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

2018 Update

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

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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

New Hampshire 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

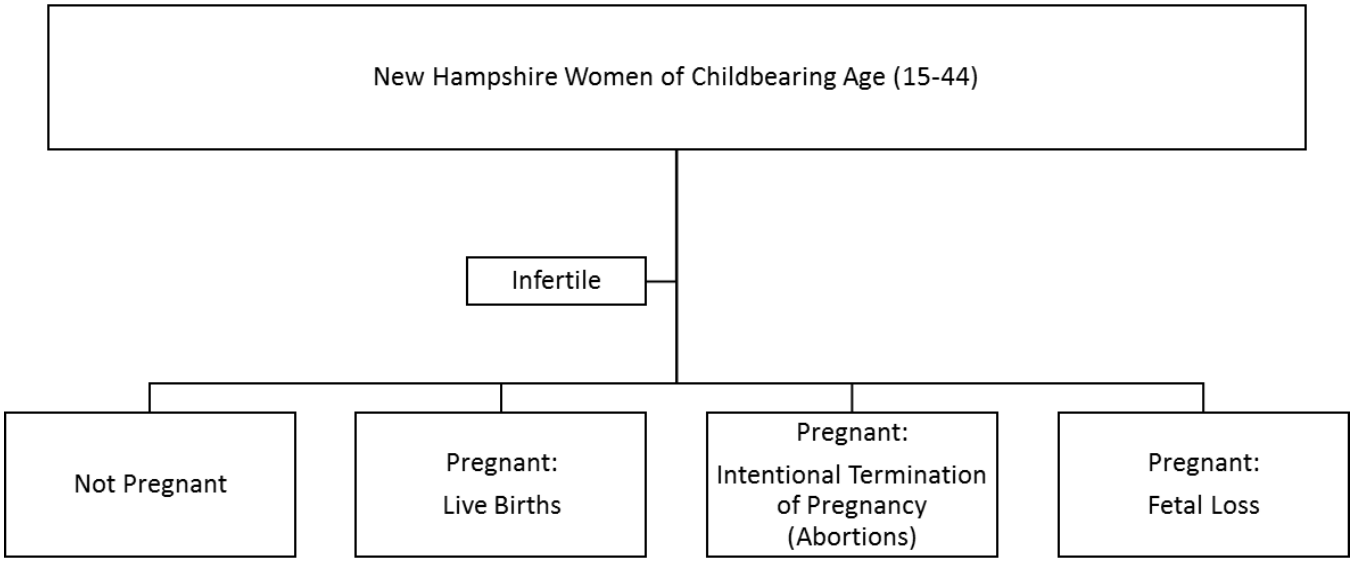
Maternal deaths in New Hampshire are identified and reported to the New Hampshire Department of Health and Human Services (DHHS) through the following sources:

- 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;2] 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.

A recent addition to the case finding methodology has been the addition of in-person visits by the DHHS Division of Public Health Services, Maternal and Child Health (MCH) Perinatal Program Coordinator/Maternal Mortality Lead and Northern New England Perinatal Quality Improvement Network (NNEPQIN) staff (as referenced in 132:30) to source locations where the decedent had gotten healthcare. This could be a hospital, clinic, primary care office or any establishment whereby information on the maternal death might be gathered. By going in person to discuss a death and obtain needed records only information pertinent to the case needs to be collected. In the past source agencies were asked to send information via mail or electronically. Because the majority of health care agencies now utilize electronic medical records, printing and sending entire charts resulted in numerous duplications. This is not only time consuming for the establishment to send the information but also for the case abstractors to go through to find new and significant information. Going forward the State's Perinatal Coordinator and NNEPQIN staff member will work together on-site, in person to abstract information for cases. This will decrease the time it takes to extract information for review. The first in person visit was completed in May of 2018.

Case Review

Maternal mortality review is a two-step process in New Hampshire. The NNEPQIN multidisciplinary Abstraction Team in collaboration with the MCH Perinatal Program Coordinator reviews each case abstracted 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.

[2] St. Pierre, A. et al. Challenges and Opportunities in Identifying, Reviewing and Preventing Maternal Deaths. *Obstetrics and Gynecology*. 2018; 0:1-5.

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. 2018 Summary

In the 2016 legislative report on maternal deaths occurring in the period 2012-2015, events and deaths that occurred in other states among New Hampshire 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. As a result, all New England states' maternal mortality program staff gathered in September of 2017 for a summit organized by the Centers for Disease Control and Prevention (CDC). During the summit, each of the state Maternal Mortality Coordinators noted that gathering to share both successes and difficulties within the programs could assist each state to improve the process of review.

Since then, MCH has worked with the CDC to approve and gain access to the web based Maternal Mortality Review Information Application (MMRIA) for New Hampshire. The MMRIA system is being introduced nationally to be able to have states collect, abstract and organize data in the same way systematically in order to be able to compare data and generate reports. In July of 2018, New Hampshire will be hosting the CDC as they provide in-person technical assistance to support New England users of the MMRIA. This meeting is planned for a day and a half and will focus on abstracting information for review.

The American Academy of Pediatrics (AAP), the American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM) have published guidelines for classifying neonatal and maternal levels of care by hospital capabilities and ability to care for high-risk patients. MCH, with support from the CDC, is implementing an assessment of birth hospitals to better understand the statewide system of healthcare services for New Hampshire's mothers and infants. This "Levels of Care Assessment Tool" (LOCATe) was developed by CDC based on the 2012 AAP Policy Statement on *Levels of Neonatal Care* and the 2015 ACOG/SMFM publication of *Maternal Levels of Care*. This assessment is endorsed by New Hampshire's state chapters of AAP and ACOG, the New Hampshire Hospital Association and NNEPQIN.

The information gleaned from LOCATe will inform New Hampshire about state capacity to provide perinatal care, particularly among high-risk populations. LOCATe will be used for public health and quality improvement purposes only, not for regulation or designation. Instead, LOCATe is a tool to improve the health system and quality of care for mothers and infants. The assessment was fielded in

May 2018 and follow-up is continuing in June. A large majority of hospitals have completed the assessment as of the writing of this report.

Schedule of recent meetings:

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

V. Review of 2016 Data

Because New Hampshire's maternal mortality cases are small in number, it necessitates aggregating several years of data for analysis. At the time of this report, there are two (2) additional deaths to review for 2016 and six (6) for 2017. Cases are currently in abstraction and a NNEPQIN review will take place in fall of 2018 followed shortly after by a full MMRP. At that a five-year aggregate analysis will be conducted for the period of 2012-2016.

The cases that were reviewed in November 2017 are consistent with the aggregated four-year report from last year. The majority of deaths continue not to be "pregnancy-related" (the cause of death was not directly related to the pregnancy). Again, the leading causes were opioid related followed by suicide. Panel recommendations were in-line with those previously reported related to improvements in mental health, care coordination, and support services.

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 these significant negative health outcomes may increase understanding of the primary etiologies and contributing factors of these events.[3] 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.

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

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.

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 New Hampshire residents including deaths of 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 morbidity 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.