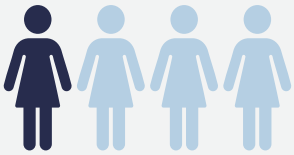
Pregnancy-Related Death

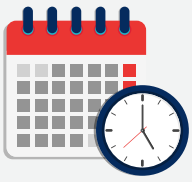
This infographic was derived from the Kansas Maternal Mortality Report, which can be found here.

A pregnancy-related death refers to the death of a women 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.[1]

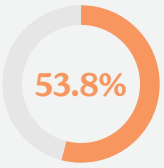
The Kansas maternal mortality rate of 14.8 (2014-2018) is 29.8% higher than the Healthy People 2020 goal of 11.4 maternal deaths per 100,0000 live births (follows the World Health Organization definition).[2] This underscores more work is needed and indicates the need to conduct maternal mortality review to gain insight into the medical and social factors leading to these events and to prevent further occurrences. In 2018, 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 impact maternal health. Within the population of women of reproductive age, maternal mortality is an indicator monitored by the Kansas Department of Health and Environment pursuant to K.S.A. 65-177.



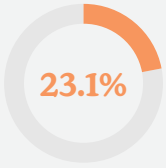
During 2016-2018, in Kansas, approximately **one in four deaths of women during or within one year of pregnancy were determined to be pregnancy-related** (13 deaths, 22.8%). This translated to a pregnancy-related mortality ratio (PRMR) of 11 deaths per every 100,000 live births that occurred in Kansas.



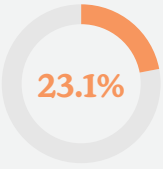
Timing of death:



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

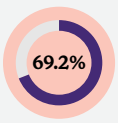


3 deaths occurred during pregnancy.



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

12 (**92.3%**) of the 13 deaths **were preventable** with 7 deaths (58.3%) showing a good chance of prevention and 5 deaths (41.7%) had some chance.



Two-thirds of deaths (9 deaths, 69.2%) occurred between the **ages of 25 and 34 years**.

The leading causes of death were (in order):

- Cardiovascular and coronary conditions
- Preeclampsia and Eclampsia
- Embolism
- Infection

Disparities in pregnancy-related deaths:

Racial and ethnic minorities were disproportionately affected. About two-thirds (8 deaths, 61.5%) were racial and ethnic minorities and 5 deaths (38.5%) were non-Hispanic White women.

Nearly two-thirds (8 deaths, 61.5 %) had **either completed high school or general educational development (GED), or had less education than high school**.

Less than half (6 deaths, 46.2 %) had private insurance; **others had Medicaid, no insurance or unknown insurance status**.

The distribution of underlying causes of death of pregnancy-related death by race and ethnicity varied, however, low numbers prevent strong conclusions. Pregnancy-related mortality ratio of death by race and ethnicity are not calculated because the numbers of deaths in most groups are very small. Five pregnancy-related deaths occurred in non-Hispanic White women (38.5%), three non-Hispanic Black women (23.1%), three Hispanic women (23.1%), and one involved a non-Hispanic woman of other race (15.4%). **The proportion of deaths that occurred among non-Hispanic Black women (23.1%), Hispanic women (23.1%), non-Hispanic women of other races (15.4%) far exceeded their representation among the population of women giving birth (7.1%, 16.2%, 6.8%, respectively) in Kansas**.

KMMRC determinations on circumstances surrounding death were:

Obesity contributed to more than half of the deaths (7 deaths, including 1 additional probably contributed, 53.8%).

Mental health conditions contributed to about one in 13 deaths (1 death, 7.7%).

Substance use disorder contributed to nearly one in four deaths (3 deaths, 23.1%).

References: ***1.*** *Centers for Disease Control and Prevention. Division of Reproductive Health. Building U.S. Capacity to Review and Prevent Maternal Deaths Program. Maternal Mortality Review Committee Decisions Form v20. October 13, 2020. https://reviewtoaction.org/content/maternal-mortality-review-committee-decisions-form.* ***2.*** *Maternal and Child Health Bureau. Federally Available Data (FAD) Resource Document. July 2, 2020; Rockville, MD: Health Resources and Services Administration. National Outcome Measure 3 - Maternal mortality rate per 100,000 live births. https://mchb.tvisdata.hrsa.gov/uploadedfiles/TvisWebReports/Documents/FADResourceDocument.pdf.*

Key KMMRC recommendations for action and contributing factors for pregnancy-related deaths

The **key KMMRC recommendations** based on 12 preventable pregnancy-related deaths are as follows:

- ✓ **Screen, provide brief intervention, and referrals** for:
  - Comorbidities and chronic illness
  - Intimate partner violence
  - Pregnancy intention
  - Mental health conditions (including postpartum anxiety and depression)
  - Substance use disorder
- ✓ **Increased communication and collaboration** between providers, including referrals
- ✓ **Patient education and empowerment**

A total of **51 contributing factors** related to the patient/family (31.4%), health care providers (29.4%), facilities/hospitals where the woman sought care (13.7%), the systems that influence the lifestyle, care, and health services for the woman (13.7%), or community (11.8%) were identified by KMMRC to pregnancy-related deaths. While patient/family and provider level factors were the most common, **but it is important to acknowledge they were often dependent on systems of care, facility, and community level factors** (Figure 1).

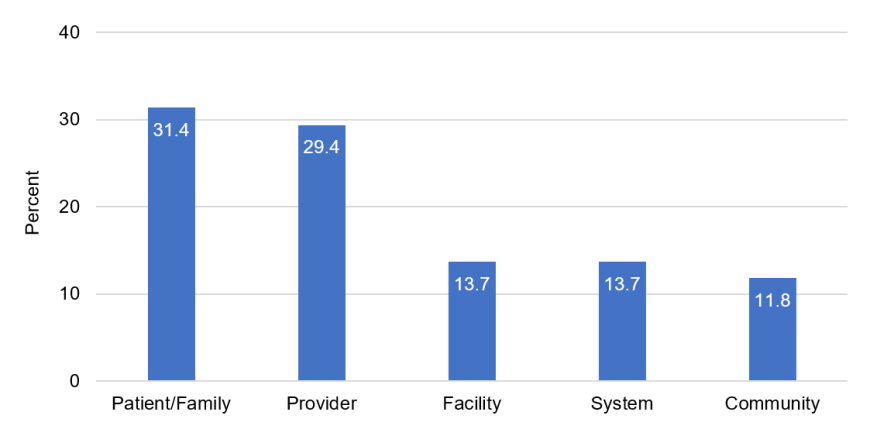


Figure 1

Chart Title: *Distribution of levels of contributing factors among preventable pregnancy-related deaths, Kansas, 2016-2018*
Source: *Kansas Maternal Mortality Review Committee*

Type of prevention for recommendations and expected impact of actions if implanted for pregnancy-related deaths

1. Most recommendations were identified as resulting in either primary (35.9%) or secondary (40.6%) prevention, and 23.4% of recommendations were identified as resulting in tertiary prevention.

2. The level of **expected impact** if the recommendation was implemented was **estimated to be large, extra large, or giant for 66.1% of recommendations.**

3. More consistent use of screening tools, providing brief intervention, referral to treatment, patient education and empowerment, communication and collaboration between health care providers, community engagement and education, and/or family planning education would likely have a larger impact for prevention.

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WHAT WE'RE DOING ABOUT IT

The KMMRC and KDHE Maternal and Child Health (MCH) team are closely monitoring any emerging patterns or trends identified because of case reviews.

State Perinatal Quality Collaboratives (PQCs) and MMRCs function to improve maternal and perinatal health (investing in the mother's health leads to a healthier birth/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 actionable recommendations to prevent future deaths, improving maternal and perinatal health.
- Lessons learned over time have resulted in the national recommendation (CDC) for states to intentionally and strategically align the review efforts (MMRC) with the action/quality improvement (QI) efforts (PQC), creating a "culture of safety".

Kansas will enroll in the Alliance for Innovation on Maternal Health (AIM) initiative when ready and implement a safety bundle pilot: **Postpartum Discharge Transition**, which is currently in development, in partnership with the KPQC and KMMRC (tentatively March-April 2021).

- AIM is a national data-driven maternal safety and QI initiative for states and hospitals and partners from participating states (focus on consistent obstetric practices).
- AIM is based on proven implementation approaches to improving maternal safety and outcomes in the United States.
- AIM works through state teams and health systems to align national, state, and hospital level QI efforts to improve maternal and perinatal health outcomes.
- Any state can join AIM as part of a state-level PQC QI efforts/initiatives.
  - 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 – KPQC Initiative based on KMMRC findings and recommendations
- The well-woman toolkit – which addresses barriers to care, including provider bias. We are working on developing supplements for the toolkit that would focus specifically on how to reach and serve Hispanic and Non-Hispanic Black women in KS
- Post-birth warning signs campaign and provider training with the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) (and using the CDC's Hear Her materials)
- Pregnancy intention training (One Key Question) – which includes training on provider bias

DATA to ACTION: When deciding on the AIM bundle that fit our State's needs best, KDHE worked in coordination with the KMMRC and KPQC to review the data and recommendations from the KMMRC. Most of the pregnancy-related deaths had recommendations involving better communication and collaboration between providers, timely referrals to specialty physicians as well as community providers, and screening for behavioral health conditions, social determinants of health, and pregnancy intentions. The ***AIM bundle Postpartum Discharge Transition*** was chosen based on these recommendations because it addresses the majority of our recommendations.