



Arkansas Maternal Mortality Review Committee (AMMRC)

Legislative Report
December 2023

2018-2020 Data and Recommendations

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DEDICATION

This report is in remembrance of all the women who have lost their lives during or after pregnancy and childbirth from any cause. It is with deepest sympathy and respect that we dedicate this report to their memory and to all their loved ones.

Through a joint effort, we aim to gain a better understanding of the causes and factors contributing to maternal deaths, and to develop new ways to prevent them and promote health and equity for women in Arkansas.

ACKNOWLEDGMENTS

This report was made possible through detailed reviews of maternal death cases by the volunteer Arkansas Maternal Mortality Review Committee members (AMMRC). We are deeply grateful to the committee members for their insight, dedication, and generosity.

We would like to extend our appreciation to the Arkansas Department of Health-Health Statistics Branch for their collaboration in providing the data used to identify cases of pregnancy associated deaths and the Epidemiology Branch for data analysis and technical review.

We are grateful to the health systems, health care providers, and coroners who provide the records that allow meaningful review to occur. We appreciate the lead sponsors and co-sponsors of the bill who recognized the need to preserve the lives of Arkansas mothers.

We also thank our national partners at the Centers for Disease Control and Prevention's Division of Reproductive Health and the Building U.S. Capacity to Review and Prevent Maternal deaths project for providing technical assistance and support during the development of the AMMRC, and for their continued support through guidance, data management, and resources.

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EXECUTIVE SUMMARY

The Arkansas Maternal Mortality Review Committee reviews pregnancy-associated deaths that occur during pregnancy or within one year of the end of pregnancy. Through a process of ongoing surveillance, data collection, and comprehensive multidisciplinary review, the information gathered is used to develop evidence-based recommendations that seek to prevent future pregnancy-associated deaths. This report presents combined data from years 2018 - 2020 and recommendations for the year 2020.

The total number of live births in Arkansas in 2018 - 2020 combined was 108,517, with the data linkage process identifying 121 potential pregnancy-associated deaths. Application of exclusion criteria determined by the Committee resulted in the removal of 21 cases due to false positives or out of state residency. Out of the remaining 100 pregnancy-associated deaths, 88 underwent full case abstraction and 12 accident/trauma deaths were reviewed and excluded from full abstraction. There were 38 cases determined to be pregnancy-related deaths.

Representative Report Findings:

- There were 38 cases determined to be pregnancy related. The pregnancy-related mortality ratio for 2018 - 2020 is 35.0 per 100,000 live births.
- Between 2018 and 2020, Arkansas had 100 pregnancy-associated deaths. This represents a pregnancy-associated mortality ratio of 92.2 deaths per 100,000 live births.
- Disorders of the cardiovascular system were the leading causes of pregnancy-related deaths.
- The top underlying causes of pregnancy-related deaths were cardiomyopathy, cardiovascular conditions, hypertensive disorders of pregnancy, infections, and hemorrhage.
- For all pregnancy-associated deaths, Black non-Hispanic women were 2.3 times as likely to die compared to White non-Hispanic women in Arkansas.
- For all pregnancy-related deaths, Black non-Hispanic women are 1.8 times as likely to die than White non-Hispanic women.
- For all pregnancy-associated deaths, women ages 35 and older have the highest mortality ratio, which was 3.9 times the mortality ratio of women younger than 25 years old.
- Ninety-two percent of pregnancy-related deaths were considered potentially preventable.

The committee's recommendations are tailored to various levels of engagement within the healthcare system. These suggestions are not one-size-fits-all but are designed to resonate with specific stakeholders, ensuring the greatest possible impact and relevance. While the executive summary offers a concise overview of our recommendations, it does not provide an exhaustive list. As you delve deeper into the report, you will find a more comprehensive set of recommendations that cater to the diverse roles and responsibilities within the healthcare sector. Each recommendation, therefore, should be interpreted with its intended audience in mind, whether that's policy makers, administrators, clinicians, community leaders, patients and families or other professionals. By understanding these nuances, we can ensure that our proposed changes are implemented effectively and reach their intended targets.

Representative Report Recommendations:

- Patients and families of pregnant women should be aware of urgent maternal warning signs and symptoms during pregnancy and in the year after delivery and seek immediate medical attention as needed.
- Providers should enhance their understanding of treatment practices and recognize the importance of screening for chronic conditions, such as cardiovascular diseases, that can worsen during pregnancy.
- Facilities should train all team members on urgent maternal warning signs with a clear chain of command for escalating concerns. Treatment algorithms for the management of high-risk postpartum patients should be included in hospital trainings and protocols. An algorithm within the electronic health record should trigger a consultation and other ways to escalate care.
- Systems should increase access to comprehensive health services during pregnancy, the year after pregnancy, and throughout the preconception and interpregnancy periods to facilitate continuity of care, implement effective care transitions, promote safe birth spacing and improve lifelong health of women.
- The AMMRC recommends extending Arkansas Medicaid maternal coverage from 60 days to one year postpartum. Postpartum care should be provided to mothers through one year postpartum to monitor the mother's physical and mental health, provide support during the transition, and ensure access to treatment.

This report marks the third comprehensive review of pregnancy-associated deaths among Arkansas residents. Due to the specific focus of the three periods of review, the sample size is limited. It is important to exercise caution when interpreting these findings and comparing them with data from other jurisdictions, as varying exclusion and inclusion criteria may have been applied.

AMMRC Background

Act 829 of 2019 established the Maternal Mortality Review Committee (MMRC) which requires the formal review of maternal deaths in Arkansas and secures protection for the confidentiality of the process. The Arkansas Maternal Mortality Review Committee (AMMRC) was assembled within the Arkansas Department of Health (ADH) Family Health Branch, Women's Health Section. The AMMRC was developed with guidance from the Centers for Disease Control and Prevention (CDC) Building US Capacity to Review and Prevent Maternal Deaths and is modeled after well-established review committees in the United States.

The AMMRC uses a complex process to identify pregnancy-associated deaths, including data sharing agreements with various organizations and the use of multiple criteria. Information for abstraction is gathered from various sources and prepared by a trained abstractor. The AMMRC reviews each case and makes decisions based on the case narrative and abstracted data, examining the cause of death, contributing factors, and preventability. The committee then formulates findings and recommendations in accordance with CDC's Maternal Mortality Review Information Application (MMRIA) Committee Decisions Form, using a multi-step approach to determine contributing factors at various levels of care and develop specific and actionable recommendations.

In 2022, the AMMRC was awarded funding from the CDC Preventing Maternal Mortality: Supporting Maternal Mortality Review Committees.

Scope: The scope of cases for Arkansas review is all pregnancy-associated deaths or any deaths of women during pregnancy or up to 365 days after pregnancy ends. At the July 2020 AMMRC meeting, members set forth exclusion criteria for abstraction (i.e., motor vehicle accidents and out-of-state residents).

Purpose: The purpose of the AMMRC is to identify and characterize pregnancy-associated deaths with the goal of identifying prevention opportunities.

Vision: To protect and improve the health and well-being of all Arkansans by eliminating preventable pregnancy-associated deaths in Arkansas.

Mission: Optimize health for all Arkansans to achieve maximum personal, economic, and social impact.

Goals:

- Perform thorough record abstraction to obtain details of events and issues leading up to a mother's death.
- Perform a multidisciplinary review of cases to gain a holistic understanding of the issues.
- Determine the annual number of pregnancy-associated deaths.

- Identify trends and risk factors among pregnancy-related death in Arkansas.
- Recommend improvements to care at the individual, provider, and system levels with the potential for reducing or preventing future events.
- Prioritize findings and recommendations to guide development of effective preventive measures.
- Recommend actionable strategies for prevention and intervention.
- Disseminate the findings and recommendations to a broad array of individuals and organizations.

Statutory Authority and Protections

Maternal mortality review is conducted pursuant to Ark. Code Ann. § 20-15-2301 - 2307. See Appendix 2 for full text of the public health laws that apply.

§20-15-2301 provides authority for the AMMRC to review pregnancy-associated deaths or deaths of women with indication of pregnancy up to three hundred sixty-five (365) days after the end of pregnancy.

§20-15-2302 provides powers and duties to the AMMRC including identifying maternal death cases, reviewing medical records, contacting family members and other affected or involved persons to collect additional relevant data. All proceedings and activities of the committee are confidential and are not subject to the Freedom of Information Act of 1967.

§20-15-2303 provides access to all relevant medical records associated with a case under review by the committee.

Membership

The AMMRC is a multidisciplinary committee whose members represent Arkansas Department of Health's (ADH) five health regions and various specialties, facilities, and systems that interact with and impact maternal health. Twenty-one inaugural members were appointed by the Arkansas Secretary of Health in late 2019. Membership consists of specialists in obstetrics and gynecology, maternal-fetal medicine, anesthesiology, nursing, psychiatry, mental/behavioral health, nurse midwifery, public health, hospital association, patient advocacy, and more. Recruitment of new AMMRC members may occur annually as needed unless a specific type of expertise is required during the year for a case review (Example: domestic violence). AMMRC members serve in a volunteer capacity and do not receive compensation for participation in the review process. AMMRC members commit to three years for their volunteer stewardship and attend quarterly meetings.

Organizations Represented by Members:

- Arkansas Chapter Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)
- National Maternal Morbidity and Mortality Taskforce
- Arkansas Hospital Association
- Arkansas State Crime Lab
- American College of Obstetricians & Gynecologists
- Society for Maternal-Fetal Medicine
- American Academy of Family Physicians, Arkansas Chapter
- Arkansas Department of Health
- Arkansas Foundation for Medical Care
- Arkansas Medical Society
- Arkansas Board of Nursing
- Arkansas Society of Anesthesiologists
- Arkansas Psychiatric Society
- University of Arkansas for Medical Sciences
- Arkansas Board of Health
- American College of Cardiology, Arkansas Chapter
- American College of Nurse-Midwives, Arkansas Affiliate

CASE REVIEW PROCESS

The process of reviewing maternal mortality is ongoing. The Maternal Mortality Review Committee collects detailed information on each selected case to create a comprehensive review and analysis (Flow Chart 1).

Case Identification

Identifying pregnancy-associated deaths is an intricate process, involving various strategies to pinpoint potential factors contributing to deaths. The AMMRC collaborates with multiple departments including, the Office of Health Information Technology (OHIT), ADH Health Statistics Branch, ADH Vital Statistics Section, ADH Hospital Discharge Data System, DHS/Division of Medical Services (Medicaid), and the Prescription Drug Monitoring Program (PDMP). Additionally, an agreement has been established with the CDC for data sharing and use of the Maternal Mortality Review Information Application (MMRIA). Arkansas female residents of reproductive age experiencing pregnancy-associated deaths are identified through one or more of the following criteria:

- Death certificate for a woman linked with a matching live birth certificate or a fetal death certificate; or
- Death certificate for a woman with a cause of death related to pregnancy, childbirth, or postpartum period; or
- Death certificate for a woman with the pregnancy checkbox indicating that the death occurred during pregnancy or within one year of pregnancy.

Case Abstraction

Information for abstraction is gathered from maternal/neonatal death certificates, neonatal birth certificates, medical records, and autopsy reports. Additional data sources include hospital and emergency department records, obituaries, police reports, social media, media and news reports, certifier confirmation, and more. Records are then abstracted by a trained abstractor who prepares de-identified case narratives for Committee review.

Meeting structure

The AMMRC reviews and makes decisions about each case based on the case narrative and abstracted data. The Committee examines the cause of death and contributing factors and determines the following:

1. Was the death pregnancy related?
2. What was the underlying cause of death?
3. Was the death preventable?

4. What were the factors that contributed to the death?
5. What are the recommendations and actions that address those contributing factors?
6. What is the anticipated impact of those actions if implemented?

Flow Chart (1): Case Review Process



AMMRC formulates findings and recommendations in accordance with CDC's MMRIA Committee Decisions Form. The Maternal Mortality Review Information Application (MMRIA, or "Maria") is a data system designed to facilitate MMRC functions through a common data language. MMRIA is based on a multi-step approach for determining the contributing factors of death. Each factor is identified according to levels of care: patient/family, provider, facility, system, and community and contributing factors may be noted at more than one level. Each factor is identified with a concise description and assigned a contributing factor class from a list of options. The committee develops one or more specific and actionable recommendations for each contributing factor identified.

KEY DEFINITIONS

The terms pregnancy-associated death and pregnancy-related death are used in maternal mortality review systems in which multidisciplinary committees perform comprehensive reviews of deaths among women during pregnancy or within a year of the end of pregnancy.

Pregnancy-associated death: the death of a woman during pregnancy or within one year of the end of pregnancy, regardless of the cause (Figure1).

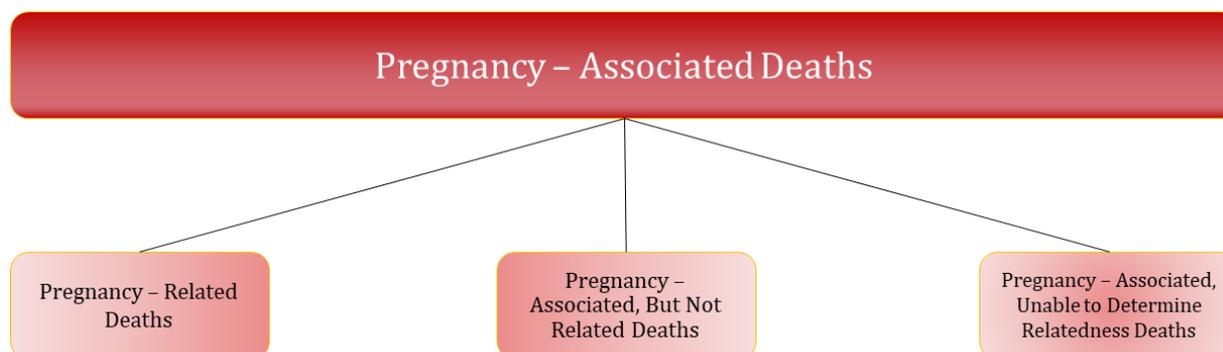
Pregnancy-related death: the death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.

Pregnancy-associated, but not related death: a death during or within one year of the end of pregnancy from a cause that is not related to pregnancy.

Pregnancy-associated mortality ratio: the number of pregnancy-associated deaths per 100,000 live births.

Pregnancy-related mortality ratio: the number of pregnancy-related deaths per 100,000 live births.

Figure (1): Pregnancy-Associated Key Definitions



FINDINGS

This section presents findings from the Committee’s review of pregnancy-associated deaths and analysis of statewide trends. These findings inform the Committee’s recommendations described later in this report.

Note: Rates based on counts less than 20 are considered unstable and should be interpreted with caution. These numbers, percentages, ratios, and rates may change considerably from one time period to the next. Data presented in this report may not be comparable to pregnancy-associated mortality data from other jurisdictions due to differing case definitions and exclusion criteria.

Overview of 2018-2020 Cases

Between 2018 and 2020, the total number of live births in Arkansas was 108,517. Based on 2018-2020 Arkansas death certificates, 121 potential pregnancy-associated deaths were identified. This number includes all deaths of women during pregnancy and within one year of the end of pregnancy from any cause (Table 1).

Fifteen deaths were found to be not pregnant at time of death or within one year of death (false positive) and six deaths were among non-Arkansas residents; these deaths were excluded from Committee Review. In total, there were 100 pregnancy-associated deaths between 2018 and 2020. The AMMRC made the decision to exclude 12 deaths due to motor vehicle accidents (MVA) and accident/trauma from full abstraction. The remaining 88 cases were fully abstracted and reviewed. Table (1) shows reasons for exclusion and the Committee’s final decisions on pregnancy relatedness.

Table (1): Overview of 2018-2020 Cases

	2018-2020
Live births*	108,517
Initial pregnancy-associated deaths identified and reviewed by staff	121
False positive and non-resident deaths	21
Pregnancy-associated deaths	100
Accident/trauma deaths (excluded from full abstraction)	12
Pregnancy-related deaths	38
Pregnancy-associated, but not related deaths	33
Pregnancy-associated, but unable to determine relatedness deaths	17

* Birth data are provisional and subject to change.

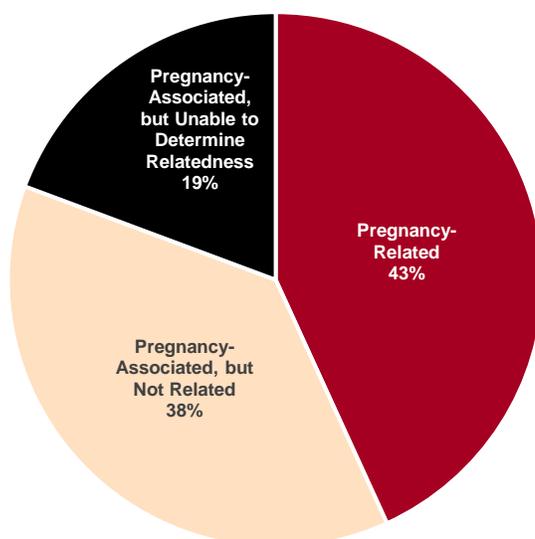
Pregnancy-Associated Deaths

Between 2018 and 2020, Arkansas had 100 pregnancy-associated deaths. This represents a pregnancy-associated mortality ratio of 92.2 deaths per 100,000 live births.

MMRIA committee decision forms were completed on 88 deaths and determined the following:

- 38 deaths (43%) were determined to be pregnancy-related.
- 33 deaths (38%) were determined to be pregnancy-associated, but not related.
- 17 deaths (19%) were determined to be pregnancy-associated, but the Committee was unable to determine relatedness.

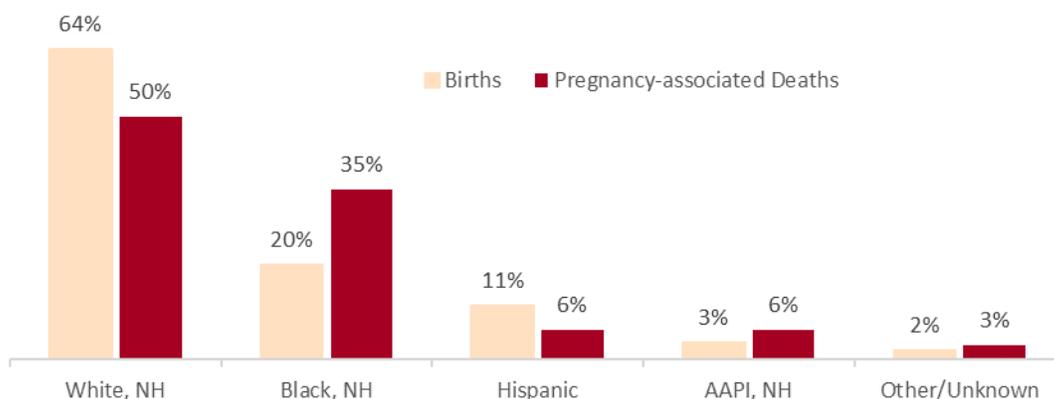
Chart (1): Breakdown of Pregnancy-Associated Deaths by Relatedness



Pregnancy-Associated Deaths by Race/ Ethnicity

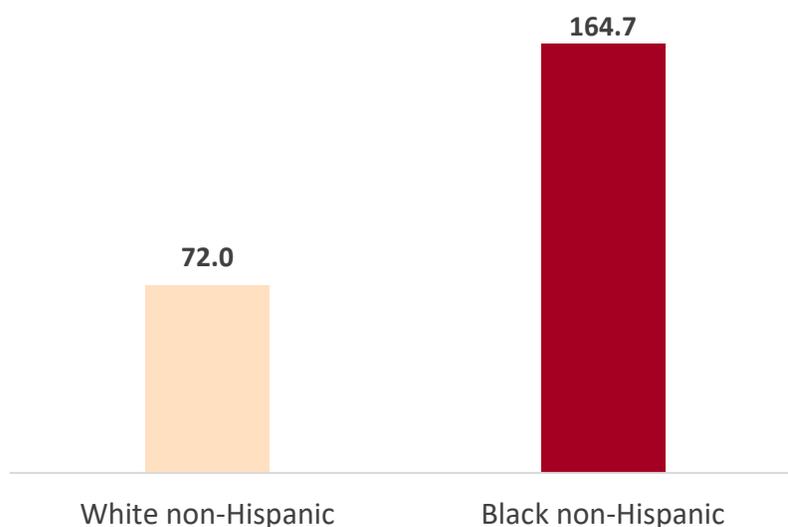
Pregnancy-associated deaths can happen to women of any race. However, some groups are disproportionately affected. Twenty percent of births are to Black non-Hispanic women; however, they represent 35% of pregnancy-associated deaths. Asian-Americans and Pacific Islander non-Hispanic mothers (AAPI) represent 6% of pregnancy-associated deaths while only representing 3% of the births in Arkansas.

Chart (2): Breakdown of Live Births and Pregnancy-Associated Deaths by Race/Ethnicity



In Arkansas, Black non-Hispanic mothers had 2.3 times the rate of pregnancy-associated deaths compared to White non-Hispanic mothers.

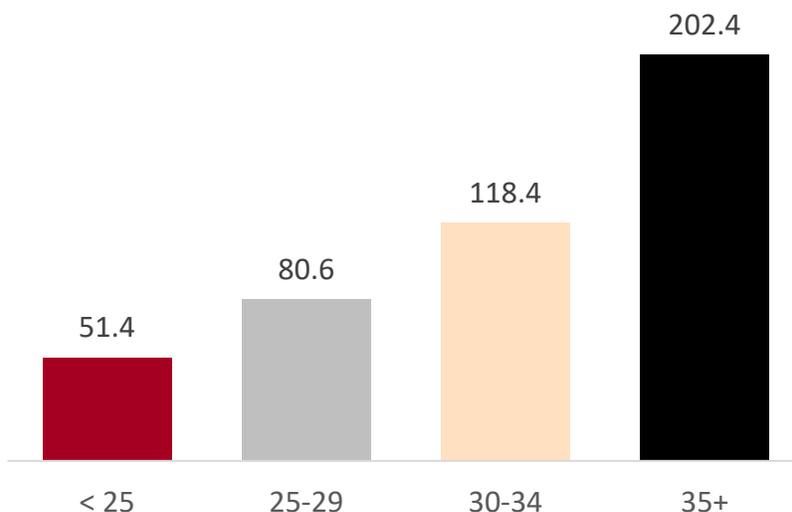
Chart (3): Pregnancy-Associated Mortality Ratio by Race/Ethnicity (per 100,000 births)



Pregnancy-Associated Deaths by Age

The risk of pregnancy-associated death increases with age. Women ages 35 and older have the highest mortality ratio, which was 3.9 times the mortality ratio of women younger than 25 years old.

Chart (4): Pregnancy-Associated Mortality Ratio by Age (per 100,000 live births)



Key Points

- Pregnancy-associated deaths occur disproportionately among Black non-Hispanic women and older women.
- Maternal mortality is influenced by a wide range of determining factors. Some of those factors are directly related to pregnancy, such as the patient's health status, health behaviors, and access to quality health care. Other factors include social determinants of health such as poverty, family and community support, and racial bias in policies, practices, and systems.

Timing of Death

The majority of pregnancy-related deaths occur during pregnancy or within 6 weeks, while the majority of pregnancy-associated, but not related deaths occur beyond 6 weeks after pregnancy.

Chart (5): Pregnancy-Relatedness by Timing of Death

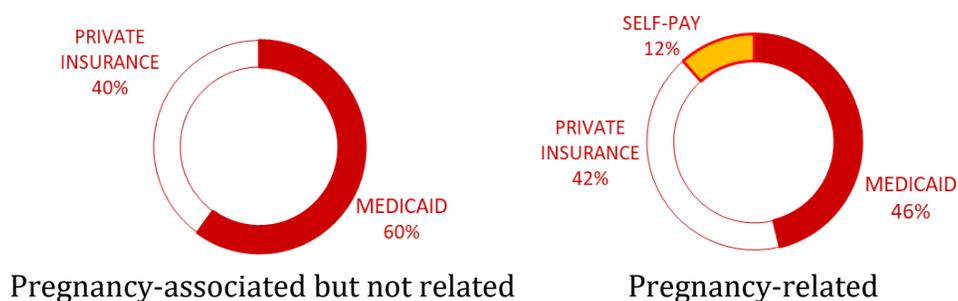


	During Pregnancy	Day of Delivery	1-6 Days Postpartum	7-42 Days Postpartum	43-365 Days Postpartum
Pregnancy-related	18.4%	18.4%	18.4%	13.2%	31.6%
Pregnancy-associated, but not related	27.3%	0%	0%	12.1%	60.6%
Pregnancy-associated, but unable to determine relatedness	12.5%	0%	6.3%	12.5%	68.8%

Source of Payment

The following chart is a breakdown of the principal source of payment for delivery of live births in pregnancy-associated deaths between 2018 and 2020.

Chart (6): Source of Payment



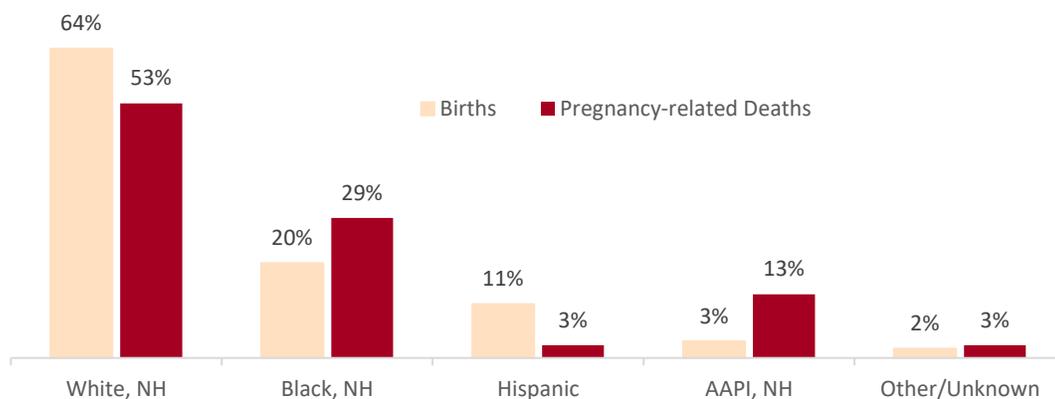
Pregnancy-Related Deaths

The majority (68%) of pregnancy-related deaths occurred during or within 42 days of pregnancy. Between 2018 and 2020, Arkansas had 38 deaths that were determined to be pregnancy-related (35.0 deaths per 100,000 live births).

Pregnancy-Related Deaths by Race/Ethnicity

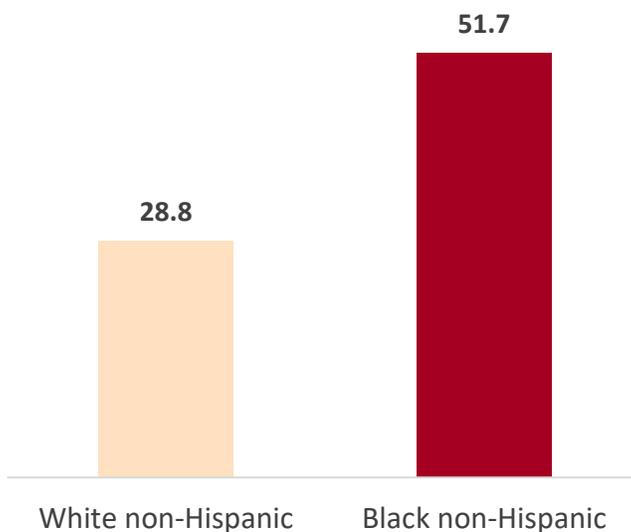
Pregnancy-related deaths can happen to women of any race. However, some groups are disproportionately affected. Twenty percent of births are to Black non-Hispanic women; however, they represent 29% of pregnancy-related deaths. Asians and other Pacific Islanders are included in the AAPI, non-Hispanic group who represent 13% of pregnancy-related deaths while only representing 3% of the births in Arkansas.

Chart (7): Breakdown of Live Births and Pregnancy-Related Deaths by Race/Ethnicity



For pregnancy-related deaths, Black non-Hispanic mothers were 1.8 times as likely to die as White non-Hispanic mothers. Other race and ethnicities (Hispanic, Asian, and Other Pacific Islanders) are affected by pregnancy-related deaths; however, they are not represented in the chart due to small numbers.

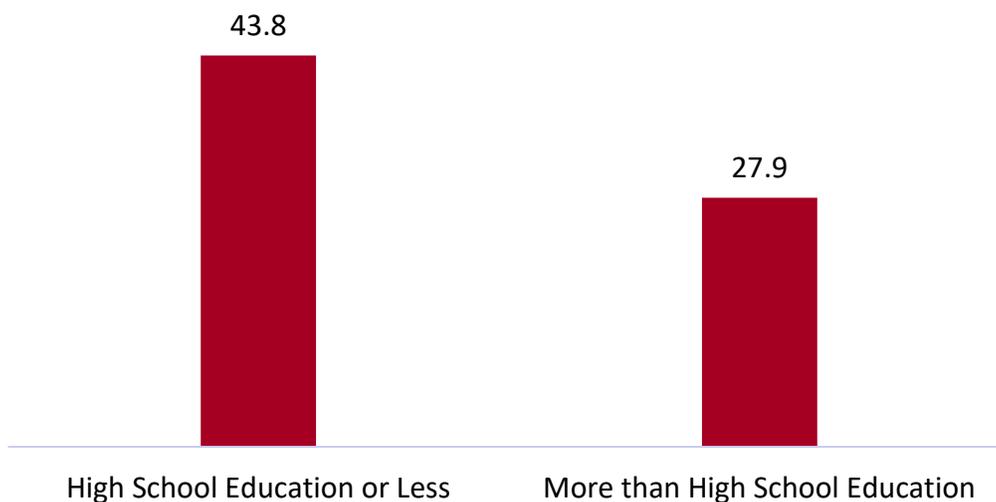
Chart (8): Pregnancy-Related Mortality Ratio by Race/Ethnicity (per 100,000 live births)



Pregnancy-Related Deaths by Education

Woman of all levels of education are affected by pregnancy-related deaths.

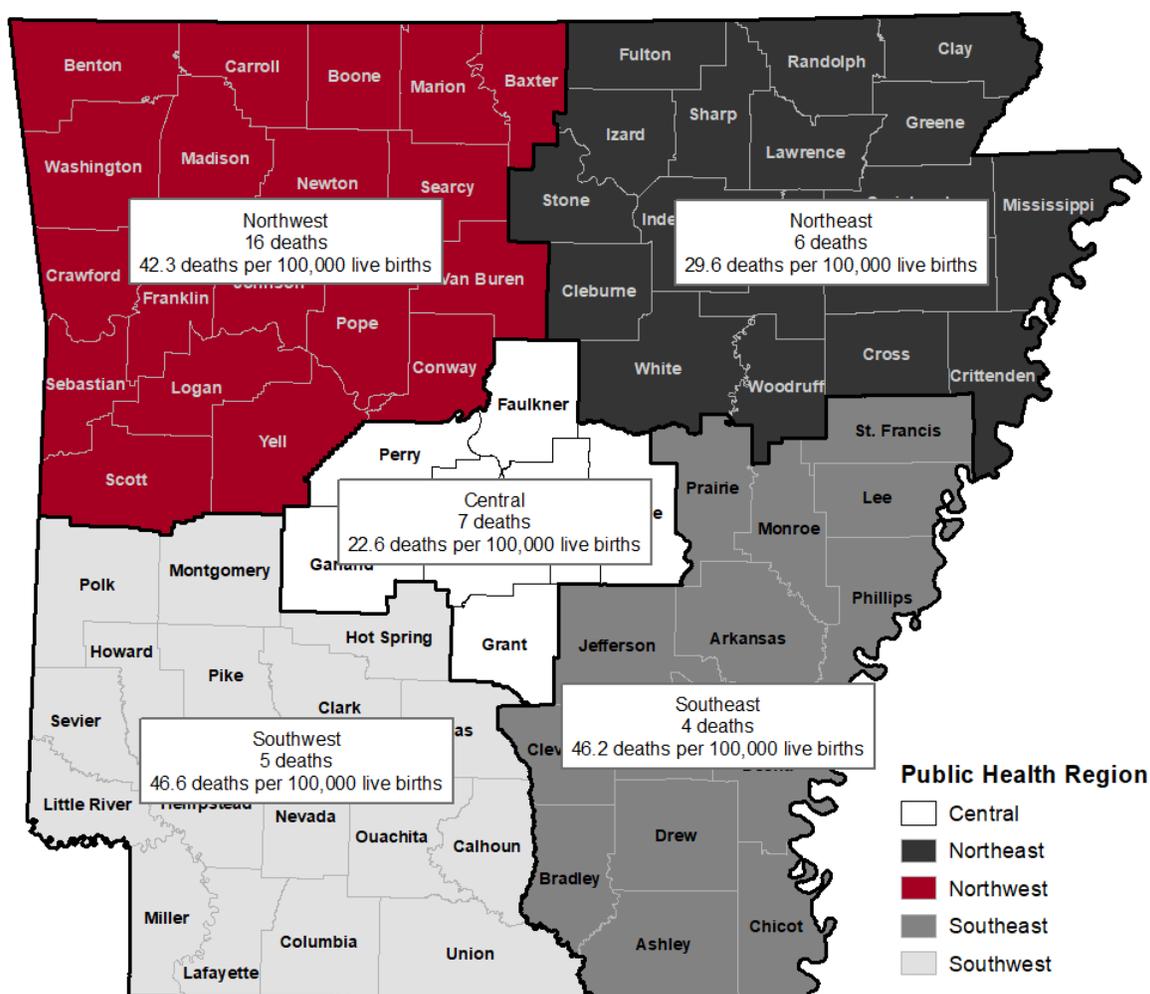
Chart (9): Pregnancy-Related Mortality Ratios by Education Level (per 100,000 live births)



Pregnancy-Related Deaths by Geographic Location

The following map represents the last known residence of the deceased, not the location of their death.

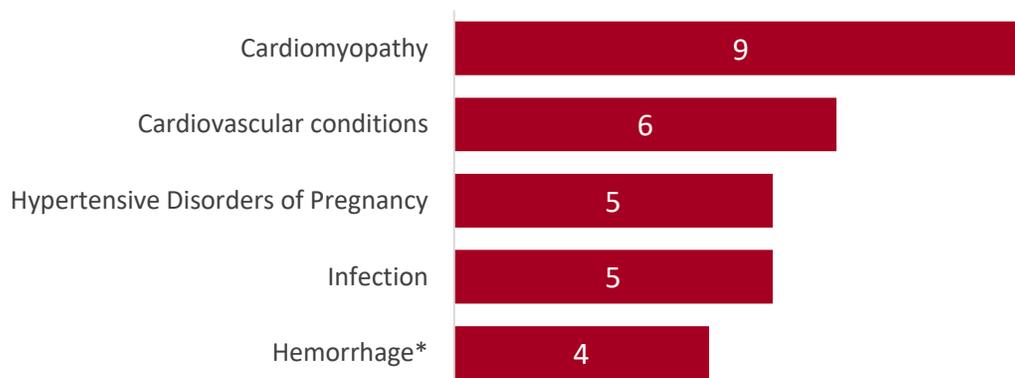
Map (1): Pregnancy-Related Deaths, ADH Public Health Regions



Pregnancy-Related Causes of Death

As determined by the Committee, the top underlying causes of pregnancy-related deaths were, cardiomyopathy, cardiovascular conditions, hypertensive disorders of pregnancy, infection, and hemorrhage.

Chart (10): Top Underlying Causes of Pregnancy-Related Deaths (number of deaths)



*Does not include Aneurysms or CVA

Factors Surrounding Death

The Committee reviewed records and determined the circumstances surrounding each pregnancy-related death, including whether obesity, mental health conditions, substance use disorder, and/or discrimination contributed to each pregnancy-related death, and whether each pregnancy-related death was a suicide or homicide.

Chart (11): Pregnancy-Related Deaths-Other Risk Factors

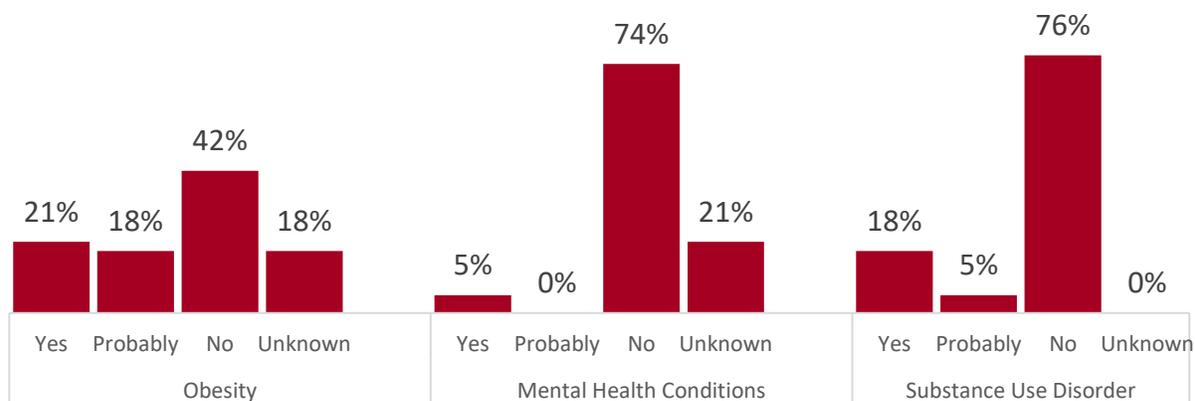
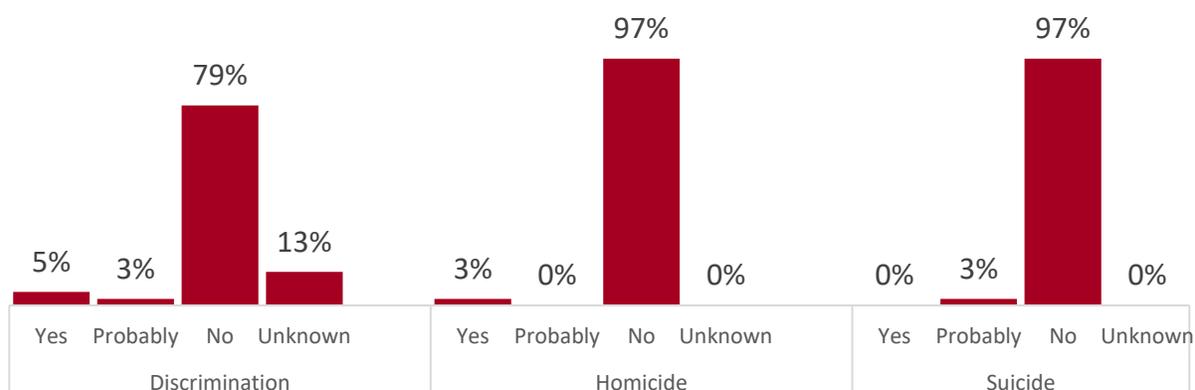


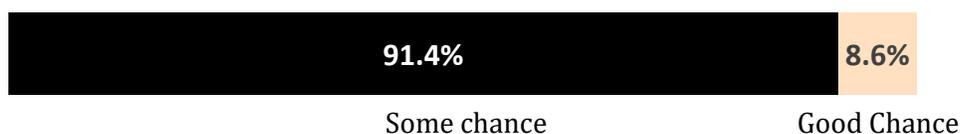
Chart (12): Pregnancy-Related Deaths-Other Risk Factors

Preventability and Chance to Alter Outcomes

The Committee reviewed all deaths and used the MMRIA Committee Decisions Form (See page 38 and Appendix 1) to determine if the death could be considered preventable and if 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.

92.1% of pregnancy-related deaths were considered preventable. Of those considered preventable, 1 in 10 had a “good chance” and 9 in 10 had “some chance” of being prevented.

Chart (13): Pregnancy-Related Deaths - Chance to Alter Outcomes of Preventable Deaths



Key Points

- Preventability assessments help prioritize future areas of intervention and action.
- Determination of preventability is based on consensus achieved by the Maternal Mortality Review Committee.
- Findings suggest that most pregnancy-related deaths are preventable. A death is considered preventable if determined that there was some chance that the death can be averted by one or more reasonable changes to all levels of intervention.

Completeness of Records for Review

According to the MMRIA committee decision form a chart is “mostly complete” if there are minor gaps (information missing but not essential to the review of the case). Reviewing and understanding death cases requires information from multiple types of records, including those from medical/health systems, law enforcement, mental or behavioral health providers and systems, and government or social service agencies. Records can be difficult to obtain for the following reasons:

- Lack of information or data sharing agreements and processes in place across and within these systems. For example, medical record sharing across health networks is often limited.
- Legal restrictions and policies that regulate what information agencies can share. For example, it is difficult to obtain records related to a death that is part of an ongoing criminal investigation.
- Reluctance to share records obtained from external agencies.
- Staff turnover, which hinders collaboration and information sharing across agencies or systems.
- Limited access to records when care is received in another state.

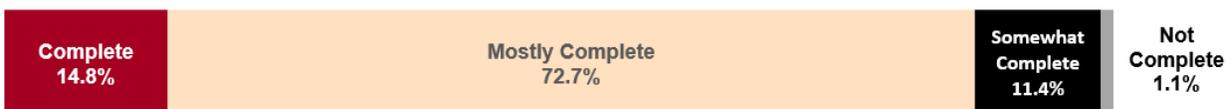
Access to complete records is critical to determine factors that contributed to death and to determine their preventability. The Committee determined that 14.8% of cases had complete records available for review.

The majority of cases, 72.7%, were considered to have all records necessary for adequate review with only minor gaps or information that would have been beneficial but not essential to the review of the case.

Another 11.4% of case records were identified as having “somewhat complete” records, meaning that information crucial to the review of the case was not available to the Committee.

A small percentage, 1.1%, of case records were determined to be not complete, meaning the committee only had the death certificate and no other information.

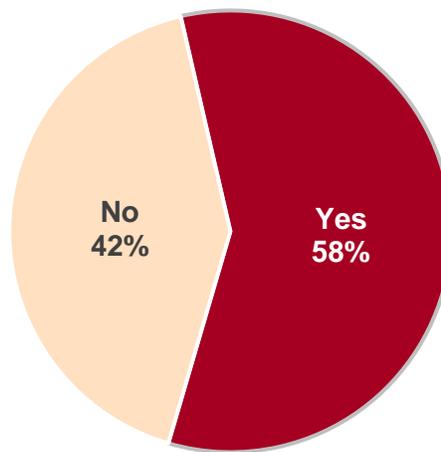
Chart (14): Completeness of Records for Review



Autopsies

- Autopsies were performed in 58% of cases.
- Autopsies consist of a thorough examination of the corpse by dissection to determine cause of death. Making autopsies mandatory would help the Committee in making future recommendations.

Chart (15): Pregnancy-Associated Deaths - Breakdown of Autopsies



RECOMMENDATIONS

The top underlying causes of pregnancy-related deaths in Arkansas include cardiomyopathy, cardiovascular conditions, hypertensive disorders during pregnancy, infections, and hemorrhage.

Cardiomyopathy is a disease of the heart muscle that makes it harder for the heart to pump blood to the rest of the body. Peripartum cardiomyopathy (PPCM) is a rare but serious condition that affects the heart of pregnant or postpartum women. PPCM was the leading pregnancy-related cause of death in Arkansas for the combined years 2018-2020.¹

The second most leading cause of pregnancy-related deaths was cardiovascular conditions. An escalating presence of significant cardiovascular risk factors such as advanced maternal age, obesity, hypertension, smoking, and diabetes mellitus is observed among pregnant individuals. Management of cardiovascular disease in pregnancy is challenging owing to the unique maternal physiology, characterized by profound changes to multiple organ systems.²

The third most significant cause was Hypertensive Disorders of Pregnancy (HDP). HDP is considered one of the most commonly occurring complications of pregnancy and include chronic hypertension, gestational hypertension, and pre-eclampsia. Some of the risk factors for HDP include extreme ages, obesity, a family history of hypertension, previous history of hypertensive disorders of pregnancy in multipara women, gestational diabetes, mental stress during pregnancy, lower socioeconomic status, and inadequate antenatal supervision. It is also crucial to monitor blood pressure regularly during pregnancy and seek medical attention if any symptoms arise.³

Infection was tied for third. Infection during pregnancy poses a common problem with potential consequences for mother and baby. Even mild infections can lead to serious illness in pregnant women.⁴

The fourth most prevalent issue in Arkansas is pregnancy-related hemorrhage, a medical condition characterized by excessive bleeding during pregnancy. This condition can result from various factors like atony, placenta previa, placental abruption, uterine rupture, and cervical incompetence.⁵

¹ Cardiomyopathy - Pregnancy and Cardiomyopathy | NHLBI, NIH. (Accessed 9/12/2023).

² Ramlakhan, K.P., Johnson, M.R. & Roos-Hesselink, J.W. Pregnancy and cardiovascular disease. *Nat Rev Cardiol* 17, 718–731 (2020). <https://doi.org/10.1038/s41569-020-0390-z>.

³ BMJ 2023; 381 doi: <https://doi.org/10.1136/bmj-2022-071653> (Published 30 June 2023) Cite this as: BMJ 2023;381:e071653.

⁴ Infections in Pregnancy | Healthline. (Accessed 9/13/2023).

⁵ healthline.com. (Accessed 9/13/2023).

Pregnancy-related Death Cases Recommendations for 2020

After analyzing the data and reviewing each case, members of the AMMRC devised the following set of recommendations designed to address patient/family, provider, facility, system, and community aspects. These different intervention levels collectively play a role in enhancing women's well-being and mitigating the rise in maternal mortality.

Recommendations for Patients and Families

- Pregnant women should adhere to the services offered during their pregnancy and postpartum.
- All women should have health optimization through healthy and nutritious diets, weight control, and adhering to age-appropriate screenings.
- Families of pregnant women should support them through understanding the signs and risks of miscarriage and ectopic pregnancy and when to seek immediate medical attention.⁶

Recommendations for Providers

- Providers should have additional education related to managing obstetric emergencies and implementation of evidence based, standardized protocols.⁷
- Providers should increase their knowledge of treatment practices and the importance of screening for chronic conditions that may be exacerbated by pregnancy (i.e., cardiovascular diseases).

A review of maternal mortality cases has identified the issues associated with clinical care, including a failure to promptly diagnose and deliver effective treatment, which are frequently the largest contributors to maternal cardiovascular deaths. That is, there is a need to increase broad knowledge of cardio-obstetrics topics within the specialty of cardiology in addition to the education of other groups of clinicians, such as those providing emergency medicine and primary care who are often the first to evaluate these women. In addition to enhancing and expanding their didactic curriculum, trainees could benefit from increased exposure to this patient population.⁸

⁶ <https://www.acog.org/womens-health/faqs/ectopic-pregnancy>. (Accessed 9/13/2023).

⁷ <https://www.acog.org/education-and-events/simulations/eco>. (Accessed 9/13/2023).

⁸ Bello NA, Agrawal A, Davis MB, Harrington CM, Lindley KJ, Minissian MB, Sharma G, Walsh MN, Park K. Need for Better and Broader Training in Cardio-Obstetrics: A National Survey of Cardiologists, Cardiovascular Team Members, and Cardiology Fellows in Training. *J Am Heart Assoc*. 2022 Apr 19;11(8):e024229. doi: 10.1161/JAHA.121.024229. Epub 2022 Apr 18. PMID: 35435011; PMCID: PMC9238459.

- Providers in all hospitals, regardless of levels of maternal care, need to be educated on screening of cardiomyopathy.
- Providers should ensure appropriate levels of care and that subspecialties are brought into the care team.
- Increase providers awareness of cardiovascular disease (CVD) in younger adults. CVD can affect anyone at any age, and it can be caused by lifestyle factors, congenital defects, infections, or genetic conditions. Women often experience slightly different warning signs. As opposed to heart pain, they may feel squeezing or tightness in the chest. Sometimes, they do not feel chest pressure at all, and instead, will feel short of breath, upper back pressure, or upper abdominal pain. Thus, early detection and treatment of CVD and its precursors, as well as healthy habits and education are important to avoid the complications of the disease.⁹
- Providers should work with clinical teams to create clear and comprehensive discharge criteria for different medical conditions. These criteria should be evidence-based and consider the patient's physical, psychological, and social needs. Leverage the electronic health record to include built in prompts and alerts that remind healthcare providers to review discharge criteria and ensure that all requirements are met before finalizing the discharge order.
- Providers should schedule a short interval follow-up for high-risk OB postpartum patients leaving the hospital.

The American College of Obstetricians and Gynecologist (ACOG) recommends that postpartum care should be an ongoing process rather than a single visit, with services and support tailored to each woman's individual needs. It suggests that all women should have contact with their obstetrician-gynecologists or other obstetric care providers within the first three weeks postpartum, followed by a comprehensive visit no later than twelve weeks after birth.¹⁰

- Providers should ensure pregnant/postpartum women with complex medical or mental health conditions are referred to the appropriate specialists and ensure a handoff to, and ongoing coordinated care with, these specialists. Timely postpartum follow-up should occur not only with an obstetric care provider, but also with appropriate medical specialists. Consider an algorithm to place a flag in the electronic health record with a referral as needed.
- Providers of all disciplines should provide preconception counseling to patients and the families of patients with chronic diseases.

⁹ Cardiac Disease in the Young (acls.net). (Accessed 9/14/2023).

¹⁰ Optimizing Postpartum Care | ACOG. (Accessed 9/14/2023).

Preconception care can improve infant and maternal health outcomes by addressing risk factors such as obesity, hypertension, diabetes, folic acid deficiency, medication use, immunizations, and mental and behavioral health.¹¹

- Providers should conduct and document comprehensive contraceptive counseling, review, and provide access to the full range of contraceptive options, including long-acting reversible contraception, while discussing effectiveness of each option, and promote reproductive justice through shared medical decision-making. Providers should educate the patient on the physiology of short interval pregnancies.¹²
- Providers should incorporate verbal screening for drug use as a routine part of each patient’s initial prenatal visit and throughout subsequent visits during pregnancy and postpartum. If the patient screens positive for drug use, providers should offer brief intervention and then referral to treatment programs or other appropriate resources.
- Providers should have increased education on GAS (Group A Streptococci) and Septic bundles.¹³
- Providers should consider transfusions prior to discharge in the indicated high-risk population that may not return for follow up.

Recommendations for Facilities

- Facilities should administer a pregnancy test on all women of childbearing age at each appointment. For example, radiology should ensure a pregnancy test has been completed prior to radiation exposure.
- Facilities should train all team members on urgent maternal warning signs with a clear chain of command for escalating concerns. Treatment algorithms for the management of high-risk postpartum patient should be included in hospital training and protocols. Algorithm within the electronic health record should trigger a consultation and other ways to escalate care.
- Facilities should designate a provider or provider team to complete peripartum cesarean delivery as part of maternal CPR in emergency department.
- Facilities should have a policy that aligns with current evidence-based best practices for the resuscitation of pregnant women, including Advanced Cardiovascular Life Support (ACLS), management of suspected pulmonary embolism, and transfusion protocols, and should ensure that emergency department staff are knowledgeable of this policy.

¹¹ <https://www.aafp.org/about/policies/all/preconception-care.html>. (Accessed 9/14/2023).

¹² <https://pubmed.ncbi.nlm.nih.gov/22161468>. (Accessed 9/14/2023).

¹³ Sepsis in Obstetric Care | AIM (saferbirth.org). (Accessed 9/14/2023).

- Birthing facilities should standardize practices and procedures through the utilization of safety bundles and increase education regarding the identification of early maternal warning signs for complications and unusual circumstances.
- OB clinics should have protocols in place to recognize and evaluate symptoms of preeclampsia.
- Facilities should have standardized institutional protocols for intubation specific to induction agents. (Options are etomidate, very low dose Propofol, or midazolam only).
- Facilities should develop and implement improved procedures related to communication and coordination between providers, family, patient, and caregivers, such as universal electronic health records. Recommend shared decision making through provider care to encourage listening to the concerns of mother and their families/support members.
- Facilities should have a post event evaluation with all providers. (Examples include huddle and/or Morbidity and Mortality review after a maternal death). Facilities need to add discrimination topics to the morbidity and mortality review process.
- Facilities should conduct trainings annually to combat stereotypes which negatively affect the care a patient may receive.

Recommendations for systems

- Systems should increase access to comprehensive health services during pregnancy, the year after pregnancy, and throughout the preconception and interpregnancy periods to facilitate continuity of care, implement effective care transitions, promote safe birth spacing and improve lifelong health of women.

According to data from the Behavioral Risk Factor Surveillance System and a difference-in-difference analysis to compare women in states that expanded Medicaid eligibility under the Affordable Care Act with those in states that did not. The analysis found that Medicaid expansion was associated with increased healthcare coverage and utilization, better self-rated health, and decreases in avoidance of care because of cost, heavy drinking, and binge drinking.¹⁴

- Stakeholders should provide statewide education to increase patient awareness of early warning signs of cardiac disease.¹⁵

¹⁴ Claire E. Margerison, Colleen L. MacCallum, Jiajia Chen, Yasamean Zamani-Hank, Robert Kaestner, Impacts of Medicaid Expansion on Health Among Women of Reproductive Age, *American Journal of Preventive Medicine*, Volume 58, Issue 1, 2020, Pages 1-11, ISSN 0749-3797, <https://doi.org/10.1016/j.amepre.2019.08.019>.

¹⁵ <https://www.cdc.gov/heartdisease/women.htm>. (Accessed 9/14/2023).

- Perinatal Quality Collaboratives (PQC) should release a statement encouraging providers to consider a baseline echocardiogram on high risks patients when they present for care. Patients with pre-existing cardiovascular conditions, high blood pressure, diabetes, advanced maternal age, or prior complications can be at risk for potential complications and a baseline echocardiogram may be beneficial.¹⁶ Findings of MMRC should be sent out to providers in the state with recommendations.
- Systems should have case management programs for in home assistance in the postpartum period.
- Systems should educate providers in non-OB settings to recognize a high-risk pregnancy and transfer to appropriate level of care in a timely manner.
- The AMMRC recommends extending Arkansas Medicaid maternal coverage from 60 days to one year postpartum. Postpartum care should be provided to mothers through one year postpartum to monitor the mother’s physical and mental health, provide support during the transition, and ensure access to treatment. This includes extending insurance coverage to ensure access to care and changing care protocols to include regular postpartum visits beyond the current single visit at six weeks postpartum.¹⁷

This lack of attention to maternal health needs is of particular concern given that more than one half of pregnancy-related deaths occur after the birth of the infant. Given the urgent need to reduce severe maternal morbidity and mortality, ACOG Opinion has been revised to reinforce the importance of the “fourth trimester” and to propose a new paradigm for postpartum care.¹⁸

- Systems should include a trained social worker to accompany the police when they respond to wellness checks (crisis intervention). This can reduce the stress on the patient and provide them with more support. The social worker can also assist with finding appropriate care.¹⁹
- Systems should explore a check box alert and referral mechanism to electronic health record for substance use and mental health during pregnancy.
- Systems should offer social support to the mother after an infant is removed from the home due to substance use.

¹⁶<https://my.clevelandclinic.org/health/diseases/17068-heart-disease--pregnancy>. (Accessed 9/14/2023).

¹⁷ <https://WWW.quorum.us/dashboard/external/mMUjraYQokgFzmtllTLA>). (Accessed 9/14/2023).

¹⁸<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/05/optimizing-postpartum-care>. (Accessed 9/14/2023).

¹⁹ https://cops.usdoj.gov/html/dispatch/08-2021/police_social_workers.html. (Accessed 9/14/2023).

- Systems should offer providers education on addiction and resources for substance use and mental health treatment.
- Systems should increase the use of safety bundles.
- Recommend an opt out strategy for autopsy for all maternal related deaths. Provide funding where it is a barrier. Creating a widely recognized, adequately funded, well publicized, easily navigated pathway for coroners, providers, district attorneys, and families to maternal autopsy services is essential. Effectively promulgating such a pathway to stakeholders is of paramount importance. Providers, coroners, district attorneys, and other stakeholders need education and direction regarding the importance of and availability of autopsies.
- AMMRC should add postmortem interview with family members to gain more insight into pregnancy-associated deaths.

Recommendations for the Community:

- Community health workers should receive training in motivational interviewing techniques. This will equip them with the skills to engage patients in a non-confrontational, empathetic manner and help patients identify their own motivations for change related to weight. Four guiding principles, represented by the acronym RULE. Resist the righting reflex, understand the patient's own motivations, listen with empathy, and empower the patient.²⁰
- Communities-comprehensive education should be initiated in early childhood and should be provided continuously throughout a person's life.²¹
- Communities should target outreach related to pregnancy and preconception education to the Marshallese population, mobile capacity education and community health/case workers to serve as liaisons.
- Arkansas should increase public awareness and community engagement to foster a culture of maternal health, safety, and disease prevention. Include social work follow up for women having experienced a pregnancy loss. Partner with Marshallese community programs that are already established.
- Arkansas should release a public awareness campaign on Intimate Partner Violence.

²⁰ Hall K, Gibbie T, Lubman DI. Motivational interviewing techniques - facilitating behaviour change in the general practice setting. *Aust Fam Physician*. 2012 Sep;41(9):660-7. PMID: 22962639.

²¹<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2016/11/comprehensive-sexuality-education>. (Accessed 9/14/2023).

Pregnancy-Associated but not Related Cases Recommendations for 2020

Data from 2018-2020 cases revealed that substance use, and intimate partner violence (IPV) are major causes of pregnancy-associated deaths in Arkansas.

The use of alcohol, illicit substances, and prescription drugs, resulting in harm to communities, and presents a significant challenge for our nation. This problem carries substantial financial consequences, with national annual costs exceeding \$420 billion and healthcare expenditures surpassing \$120 billion.²²

However, these issues extend beyond their financial toll, wreaking havoc on our education, social structures, and healthcare systems. They pose a serious threat to our lives, particularly the lives of our children, due to alcohol and drug-related traffic accidents, drug-related violence, and medication overdoses.²³

Another significant issue in terms of public health in Arkansas is intimate partner violence. IPV, also referred to as domestic violence, is any action taken by a current or former intimate partner that harms the victim physically, sexually, or psychologically. This includes any coercive or controlling actions. IPV can happen to any adult, but women are more likely to encounter serious kinds of violence. In the US, more than one in three women are thought to have encountered IPV at some point in their lives.²⁴

As a result, the AMMRC members have put forth the following recommendations, aimed at addressing the significance of pregnancy-associated deaths on patient/family, provider, facility, system, and community levels of intervention.

Recommendations for Patients and Families:

- Patients and families of known substance users should always have Narcan (naloxone) available.
- Patients and families should support healthy behaviors such as daily exercise, smoking cessation, healthy eating habits, and age-appropriate screenings.

²² Substance Misuse and Substance use Disorders: Why do they Matter in Healthcare? - PMC (nih.gov). (Accessed 9/14/2023).

²³ Substance Misuse and Substance use Disorders: Why do they Matter in Healthcare? - PMC (nih.gov). (Accessed 9/14/2023).

²⁴ Intimate Partner Violence Recognizing and Responding Safely Harriet L. MacMillan, CM, MD, MSc^{1,2}; Melissa Kimber, PhD, MSW, RSW¹; Donna E. Stewart, CM, MD³ Author Affiliations JAMA. 2020;324(12):1201-1202. doi:10.1001/jama.2020.11322

Recommendations for Providers:

- Providers should screen for intimate partner violence at all prenatal and postpartum visits.
- Providers should educate families about the importance of autopsy.
- Providers should be educated on how persons with substance use disorders present clinically and how to respond appropriately.
- Providers, coroners, district attorneys and other stakeholders need education and direction regarding the importance of and availability of autopsies.
- Increase provider education related to opioid prescribing to pregnant patients. Also prescribe Narcan (naloxone) whenever prescribing opioids.
- Providers should have a list of local resources related to substance use treatment facilities.

Recommendations for Facilities:

- Facilities should implement guidelines for assessing the needs of pregnant and postpartum women with complex medical or social issues. Hospitals should employ a social worker or case manager who can conduct and document a psychosocial needs assessment that includes social determinants of health prior to delivery hospital discharge to identify potential barriers to care and to connect women to resources and postpartum case management. Hospitals should educate providers on the necessity of a timely social work assessment for ensuring women's access to health care services.
- Facility should have case management involved with all substance use cases.
- Facilities should be screening for substance use/alcohol use at first visit and each additional visit.
- Facilities should use ACEs (adverse childhood experience screening) which would trigger referrals as needed.²⁵

Recommendations for Systems:

- Policymakers should increase state funding to allow for universal home visiting for all deliveries.

²⁵ ACE ToolKit | National Toxic Substance Incidents Program | ATSDR (cdc.gov). (Accessed 9/14/2023).

- Arkansas should launch public service announcements (PSA) on Narcan (naloxone) availability.
- Arkansas should launch PSA to educate the public, providers, and family about fentanyl contamination.
- Policymakers should increase state funding to train additional community health workers to promote education and healthy behaviors.
- Stakeholders should provide a statewide education campaign to make facilities and providers aware of the 24-hour psychiatric consultation line that is available up to 1-year post-partum.
- Systems should educate the public and healthcare providers about how individuals with substance use disorders (SUD) may present. This is crucial for early intervention, reducing stigma, and improving access to treatment.
- State and local governments should develop public messaging campaigns to educate individuals with substance use and their social networks around how to access resources.
- Systems need safety bundles related to sex trafficking or help with identifying these patients and how to help them. Systems should implement national human traffic training to help identify risk factors.²⁶
- Recommend an opt out strategy for autopsy for all maternal related deaths. Provide funding where it is a barrier. Creating a widely recognized, adequately funded, well publicized, easily navigated pathway for coroners, providers, district attorneys, and families to maternal autopsy services is essential. Effectively promulgating such a pathway to stakeholders is of paramount importance.

Recommendations for Communities:

- Communities should develop and implement a comprehensive campaign to effectively address intimate partner violence, promote awareness, and provide support and resources to those in need. These resources include an intimate partner violence hotline phone number²⁷ that could be placed in public restrooms.²⁸
- Community health workers need to educate patients related to obesity using motivational interviewing and educate providers about using motivational interviewing. Four guiding principles, represented by the acronym RULE. Resist the

²⁶ <https://www.acf.hhs.gov/otip/training/soar-health-and-wellness-training>. (Accessed 9/14/2023).

²⁷ Domestic Violence Support | National Domestic Violence Hotline (thehotline.org). (Accessed 9/14/2023).

²⁸ Strategies To Prevent Domestic Violence: Raising Awareness and Stopping Violence Before It Begins - Gray's Trauma-Informed Care Services Corp (gettraumainformed.com). (Accessed 9/14/2023).

righting reflex, Understand the patient's own motivations, listen with empathy, empower the patient.

- Community should advocate for all children to learn about healthy relationships and pubertal development.
- Communities should foster the establishment of a comprehensive support system. This system should prioritize the effective promotion of available resources, maintain consistent accessibility to social services for guidance through the legal system when needed, and institute a proactive mechanism for identifying at-risk mothers and those in need of support. Such measures will empower and protect vulnerable individuals, fostering a safer and more supportive community.
- Communities should provide resources to the fathers or significant others for support after the death of the mother.
- Community health workers or county health officers need to educate patients related to the importance of prenatal care.
- Communities should have public service announcements to educate patients and families regarding the use of Narcan (naloxone) for opioid overdose and get prescription or education that it is available without a prescription. Communities should use substance use disorder harm reduction.
- Community groups should educate the public about the availability of Narcan (naloxone) through harm reduction (examples: Central Arkansas harm reduction, NWA harm reduction).

ACCOMPLISHMENTS FOR THE YEAR

On going efforts have been made to reach stakeholders, patients, community organizations, community members, and health care workers to raise awareness about maternal health and mortality in Arkansas. Hear Her campaign supports CDC efforts that are geared toward prevention of pregnancy-related deaths by sharing potentially life-saving messages about urgent warning signs. CDC's Hear Her Campaign seeks to raise awareness of urgent maternal warning signs during and after pregnancy and improve communication between patients and their healthcare providers. The campaign offers multiple free, downloadable, sharable resources for both the patients and providers and is available to print or order in multiple languages.

- Staff from Northwest Arkansas local public health units identified that urgent warning signs were not available in a language for the Marshallese people. The CDC was notified and has since added Marshallese translation to the materials.
- The AMMRC has cobranding HEAR HER materials with CDC and ADH, and have future plans to launch a statewide media campaign to educate the public about the urgent maternal warning signs.

Numerous community outreach presentations addressing the Maternal Mortality in Arkansas were delivered by the Medical Director of the Family Health Branch on behalf of the AMMRC. These presentations took place at various significant forums including UAMS OB/GYN grand rounds, the Arkansas Board of Health, Arkansas Advocates for Children and Families, St. Mark's Church, the Rural Health Association, UAMS College of Public Health, an interview featured in the Spring edition of the Arkansas Hospital Association magazine, ADH Grand Rounds, and the CDC Clinician Outreach and Communication Activity (Appendix 3).

Arkansas introduced Act 581 with the aim of ensuring that healthcare providers receive reimbursement from the Arkansas Medicaid program for offering Long-Acting Reversible Contraception both immediately and during the postpartum period.

Arkansas enacted Act 553 to make changes to the legislation pertaining to postmortem examinations. This act mandates that the state medical examiner conducts a postmortem examination in specific situations. These situations encompass the death of a pregnant woman or a woman who was pregnant within 365 days of her demise, provided that the death is potentially linked to pregnancy-related care or physiological factors or the maintenance of the pregnancy. However, this requirement does not apply if the death resulted from a medical condition or injury unrelated to the pregnancy.

Arkansas enacted Act 67 of 2023, which provided the Prescription Drug Monitoring Program in Arkansas has a new MOA with the AMMRC allowing the nurse abstractor access to PDMP records. This will be another path to obtain medical records.

APPENDIX 1: COMMITTEE DECISION FORM

MATERNAL MORTALITY REVIEW COMMITTEE DECISIONS FORM v22 1																				
REVIEW DATE _____ <small>Month/Day/Year</small>	RECORD ID # _____	COMMITTEE DETERMINATION OF CAUSE(S) OF DEATH <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING* CAUSE OF DEATH <small>Refer to page 3 for PIMSS-MM cause of death list.</small> </div>																		
PREGNANCY-RELATEDNESS: SELECT ONE <input type="checkbox"/> PREGNANCY-RELATED <small>A death during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy</small> <input type="checkbox"/> PREGNANCY-ASSOCIATED, BUT NOT-RELATED <small>A death during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy</small> <input type="checkbox"/> PREGNANCY-ASSOCIATED BUT UNABLE TO DETERMINE PREGNANCY-RELATEDNESS		TYPE UNDERLYING* CONTRIBUTING IMMEDIATE OTHER SIGNIFICANT																		
ESTIMATE THE DEGREE OF RELEVANT INFORMATION (RECORDS) AVAILABLE FOR THIS CASE: <input type="checkbox"/> COMPLETE <small>All records necessary for adequate review of the case were available</small> <input type="checkbox"/> MOSTLY COMPLETE <small>Minor gaps (i.e., information that would have been beneficial but was not essential to the review of the case)</small> <input type="checkbox"/> SOMEWHAT COMPLETE <small>Major gaps (i.e., information that would have been crucial to the review of the case)</small> <input type="checkbox"/> NOT COMPLETE <small>Minimal records available for review (i.e., death certificate and no additional records)</small>		OPTIONAL: CAUSE (DESCRIPTIVE) _____ _____ _____																		
COMMITTEE DETERMINATIONS ON CIRCUMSTANCES SURROUNDING DEATH DID OBESITY CONTRIBUTE TO THE DEATH? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN DID DISCRIMINATION** CONTRIBUTE TO THE DEATH? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN DID MENTAL HEALTH CONDITIONS OTHER THAN SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN DID SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN																				
MANNER OF DEATH WAS THIS DEATH A SUICIDE? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN WAS THIS DEATH A HOMICIDE? <input type="checkbox"/> YES <input type="checkbox"/> PROBABLY <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN																				
IF ACCIDENTAL DEATH, HOMICIDE, OR SUICIDE, LIST THE MEANS OF FATAL INJURY <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"><input type="checkbox"/> FIREARM</td> <td style="width: 33%;"><input type="checkbox"/> FALL</td> <td style="width: 33%;"><input type="checkbox"/> INTENTIONAL</td> </tr> <tr> <td><input type="checkbox"/> SHARP INSTRUMENT</td> <td><input type="checkbox"/> PUNCHING/ KICKING/BEATING</td> <td><input type="checkbox"/> NEGLIGENCE</td> </tr> <tr> <td><input type="checkbox"/> BLUNT INSTRUMENT</td> <td><input type="checkbox"/> EXPLOSIVE</td> <td><input type="checkbox"/> OTHER, SPECIFY: _____</td> </tr> <tr> <td><input type="checkbox"/> POISONING/ OVERDOSE</td> <td><input type="checkbox"/> DROWNING</td> <td></td> </tr> <tr> <td><input type="checkbox"/> HANGING/ STRANGULATION/ SUFFOCATION</td> <td><input type="checkbox"/> FIRE OR BURNS</td> <td><input type="checkbox"/> UNKNOWN</td> </tr> <tr> <td></td> <td><input type="checkbox"/> MOTOR VEHICLE</td> <td><input type="checkbox"/> NOT APPLICABLE</td> </tr> </table>			<input type="checkbox"/> FIREARM	<input type="checkbox"/> FALL	<input type="checkbox"/> INTENTIONAL	<input type="checkbox"/> SHARP INSTRUMENT	<input type="checkbox"/> PUNCHING/ KICKING/BEATING	<input type="checkbox"/> NEGLIGENCE	<input type="checkbox"/> BLUNT INSTRUMENT	<input type="checkbox"/> EXPLOSIVE	<input type="checkbox"/> OTHER, SPECIFY: _____	<input type="checkbox"/> POISONING/ OVERDOSE	<input type="checkbox"/> DROWNING		<input type="checkbox"/> HANGING/ STRANGULATION/ SUFFOCATION	<input type="checkbox"/> FIRE OR BURNS	<input type="checkbox"/> UNKNOWN		<input type="checkbox"/> MOTOR VEHICLE	<input type="checkbox"/> NOT APPLICABLE
<input type="checkbox"/> FIREARM	<input type="checkbox"/> FALL	<input type="checkbox"/> INTENTIONAL																		
<input type="checkbox"/> SHARP INSTRUMENT	<input type="checkbox"/> PUNCHING/ KICKING/BEATING	<input type="checkbox"/> NEGLIGENCE																		
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<input type="checkbox"/> HANGING/ STRANGULATION/ SUFFOCATION	<input type="checkbox"/> FIRE OR BURNS	<input type="checkbox"/> UNKNOWN																		
	<input type="checkbox"/> MOTOR VEHICLE	<input type="checkbox"/> NOT APPLICABLE																		
IF HOMICIDE, WHAT WAS THE RELATIONSHIP OF THE PERPETRATOR TO THE DECEDENT? <input type="checkbox"/> NO RELATIONSHIP <input type="checkbox"/> OTHER <input type="checkbox"/> PARTNER <input type="checkbox"/> ACQUAINTANCE <input type="checkbox"/> EX-PARTNER <input type="checkbox"/> OTHER, SPECIFY: _____ <input type="checkbox"/> OTHER RELATIVE																				
DOES THE COMMITTEE AGREE WITH THE UNDERLYING* CAUSE OF DEATH LISTED ON DEATH CERTIFICATE? <input type="checkbox"/> YES <input type="checkbox"/> NO																				

*Underlying cause refers to the disease or injury that initiated the chain of events leading to death or the circumstances of the accident or violence which produced the fatal injury.
 **Encompasses Discrimination, Interpersonal Racism, and Structural Racism as described on page 4.

APPENDIX 2: ACT 829 OF 2019

Stricken language would be deleted from and underlined language would be added to present law.
Act 829 of the Regular Session

1 State of Arkansas *As Engrossed: H2/18/19 H2/20/19*
2 92nd General Assembly **A Bill**
3 Regular Session, 2019 **HOUSE BILL 1440**
4

5 By: Representatives D. Ferguson, Bentley, Barker, Brown, Burch, Capp, Cavanaugh, Clowney, Crawford,
6 Dalby, C. Fite, V. Flowers, D. Garner, Godfrey, M. Gray, Lundstrum, McCullough, Petty, Rushing, Scott,
7 Speaks, Vaught, Della Rosa, *Eaves*
8 By: Senators Irvin, Bledsoe, J. English, Elliott, L. Chesterfield
9

For An Act To Be Entitled

10 **AN ACT TO ESTABLISH THE MATERNAL MORTALITY REVIEW**
11 **COMMITTEE; AND FOR OTHER PURPOSES.**
12
13

Subtitle

14 **TO ESTABLISH THE MATERNAL MORTALITY**
15 **REVIEW COMMITTEE.**
16
17

18
19
20 BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:
21

22 SECTION 1. DO NOT CODIFY. Legislative findings and intent.

23 (a) The General Assembly finds that:

24 (1) Arkansas ranks forty-fourth in maternal mortality compared
25 with other states according to the 2018 United Health Foundation report on
26 the Health of Women and Children;

27 (2) Arkansas currently has thirty-five (35) maternal deaths per
28 one hundred thousand (100,000) live births, compared with the national
29 average of twenty (20) deaths per one hundred thousand (100,000) live births,
30 according to the Centers for Disease Control and Prevention;

31 (3) Thirty-five (35) states in the nation either conduct or are
32 preparing to conduct organized maternal mortality reviews that help prevent
33 maternal death through data collection, data analysis, and implementation of
34 recommendations; and

35 (4) With roughly half of pregnancy-related deaths being
36 preventable, state maternal mortality review committees are vital to



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1 understanding why women are dying during pregnancy, childbirth, and the year
2 postpartum, and to achieving goals of improving maternal health and
3 preventing future deaths.

4 (b) It is the intent of the General Assembly to establish a maternal
5 mortality review committee in the State of Arkansas and to decrease the
6 amount of maternal deaths in the state.

7
8 SECTION 2. Arkansas Code Title 20, Chapter 15, is amended to add an
9 additional subchapter to read as follows:

10 Subchapter 23 – Maternal Mortality Review Committee

11
12 20-15-2301. Maternal Mortality Review Committee.

13 (a)(1) The Department of Health shall establish the Maternal Mortality
14 Review Committee to review maternal deaths and to develop strategies for the
15 prevention of maternal deaths.

16 (2) The committee shall be multidisciplinary and composed of
17 members as deemed appropriate by the department.

18 (b) The department may contract with an external organization to
19 assist in collecting, analyzing, and disseminating maternal mortality
20 information, organizing and convening meetings of the committee, and other
21 tasks as may be incident to these activities, including providing the
22 necessary data, information, and resources to ensure successful completion of
23 the ongoing review required by this section.

24
25 20-15-2302. Powers and duties.

26 The Maternal Mortality Review Committee shall:

27 (1) Review pregnancy-associated deaths or deaths of women with
28 indication of pregnancy up to three hundred sixty-five (365) days after the
29 end of pregnancy, regardless of cause, to identify the factors contributing
30 to these deaths;

31 (2) Identify maternal death cases;

32 (3) Review medical records and other relevant data;

33 (4) Contact family members and other affected or involved
34 persons to collect additional relevant data;

35 (5) Consult with relevant experts to evaluate the records and
36 data;

1 (6) Make determinations regarding the preventability of maternal
2 deaths;

3 (7) Develop recommendations for the prevention of maternal
4 deaths, including public health and clinical interventions that may reduce
5 these deaths and improve systems of care; and

6 (8) Disseminate findings and recommendations to policy makers,
7 healthcare providers, healthcare facilities, and the general public.

8

9 20-15-2303. Access to records.

10 (a) Healthcare providers, healthcare facilities, and pharmacies shall
11 provide reasonable access to the Maternal Mortality Review Committee to all
12 relevant medical records associated with a case under review by the
13 committee.

14 (b) A healthcare provider, healthcare facility, or pharmacy providing
15 access to medical records as described by subdivision (a) of this section is
16 not liable for civil damages or subject to any criminal or disciplinary
17 action for good faith efforts in providing such records.

18

19 20-15-2304. Confidentiality.

20 (a)(1) Information, records, reports, statements, notes, memoranda, or
21 other data collected under this subchapter are not admissible as evidence in
22 any action of any kind in any court or before any other tribunal, board,
23 agency, or person.

24 (2) Information, records, reports, statements, notes, memoranda,
25 or other data collected under this subchapter shall not be exhibited or
26 disclosed in any way, in whole or in part, by any officer or representative
27 of the Department of Health or any other person, except as necessary for the
28 purpose of furthering the review of the Maternal Mortality Review Committee
29 of the case to which they relate.

30 (3) A person participating in a review shall not disclose, in
31 any manner, the information so obtained except in strict conformity with such
32 review project.

33 (b) All information, records of interviews, written reports,
34 statements, notes, memoranda, or other data obtained by the department, the
35 committee, and other persons, agencies, or organizations so authorized by the
36 department under this subchapter are confidential.

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1 (c)(1) All proceedings and activities of the committee under this
2 subchapter, opinions of members of the committee formed as a result of such
3 proceedings and activities, and records obtained, created, or maintained
4 pursuant to this subchapter, including records of interviews, written
5 reports, and statements procured by the department or any other person,
6 agency, or organization acting jointly or under contract with the department
7 in connection with the requirements of this subchapter, are confidential and
8 are not subject to the Freedom of Information Act of 1967, §§ 25-19-101 et
9 seq., relating to open meetings, subject to subpoena, discovery, or
10 introduction into evidence in any civil or criminal proceeding.

11 (2) However, this subchapter does not limit or restrict the
12 right to discover or use in any civil or criminal proceeding anything that is
13 available from another source and entirely independent of the committee's
14 proceedings.

15 (d)(1) Members of the committee shall not be questioned in any civil
16 or criminal proceeding regarding the information presented in or opinions
17 formed as a result of a meeting or communication of the committee.

18 (2) This subchapter does not prevent a member of the committee
19 from testifying to information obtained independently of the committee or
20 which is public information.

21
22 20-15-2305. Disclosure.

23 Disclosure of protected health information is allowed for public
24 health, safety, and law enforcement purposes, and providing case information
25 on maternal deaths for review by the Maternal Mortality Review Committee is
26 not a violation of the Health Insurance Portability and Accountability Act of
27 1996.

28
29 20-15-2306. Immunity from liability.

30 State, local, or regional committee members are immune from civil and
31 criminal liability in connection with their good-faith participation in the
32 maternal death review and all activities related to a review with the
33 Maternal Mortality Review Committee.

34
35 20-15-2307. Reporting.

36 (a) Beginning in 2020, the Maternal Mortality Review Committee shall

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1 file a written report on the number and causes of maternal deaths and its
2 recommendations on or before December 31 of each year to:
3 (1) The Senate Committee on Public Health, Welfare, and Labor;
4 (2) The House Committee on Public Health, Welfare, and Labor;
5 and
6 (3) The Legislative Council.
7 (b) The report shall include:
8 (1) The findings and recommendations of the committee; and
9 (2) An analysis of factual information obtained from the review
10 of the maternal death investigation reports and any local or regional review
11 panels that do not violate the confidentiality provisions under this
12 subchapter.
13 (c) The report shall include only aggregate data and shall not
14 identify a particular facility or provider.

15
16 */s/D. Ferguson*
17

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19 APPROVED: 4/9/19
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Date	Location/Audience
11-2021	ADH Grand Rounds
12-2021	AR Legislature: House and Senate Public Health Committee
12-2021	UAMS Department of OB/GYN
12-2021	UAMS Department of Pathology
12-2021	Legislative Report (2018 Cases) uploaded to ADH website
1-2022	MCHS/Women's Health Update Meeting
2-2022	UAMS OB/GYN Faculty and residents
4-2022	Distinguished Panel Discussion Black Maternal Mortality -Help Us Share
4-2022	UAMS/ POWER (the Perinatal Outcomes Workgroup Through Education and Research)
4-2022	ADH WIC presentations
4-2022	Every Mother Counts (nonprofit organization founded by Christy Turlington Burns)
4-2022	ADH MCHS Women's update meeting
4-2022	Hometown Health Improvement All Staff
5-2022	Nurse Family Partnership
5-2022	Added HRSA Mental health hotline info to the MMRC website
6-2022	Juneteenth Celebration
8-2022	Tri regional Maternal Health conference: Community Led Interventions in the Mississippi River Delta
8-2022	ADH Injury Prevention
9-2022	NWA Licensed Lay Midwives
9-2022	ACOG DVII: Maternal Mortality Summit
9-2022	State Coroners Association (Death investigation training)
10-2022	Arkansas Minority Health commission on behalf of Sima Ladjevardian HHS Regional Director-Region VI
10-2022	Arkansas Dept of Health Educational Symposium for County Health Officers

1-2023	UAMS OB/GYN Grand Rounds
1-2023	Rural Health Commission
1-2023	Arkansas Board of Health
2-2023	Arkansas Advocates for Children and Families
4-2023	St Marks Church
4-2023	Rural Health Association of Arkansas
4-2023	Rotary Club of Little Rock
4-2023	Giving Birth in America: Arkansas Every Woman Counts documentary and Panel discussion
5-2023	UAMS College of Public Health Panel discussion on Maternal Child health
5-2023	Arkansas Hospital Association
5-2023	Publication in Arkansas Hospital Association Spring edition
5-2023	Arkansas Maternal Health Community Hackathon
6-2023	ADH Grand Rounds
9-2023	MCH Specialist
9-2023	CDC Clinician Outreach and Communication Activity. Facilitators for MMRC
9-2023	ACOG District VII: Maternal Mortality Summit
10-2023	Tri-Regional Maternal Health Conference: Community-Led Interventions in the Mississippi River Delta