Report to
The Vermont Legislature

Status Report on Maternal Mortality Review Panel

In Accordance with Section 2 of Act 35 (2011),
An Act Relating to Insurance Coverage for Midwifery Services and Home Births

Submitted to:	**House Committee on Human Services** **House Committee on Health Care** **Senate Committee on Health and Welfare**
Submitted by:	**Harry Chen, MD** **Commissioner of Health**
Prepared by:	**Breena Welch Holmes, MD** **Maternal and Child Health Director, Vermont Department of Health**
Report Date:	**December 9, 2016**

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Table of Contents

Background 3
Case #1 A.C. 3
Case #2 J.L. 4
Cases due to Natural Causes 5
Recommendations 5
Follow-Up from the 2015 Recommendations 5
Appendix A: 2016 Panel Membership 6

Status Report on Maternal Mortality Review Panel
2016 Report to the Legislature
November 30, 2016

Background
In November, 2011, the Maternal Mortality Review Panel (MMRP) was established to conduct comprehensive, multidisciplinary reviews of maternal deaths in Vermont for the purposes of identifying factors associated with the deaths and making recommendations for system changes to improve health care services for women in Vermont.

During the November 15, 2016 meeting, the MMRP reviewed two cases which met the statute definition of maternal death during the preceding 12-month period of October 1, 2015 through September 30, 2016 and briefly noted two additional deaths by natural causes. A list of participating members appears in Appendix A.

Case #1 A.C.
30-year-old female who died in April 2016 of bronchopulmonary pneumonia and chronic substance use.

Past Medical History
- opiate abuse for past 8 years, including rehabilitation stay August 2015
- anxiety
- miscarriage in July 2015

Case History
Patient's father reports that the decedent went to rehabilitation in August 2015. He also reports she had flu like symptoms on and off since November 2015 and suspects she might have been using drugs again. The father was taking care of the decedent's 2-year-old son on the day of death.

On the day of death, the father let the decedent sleep in until approximately 12:00 p.m. When he checked on her she said she had been up all night having diarrhea and vomiting, he brought her some ginger ale and went to the grocery store with her son. When he came back, he put the groceries away and then found the patient cold in bed without a pulse and not breathing. He started CPR and administered Narcan twice before rescue arrived. The investigation found folds of powder substance in the patient's coat pocket and car. Law enforcement suspects it was heroin. A pen casing used to snort was found on a desk nearby.

Autopsy Results
I. Acute and Chronic Substance Abuse
    a. Acute bronchopneumonia
    b. Recent use of non-prescribed substances (Cocaine, Fentanyl, Oxycodone)

II. Autopsy evidence of a recent first trimester pregnancy which was miscarried or terminated

Discussion
1) Dr. Shapiro described the weakened immune system that often accompanies chronic substance abuse. In this case, it is hard to determine if drug use or pneumonia was the primary cause of death.
2) Panel members discussed whether outpatient transition planning occurs after a patient leaves drug treatment and whether it involves connection to primary medical care.
3) Decedent's family did not mention recent pregnancy history so there is no information about miscarriage or termination and the decedent was not pregnant at the time of her death.

Case #2 J.L.

38-year-old female found in the bathroom by her boyfriend in August 2016 unresponsive and cold to the touch. EMS arrived and found patient dead.

Past Medical History
- per boyfriend: alcohol and drug addiction
- two months pregnant

Case History
The boyfriend reported that the patient was two months pregnant. The boyfriend reported that they went to bed at 22:00. At that time, decedent felt sick, went to the bathroom and he believes she was throwing up. He fell asleep and said at some point he got up to use the bathroom and she was back in bed but he is not sure of the time. When he woke up at 06:00 and she was not in bed with him he assumed she was on the couch. He then found her in the bathroom. VSP Detective found evidence of drug use on scene. Her two young children were at the house.

Autopsy Results
I. Ruptured Ectopic Pregnancy
a. Approximately two months pregnant (boyfriend history)
b. Right proximal fallopian tube implantation with rupture
c. Hemoperitoneum ~1400 mL (blood in abdominal cavity)

Discussion
1) Dr. Marjorie Myers described that there are early monitoring protocols to assess for risk factors for ectopic pregnancy. It does not appear that the decedent had accessed obstetrical care yet as her boyfriend describes (and autopsy findings align with) a 6-8-week gestation.
2) Death from a ruptured ectopic pregnancy is one of the leading causes of maternal death in the U.S.
3) The decedent felt ill for several hours prior to her death. If she had accessed health care, her death may have been prevented.
4) Substance abuse may have played a role in the decedent not accessing health care.

Cases due to Natural Causes

Between October 1, 2015 and September 30, 2016, there were two additional deaths by natural* causes. One patient was a 24-year-old who died of a spontaneous subdural hemorrhage while pregnant. The second patient was a 40-year-old with metastatic colon cancer who died seven months after delivery.

* A death by **natural causes**, as recorded by coroners and on death certificates and associated documents, is one that is primarily attributed to an illness or an internal malfunction of the body not directly influenced by external forces.

Recommendations

Breena Holmes the Maternal and Child Health Division Director at the Health Department will meet with staff from the Alcohol and Drug Abuse Programs to understand the system of care for women who leave inpatient treatment services for substance use disorders and identify any areas for improvement in this system.

Follow-Up from the 2015 Recommendations

The MMRP panel also reviewed the recommendation from 2015: "We believe that women in the correction system should receive help to access primary care, including enrollment in health insurance when possible Breena Holmes will set up a meeting with Department of Corrections (DOC)."

Breena Holmes, MD, MCH Director and Kimberly Swartz, Director of Preventive Reproductive Health met with DOC staff in February 2016 (Ben Watts, Correctional Health Services Admin lead; Cheryl Elovirta, Deputy Commissioner; and Ed Adams, Chittenden Regional Correctional Facilitates Superintendent) and discussed the importance of connecting women leaving prison to a medical home. They also discussed the issues outlined below as possible areas for collaboration, including:

- Identifying ways to ensure that women leaving prison have a referral to (and support to connect with) a patient centered medical home.
    - This is a priority area. Kim Swartz, Director of Preventive Reproductive Health is in communication with Ben Watts at DOC to ensure that women are connected to maternal and child health nurses in their local health department district offices so they can help support this effort. We are also working to make sure that probation and parole officers, and reentry case managers are oriented on the importance of this and are aware of Maternal and Child Health Coordinators as resources in their communities.
- Connecting women to home visiting and family planning services and training staff (reentry coordinators, probation and parole officers, others) on how to make referrals
- Consider using Health Department staff, along with reproductive health experts in training of health care providers who work in corrections system on referrals and resources related to maternal depression
- Consider the development of a women's health education program by health department and corrections staff for women currently in prison

DOC is presently in the process of developing a pilot program at Chittenden Regional Correctional Facility (the prison for females in Burlington) which would address most, if not all, of the items we identified when we met with them in February. The pilot will involve Centurion, the DOC's contracted provider for correctional health care services, contracting directly with Planned Parenthood (the state's Title X provider).

Appendix A: 2016 Panel Membership

Present at November 15, 2016 Meeting

Name	Affiliation	Email Address
Breena Holmes, MD	Department of Health, MCH Division Director	Breena.holmes@vermont.gov
Marjorie Meyer, MD	University of Vermont Medical Center, Associate Professor, Dept. of OBGYN & Reproductive Sciences	majorie.meyer@uvm.edu
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Sarah Heil, PhD	UVM Dept. of Psychiatry, Associate Professor Psychiatry and Psychology	sarah.heil@uvm.edu
Steven Shapiro, MD	Department of Health, Chief Medical Examiner	steven.shapiro@vermont.gov
Janet Kaplan, LM	Timbrel Farmstead Home, Certified Nurse-Midwife and APRN	jkmidwyfe@gmail.com

Absent from November 15, 2016 Meeting

Name	Affiliation	Email Address
Charles Mercier, MD	UVM Medical Center, Neonatologist	charles.mercier@uvm.edu
VACANT	OBGYN	