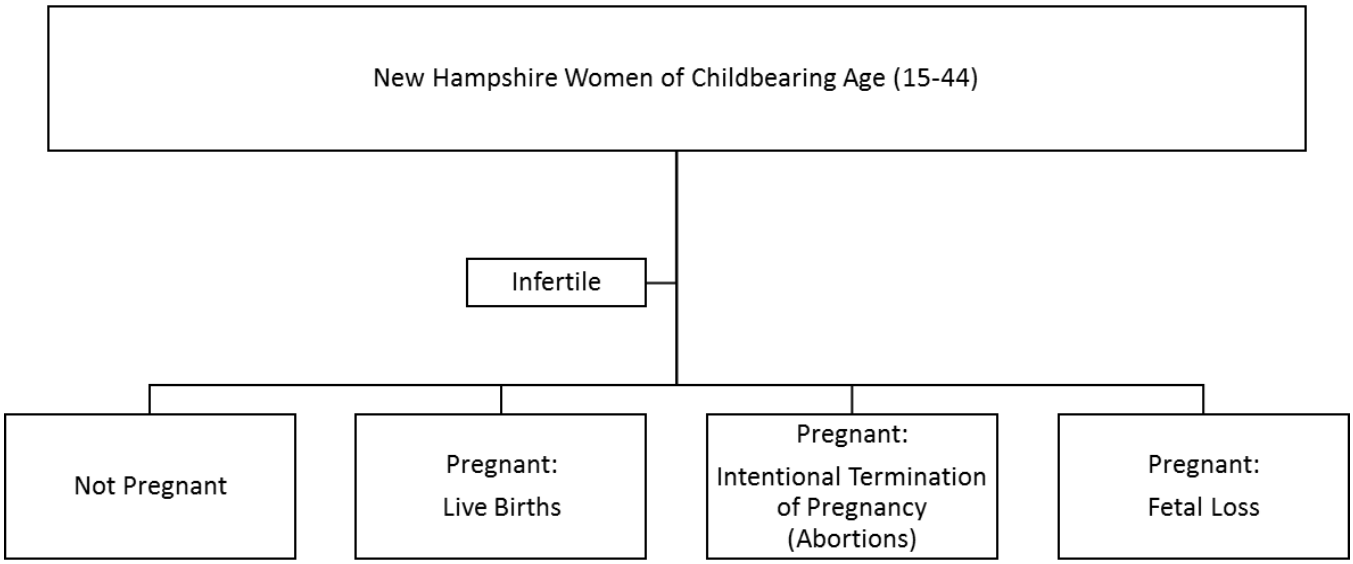
Maternal deaths in New Hampshire are identified and reported to the New Hampshire Department of Health and Human Services (DHHS) through the following sources:

- Direct report from a hospital, non-emergency walk-in care center, ambulatory surgical center, or birthing center.
- Field on death certificate indicating pregnancy within one year of death.
- Data linkage between death certificate and maternal information on certificate of live birth.
- Case finding from a panel member and reported to the Department.
- Medical examiner's report.
- Other source such as a medical provider, family member, or media outlet.

As is the case across the country, maternal deaths are most likely under-reported[1]. In particular, the death of a woman with a pregnancy that did not end in a live birth may be missed because population-wide data sources for this information are limited. See Figure 1.

[1] Theron, I. *Underreporting of Maternal Deaths on the Death Certificates and the Magnitude of the Problem of Maternal Mortality*. American Journal of Public Health. 2005 March; 95(3): 478–482.

Figure 1



Note: The box size is not intended to represent the size of the population in each category.

Case Review

Maternal mortality review is a two-step process in New Hampshire. The Northern New England Perinatal Quality Improvement Network (NNEPQIN) multidisciplinary Abstraction Team in collaboration with the Division of Public Health Services, Maternal and Child Health (MCH) Perinatal Program Coordinator reviews each case, analyzes the data, and makes specific recommendations related to each case and in accordance with RSA 132:30. All information that may identify the patient, clinicians, or institutions is removed by the MCH Perinatal Program Coordinator prior to being presented to the MMRP.

The MMRP meets on at least an annual (more if there are additional cases) basis to review a summary of each maternal death including specific recommendations made by the NNEPQIN abstraction team. After each case is presented, the entire panel discusses the appropriateness of care and deliberates until consensus on the following questions is reached:

- Was the maternal death pregnancy-associated, but not pregnancy-related or was it pregnancy associated and pregnancy-related?
- How preventable was the death?
- What public health and/or clinical strategies might prevent future deaths?

IV. 2017 Summary

Much of the past year was spent training a new Perinatal Program Coordinator within the Maternal and Child Health Section on the maternal mortality review process. This also included the refinement of the case finding process to involve data collection at the primary provider site (birth hospital, primary care office, etc.). This makes the case abstraction process easier and more efficient at locating pertinent information. Additional internal changes were made including amending the letter sent to the health care

provider after the maternal mortality review process is completed to include site specific recommendations.

Schedule of meetings in 2017:

- September 25, 2017: NNEPQIN review of 6 cases
- November 29, 2017: MMRP review of 6 cases

V. Review of 2012-2015 Data

Because New Hampshire's maternal mortality cases are small in number, it necessitates aggregating several years of data for analysis. After the final cases of 2016 are reviewed, a **five-year aggregate** analysis will be conducted for the period of 2012-2015.

Last year, a **four-year aggregate** was presented for the period 2012-2015. Twenty-four New Hampshire (NH) residents are known to have died while they were pregnant or within one year of a pregnancy ("pregnancy-associated") within that time period (2012-2015). Twenty (83%) of the 24 deaths occurred in-state while four (17%) occurred out-of-state. Six (25%) of the 24 pregnancy-associated deaths occurred in women who were pregnant at the time of death.

The leading causes of pregnancy-associated deaths in NH residents, 2012 - 2015 were accidental drug overdose and cardiovascular disorder followed by suicide. Drugs and/or alcohol were by far the leading cause of death. At least half of the deaths due to drugs and/or alcohol involved more than one substance ("polysubstance"). About 10% were solely classified as due to alcohol, and 16% to fentanyl. Both of these substances were also frequently found in the polysubstance sub-category.

The majority of the 24 pregnancy-associated deaths were not "pregnancy-related" (the cause of death was not directly related to the pregnancy). The NH Maternal Mortality Review Panel (MMRP) reviewed the 20 pregnancy-associated deaths that occurred in NH and determined that two were pregnancy-related. The MMRP was not able to review the four deaths of NH residents that occurred out-of-state because due to potentially conflicting privacy laws among the different states.

Seventy-one percent of the women were single at the time of death. Eighteen women (75%) had at least one documented risk factor (obesity, tobacco use, substance use, and/or at least one mental health disorder).

VI. New England Regional Collaborative

In the 2016 legislative report on maternal deaths occurring in the period 2012-2015, events and deaths that occurred in other states among NH residents were identified as more difficult for the panel to assess because of data-sharing limitations between states. While an agreement is in place for state vital records (births and deaths) to be shared with the resident state, other records relevant in a maternal mortality review are not as easily shared (e.g. prenatal medical record). Data-sharing laws differ by state and can be difficult to align.

A New England Regional Collaborative meeting was convened in late August 2017 to discuss the problem and potential solutions. Stakeholders from across New England convened with federal partners from the Centers for Disease Control and Prevention (CDC) and the Association for Maternal and Child

Health Programs to discuss data sharing issues among states as well as sessions on maternal mortality national trends, emerging issues in the field and successes and challenges for state committees. All of the New England states including NH are investigating the use of the Maternal Mortality Review Information Application (MMRIA) through the CDC. For NH, details for using MMRIA are under review with the State's Office of Information Technology (DoIT). MMRIA would enable NH to align itself with other states in uniform data collection and analysis for maternal mortality cases. The MMRIA data system may be part of the potential solution for cross border issues because it allows for standardized data collection. With the proper data-sharing agreements in place, the key data elements necessary for the review panel to classify each maternal death as pregnancy-related or not could be available in a standardized format.

VII. Maternal Morbidity

Severe maternal morbidity is far more common than maternal mortality. Identifying women who experience severe maternal morbidity, such as, obstetric hemorrhage, severe hypertension and venous thromboembolism, and reviewing their care, has the potential to influence the delivery of health services. Further review of the these significant negative health outcomes may increase understanding of the primary etiologies and contributing factors of these events.[2] Severe maternal morbidity is often described as "near-misses" for maternal mortality. They are unexpected outcomes of labor and delivery that can result in significant short or long term consequences to a woman's health.

The Maternal and Child Health Section through their involvement with NNEPQIN, is participating in the Alliance for Innovation on Maternal Health (AIM) program under the auspices of the Council for Patient Safety in Women's Health Care. AIM is a national alliance to promote consistent and safe maternity care to reduce maternal mortality by 1,000 and severe maternal morbidity by 100,000 instances over the course of four years, 2014 – 2018. It is funded through the federal Maternal and Child Health Bureau.

Through analysis of statewide, hospital level discharge data for severe maternal morbidity measures, MCH and NNEPQIN will help AIM to develop and distribute a series of evidence-based patient safety bundles, provide benchmarking data, and encourage birthing hospitals in the state to join in the effort. Patient safety bundles are sets of evidence-based practices that when performed collectively and reliably have been proven to improve patient outcomes. The bundles, supplemental materials and technical assistance will be made freely available for any interested birth hospital. NNEPQIN has a history of developing patient safety bundles, which can be found at http://www.nnepqin.org/guidelines.asp.

Recently, the Maternal and Child Health's Epidemiologist did a severe maternal morbidity analysis with in partnership with Maine and Vermont. This analysis, comprised of 2013-2015 hospital discharge data, was presented at the 2017 NNEPQIN annual meeting. While data quality concerns and population differences preclude drawing firm conclusions at this time, the results suggest rates of severe maternal morbidity in line with what might be expected based on national findings. There are 21 conditions associated with severe maternal morbidity. The hemorrhage category (transfusion, hysterectomy and disseminated intravascular coagulation) is the most frequent both in Northern New England and nationally with severe hypertension coming in second.

[2] W.M. Callagham, M.D., M.P.H., et al: "Facility-Based Identification of Women With Severe Maternal Morbidity," Obstetrics & Gynecology, 2014;123(5)

VIII. Conclusion

The NH maternal mortality review process focuses on all pregnancy-associated deaths that occurred in the state (in-state & out-of-state residents) and provides insight not only into maternal deaths related to pregnancy but also on all maternal deaths that occurred within one year of pregnancy. It is also important to review pregnancy-associated deaths in all NH residents including deaths those that occurred out-of-state. Seeking ways to align data collection among neighboring states and nationally will be helpful in gathering information to make informed analyses and comparing any regional or national differences/similarities. Delving deeper into the "near misses" of severe maternal mortality will also lead to quality improvement in clinical care and social supports for pregnant women. All of these efforts combined will hopefully decrease pregnancy associated and pregnancy related deaths in the state.