March 5, 2020

Re: Iowa's Maternal Mortality Review Committee Report

The most recent report from Iowa's Maternal Mortality Review Committee (IMMRC) on the cause and contributing factors of maternal deaths in Iowa and recommendation of possible preventive strategies based on those reviews is attached.

The mission of the Iowa Maternal Mortality Review Committee is to:

- Identify pregnancy-associated deaths,
- Review those caused by pregnancy complications and other associated causes,
- Identify the factors contributing to these deaths, and
- Recommend public health and clinical interventions that may reduce these deaths and improve systems of care.

Iowa's Maternal Mortality Review Committee reviews all pregnancy-associated deaths or any deaths of women with indication of pregnancy and within one year following the end of a pregnancy, regardless of the cause (i.e. motor vehicle accidents, drug overdose, suicides, homicide) in compliance with Iowa Code section 135.40 and 641 IAC chapter 5.

The Department plays an important role in ensuring the IMMRC in meeting its legislated mandate. IDPH staff are responsible to identify maternal death using birth and death vital records, request medical records from hospitals, physicians, and other licensed health care providers, and perform thorough record abstraction to develop individualized case summaries for the IMMRC.

The Iowa Medical Society appoints the IMMRC Members. The Department, in partnership with the Iowa Medical Society, ensures a timely, confidential review of all maternal deaths to identify trends and risk factors, make recommendations on improvements to care, prioritize findings and make recommendations to guide the development of effective preventive measures in response to the pregnancy-related deaths in Iowa. The Iowa Medical Society assists the Department with dissemination of the committee findings.

The information presented in the attached report is an important set of data to help the Department assure that women in Iowa have optimal birth outcomes.

Sincerely,

Gerd W. Clabaugh
Director
Iowa Department of Public Health

IOWA MATERNAL MORTALITY REVIEW COMMITTEE REPORT

Report from Maternal Death Reviews from last half of 2015 through first half of 2018

Background

Maternal mortality is higher in the United States (U.S.) compared to any other developed nation. Racial disparities persist in the U.S. and the maternal mortality rates for non-Hispanic black women are 3 to 4 times higher than the rates for white women. According to a 2018, publication "Report from Nine Maternal Mortality Review Committees" 63.2% of the pregnancy-related deaths were preventable.

Iowa's Maternal Mortality Review Committee, coordinated by the Iowa Medical Society (IMS) in partnership with the Iowa Department of Public Health (IDPH), is responsible for reviewing identified maternal deaths for the purpose of reducing morbidity and mortality. Death certificates with the pregnancy indicator box checked and those with relevant obstetrical related ICD-10 codes identify possible maternal deaths. Iowa Department of Public Health (IDPH) staff work with the Bureau of Health Statistics to identify and link each maternal death certificate to a live birth or fetal death certificate. IDPH staff then request medical records, and conduct a thorough record review to abstract event details and contributing causes leading up to a mother's death.

The Committee meets to determine: 1) the cause of death; 2) whether the cause was directly or indirectly related to the pregnancy; 3) if related, to assess whether the death was preventable; and 4) what educational efforts would assure greater prevention.

Definitions of death in relation to pregnancy used by the committee.

- Pregnancy-related deaths are defined as deaths due to cause(s) directly related to physiologic changes of pregnancy or due to causes aggravated by the pregnancy or its management
- Pregnancy-associated deaths are defined as "The death of a woman during pregnancy or within one year of the end of pregnancy irrespective of the cause."
- Not pregnancy-related – If a woman dies while pregnant or within of the end of a pregnancy from causes unrelated to pregnancy or its management (e.g. injuries or complications from other conditions then the death is defined as not pregnancy related.
- Unable to determine if pregnancy–related or not.

A death is considered preventable if there is either a good chance or some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and or community factors. If there was at least some chance that the death could have been averted, the Committee recommends actions that if implemented have the potential for to reduce or prevent future deaths. The death is considered not preventable if the Committee felt there was not chance to alter the outcome.

Maternal Mortality Review Committee

The Iowa Medical Society appoints the Maternal Mortality Review Committee members. Current members are as follows: Thaddeus Anderson, MD serves as the Committee Chair and Stephen Hunter, MD, PhD; serves as the Committee Secretary. Debra Piehl, MD; Kimberly Marshall, MD; Stephanie Stauffer, MD (Pathology); Kokila Thenuwara, MD (Anesthesia);

LeAnne Roberts, MD; and Stephen Pedron, MD; also serve on the Committee. All members volunteer their time to participate on the Committee. Iowa Department of Public Health Maternal Health staff Stephanie Trusty, RN, BSN is the data abstractor for the Committee and Dennis Tibben, serves as the IMS staff liaison.

Maternal Mortality Review Committee Results:

Categories of Maternal Deaths	Possibly Preventable (20)	Not Preventable (11)	Undetermined (8)
Pregnancy related – **Direct**	• Hemorrhage percreta	• Hemorrhage percreta	• Pre-eclampsia
Pregnancy related – **Indirect**	• Cardiac • Coronary artery dissection • Drug Overdose • Homicide (Domestic violence)	• Pulmonary embolism	• Cardiac • Infection • Pneumonia
Pregnancy – associated deaths	• Suicide		
Not pregnancy related	• Blunt Force Trauma/motor vehicle accident (MVA) • Drug Overdose • Stroke	• Blunt force trauma/motor vehicle accident (MVA) • Cancer • Subarachnoid hemorrhage (aneurysm) • Pulmonary embolism • Surgical complication • Homicide	• Asthma
Undetermined			• Cardiac • Chronic Alcoholism
Misclassification- not a maternal death			• 2 cases

- Timing of the 39 deaths reviewed: 22 (56%) of the 39 cases were postpartum deaths.
- Eleven cases were pregnancy-related (three direct and eight indirect), six cases were pregnancy associated, and nineteen cases were not related to the pregnancy. For three of the cases, there was not enough information to determine if the death was related to the pregnancy or not.
- The leading causes of the pregnancy related deaths were cardiac-associated and hemorrhage. Other causes included pre-eclampsia, pulmonary embolism, pneumonia, infection, drug overdose, and homicide from domestic violence.
- Not pregnancy related deaths (motor vehicle crashes, suicides, overdose and homicides, cancer and others) occurred at a rate of 16.2/100,000 live births. This rate is almost double the rate for pregnancy-related causes of death which was 9.4/100,000 live births.
- Common co-occurring conditions were obesity, hypertension, diabetes, depression, substance abuse.
- Preventability
    - Pregnancy Related (direct and indirect): 5 were possibly preventable, 2 were determined not preventable, and 4 undetermined.

    - Pregnancy associated deaths were all six deaths were determined to possibly be preventable.
    - Of the cases that were not pregnancy related, nine were determined possibly preventable, nine were determined not preventable, and one was undetermined.
- Iowa's pregnancy-related maternal mortality was 9.4 per 100,000 livebirths overall. The rate for non-Hispanic White women was 6.0, for non-Hispanic Black women 36.9, for Asian/Pacific Islander 23.5 and for Hispanic women 9.7. The Black/White ratio is 6.1, Asian/Pacific Islander/White ratio is 3.9 and the Hispanic/White ratio is 1.6.

Committee Recommendations:

- Early detection of morbidly adherent placenta (placenta accreta, increta and percreta).
    - At about 20 weeks gestation, women with a prior C-section who have a placenta previa or low lying placenta should be referred to a Maternal Fetal Medicine Specialist to obtain a level 2 ultrasound and consultation. Morbidly adherent placenta is associated with significant maternal hemorrhage and morbidity; not only in cases of attempted placental removal (not advisable), but also in cases of cesarean hysterectomy. ACOG recommends treating the condition with an experienced multidisciplinary team in a tertiary perinatal center to minimize maternal or neonatal morbidity and mortality.
    - The committee recommends that women with a known percreta be transferred to a Level IV Maternal Center, where staff has the capacity to care for such high risk patients.
    - Health care providers should work together to prevent primary C-sections when possible.
- When a pregnant woman presents in the emergency department with possible pneumonia an x-ray should be done. Emergency department staff members should ask about pregnancy history and consult with obstetrician on call, if appropriate.
- Explore use of California Maternal Quality Care Collaborative (CMQCC) Cardiovascular Disease tool kit. Offer provider education on cardiac conditions in pregnant and postpartum women.
- Control asthma well. Asthma management needs to be monitored with a peak flow meter during pregnancy.
- Providers should give all pregnant women information about their need to wear a seat belts. Providers should also remind pregnant women to not text while driving.
- Providers and pregnant women need to be educated on the dangers of huffing (inhalant abuse), including chemicals used during huffing, such as computer-cleaning spray know as Dust-Off (difluoroethane), glue, cleaning fluid or paint.
- Several women experienced overdose deaths a few days to 2 weeks postpartum. For that reason it is important to improve postpartum support for women with substance abuse history.
- Intimate partner violence, was a factor in several homicide, suicide and substance abuse deaths. Therefore it is important that providers screen pregnant and postpartum women for intimate partner violence. Screening and information must be provided in private locations like the women's restroom. Clinic sites need to be prepared to discuss options for women who report they are not safe their home. Work with women to establish a

safety plan if the woman admits abuse from her domestic partner but she is not willing to leave her abuser.

- Guns were used in the majority of the suicide deaths and all of the homicide deaths. Promote gun safety in homes. Guns should be stored in a locked cabinet. Gun ammunition should be stored separate in a separate locked cabinet from the guns.
- Some women and some physicians stopped anti-depression medication early in pregnancy. To remedy these instances it is important to:
    - Improve provider education on safe pharmacological treatment for depression during pregnancy and breastfeeding.
    - Provide depression screening during pregnancy and postpartum.
    - Advocate for improved access to mental health providers.
    - Consider expanding tele-health to increase access to mental health professionals in rural areas.
- The majority of the deaths (56%), occurred postpartum. Consider expanding Medicaid coverage to cover women who had a birth covered by Medicaid for 1 year postpartum. This would help cover needed mental health and substance abuse counseling and treatment. Currently Medicaid eligibility changes 60 days postpartum from 375% of the federal poverty level to 138% of federal poverty level and many women lose insurance coverage.

Thaddeus Anderson, MD, Chair