# Arkansas Maternal Mortality Review Committee (AMMRC)

## Legislative Report
## 2018 – 2021 Data and Recommendations

December 2024

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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.

# 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, to develop new ways to prevent them, and promote health and equity for women in Arkansas.

# AMMRC Members During Review of 2021 Deaths

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# Executive Summary

The Arkansas Maternal Mortality Review Committee (AMMRC) 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 represents combined data from years 2018-2021 and recommendations based on deaths occurring in the year 2021.

The total number of live births in Arkansas in 2018-2021 combined was 144,405, with the data linkage process identifying 181 potential pregnancy-associated deaths. Application of exclusion criteria determined by the Committee resulted in the removal of 40 cases due to false positives or out-of-state residency. Out of the remaining 141 cases, 59 were determined to be pregnancy-related.

## Representative Report Findings

- There were 59 cases determined to be pregnancy-related. The pregnancy-related mortality ratio for 2018-2021 is 40.9 deaths per 100,000 live births.
- From 2018-2021, Arkansas had 141 pregnancy-associated deaths. This represents a pregnancy-associated mortality ratio of 97.6 deaths per 100,000 live births.
- Infections and disorders of the cardiovascular system were the leading causes of pregnancy-related deaths. The top underlying causes were infections, cardiomyopathy, cardiovascular conditions, hypertensive disorders of pregnancy, hemorrhage, and mental health conditions.
- For all pregnancy-associated deaths, Black non-Hispanic women were 1.8 times as likely to die compared to White non-Hispanic women.
- For pregnancy-related deaths, Black non-Hispanic women were 1.2 times as likely to die compared to White non-Hispanic women.
- For pregnancy-related deaths, women ages 35 and older have the highest mortality ratio, which was 4.9 times the mortality ratio of women younger than 25 years old.
- Ninety-five percent of pregnancy-related deaths were considered preventable.

This report marks the fourth comprehensive review of pregnancy-associated deaths among Arkansas residents. Due to the specific focus of the four 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.

## Representative Report Recommendations

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 target 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 changes are implemented effectively, reach their intended targets, and are best positioned for implementation.

Listed below is a sample of the recommendations. For the full list see the latter part of the report.

- Patients should seek clear messaging and reputable sites to educate themselves on vaccinations during pregnancy and share them with their families.

- Providers should consistently encourage vaccination to pregnant women. Stress they are conveying immunity to the unborn child.

- Facilities should implement safety bundles related to cardiovascular conditions.

- Systems should monitor transfer delays when determining bed allocation/resourcing and capacity in tertiary referral centers.

- Community based groups and professional organizations should consistently communicate evidence-based messaging regarding vaccines for pregnant women to ensure ongoing support and awareness.

The number of pregnancy-associated deaths attributed to infections has increased compared to previous years, influenced by the COVID-19 pandemic of 2020-2021. Since the pandemic's onset, management options and standards of practice have evolved rapidly, which should be considered when interpreting this report.

# AMMRC Background

Act 829 of 2019 (Appendix 1) established the Arkansas Maternal Mortality Review Committee (AMMRC) which requires the formal review of maternal deaths in Arkansas and secures protection for the confidentiality of the process. The AMMRC was developed with guidance from the Centers for Disease Control and Prevention's (CDC) *Building U.S. 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, circumstances surrounding the death, and preventability. The Committee then formulates findings and recommendations in accordance with CDC's Maternal Mortality Review Information Application (MMRIA) Committee Decisions Form (Appendix 2), 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 Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) program. A continuation of support was awarded in 2024 for 2024 – 2029.

**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 vehicles 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 1 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 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.

§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:**

- Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), Arkansas Chapter
- 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 State 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. Detailed information is collected on each selected case to allow for a comprehensive review and analysis.

## Case Identification

Identifying pregnancy-associated deaths is an intricate process, involving various strategies to pinpoint potential factors contributing to deaths. 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), ADH Epidemiology Branch, 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: 1) Death certificate for a woman linked with a matching live birth certificate or a fetal death certificate; 2) Death certificate for a woman with a cause of death related to pregnancy, childbirth, or postpartum period; or 3) Death certificate for a woman with pregnancy check box indicating that that the death occurred during pregnancy or within one year of the end of pregnancy.

## Case Abstraction

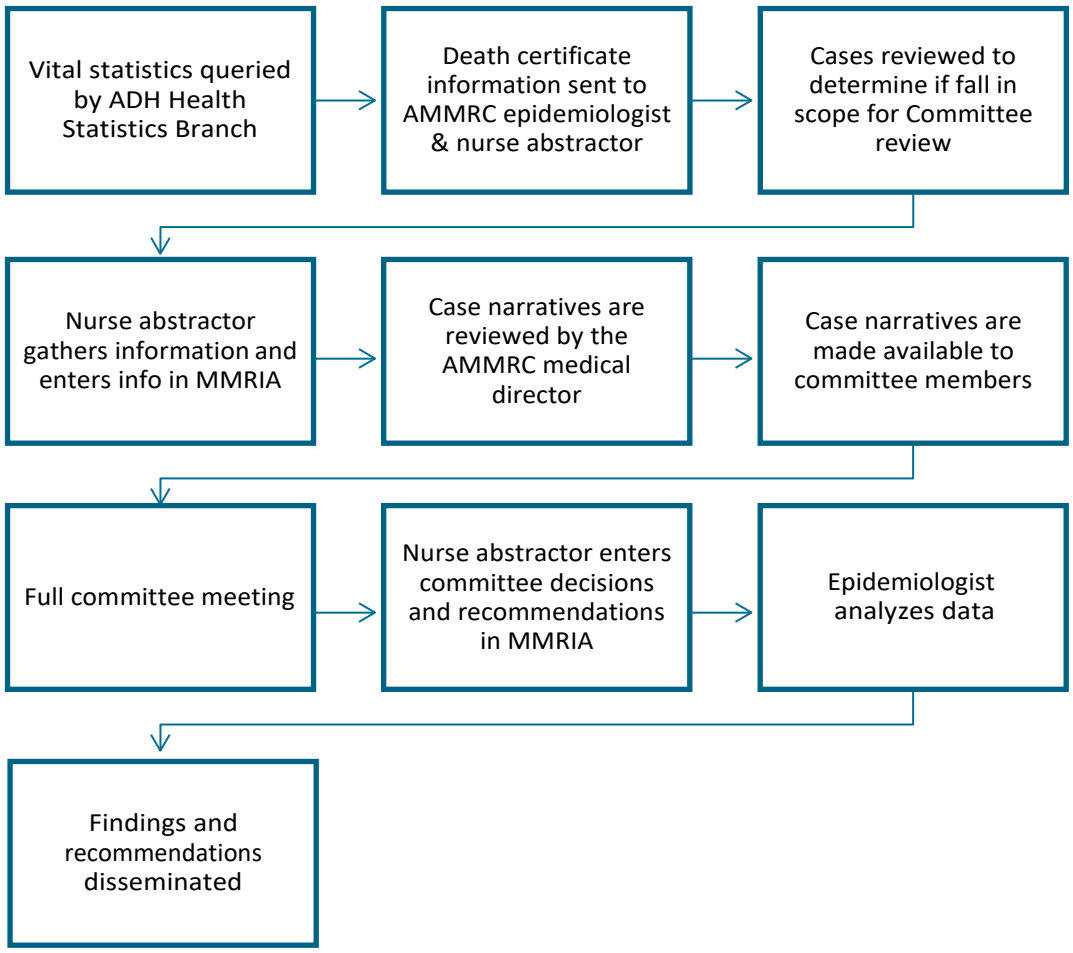
Information for abstraction is gathered from maternal/neonatal death certificates, neonatal birth certificates, medical records, and autopsy reports. Additional data sources include hospital and emergency department records, obituaries, police reports, social media, media and news reports, certifier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

## Meeting Structure

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 of the Case Review Process




AMMRC formulates findings and recommendations in accordance with CDC's MMRIA Committee Decisions Form. MMRIA 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 one year of the end of pregnancy.

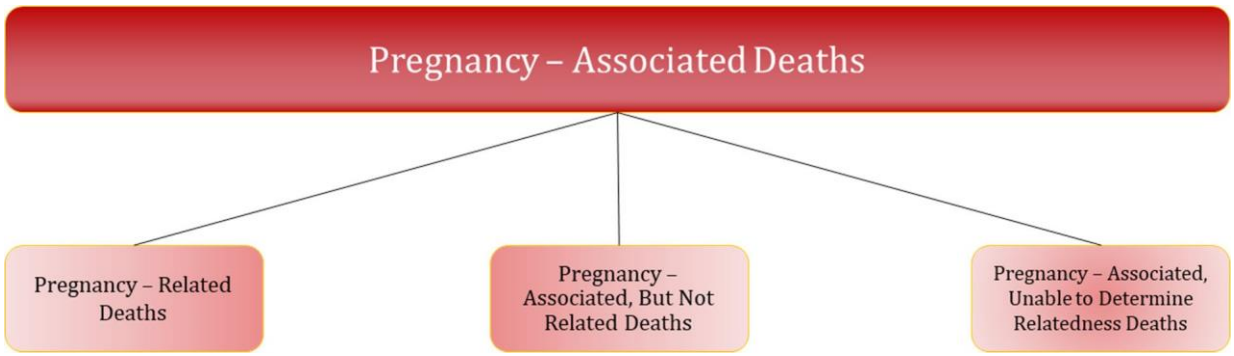
**Pregnancy-associated death:** the death of a woman during pregnancy or within one year of the end of pregnancy, regardless of the cause.

**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 (PAMR)**: the number of pregnancy-associated deaths per 100,000 live births.

**Pregnancy-related mortality ration (PRMR)**: the number of pregnancy-related deaths per 100,000 live births.



# 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. Numbers, percentages, ratios, and rates may change considerably from one time-period to another. 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 2018-2021 Cases

Between 2018 and 2021, the total number of live births in Arkansas were 144,405. Based on 2018-2021 death certificates, 1891 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.

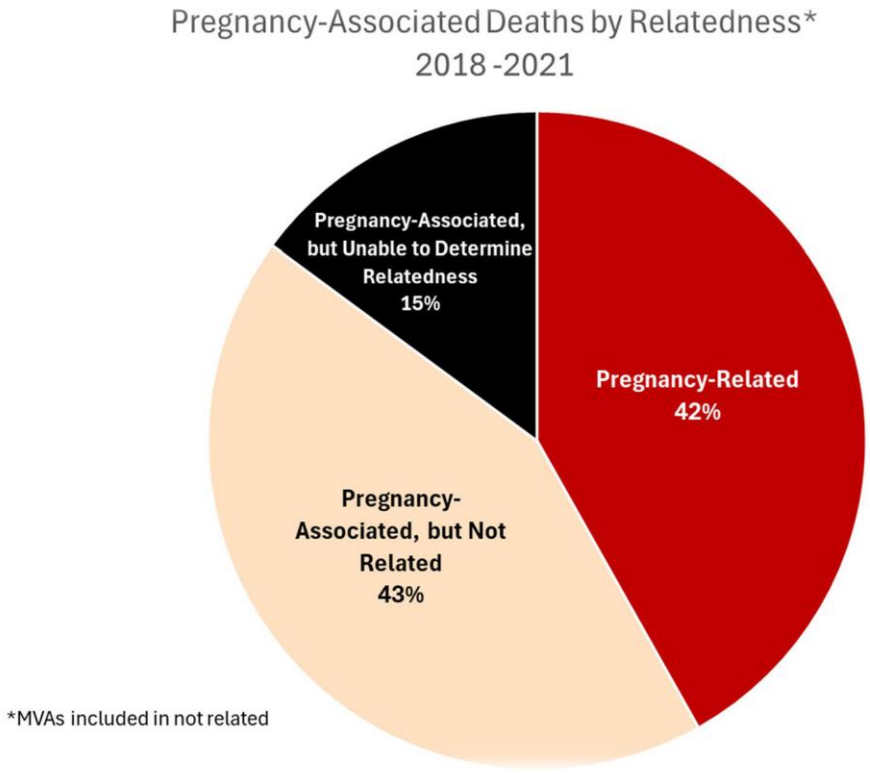
Thirty-three deaths were found to be not pregnant at the time of death or within one year of death (false positive) and seven deaths were among non-Arkansas residents; these deaths were excluded from committee review. In total there were 141 pregnancy-associated deaths from 2018-2021. AMMRC made the decision to exclude 17 deaths due to motor vehicle accidents (MVA) and accident/trauma from full abstraction and group them with pregnancy-associated, but not related category. The remaining 124 cases were fully abstracted and reviewed. The table below shows the reasons for exclusion and the committee's final decisions on pregnancy-relatedness.

| | 2018-2021 |
|---|---|
| Live births | 144,405 |
| Initial pregnancy-associated deaths identified and reviewed by staff | 181 |
| False positive and non-resident deaths | 40 |
| Pregnancy-associated deaths | 141 |
| Pregnancy-related deaths | 59 |
| Pregnancy-associated, but not related deaths | 61 |
| Pregnancy-associated, but unable to determine relatedness deaths | 21 |

From 2018 through 2021, Arkansas had 141 pregnancy-associated deaths. This represents a pregnancy-associated mortality ration of 97.6 deaths per 100,000 live births.

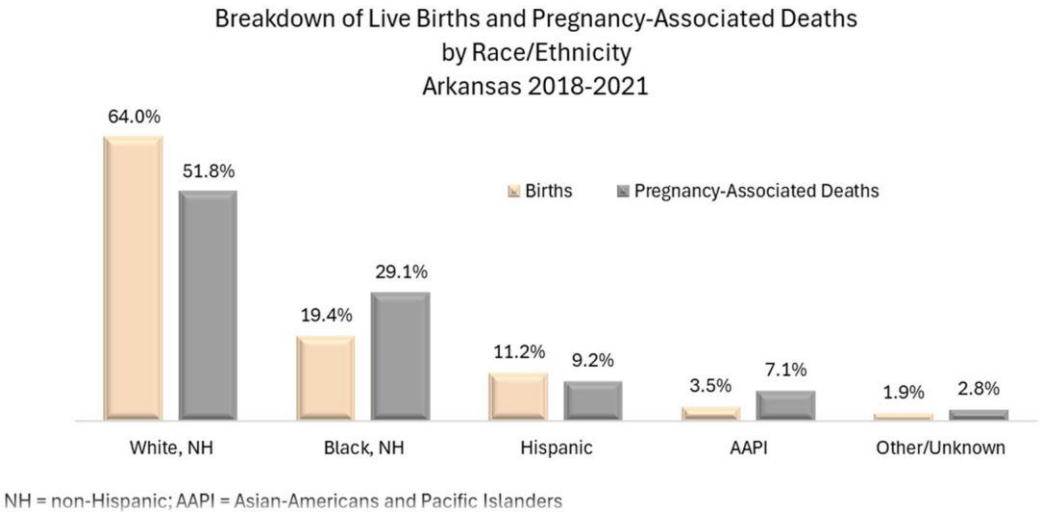
MMRIA committee decision forms were completed and determined the following:

- 59 deaths (41.8%) were determined to be pregnancy-related
- 61 deaths (43.3%) were determined to be pregnancy-associated, but not related
- 21 deaths (14.9%) were determined to be pregnancy-associated, but the Committee was unable to determine relatedness

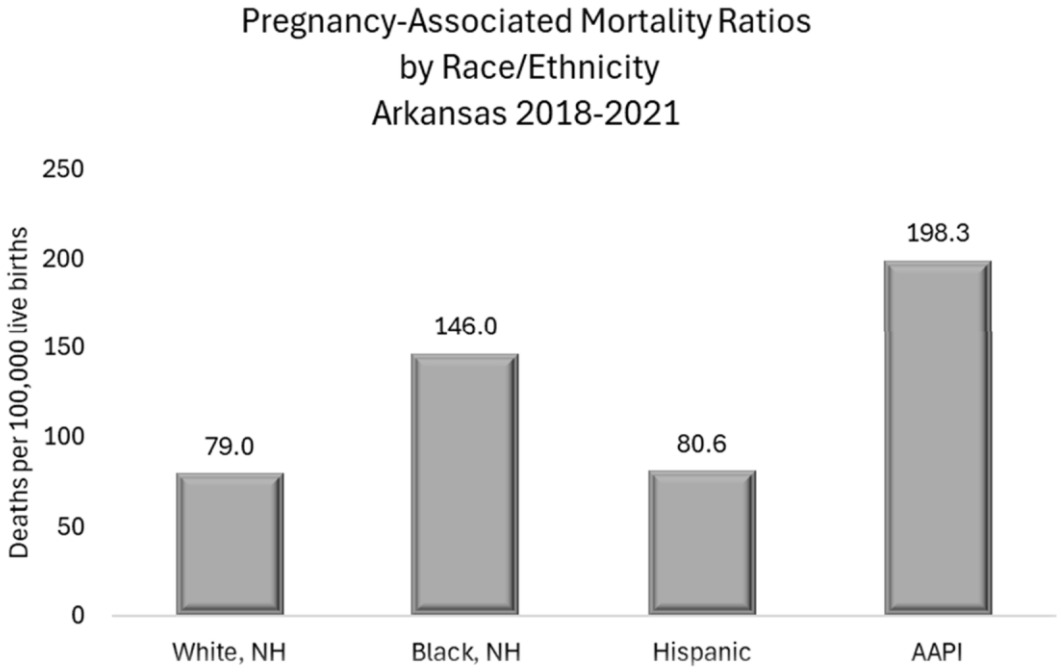


## Pregnancy-Associated Deaths

Pregnancy-associated deaths can happen to women of any race. However, some groups are disproportionately affected.



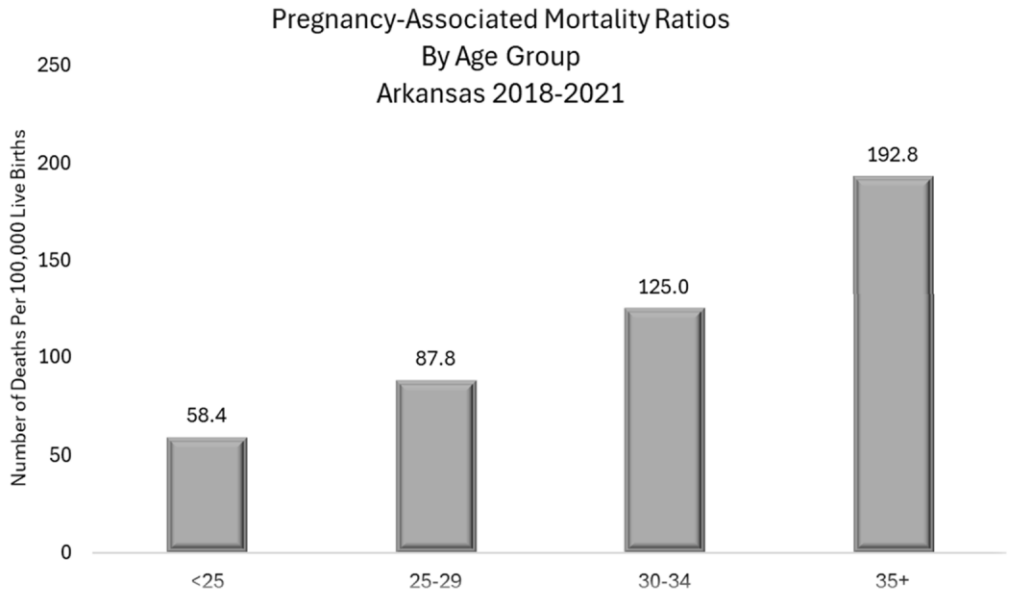

Nineteen percent (19.4%) of births are to Black, non-Hispanic women; however, they represent 29.1% of pregnancy-associated deaths. Asian-Americans and Pacific Islander non-Hispanic (AAPI) mothers represent 7.1% of pregnancy-associated deaths while only representing 3.5% of births in Arkansas.




NH = non-Hispanic; AAPI = Asian-Americans and Pacific Islanders

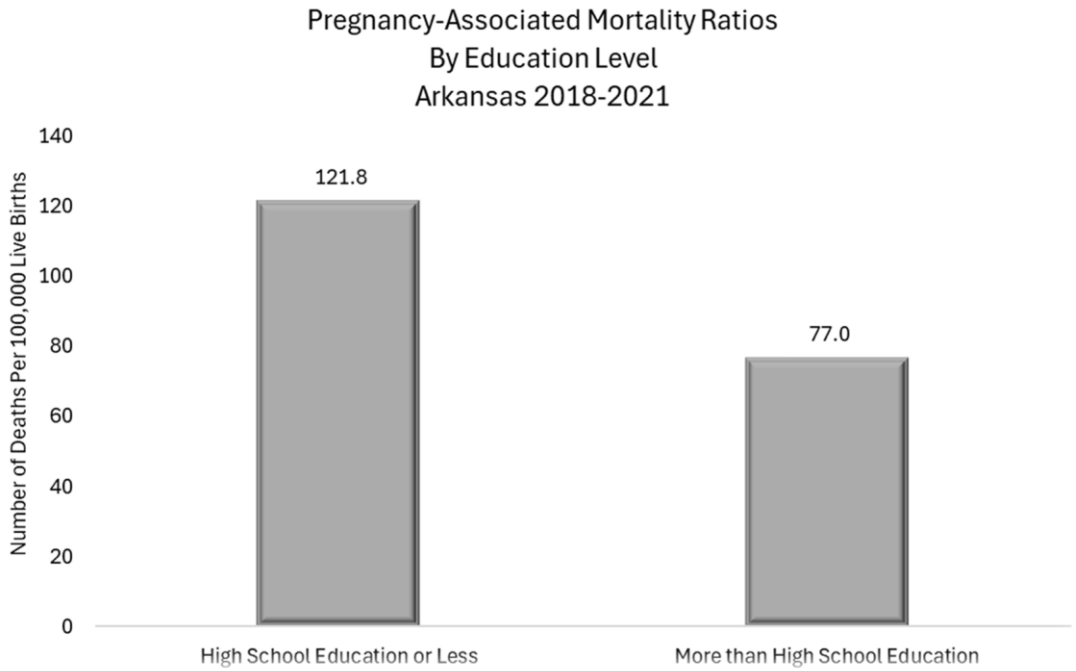
## Pregnancy-Associated Deaths by Age

The risk of pregnancy-associated death increases with the age of the mother. Women ages 35 and over had the highest mortality ratio (192.8), which was over three times the mortality ratio (58.4) of women younger than 25 years old.



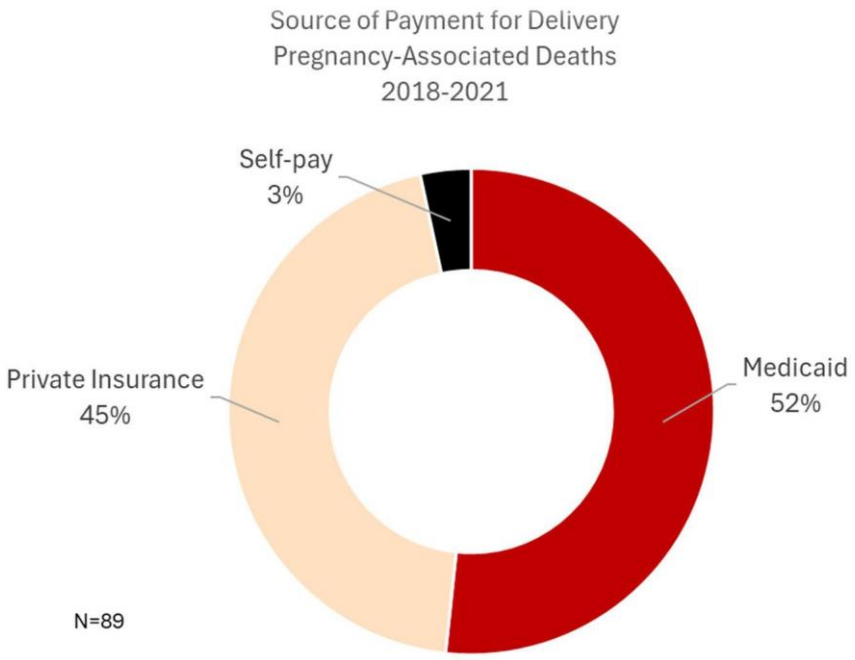

## Pregnancy-Associated Deaths by Education

Those with a high school diploma or less had a mortality ratio 1.5 times those with education beyond high school.



## Payor Source for Pregnancy-Associated Deaths

There were 89 pregnancy-associated deaths with a birth that included the method of payment for the delivery.




## Timing of Death in Relation to Pregnancy for Pregnancy-Associated Deaths

| | During Pregnancy | Day of Delivery | 1-6 Days Postpartum | 7-42 Days Postpartum | 43-365 Days Postpartum |
|---|---|---|---|---|---|
| Pregnancy-Associated | 23.2% | 5.1% | 6.5% | 14.5% | 50.7% |

## 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:

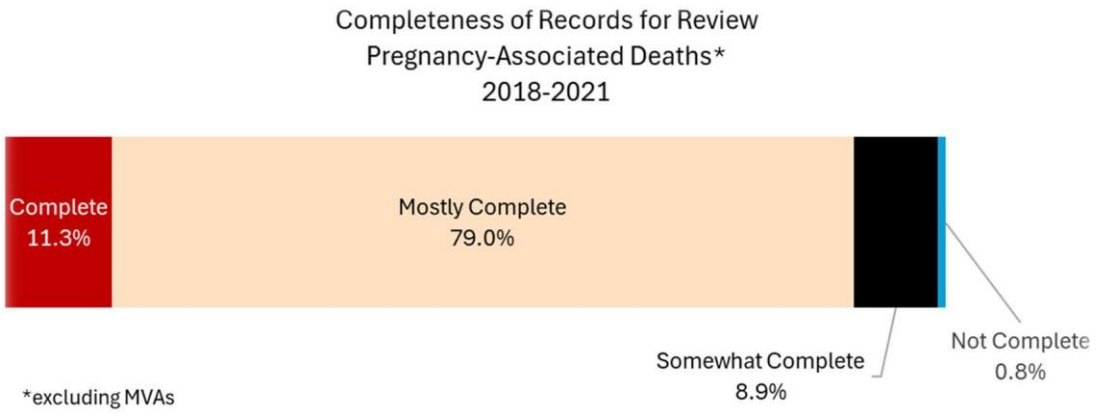
- Lack of information or data sharing agreements and processes in place across and within these systems. For example, medical record sharing across health networks is often limited.
- Legal restrictions and policies that regulate what information agencies can share. For example, it is difficult to obtain 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 11.3% of cases had complete records for review.

The majority of cases (79.0%) were considered to have all records necessary for adequate review with only minor gaps (mostly complete) or information that would have been beneficial but not essential to the review of the case.

Another 8.9% of case records were identified as having somewhat complete records, meaning that information crucial to the review was not available to the Committee

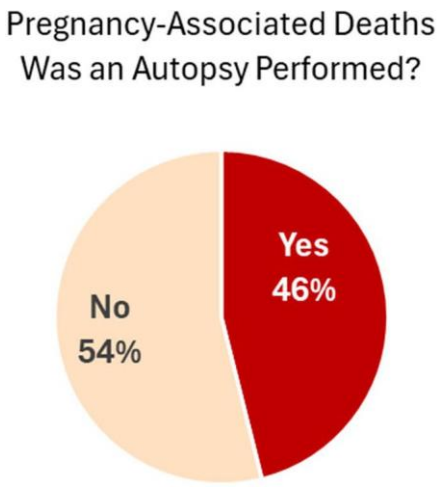
A small percentage (0.8%) of cases records were determined to be not complete, meaning the Committee had only the death certificate and no other information.



## Autopsies

Arkansas Code Ann. § 12-12-318 was enacted to make changes to the law pertaining to postmortem examinations. 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.

Autopsies were performed in 46% of cases for 2018-2021 pregnancy-associated deaths.

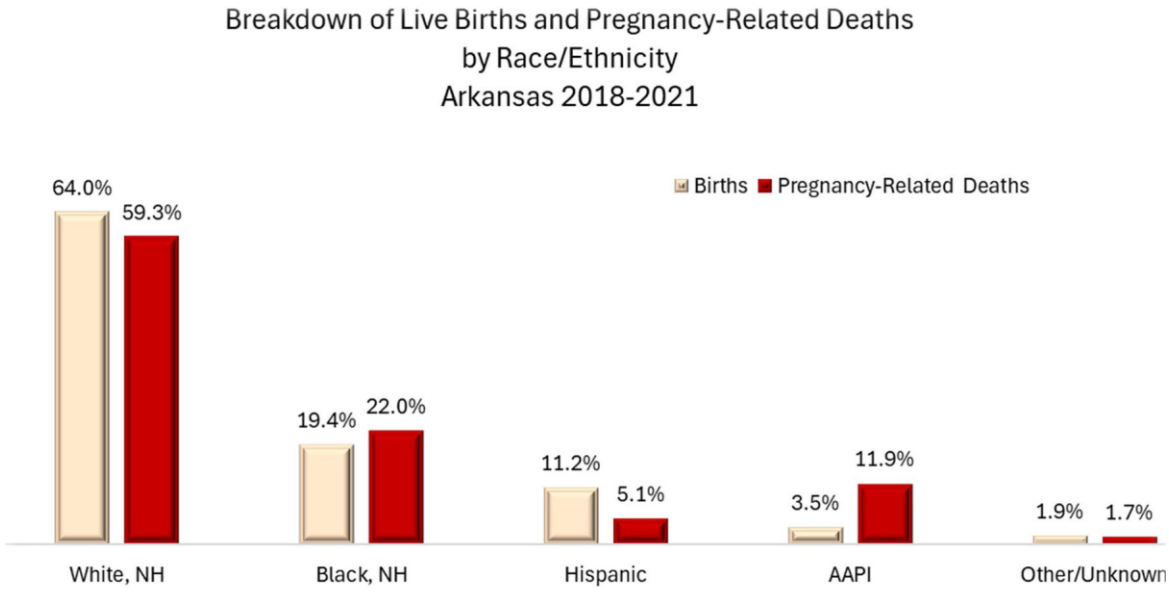


## Pregnancy-Related Deaths

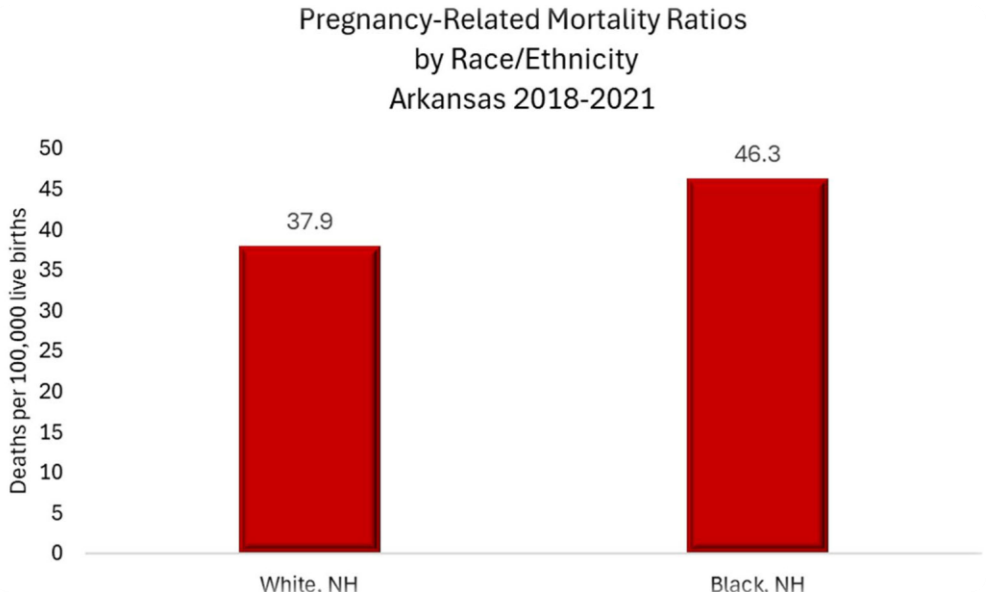
Between 2018-2021, Arkansas had 59 deaths that were determined to be pregnancy-related (41 deaths per 100,000 live births).

### Pregnancy-Related Deaths by Race/Ethnicity

Pregnancy-related deaths can happen to women of any race. However, some groups are disproportionately affected. Nineteen percent (19.4%) of births are to Black, non-Hispanic women; however, they represent 22.0% of pregnancy-related deaths.



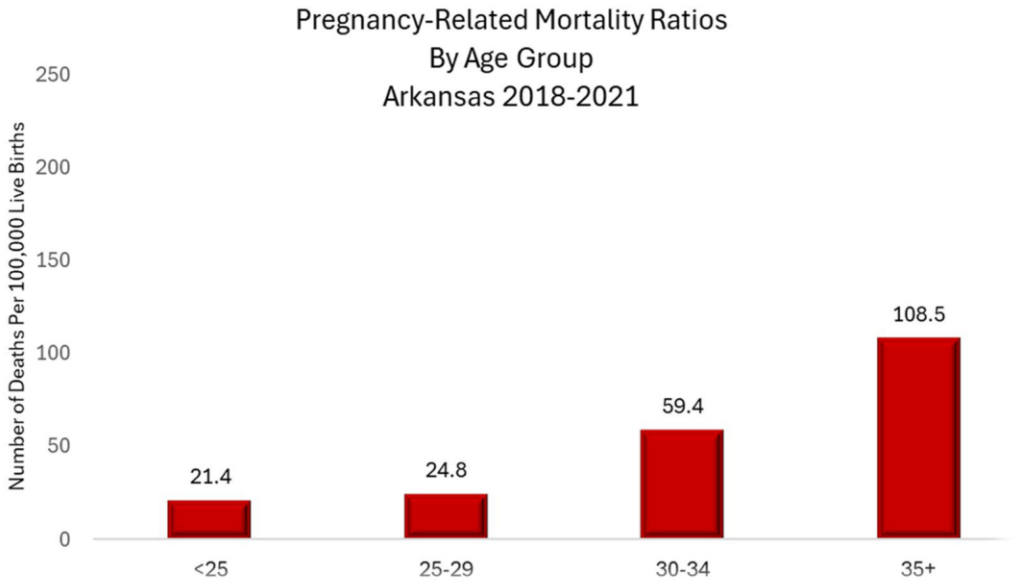

NH = non-Hispanic; AAPI = Asian-Americans and Pacific Islanders




NH = non-Hispanic

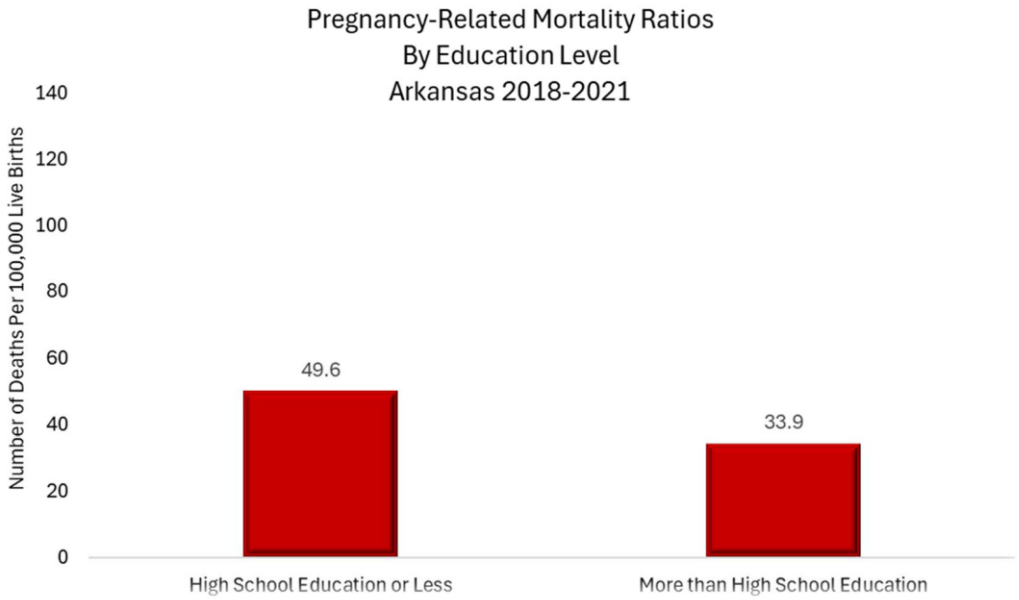
## Pregnancy-Related Deaths by Age

The risk of pregnancy-related death increases with the age of the mother. Women ages 35 and over had the highest mortality ratio, which was 5 times the mortality ratio of women younger than 25 years old.



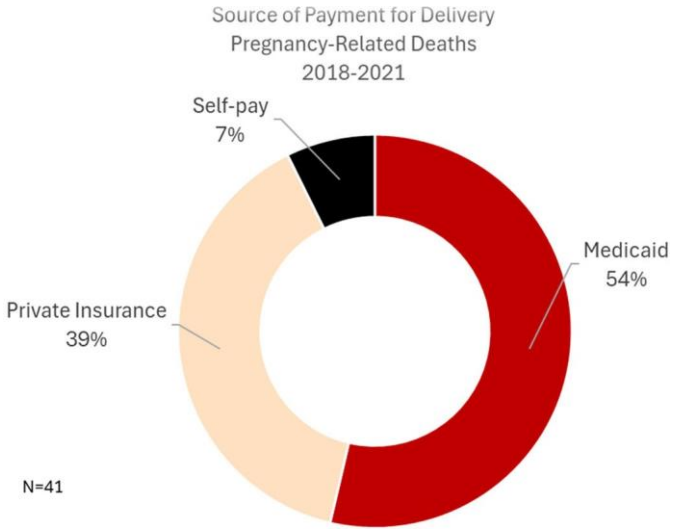

## Pregnancy-Related Deaths by Education

Those with a high school diploma or less had a PRMR 1.5 times those with education beyond high school.



## Payor Source for Pregnancy-Related Deaths

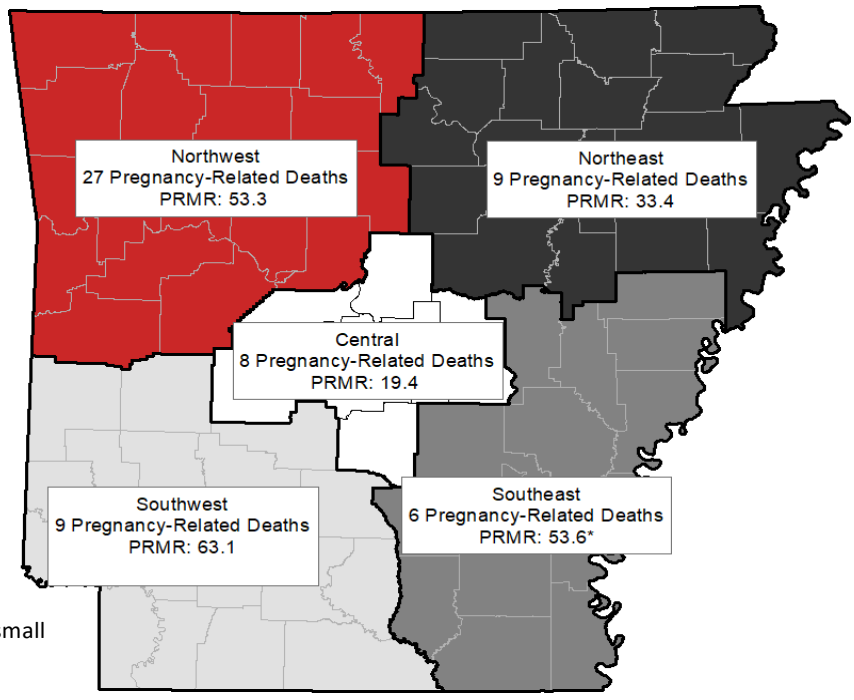
There were 41 pregnancy-related deaths with a birth that included the method of payment for the delivery.




## Pregnancy-Related Deaths by Public Health Region

The map below shows the PRMR by Public Health Region. The Southwest Region was highest followed by the Southeast Region and Northwest Region.

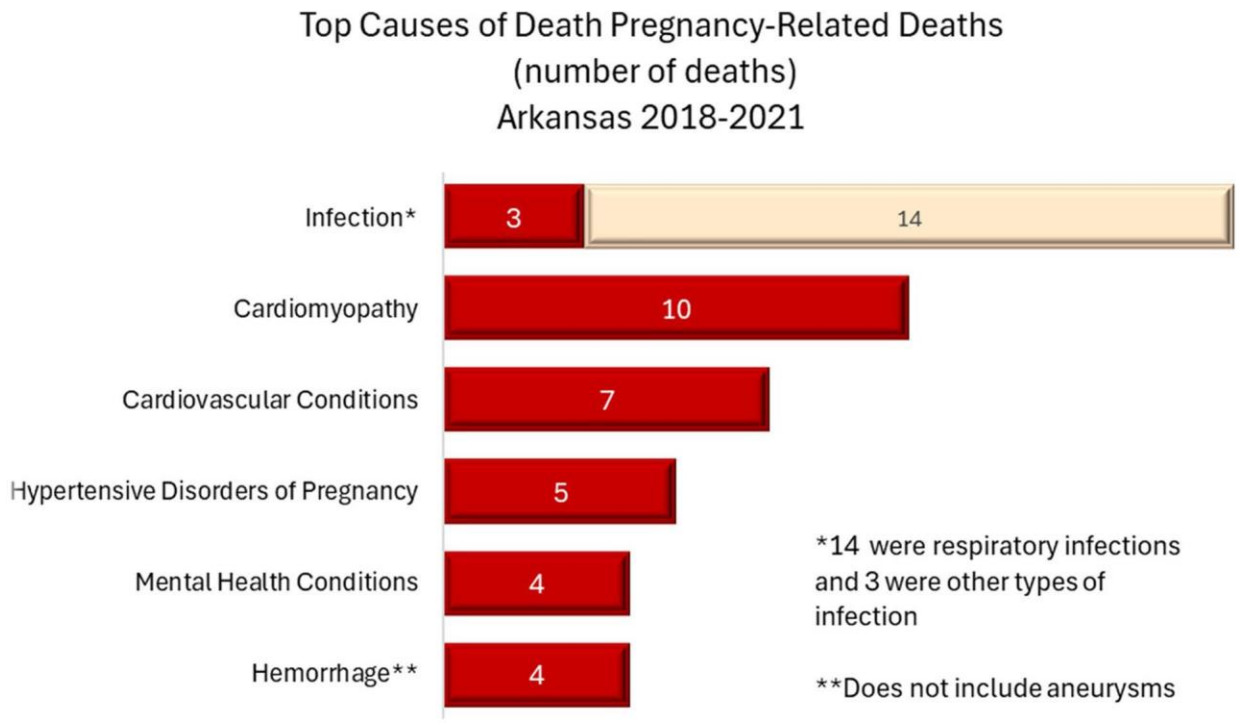
Pregnancy-Related Deaths and Mortality Ratio per 100,000 Live Births
by Public Health Region
Arkansas 2018-2021




*Use caution in interpreting due to small numerator

## Pregnancy-Related Causes of Death

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

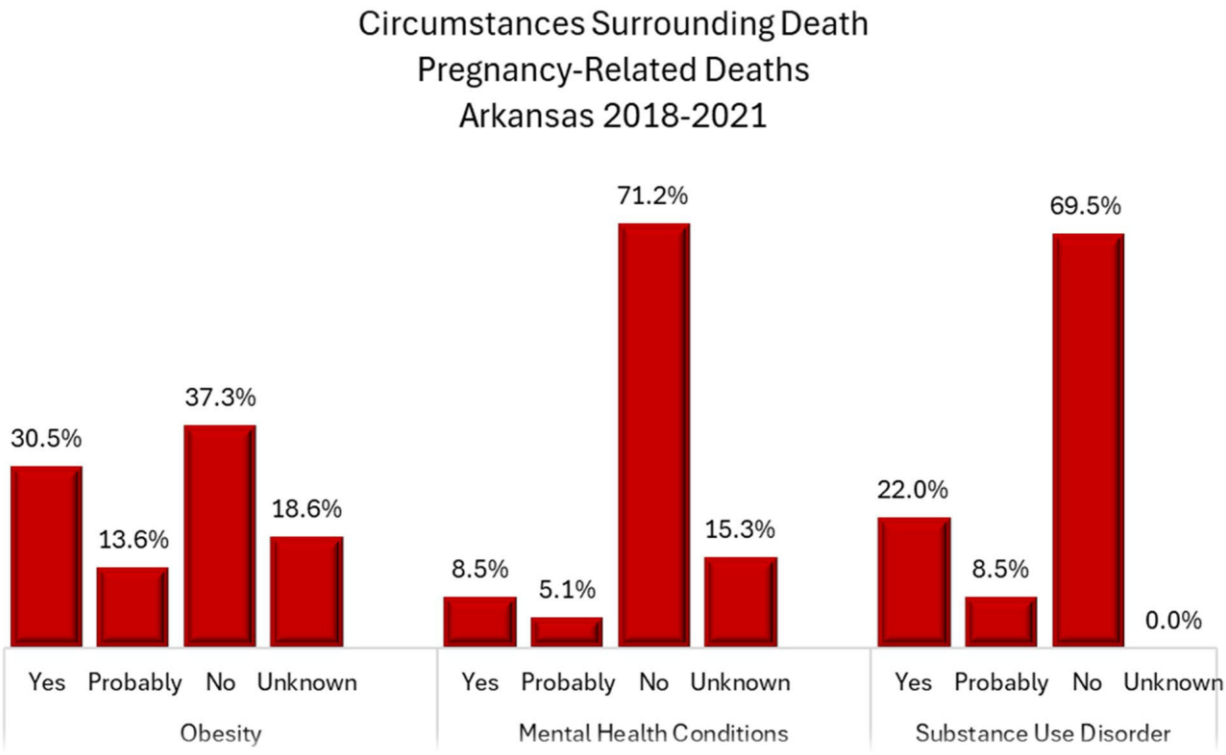



## Preventability of Pregnancy-Related Deaths

The Committee reviews each death for preventability. From 2018 – 2021 it was determined that 95% of pregnancy-related deaths were preventable with at least “some chance” or a “good chance” to alter the outcome.

## Circumstances Surrounding Pregnancy-Related Deaths

The Committee evaluates circumstances surrounding pregnancy-related deaths. Below is a graph showing obesity, mental health conditions other than substance use disorder (SUD), and SUD.




## Timing of Death in Relation to Pregnancy for Pregnancy-Related Deaths

| | During Pregnancy | Day of Delivery | 1-6 Days Postpartum | 7-42 Days Postpartum | 43-365 Days Postpartum |
|---|---|---|---|---|---|
| Pregnancy-Related | 18.6% | 11.9% | 13.6% | 22.0% | 33.9% |

# Recommendations

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.

| Level | Definition from the Committee Decision Form |
|---|---|
| Patient/Family | An individual before, during, or after a pregnancy; and their family, internal or external to the household, with influence on the individual |
| Provider | An individual with training and expertise who provides care, treatment, and/or advice |
| Facility | A physical location where direct care is provided – ranges from small clinics and urgent care centers to hospitals with trauma centers |
| System | Interacting entities that support services before, during, or after pregnancy – ranges from healthcare systems and payors to public services and programs |
| Community | A grouping based on a shared sense of place or identity – ranges from physical neighborhoods to a community based on common interests and shared circumstances |

## Recommendations based on 2021 Pregnancy-Related Death Cases

### Recommendations for Patients and Families

- Patients who are pregnant or intend to become pregnant should maintain a healthy lifestyle.
- Patients should optimize pregnancy health and wellness engagement.
- Patients and families should use smoking cessation guidance before, during, and after pregnancy.
- Patients should report any COVID symptoms immediately to healthcare providers. They should get tested and receive treatment as soon as possible.
- Patients should seek clear messaging and reputable sites to educate themselves on vaccinations during pregnancy and share them with their families.

### Recommendations for Providers

- Providers should get maternal-fetal-medicine (MFM) referrals for high-risk patients.
- Providers should consider doing a perimortem C-section in appropriate settings in an effort to improve maternal status.
- Providers should give strong recommendations to pregnant women to stop smoking.
- Providers should use smoking cessation counseling as best practice for pre, peri, and postpartum women. The provider should also ask specifically about vaping.

- Providers should consistently encourage vaccination to pregnant women. Stress they are conveying immunity to the unborn child. Push this standard of care.
- Providers should increase awareness of the breadth and depth of trauma and its impact on healthcare outcomes.
- OB providers should be educated and have resources related to ensuring the patient is following up with referrals. Providers should explain to patients what MFM is and why it is important to see them.
- Providers should be knowledgeable about when the case is out of their scope. Know when to ask and access additional resources.
- Providers and law enforcement should screen all women for intimate partner violence (IPV) at all visits.
- Providers should refer all serious mental health conditions to a mental health provider.
- All providers should receive motivational interview training.
- Providers should prescribe naloxone and fentanyl test strips test strips for all women with substance use disorders.
- Providers or peer support specialists should educate substance use patients about how a social worker would follow up and what to expect to alleviate or reduce fear or repercussions.
- Providers should do depression screening at all prenatal, postpartum, and emergency department visits.
- Providers should increase knowledge about anemia with COVID in pregnant women and transfuse more aggressively.
- Providers should stay updated on COVID and pregnancy guidelines and administer early aggressive therapy to pregnant or postpartum women with COVID.
- Providers should use shared decision making and exploration of patient's beliefs at the time of contraceptive counseling with everyone.
- Providers should make referrals for addiction psychiatry treatment for pregnant and postpartum women with substance use.
- Providers should consult with MFM for complex clinical management and utilize the Institute for Digital Health and Innovation (IDHI) call center at UAMS.
- Providers of all disciplines should provide preconception counseling to patients with chronic diseases and their families.

## Recommendations for Facilities

- Facilities should educate providers about cardiac/cardiomyopathy bundles related to pregnant and postpartum women.
- Facilities should have simulation-based training with a focus on cardiomyopathy.
- Facilities should ensure that pregnant women with asthma receive education about recognizing cardiac symptoms.

- Perinatal Quality Collaborative (PQC) safety bundles for hypertensive care in pregnancy should be deployed in every ED in Arkansas.
- Facilities should implement safety bundles related to cardiovascular conditions.
- Facilities should offer follow-up support from social workers or case workers for women within reproductive years who have substance use issues during and after hospitalization.
- Facilities should utilize more peer support specialists.
- Facilities should have policies and procedures to ensure naloxone distributions and education to pregnant and postpartum women.
- Facilities electronic medical records(EMRs) should alert providers to refer to social services/crisis intervention for known violence cases.
- Facilities should do intimate partner violence (IPV) screening at each visit.
- Facilities should incorporate a discrimination question and discussion into their mortality/morbidity review.
- Facilities should do chart audits to ensure highest level of care is extended to all patients.
- Facilities should have language interpreter services for Marshallese patients.
- Facilities should screen all patients on vaccination status and administer vaccines as needed (with consent).
- Facilities should have staffing plans for emergency preparedness where resources are constrained.
- Facilities need additional ECMO (extracorporeal membrane oxygenation) available for COVID treatment. Currently, in 2024, only 5 hospitals in Arkansas have ECMO.
- Facilities should consider offering the COVID vaccine to postpartum women who were hesitant during pregnancy. Implement a process for postpartum vaccinations. The facility would have to consult with infectious disease related to what dose/booster, etc.
- Facilities should provide COVID vaccines for pregnant women and staff.

## Recommendations for Systems

- Systems should educate providers about stroke in young, pregnant, and postpartum women. Work with federally qualified health centers (FQHC) to provide messaging.
- Systems should provide public campaigns including messaging that strokes can happen to younger people and pregnant and postpartum women. Include messaging that drug use increases the chance of stroke.
- Systems should educate providers about sickle cell disease and headaches postpartum and the impact on pregnant or postpartum women.
- Systems should educate providers and communities on the Urgent Maternal Warning Signs.
- Systems should provide telehealth to allow for specialists in rural areas.
- Systems should add payer sources to allow care coordination or doula/community health worker care for pregnant and postpartum women.
- Systems should improve workforce issues related to doulas and community health workers' availability.
- Systems need to increase access to mental health and substance use treatment providers.

- Systems should add social workers to the police force for crisis intervention with pregnant and postpartum women.
- Systems should provide home visit for postpartum women with known substance use.
- PQC to facilitate education (CME) for every physician to have 1-hour of education about cardiac complications for women of reproductive age. This could be legislatively mandated.
- Systems should require medical and nursing schools to provide education related to urgent maternal warning signs.
- Healthcare systems should create a way to flag providers when a patient is being seen by multiple providers. Electronic medical records would be one way to do this.
- Systems should have coordinated care for maternal patients with substance use disorders (like Trauma Net; Trauma Net is a multidisciplinary organizational advocacy group focused on issues regarding the provision of trauma care). There should be increased awareness of the maternal health hotline.
- The state should provide funding for specialized women's services (SWS).
- Healthcare systems should be educated about Arkansas Code Ann. § 12-12-318 which 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 death if potentially linked to pregnancy care.
- Systems should provide education on social determinants of health to medical students, nursing students, and health professionals.
- Systems should enhance COVID preparedness. Create a dashboard with updated treatments and resources.
- State government should prioritize educating providers, including medical students, nursing students, pharmacy students, physical therapy students, and others, about COVID facts, the vaccines, and ways to improve patient outcomes. It is crucial for healthcare professionals to be well-informed.
- Systems should provide public messaging that give the number of pregnant women and their babies that died from COVID. Vaccinations save lives.
- Systems should implement improved coding to make payment to facility and provider when transporting delivering clients.
- State Medicaid should include payment for adult vaccines.
- There should be national criteria for ECMO for pregnant women with COVID and other conditions.
- Systems should be in place for around the clock diagnosis and treatment of patients with COVID (Remdesivir, Paxlovid, etc.)

- Systems should provide comprehensive guidelines to healthcare providers for treating COVID in women of childbearing age.
- Systems should be inclusive of pregnant women in studies for COVID.
- Systems should offer public service messaging to debunk myths related to COVID vaccinations.
- Systems should provide education to Emergency Departments about the Institute for Digital Health and Innovation (IDHI) call center at UAMS.
- Systems should monitor transfer delays when determining bed allocation/resourcing and capacity in tertiary referral centers.
- Systems should expand the scope of substance use screening to include fentanyl and xylazine.

## Recommendations for Communities

- Improve care coordination and support for vulnerable populations.
- Communities should partner with their public health departments, county health officers, schools, and civic leaders to promote community education on effective CPR.
- Communities should be educated about Arkansas Code Ann. § 12-12-318 which 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 death if potentially linked to pregnancy care.
- Community groups, religious organizations and media should provide education related to the safety of COVID vaccinations during pregnancy.
- Communities or the State of Arkansas need to develop crisis intervention teams and statewide coordination of these teams / referrals for pregnant and postpartum women who are victims of IPV.
- Community engagement in advancing health outcomes of the population by improving healthy sources of nutrition and facilitating easier access to fitness options.
- Public health messaging should prioritize informing the public about the severity of COVID and the benefits of vaccination over emphasizing the negative aspects of the disease.
- Communities should push accurate information related to the COVID vaccine and have representation from the community.
- The Arkansas Department of Health (ADH) should promote vaccination to the homeless population.
- Communities should educate patients with substance use disorder and their families about naloxone and fentanyl test strips.
- Community engagement in advancing health outcomes of the population by improving healthy sources of nutrition and facilitating easier access to fitness options.
- Promote public health campaigns with messaging that identifies factors such as smoking, vaping, or drug use as increasing the risk of strokes, even in younger individuals, including pregnant and postpartum women.

- Community based groups and professional organizations should consistently communicate evidence-based messaging regarding vaccines for pregnant women to ensure ongoing support and awareness.

## Recommendations based on 2021 Pregnancy-Associated Deaths Not Classified as Pregnancy-Related

### Recommendations for Patients and Families

- Patients and families with substance use disorders should engage in substance disorder treatment.
- Patients and families should stop smoking during pregnancy.
- Patients should engage in care recommendations.
- Patients and communities should be educated about long-term contraception.

### Recommendations for Providers

- Providers should refer for substance use treatment for any positive drug test during the prenatal or postpartum period.
- Providers should appropriately refer or consult with psychiatry in the care of pregnant and postpartum women with perinatal and postpartum mood disorders (especially in patients with life-threatening diseases).
- Providers should screen all women for IPV at all visits.
- Providers should offer women intervention for mental health care early in pregnancy.
- Providers should screen pregnant and postpartum women for substance use and provide intervention and referral for treatment if appropriate.
- Primary care providers should be educated about how to use depression medications during pregnancy.
- Providers should refer to specialty providers when the patient has a known disease of a specialized nature.
- Providers should offer long-acting reversible contraception (LARC) to all women of reproductive age who have chronic disease.
- Providers should do depression screening at all prenatal and postpartum visits, and all emergency department visits.
- Providers should educate all pregnant and postpartum women about diabetes.
- Providers should give preconception counseling to all women of reproductive age. Especially women with chronic disease.
- Providers should make referrals to social workers for diabetes care assistance for all diabetic women.
- Providers should make referrals for peer support specialists (educated sponsors) for known drug users.
- Providers should use shared decision-making, accompanied by respectful probing of reasons for declining medical recommendations; a social work referral, and a cancer support group referral when treating pregnant women with cancer.

- Providers should educate during pregnancy for the next pregnancy to ensure patients follow guidelines for prenatal care.

## Recommendations for Facilities

- Facility should train providers on trauma-informed care. (Having an awareness of the impact of trauma on patients' overall health.) There are online training and professional organizations that provide training.
- Facilities should educate providers and pharmacists about appropriate pharmacotherapy during pregnancy.
- Emergency departments should routinely test women of reproductive age for pregnancy during all visits.
- Facilities should make an effort to have more peer support specialists.
- Facilities should have policies and procedures to always document screening for interpersonal violence.
- Facility policies and procedures to ensure naloxone distribution and education to pregnant postpartum women, when indicated.

## Recommendations for Systems

- Focus on educating pregnant women on the dangers of substance use.
- Systems should remove barriers to mental health services in women of reproductive age (cost, lack of providers) by allowing telehealth, training physician extenders, and peer support specialists to see patients for mental health services.
- Systems should provide close-loop follow-up from social workers to ensure the safety of the infant. Expand the role of social work in the hospital setting related to mom and infant postpartum. Also, add social work in the pediatric practice to ensure the safety of the infant. Social workers at pediatric offices can also screen the mom for postpartum depression.
- Systems need to increase access to mental health and substance treatment providers. Possibly look at training physician extenders who specialize in mental health and substance use treatment in the short term.
- Systems should improve access to comprehensive pain management services to limit the development of substance use disorder in patients with chronic pain.
- Systems should offer education to providers on postpartum depression.
- Educate providers state-wide on the perinatal psychiatry hotline.
- Fentanyl test strips should be available for no cost to drug users.

# Appendix 1: 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**

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

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

**For An Act To Be Entitled**

AN ACT TO ESTABLISH THE MATERNAL MORTALITY REVIEW COMMITTEE; AND FOR OTHER PURPOSES.

**Subtitle**

TO ESTABLISH THE MATERNAL MORTALITY REVIEW COMMITTEE.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

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

(a) The General Assembly finds that:

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

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

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

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

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

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

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

Subchapter 23 — Maternal Mortality Review Committee

20-15-2301. Maternal Mortality Review Committee.

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

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

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

20-15-2302. Powers and duties.

The Maternal Mortality Review Committee shall:

(1) 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, regardless of cause, to identify the factors contributing to these deaths;

(2) Identify maternal death cases;

(3) Review medical records and other relevant data;

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

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

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

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

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

20-15-2303. Access to records.

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

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

20-15-2304. Confidentiality.

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

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

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

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

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

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

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

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

20-15-2305. Disclosure.

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

20-15-2306. Immunity from liability.

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

20-15-2307. Reporting.

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

file a written report on the number and causes of maternal deaths and its recommendations on or before December 31 of each year to:

(1) The Senate Committee on Public Health, Welfare, and Labor;

(2) The House Committee on Public Health, Welfare, and Labor; and

(3) The Legislative Council.

(b) The report shall include:

(1) The findings and recommendations of the committee; and

(2) An analysis of factual information obtained from the review of the maternal death investigation reports and any local or regional review panels that do not violate the confidentiality provisions under this *subchapter.*

*(c) The report shall include only aggregate data and shall not identify a particular facility or provider.*

*/s/D. Ferguson*

**APPROVED: 4/9/19**

REVIEW DATE

Month/Day/Year

RECORD ID #

**PREGNANCY-RELATEDNESS: SELECT ONE**

☐ PREGNANCY-RELATED
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

☐ PREGNANCY-ASSOCIATED, BUT NOT-RELATED
A death during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy

☐ PREGNANCY-ASSOCIATED BUT UNABLE TO DETERMINE PREGNANCY-RELATEDNESS

ESTIMATE THE DEGREE OF RELEVANT INFORMATION (RECORDS) AVAILABLE FOR THIS CASE:
These fields are for internal jurisdiction use in order to evaluate opportunities to gain better access to information for reviews.

☐ COMPLETE
All records necessary for adequate review of the case were available

☐ SOMEWHAT COMPLETE
Major gaps (i.e., information that would have been crucial to the review of the case)

☐ MOSTLY COMPLETE
Minor gaps (i.e., information that would have been beneficial but was not essential to the review of the case)

☐ NOT COMPLETE
Minimal records available for review (i.e., death certificate and no additional records)

DOES THE COMMITTEE AGREE WITH THE UNDERLYING[1] CAUSE OF DEATH LISTED ON DEATH CERTIFICATE? ☐ YES ☐ NO
The underlying cause of death determination as documented by a multidisciplinary MMRC may be different from the underlying cause of death used by pathologists in the course of death certification documented in the Vital Statistics system.

## COMMITTEE DETERMINATION OF CAUSE(S) OF DEATH

**IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING[1] CAUSE OF DEATH**
**Refer to Appendix A for PMSS-MM cause of death list.**

If a death is pregnancy-associated, not related then an underlying cause of death entry is not necessary. Use optional box below.

| TYPE | OPTIONAL: CAUSE (DESCRIPTIVE) |
|---|---|
| UNDERLYING[1,2] | |
| CONTRIBUTING[2,3] | |
| IMMEDIATE[2] | |
| OTHER SIGNIFICANT[2] | |

## COMMITTEE DETERMINATIONS ON CIRCUMSTANCES SURROUNDING DEATH[4]

| | | | | |
|---|---|---|---|---|
| DID **OBESITY** CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **DISCRIMINATION**[5] CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **MENTAL HEALTH CONDITIONS** OTHER THAN SUBSTANCE USE DISORDER CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| DID **SUBSTANCE USE DISORDER** CONTRIBUTE TO THE DEATH? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |

## MANNER OF DEATH

| | | | | |
|---|---|---|---|---|
| WAS THIS DEATH A SUICIDE? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |
| WAS THIS DEATH A HOMICIDE? | ☐ YES | ☐ PROBABLY | ☐ NO | ☐ UNKNOWN |

| | | | |
|---|---|---|---|
| IF ACCIDENTAL DEATH, HOMICIDE, OR SUICIDE, LIST THE **MEANS OF FATAL INJURY** | ☐ FIREARM<br>☐ SHARP INSTRUMENT<br>☐ BLUNT INSTRUMENT<br>☐ POISONING/OVERDOSE<br>☐ HANGING/ STRANGULATION/ SUFFOCATION | ☐ FALL<br>☐ PUNCHING/ KICKING/BEATING<br>☐ EXPLOSIVE<br>☐ DROWNING<br>☐ FIRE OR BURNS<br>☐ MOTOR VEHICLE | ☐ INTENTIONAL NEGLECT<br>☐ OTHER, SPECIFY:<br>☐ UNKNOWN<br>☐ NOT APPLICABLE |
| IF HOMICIDE, WHAT WAS THE **RELATIONSHIP OF THE PERPETRATOR TO THE DECEDENT?** | ☐ NO RELATIONSHIP<br>☐ PARTNER<br>☐ EX-PARTNER<br>☐ OTHER RELATIVE | ☐ OTHER<br>☐ ACQUAINTANCE<br>☐ OTHER, SPECIFY: | ☐ UNKNOWN<br>☐ NOT APPLICABLE |

[1] 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.
[2] OPTIONAL field, CDC does not use this data.
[3] Add descriptions of contributors in the pathway between the immediate and underlying cause of death, as provided by the committee. Note that this is different from the contributing factors worksheet on page 2.
[4] If "Yes" or "Probably" is selected for preventable deaths, then an aligned contributing factor class and description would be expected in the grid on page 2.
[5] Encompasses Discrimination, Interpersonal Racism, and Structural Racism as described in Appendix B.

## COMMITTEE DETERMINATION OF PREVENTABILITY

A death is considered preventable if the committee determines that 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.

| | | |
|---|---|---|
| WAS THIS DEATH PREVENTABLE? | ☐ YES | ☐ NO |
| CHANCE TO ALTER OUTCOME[6] | ☐ GOOD CHANCE<br>☐ NO CHANCE | ☐ SOME CHANCE<br>☐ UNABLE TO DETERMINE |

## CONTRIBUTING FACTORS AND RECOMMENDATIONS FOR ACTION (Entries may continue to grid on page 3)

### CONTRIBUTING FACTORS WORKSHEET

What were the factors that contributed to this death? Multiple contributing factors may be present at each level: Choose one contributing factor per row until all contributing factors have been identified and described.

### RECOMMENDATIONS OF THE COMMITTEE

If there was at least some chance that the death could have been averted, what were the specific and feasible actions that, if implemented or altered, might have changed the course of events? Develop one recommendation per row until all contributing factors have been addressed.

| DESCRIPTION OF ISSUE (enter a description for EACH contributing factor listed) | CONTRIBUTING FACTOR (enter one per row; repeat as needed if a contributor has more than one recommendation) | LEVEL | COMMITTEE RECOMMENDATION [Who?] should [do what?] [when?] Map recommendations to contributing factors; repeat as needed if a recommendation has more than one contributor. | LEVEL | PREVENTION TYPE (choose below) | EXPECTED IMPACT (choose below) |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

### CONTRIBUTING FACTOR KEY (DESCRIPTIONS IN APPENDIX B)

- Access/financial
- Adherence
- Assessment
- Chronic disease
- Clinical skill/quality of care
- Communication
- Continuity of care/care coordination
- Cultural/religious
- Delay
- Discrimination
- Environmental
- Equipment/technology
- Interpersonal racism
- Knowledge
- Law Enforcement
- Legal
- Mental health conditions
- Outreach
- Policies/procedures
- Referral
- Social support/ isolation
- Structural racism
- Substance use disorder - alcohol, illicit/prescription drugs
- Tobacco use
- Trauma
- Unstable housing
- Violence
- Other

### DEFINITION OF LEVELS

- PATIENT/FAMILY: An individual before, during or after a pregnancy, and their family, internal or external to the household, with influence on the individual
- PROVIDER: An individual with training and expertise who provides care, treatment, and/or advice
- FACILITY: A physical location where direct care is provided - ranges from small clinics and urgent care centers to hospitals with trauma centers
- SYSTEM: Interacting entities that support services before, during, or after a pregnancy - ranges from healthcare systems and payors to public services and programs
- COMMUNITY: A grouping based on a shared sense of place or identity - ranges from physical neighborhoods to a community based on common interests and shared circumstances

### PREVENTION TYPE

- PRIMARY: Prevents the contributing factor before it ever occurs
- SECONDARY: Reduces the impact of the contributing factor once it has occurred (i.e., treatment)
- TERTIARY: Reduces the impact or progression of what has become an ongoing contributing factor (i.e., management of complications)

### EXPECTED IMPACT

- SMALL: Education/counseling (community- and/or provider-based health promotion and education activities)
- MEDIUM: Clinical intervention and coordination of care across continuum of well-woman visits (protocols, prescriptions)
- LARGE: Long-lasting protective intervention (improve readiness, recognition and response to obstetric emergencies/LARC)
- EXTRA LARGE: Change in context (promote environments that support healthy living/ensure available and accessible services)
- GIANT: Address social drivers of health (poverty, inequality, etc.)

[6] If "Good Chance" or "Some Chance" are selected, then CDC considers this is a "Yes" in their analytic use of the preventability determination.

# Appendix 3: List of Presentations and Activities

| Date | Activity |
|---|---|
| January 2024 | Maternal Health Awareness Day Live Webinar: Access in Crisis |
| January 2024 | Panel Discussion: Healthy Connections and Women's Health, How do we Achieve Health Equity? |
| February 2024 | AR Advocates for Children – Fort Smith, presentation MMRC updates and urgent maternal warning signs |
| February 2024 | UAMS OB tele-conference, presentation MMRC updates and urgent maternal warning signs (UAMS– University of Arkansas for Medical Sciences) |
| February 2024 | Senator Boozman Maternal Health Round Table |
| April 2024 | Maternal Health Hackathon, UAMS |
| April 2024 | Poster presentation at the MMRIA Users Meeting (MUM) |
| April 2024 | Panel Discussion: at Arkansas State University - Black Maternal Health |
| April 2024 | Stakeholders meeting: Strategic Taskforce meeting at AR Baptist Children and Family Services |
| April 2024 | Presentation at the 8th Biennial Minority Health Summit, Arkansas Minority Health Commission |
| April 2024 | Updates on Maternal Health at the UAMS POWER meeting (POWER – Perinatal Outcomes Workgroup Education and Research) |
| May 2024 | Panel Discussion: Northwest Arkansas Health Summit, Governor's Maternal Health Task Force, identifying and addressing barriers within maternal health |
| May 2024 | *Aftershock* viewing and Q&A, Phillips Medical Systems Company – Black employee health resource group |
| May 2024 | Regional County Health Officer Seminar, Northeast Arkansas, comparing AMMRC findings to national findings, the role of the Perinatal Collaborative, and urgent maternal health warning signs |
| May 2024 | Regional County Health Officer Seminar – Southeast Arkansas, comparing AMMRC findings to national findings, the role of the Perinatal Collaborative, and urgent maternal health warning signs |
| May 2024 | Regional County Health Officer Seminar – Southwest Arkansas, comparing AMMRC findings to national findings, the role of the Perinatal Collaborative, and urgent maternal health warning signs |
| May 2024 | Regional County Health Officer Seminar – Northwest Arkansas, comparing AMMRC findings to national findings, the role of the Perinatal Collaborative, and urgent maternal health warning signs |
| June 2024 | Regional County Health Officer Seminar – Central Arkansas, comparing AMMRC findings to national findings, the role of the Perinatal Collaborative, and urgent maternal health warning signs |
| June 2024 | Arkansas Psychiatry Society Annual Meeting, focus on perinatal substance use and maternal mortality |
| June 2024 | Presentation to the Arkansas Hospital Association |
| July 2024 | Presentation to Arkansas HIV Planning Group 2024 Conference |
| August 2024 | Arkansas Academy of Family Physicians, presentation of the 2024 factsheets |

# Appendix 4: Factsheets

## ARKANSAS Maternal Mortality

## 2018 – 2021 Deaths

The **Arkansas Maternal Mortality Review Committee (AMMRC)** reviews deaths that occur during pregnancy or within one year of the end of pregnancy to determine causes of death, contributing factors, and to make recommendations for preventing future deaths in Arkansas.

**Pregnancy-Associated Death:** The death of a woman while pregnant or within one year of the end of pregnancy, regardless of the cause.

**Pregnancy-Related Death:** The death of a woman while pregnant or within one year of the end of pregnancy from any cause related to or aggravated by pregnancy or its management.

**41**

**PREGNANCY-RELATED DEATHS PER 100,000 LIVE BIRTHS**

**95%**

**WERE PREVENTABLE**

**BLACK NON-HISPANIC WOMEN WERE**

**1.2x**

**AS LIKELY TO DIE AS WHITE NON-HISPANIC WOMEN**

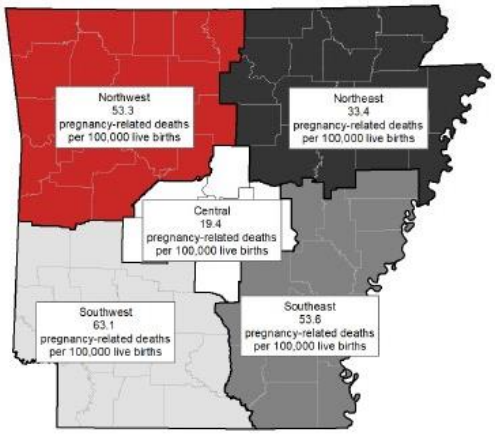
### Leading causes of pregnancy-related deaths

- Infection
- Cardiomyopathy
- Cardiovascular conditions
- Hypertensive disorders of pregnancy
- Hemorrhage

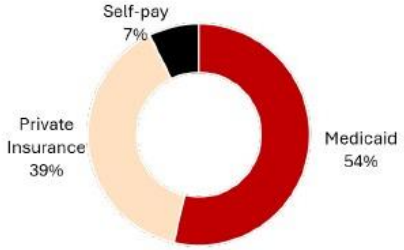
### Pregnancy-associated deaths by timing of death

| | During Pregnancy | Day of Delivery | 1-6 Days Postpartum | 7-42 Days Postpartum | 43-365 Days Postpartum |
|---|---|---|---|---|---|
| Pregnancy-related | 18.6% | 11.9% | 13.6% | 22.0% | 33.9% |
| Pregnancy-associated, but not related | 30.5% | 0% | 0% | 6.8% | 62.7% |
| Pregnancy-associated, but unable to determine relatedness | 15.0% | 0% | 5.0% | 15.0% | 65.0% |

### Arkansas public health regions




### Payment source for pregnancy-related deaths occurring after delivery




**2024 AMMRC Factsheet**

# Arkansas Maternal Mortality

# 2018 – 2021 By Year

The **Arkansas Maternal Mortality Review Committee (AMMRC)** reviews deaths that occur during pregnancy or within one year of the end of pregnancy to determine causes of death, contributing factors, and to make recommendations for preventing future deaths in Arkansas.

**Pregnancy-Related Death:** The death of a woman while pregnant or within one year of the end of pregnancy from any cause related to or aggravated by pregnancy or its management.

**Pregnancy-Associated But Not Related Death:** The death of a woman while pregnant or within one year of the end of pregnancy from a cause that is not related to pregnancy.

**Pregnancy-Associated Death:** The death of a woman while pregnant or within one year of the end of pregnancy, regardless of the cause. (Includes pregnancy-associated but not related and pregnancy-related, and unable to determine relatedness deaths.)

**Leading causes of pregnancy-related deaths**

- Infection
- Cardiomyopathy
- Cardiovascular conditions
- Hypertensive disorders of pregnancy
- Hemorrhage

| | 2018-2021 |
|---|---|
| Live births | 144,405 |
| Pregnancy-associated deaths | 141 |
| Pregnancy-related deaths | 59 |
| Pregnancy-associated, but not related deaths | 61 |
| Pregnancy-associated, but unable to determine relatedness deaths | 21 |

| 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|
| Births: 36,896 | Births: 36,438 | Births: 35,183 | Births: 35,888 |
| Pregnancy-Related deaths: 12 (32.5 per 100,000 live births) | Pregnancy-Related deaths: 11 (30.2 per 100,000 live births) | Pregnancy-Related deaths: 15 (42.6 per 100,000 live births) | Pregnancy-Related deaths: 21 (58.5 per 100,000 live births) |
| Pregnancy-Associated deaths: 33 | Pregnancy-Associated deaths: 27 | Pregnancy-Associated deaths: 40 | Pregnancy-Associated deaths: 41 |

## AMMRC Brief Data Overview by Year