

Brandi Markert, MS

Kansas Department of Health and Environment

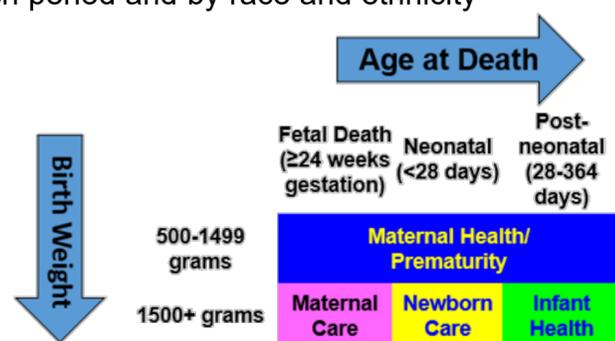
## Background

Reducing infant mortality in Kansas is critical:

- In 2020, Kansas' infant mortality rate (**6.5 deaths per 1,000 live births**) exceeded the Healthy People 2030 goal of 5.0 deaths per 1,000 live births
- Disparities persist by **race and ethnicity**
  - In 2016-2020, non-Hispanic Black infants died at 2.7 times the rate of non-Hispanic White infants

## Methods

- **Perinatal Periods of Risk (PPOR) approach**, developed by CityMatCH ([citymatch.org/perinatal-periods-of-risk-ppor/](http://citymatch.org/perinatal-periods-of-risk-ppor/))
- Used vital statistics data for Kansas residents, 2016-2020:
  - **Fetal deaths:** 24 weeks or greater gestational age, 500 grams or larger
  - **Live births:** 500 grams or larger
  - **Linked infant deaths:** 500 grams or larger
- Fetal and infant mortality was compared to a **reference group:** Kansas residents who gave birth in 2016-2020, 20-34 years old, with at least some college education, non-Hispanic White race
- **Phase 1:** Deaths were partitioned into four **perinatal periods** based on **birth weight** and **age at death**; excess mortality (compared to the reference group) was calculated for each period and by race and ethnicity



- **Phase 2:**
  - **Step 1:** In perinatal periods with the most excess deaths, causes and/or explanations for excess mortality were assessed
  - **Step 2:** Potential impact of risk/preventive factors were calculated using population attributable risk percentages (PARs), unadjusted for other factors

## Acknowledgments

- CityMatCH – methodology and perinatal period graphic
- Jamie Kim, MPH – technical assistance and materials

## Our Mission:

To protect and improve the health and environment of all Kansans

## Results

### Phase 1: Excess Fetal and Infant Mortality in Each Perinatal Period of Risk

- Kansas overall experienced approximately **410 excess fetal and infant deaths** in 2016-2020, based on comparison of fetal and infant mortality rates to the reference group.
- Compared to the reference group, the non-Hispanic Black population experienced **8.3** excess fetal and infant deaths per 1,000 live births plus stillbirths (95% Confidence Interval [CI]: 6.7-9.9) and the Hispanic population experienced **3.0** excess deaths per 1,000 live births plus stillbirths (95% CI: 2.4-3.6) – significantly higher than the excess mortality rate for the non-Hispanic White population overall (**1.5**; 95% CI: 1.3-1.7).

**Table 1. Excess Fetal and Infant Deaths by Perinatal Period of Risk and Maternal Race and Ethnicity**

Maternal Race and Ethnicity	Maternal Health/ Prematurity	Maternal Care	Newborn Care	Infant Health	Total
Overall	134	108	48	120	410
American Indian/Alaska Native, non-Hispanic	--	--	--	--	--
Asian/Pacific Islander, non-Hispanic	--	--	--	--	--
Black, non-Hispanic	43	24	*	30	101
White, non-Hispanic	51	44	33	63	191
Other race or multiple races, non-Hispanic	*	*	*	*	*
Hispanic (any race)	32	31	*	20	90

\* Estimate not shown due to statistical unreliability of excess mortality rate (Relative Standard Error > 30% or numerator < 20).

Two hyphens (--) indicate that this subpopulation had too few deaths to calculate excess mortality (minimum of 5 deaths per perinatal period).

Source: Kansas Department of Health and Environment, Bureau of Epidemiology and Public Health Informatics

### Phase 2: Causes or Explanations for Excess Mortality, and Associated Factors

Maternal Health/Prematurity Period	Infant Health Period	Maternal Care Period
<ul style="list-style-type: none"> <li>• Excess mortality in this period could be primarily explained by <b>birthweight distribution</b>, or <i>too many</i> very low birth weight births (&lt;1,500 grams)</li> <li>• Among live births weighing 500+ grams, factors most associated with very low birth weight included twin/triplet birth (PAR = 23.0%), hypertension (PAR = 17.1%), unmarried status, and socioeconomic factors (Medicaid payment for delivery, high school or less education)</li> </ul>	<ul style="list-style-type: none"> <li>• Most excess deaths in this period were <b>Sudden Unexpected Infant Deaths (SUIDs)</b>; ICD-10 cause codes: R95, R99, W75)</li> <li>• Among live-born infants weighing 1,500+ grams and surviving 28+ days, maternal factors most associated with the SUID rate included unmarried status, high school or less education, and prenatal cigarette use (PAR = 22.5%)</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistency of stillbirth reporting limits analysis of causes for excess mortality in this period</li> <li>• Among live births and fetal deaths weighing 1,500+ grams, maternal overweight/obesity was most associated (PAR = 25.3%) with the fetal mortality rate</li> </ul>

## Conclusions & Recommendations

- Expand initiatives to reduce the percentage of **very low birth weight births** (e.g., preconception health and health care, prenatal care) and to prevent **sleep-related infant deaths** (e.g., tobacco cessation, infant safe sleep).
- Efforts should consider the **social determinants of health** that influence observed disparities in fetal and infant mortality.