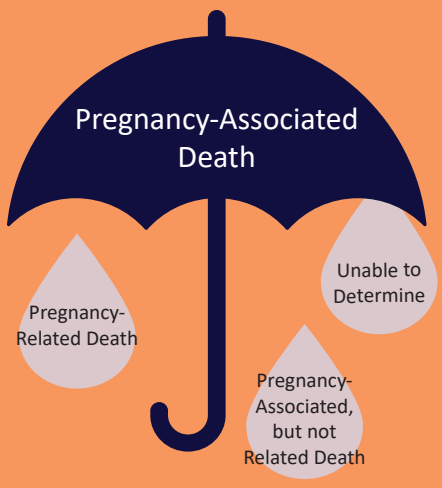
Pregnancy-Associated Death

This infographic stems from the Kansas Maternal Mortality Report.

KANSAS MATERNAL & CHILD HEALTH

A pregnancy-associated death refers to the death of a woman while pregnant or anytime within one year of pregnancy regardless of cause.[1]

- **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.** The death of a woman 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.** The death of a woman while pregnant or within one year of pregnancy, due to a cause that could not be determined to be pregnancy-related or not pregnancy-related.

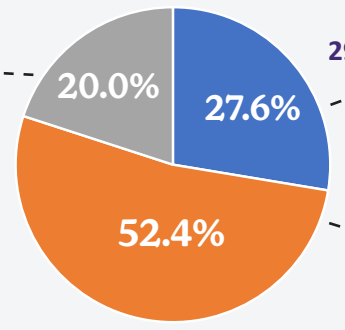


The Kansas maternal mortality rate of 20.9 (2017-2021) is 33.1% higher than the Healthy People 2030 goal of 15.7 maternal deaths per 100,000 live births (follows the World Health Organization definition).[2] This highlights that more work is needed and the importance of conducting reviews on maternal mortality to gain insight into the medical and social factors leading to these events. Through this review, recommendations can be developed that aim to prevent future occurrences. In 2018 we, Kansas Department of Health and Environment (KDHE), established the Kansas Maternal Mortality Review Committee (KMMRC). At any given time, the committee consists of 25-40 geographically diverse members representing various specialties, facilities and systems that interact and affect maternal health. The KMMRC also strives to ensure racial and cultural perspectives are represented throughout the committee as well as the voices of those with lived experiences.

Within the population of women of reproductive age, maternal mortality is an indicator monitored by Kansas Department of Health and Environment pursuant to K.S.A. 65-177.

Of the 132 identified deaths that occurred in Kansas (regardless of whether the person was a Kansas resident) from 2016 to 2020, the KMMRC determined that 105 deaths were pregnancy-associated. Pregnancy-associated deaths were then subcategorized as 1) pregnancy-related, 2) pregnancy-associated but not related or 3) pregnancy-associated but unable to determine the pregnancy-relatedness. **Of the 105 pregnancy-associated deaths reviewed, the KMMRC determined:**

21 deaths were pregnancy-associated but unable to determine the pregnancy-relatedness



29 deaths were pregnancy-related

55 deaths were pregnancy associated but not related

Kansas Department of Health and Environment

56 deaths per every 100,000 live births occurred in Kansas.

From 2016 to 2020, there were **105 pregnancy-associated deaths**, which translated to a pregnancy-associated mortality ratio of **56 deaths per every 100,000 live births occurred in Kansas.**

Those Most Impacted by Pregnancy-Associated Deaths

Women with a **high school education or less** were **nearly three times** as likely to die within one year of pregnancy as women who had more than a high school education.

Women on **Medicaid during pregnancy or for delivery** were **nearly four times** as likely to die within one year of pregnancy as women with private insurance.

Unmarried women were **nearly four times** as likely to die within one year of pregnancy as married women.

Inequalities in Pregnancy-Related Deaths

Non-White minority women were **nearly twice** as likely to die within a year of pregnancy as non-Hispanic White women.

Women who did not enter prenatal care during the first trimester were **more than twice** as likely to die within one year of pregnancy as women who entered prenatal care during the first trimester.

Women who resided in ZIP Codes with the lowest median household income were **more than twice** as likely to die within one year of pregnancy as women who lived in the highest median household income.

While pregnancy-associated deaths can occur across any racial and ethnic group, in Kansas from 2016 to 2020, data showed that non-Hispanic Black women and other non-Hispanic minority women were disproportionately impacted. Figure 1 shows that 18.1% of deaths were non-Hispanic Black women while making up just 7.1% of live births. Additionally, non-Hispanic minority women represented 10.5% of the deaths while making up 6.8% of live births.

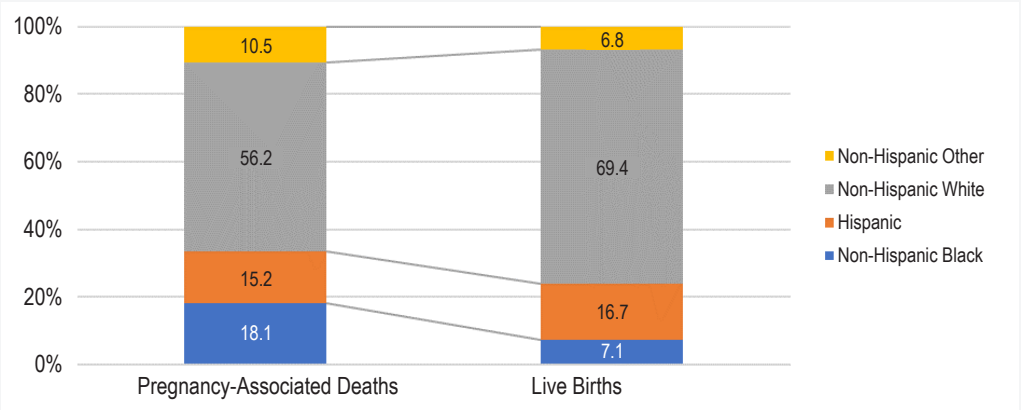
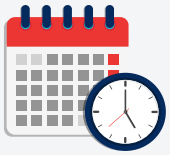


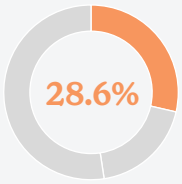
Figure 1

Chart Title: Percent of Pregnancy-Associated Deaths and Live Births by Race and Ethnicity, Kansas, 2016-2020
Source: Kansas Maternal Mortality Review Committee; Kansas Department of Health and Environment, birth data (occurrence)

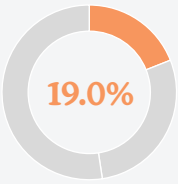
To develop resources and strategies to address pregnancy-associated deaths, it is important to understand who is most affected and identify the differences within pregnancy-associated deaths.



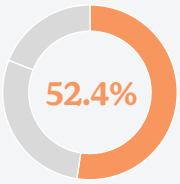
Timing of death:



30 deaths occurred during pregnancy.



20 deaths occurred within 42 days of the end of pregnancy.



55 deaths occurred 43 days to one year after the end of pregnancy.

These data show that tracking pregnancy-associated deaths to one year postpartum is essential, rather than the traditional measure of the first 42 days, as **more than half (52.4%) of all pregnancy-associated deaths occurred after 42 days postpartum.** When considering policy initiatives, with more than half of the pregnancy-associated deaths involving health care and occurring more than 42 days postpartum, the extension of Medicaid coverage to 12 months postpartum is a critical step toward closing the gaps in access to care and improving outcomes. Medicaid 12 month Postpartum Extension allows women access to the care they need to address health concerns well after their pregnancy ends. In Kansas, among non-Hispanic Black women, a greater proportion of pregnancy-associated deaths occurred during pregnancy and within 42 days postpartum (78.9%).

Underlying Causes of Death

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.[1]

The Leading Causes of Death (in Order)

21.0% (22 deaths)
Motor Vehicle Crash

10.5% (11 deaths)
Cardiovascular

10.5% (11 deaths)
Homicide

7.6% (8 deaths)
Embolism - Thrombotic

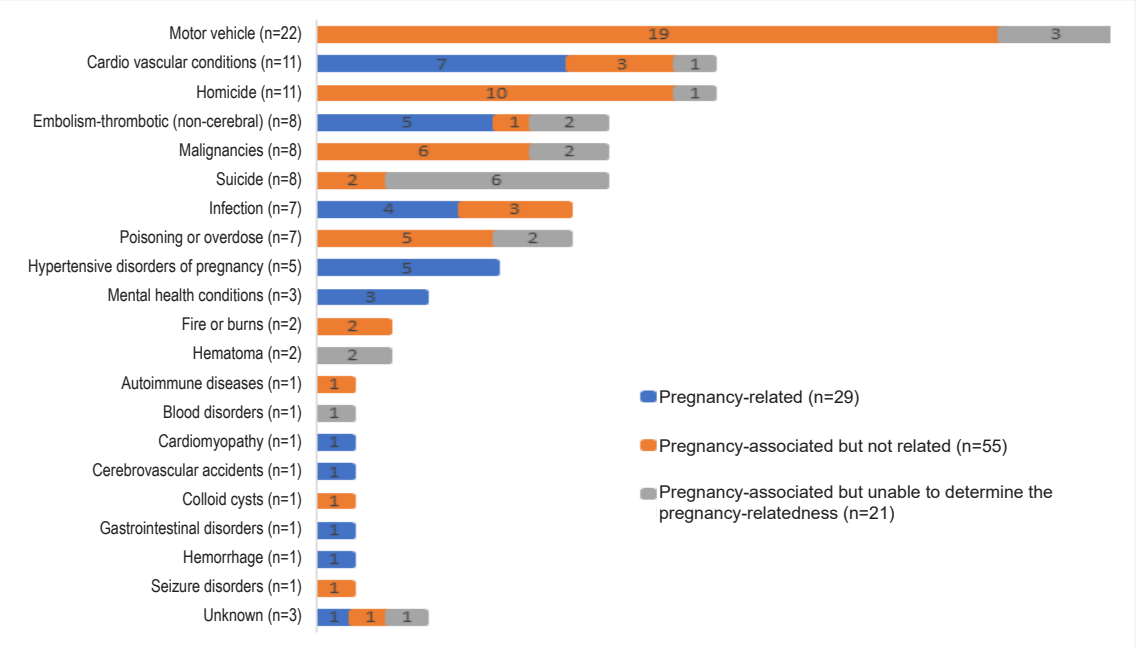


Figure 2

Chart Title: Number of underlying cause of death for pregnancy-associated deaths by pregnancy-relatedness, Kansas, 2016-2020
Source: Kansas Maternal Mortality Review Committee

The combination of the underlying cause of death determined by KMMRC and the underlying cause field on the death certificate were used to categorize the type of pregnancy-associated death (Figure 2).

- Nearly **half** (49 deaths, 46.7%) were **related to medical causes of death**, such as cardiovascular conditions, embolism-thrombotic (non-cerebral), infection or hypertensive disorders of pregnancy.
- Nearly **one-third** (29 deaths, 27.6%) were **caused by homicide, suicide, mental health conditions or unintentional poisoning or overdose.**
- **One-quarter** of the deaths were **caused by motor vehicle crash, fire or burn accidents and unknown** (27 deaths, 25.7%).

KMMRC Determinations on Circumstances Surrounding Death

Obesity
contributed to 23.8%

Discrimination*
contributed to 7.4%

*Discrimination assessed on all deaths reviewed after May 29, 2020.

Mental Health Conditions
contributed to 22.9%

Substance Use Disorder
contributed to 26.7%

- Obesity contributed to about **one in four deaths** (25 deaths, 23.8%).
- Discrimination contributed to about **one in 14 deaths** (four deaths, 7.4%).
- Mental Health conditions contributed to about **one in four deaths** (24 deaths, 22.9%).
- Substance Use Disorder contributed to about **one in four deaths** (28 deaths, 26.7%).

While the four areas assessed did not directly lead to maternal mortality, they were found by the committee to be contributing factors in the review of several maternal deaths. Understanding the nature of these contributing factors and how they relate to maternal mortality is complex work. More analysis is needed to better understand the interconnectedness between the identified factors and maternal mortality. Obesity serves as an underlying factor that may result in death associated with chronic disease complications. Discrimination can manifest as differences in care, clinical communication or lack of shared decision-making.[1] Mental health and/or substance use disorders serve as underlying factors that may result in suicide, accidental death and death due to accidental drug intoxication or homicide.[5]

References:

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3. Illinois Department of Public Health. Illinois Maternal Morbidity and Mortality Report. October 2018. dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/publicationsowhmaternalmorbiditymortalityreport112018.pdf.
4. Louisiana pregnancy-associated mortality review, 2017 report. July 2020. ldh.la.gov/assets/oph/Center-PHCH/Center-PH/maternal/2017_PAMR_Report_FINAL.pdf.
5. Building U.S. Capacity to Review and Prevent Maternal Deaths. 2018. Report from nine maternal mortality review committees. cdcfoundation.org/sites/default/files/files/ReportfromNineMMRCs.pdf.

Pregnancy-Associated Death
WHAT WE'RE DOING ABOUT IT

We, along with the KMMRC closely monitor emerging patterns through case reviews and actively work to address them.

Our programs make efforts to engage and educate the community, specifically communities most at risk of experiencing poor outcomes. Understanding the role that social determinants of health play in health outcomes, KDHE works to engage and collaborate across sectors to ensure a comprehensive approach to reducing maternal mortality.

State Perinatal Quality Collaboratives (PQCs) and MMRCs improve maternal and perinatal health; investing in the mother's health leads to healthier birth and pregnancy outcomes.

- PQCs: Focus on efforts during the maternal and perinatal periods intended to improve birth outcomes and strengthen perinatal systems of care for mothers and infants.
- MMRCs: Focus on reviewing pregnancy-associated deaths to identify gaps in health services and make recommendations to prevent future deaths, improving maternal and perinatal health.
- Lessons learned over time have resulted in the national Centers for Disease Control and Prevention (CDC) recommendation for states to intentionally and strategically align the efforts of the MMRCs and PQCs to create a culture of safety.

In October 2021, we enrolled in the Alliance for Innovation on Maternal Health (AIM) Postpartum Discharge Transition, in partnership with the Kansas Perinatal Quality Collaborative and KMMRC.

- AIM is a national data-driven maternal safety and Quality Improvement (QI) initiative for hospitals and partners with a focus on consistent obstetric practices.
- AIM is built around evidenced-based approaches that improve maternal safety and outcomes.
- AIM works with state teams and health systems to align national, state and hospital level QI efforts to improve maternal and perinatal health outcomes.
- Participation in AIM is open to any state, and includes access to:
  - Access to "Patient Safety Bundles"
  - Access to "Patient Safety Tools"
  - Access to "Education and Engagement Tools"
  - Access to the AIM Community of States

- **Fourth Trimester Initiative (Kansas AIM Bundle)**: The Fourth Trimester Initiative is a maternal quality improvement initiative focusing on the postpartum period. It focuses on universal screening; linkage and care coordination from the inpatient (birth facility) setting to the outpatient (public health and community agencies) setting. This includes linkage and connection to: primary care providers for those identified with chronic health conditions; perinatal behavioral health and substance use services; universal education on healthy relationships; and screening, referrals and care coordination around the social determinants of health.

- **12-month KanCare (Medicaid) Postpartum Extension**: Effective April 1, 2022, an individual (adult or minor) who is receiving Medicaid or CHIP coverage at the time of birth or end of the pregnancy is now continuously eligible through the last month of their 12-month postpartum period which begins the month following the end of the pregnancy. Use of KanCare Postpartum Extension is not contingent upon a live birth. Coverage remains in effect regardless of pregnancy outcome (stillbirth, miscarriage).

- **Kansas Birth Equity Network**: Birth Equity Curriculum and technical assistance is offered to all Fourth Trimester Initiative enrolled facilities through partnership with the Kansas Birth Equity Network.

- **The Well-Woman Toolkit**: Developed to support providers address barriers to care as well as provider bias. Current efforts are being focused on enhancing the toolkit to support providers on how to better engage and serve Hispanic and non-Hispanic Black Women in Kansas.

- **Maternal Warning Signs (MWS) Integration Toolkit**: Developed to raise awareness of potentially life-threatening warning signs during pregnancy and the postpartum period. This toolkit and its resources are designed to empower pregnant and postpartum women to speak up when something does not feel right and encourage partners, friends, family and health care providers to really listen and take action when women express concerns. Included is the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) POST BIRTH Warning Signs, the CDC's Hear Her campaign and resources on perinatal mental health. As an extension of the MWS initiative, the Perinatal Hypertension Guide was developed to educate patients on Hypertensive Disorders of Pregnancy (HDP), the associated risk factors of HDP, the warnings signs, how to properly self monitor blood pressure at home and the importance of communication with their provider.

- **Screening for Pregnancy Intention** using client centered tools provided by the Reproductive Health National Training Center (RHNTC) to initiate conversation about birth control, interconception and preconception health.

- **MAVIS (Maternal Anti-Violence Innovation and Sharing) Project**: Aims to reduce violent maternal deaths due to homicide, suicide, poisoning and overdose. We partnered with Kansas Coalition of Sexual and Domestic Violence, Kansas Perinatal Quality Collaborative, and Kansas Connecting Communities (KCC) to establish cross-training educational opportunities focusing on mental health, substance use and intimate partner violence. MAVIS activities also supported the establishment of the KMMRC Subcommittee to further examine these causes of maternal violent death, as well as reviews of social determinants of health and provides recommendations to address factors contributing to preventable maternal deaths.

- **Kansas Connecting Communities (KCC)**: Through federal grant funding, the KCC program established a Perinatal Provider Consultation Line for Behavioral Health in Kansas. Providers can access the Consultation Line for resource and referral support, case consultation with a peripartum psychiatrist or to request free training related to perinatal mental health and substance use.

- **Perinatal Mental Health Toolkit**: Developed to support providers to address the early identification of perinatal mood and anxiety disorders through universal screening practices. The toolkit includes patient and provider resources, policy templates, screening tools and workflow algorithms, guidance for screening administration and information for billing Medicaid for maternal depression screenings.

- **Perinatal Substance Use Toolkit**: Developed to support providers to address the early identification of perinatal substance use through universal screening practices. The toolkit includes patient and provider resources, policy templates, screening tools and workflow algorithms, guidance for screening administration and information for billing Medicaid for screening, brief intervention and referral to treatment (SBIRT) services related to substance use.