



Kansas Infant Mortality and Stillbirth Report, 2022

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Executive Summary

Infant mortality is an important indicator of community health. It is associated with a variety of factors such as economic development, general living conditions, social well-being, basic needs, illnesses such as diabetes and hypertension, and quality of the environment. This report provides a long-term assessment of progress on infant mortality.

Key findings include:

- Though the Kansas infant rate has declined significantly from 2003 to 2022 (p-value <.0001), it was higher than the U.S. infant mortality rate in 2022.
- The 2022 infant mortality rate in Kansas of 5.8 deaths per 1,000 live births was higher than the Healthy People 2030 objective of no more than 5.0 deaths per 1,000 live births. The rate in 2022 among non-Hispanic White births (4.7) was below the objective. The rate among Hispanic births (7.9) has increased compared to the rate last year (5.2). Non-Hispanic Black births (9.1) fell from the rate last year (13.6) but remained above the objective.
- From 2003 to 2022, the infant mortality rate trend in Kansas decreased significantly for non-Hispanic White births (p-value=.0001) and non-Hispanic Black births (p-value<.0001). No statistically significant (p-value=.5) trend in infant mortality was seen among Hispanic births.
- The infant mortality rate among Kansas non-Hispanic Black births remained at least 2 to 3 times that of non-Hispanic White births for most years from 2003 to 2022 with the difference shrinking over time.
- The rate of preterm-related mortality declined from 2003 to 2022 (p-value=.1 between 2003-2017, p-value <.0001 in 2017-2022). Between 2018 and 2022, there were 126.4 preterm-related infant deaths per every 100,000 live births. The preterm-related mortality rate among non-Hispanic Black births was higher than that among non-Hispanic White births or Hispanic births.
- The leading cause of stillbirths, with 1 in 3 stillbirths (30.3%), in 2018-2022 were attributed to an unspecified cause of death. The second leading cause of fetal death for all population groups was complications of the placenta, umbilical cord, and membranes (24.8%). However, the leading cause of stillbirths among non-Hispanic White was complications of the placenta, umbilical cord, and membranes.
- The perinatal mortality rate declined from 6.5 to 6.1 between 2003 and 2022. Perinatal deaths included stillbirths with a gestation period of at least 28 weeks and hebdomadal deaths per 1,000 live births (less than seven days post birth).

Introduction

An important indicator of the health of a community is infant mortality, the death of an infant before reaching one year of age. Infant deaths can stem from environmental, socioeconomic, biological, and lifestyle factors, which are often interconnected.¹ Many of these factors are associated with the health status of the whole population, such as general living conditions, social wellbeing, basic needs, chronic health conditions, and quality of the environment.^{2,3,4}

Known risk factors for infant morbidity and mortality include:

- Black, American Indian/Alaskan Native, Native Hawaiian, or other Pacific Islanders background ^{2,3,4}
- Family history of birth defects or genetic disorders ⁶
- Use of alcohol, nicotine products, other substances, or certain medications during pregnancy
- Advanced maternal age ^{6,7}
- Teen pregnancy ⁷
- Pre-pregnancy underweight status or obesity ^{6,7}
- Chronic health conditions, such as diabetes mellitus or hypertension ^{6,7,9}
- Short interval (less than 18 months) between pregnancies ⁸
- Infections during pregnancy ^{5,9}
- Infant exposure to secondhand smoke ¹⁰
- Certain infant sleep habits ^{10,11}
 - Sleeping on the side or stomach, rather than on the back
 - Sleeping on a soft surface, such as an adult mattress or couch
 - Sleeping with loose bedding, toys, or other clutter
 - Sharing a bed with another person
- Lack of access to quality health care ^{11,12}
- Maternal mental conditions ^{9,12}
- High levels of stress around the time of pregnancy ¹³

To help promote infant health and well-being, cross-sector collaboration is needed. Strategies include:

- Reduce systemic barriers which contribute to racial disparities in birth outcomes.
- Increase access to timely health care services, including routine prenatal and postpartum visits, as well as dental healthcare, mental healthcare, family planning visits, and prenatal education classes.^{11,12}
- Support and refer to services for tobacco cessation.^{14,15}

- Support families in following infant safe sleep recommendations from the American Academy of Pediatrics.^{10,11}
- Encourage folic acid supplement, before, during and between pregnancies.⁶
- Support families in achieving breastfeeding recommendations, which include breastfeeding infants exclusively for at least six months.^{10,16,17}

- Complete comprehensive screenings during healthcare visits.^{9,12} Provide brief interventions and referral to care as needed.
- Avoid early delivery before 39 weeks of gestation, unless medically indicated.¹²
- Assess clients' access to basic needs during healthcare visits, such as transportation, food, and shelter.^{12,18} Make referrals and connections to services.

Healthy People 2030 provides national objectives for improving the health of all Americans, including infants. The Healthy people 2030 target is no more than 5.0 deaths per 1,000 live births.¹⁶ In 2022, the Kansas rate was 5.8, while the nationwide infant mortality rate was 5.5 per 1,000 live births.³

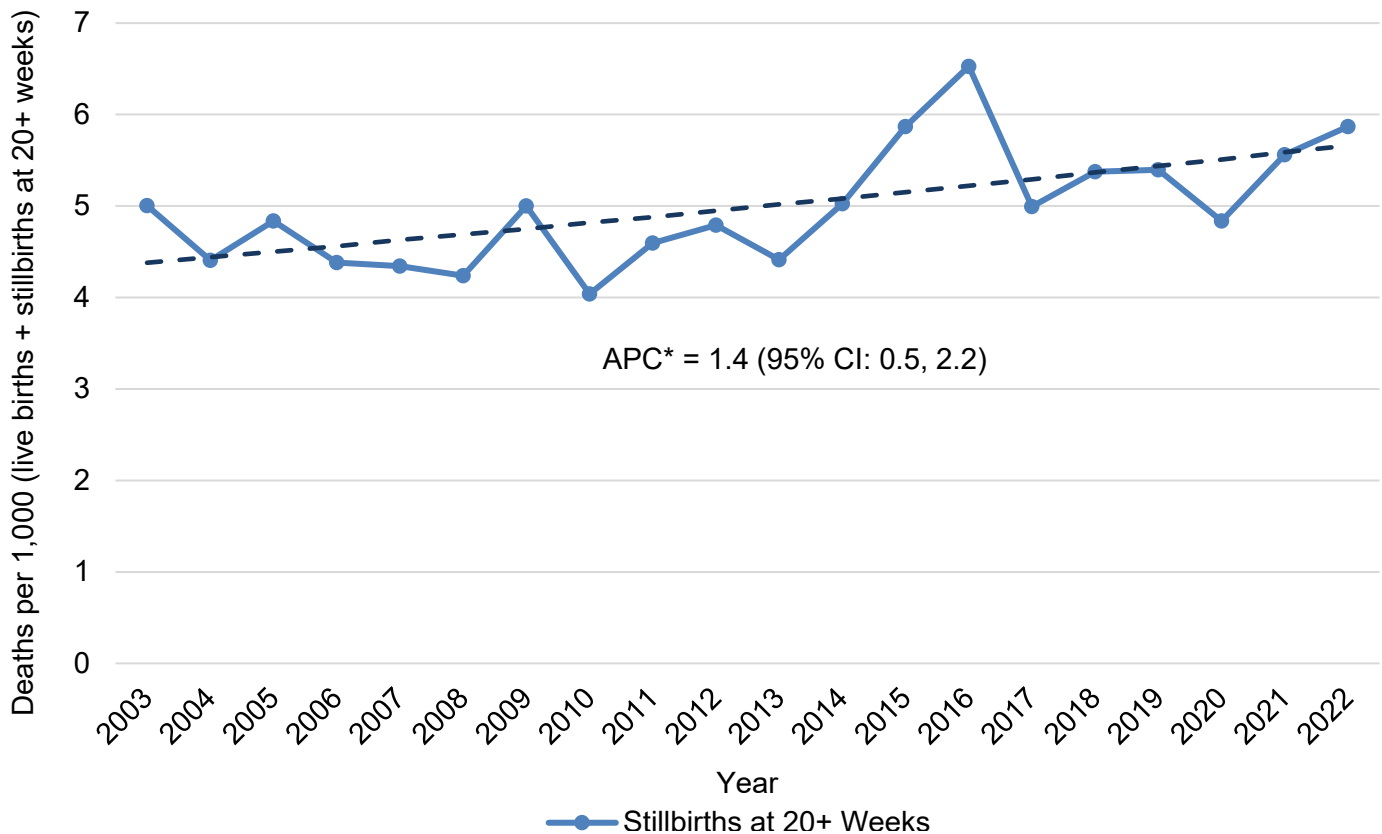
The Kansas Department of Health and Environment (KDHE) Bureau of Epidemiology and Public Health Informatics (BEPHI) monitors infant mortality and supports programs that promote access to health services for mothers and infants. This report builds on information in the KDHE Annual Summary of Vital Statistics, 2022²⁰ with multi-year statistics and emphasis on trends, geographic distribution, and potential risk factors. Information on stillbirths is also presented since stillbirths and infant deaths may share similar risk factors.

Infant mortality and stillbirth rates were calculated per year, per a combination of years and for specific subpopulations. Due to the relatively small number of infant deaths and stillbirths each year, preselected intervals of years were combined to increase data reliability. The five most recent years of data were combined for characteristic analysis and intervals of 20 years and approximately 100 years were used for trend analysis. The long-term (~100 years) infant mortality numbers and rates may be underreported due to incomplete data collection in the early 1900s.

Fetal & Perinatal Mortality

A stillbirth is the death or loss of a baby before or during delivery which is defined as the loss of a baby at or after 20 weeks of pregnancy.³³ The Kansas stillbirth rate increased significantly (p-value <.0001) from 2003 to 2022 (Figure A, Table A2), with estimated annual percent change (APC) of 1.4%. The increase after 2013, particularly, may be partially due to a change in fetal death reporting requirements in Kansas, which occurred in July 2014. While counts in this report are based on the 2014 definition, counts may still be lower for prior years due to the methodology change (see Technical Notes).²¹ There has been a significant increase in the annual percent change in stillbirths from 2003 to 2022. Although, there was a drop of stillbirth rate from 2019 (5.4 per 1,000 total deliveries) to 2020 (4.8 per 1,000 live births), the rate increased in 2021 to 5.6 and in 2022 to 5.9 per 1,000 total deliveries, where deliveries include live birth plus stillbirths at 20+ weeks gestation.

Figure A. Stillbirth Rates at 20+ Weeks Gestation, Kansas, 2003-2022



APC = Annual Percent Change

* Trend is statistically significant (p-value < 0.05).

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

Among stillbirths that occurred in 2018-2022, 31.7% were attributed to unspecified cause (Table A7). The second leading cause of fetal death was complications of the placenta, cord, and membranes (22.1%), followed by maternal conditions that may be unrelated to present pregnancy (13.9%). The rate of stillbirths occurring at 28 weeks or more of gestation did not change significantly (p-value = .7) over the twenty-year period (Table A2, Figure B).

The Kansas stillbirth rate varied by race and ethnicity. During 2018-2022, there were 112 stillbirths to non-Hispanic Black mothers (Table A), corresponding to a rate of 9.5 stillbirths at 20 weeks or more of gestation, per 1,000 deliveries (95% CI: 7.8, 11.3). This was more than twice the rate among non-Hispanic White population (4.4; 95% CI: 4.0, 4.8). Among the Hispanic deliveries, there were 7.4 stillbirths at 20 weeks or more of gestation per 1,000 live births plus stillbirths at 20 weeks or more of gestation (95% CI: 6.5, 8.4). More than one-third of Hispanic stillbirths and a quarter non-Hispanic Black stillbirths were attributed to unspecified cause. For non-Hispanic White stillbirths, complications of placenta, cord and membranes was the leading factor (Table A).

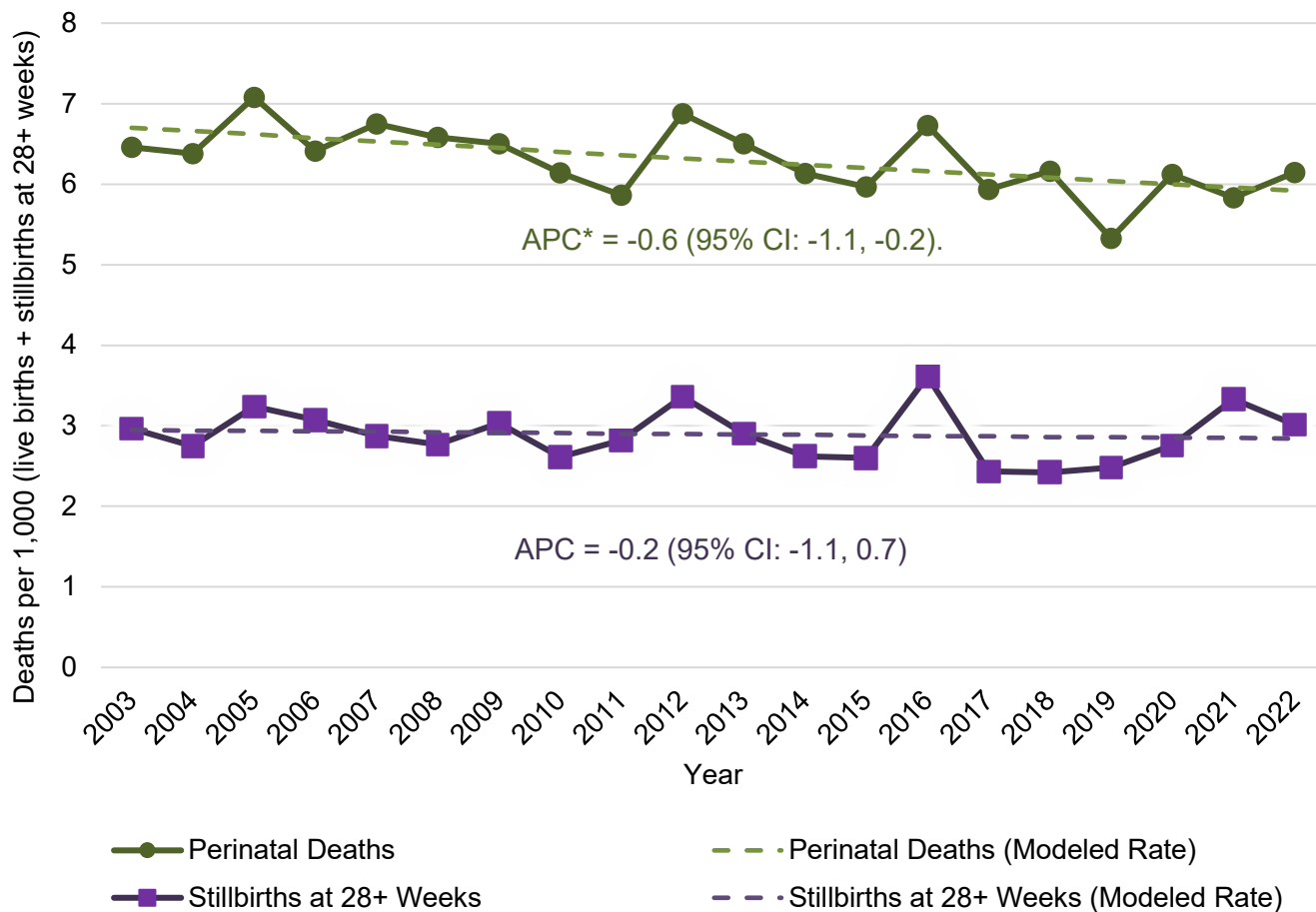
Table A. Stillbirths at 20+ Weeks Gestation among the Non-Hispanic White, Non-Hispanic Black, and Hispanic Populations, by Leading Causes of Fetal Death, Kansas, 2018- 2022

Cause of Fetal Death (ICD-10 Code) by Population Group	Number of Stillbirths	Percent of Stillbirths
Non-Hispanic White (n=529)		
1. Fetus affected by complications of placenta, cord and membranes (P02)	133	25.14
2. Fetal death of unspecified cause (P95)	131	24.76
3. Fetus affected by maternal conditions that may be unrelated to present pregnancy (P00)	76	14.37
Non-Hispanic Black (n=112)		
1. Fetal death of unspecified cause (P95)	29	25.89
2. Fetus affected by maternal conditions that may be unrelated to present pregnancy(P00)	23	20.54
3. Fetus affected by complications of placenta, cord and membranes (P02)	18	16.07
Hispanic, any race (n=226)		
1. Fetal death of unspecified cause (P95)	102	45.13
2. Fetus affected by complications of placenta, cord and membranes (P02)	28	12.39
3. Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	20	8.85

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

Perinatal deaths include stillbirths at 28 weeks or more of gestation, as well as infant deaths in the first week after birth. Despite the recent increase in the number of stillbirths at 20+ weeks (Figure A), the rate of perinatal deaths dropped significantly (p-value = .02) from 2002 to 2022 (Figure B). In 2022, the perinatal mortality rate was 5.9 (95% CI: 4.6,7.2) per 1000 deliveries, where deliveries include live birth plus stillbirths at 28+ weeks gestation. The rate of stillbirths at 28 weeks or more of gestation was 3.32 (95% CI: 2.7, 4.0) per 1,000 deliveries in the same year.

Figure B. Perinatal Mortality Rates and Stillbirth Rates at 28+ Weeks of Gestation, Kansas, 2003-2022



APC = Annual Percent Change

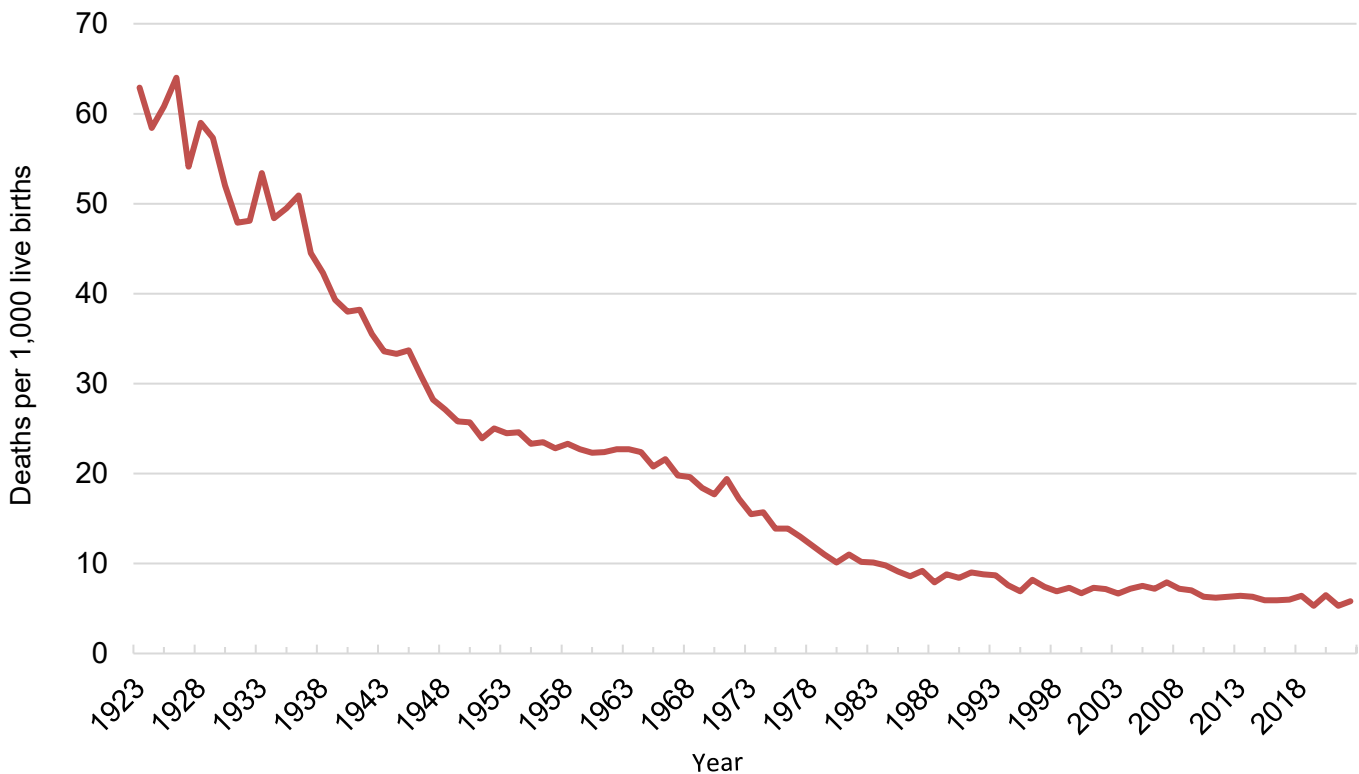
* Trend is statistically significant (p-value < 0.05).

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

Infant Mortality

The rate of infant deaths dropped dramatically from the early to late 1900s (Figure C). From 2003 to 2022, infant mortality declined significantly (p -value $< .0001$) at an annual percent change of APC -1.5% (figure D). In 2022, 200 infant deaths were reported (Table A1), corresponding to an infant mortality rate of 5.8 (Table A2) deaths per 1,000 live births.

Figure C. Infant Mortality Rates, Kansas, 1923-2022



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

Most Kansas infant deaths were neonatal deaths, occurring before the infant reached 28 days of age. In 2022, there were 127 neonatal deaths (63.5% of infant deaths, or 3.7 deaths per 1,000 live births; 95% CI: 3.0-4.3) and 73 post neonatal deaths (36.5% of infant deaths, or 2.1 deaths per 1,000 live births; 95% CI: 1.7, 2.7) (Tables A1 and A2). From 2003 to 2022, the rate of neonatal deaths declined significantly (p -value $= .0001$), with APC of 1.3% (Figure E). Post neonatal mortality rose at a non-significant rate (p -value $= .1$) from 2003 to 2007, then declined significantly (p -value $= .0001$) from 2007 to 2014, with an APC of 6.7% , and finally rose at a non-significant rate (p -value $= .1$) from 2014-2022, with an APC of 2.5% .

Figure D. Infant Mortality Rates, Kansas, 2003-2022

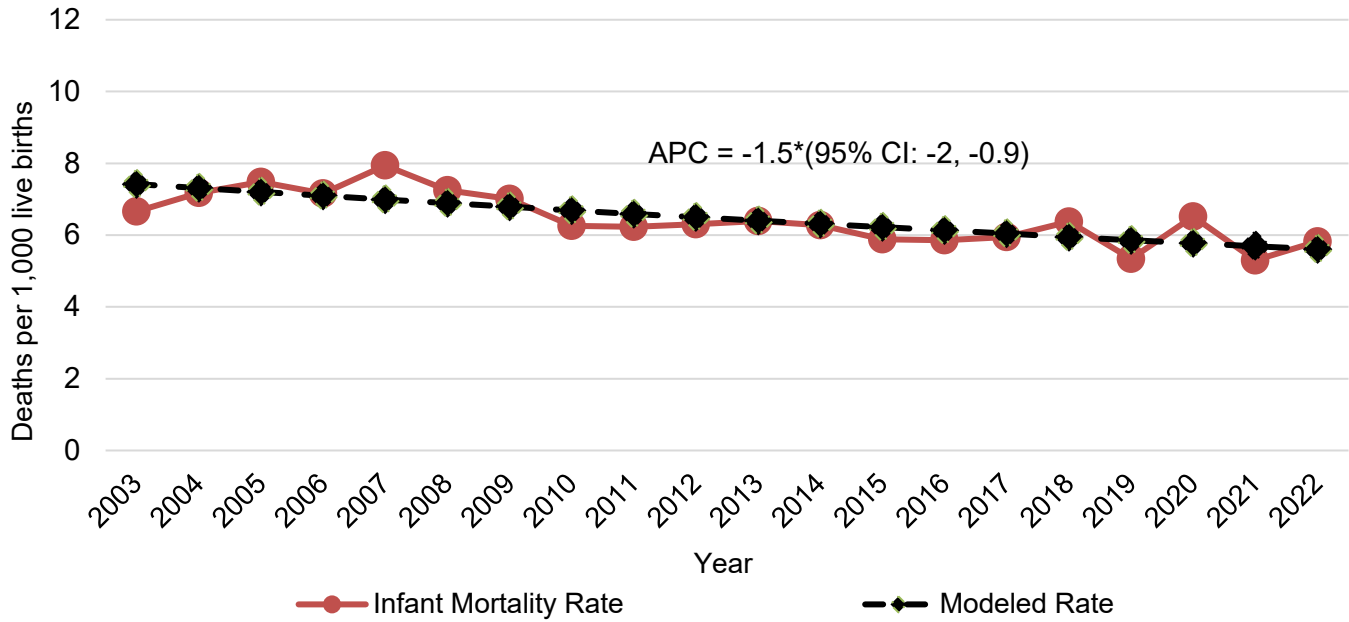
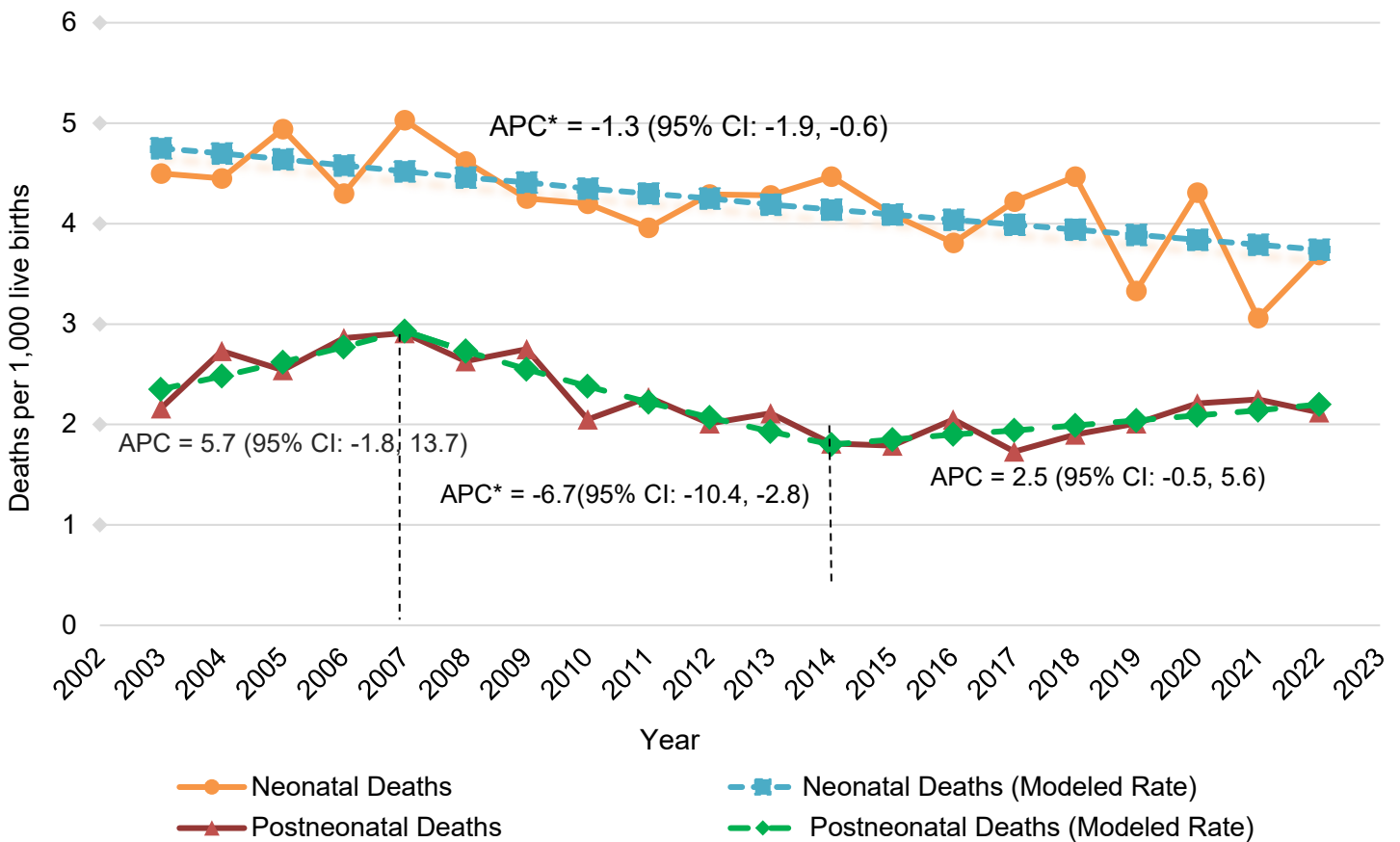


Figure E. Infant Mortality Rates, by Infant's Age, Kansas, 2003-2022



APC = Annual Percent Change

* Trend is statistically significant (p-value < 0.05).

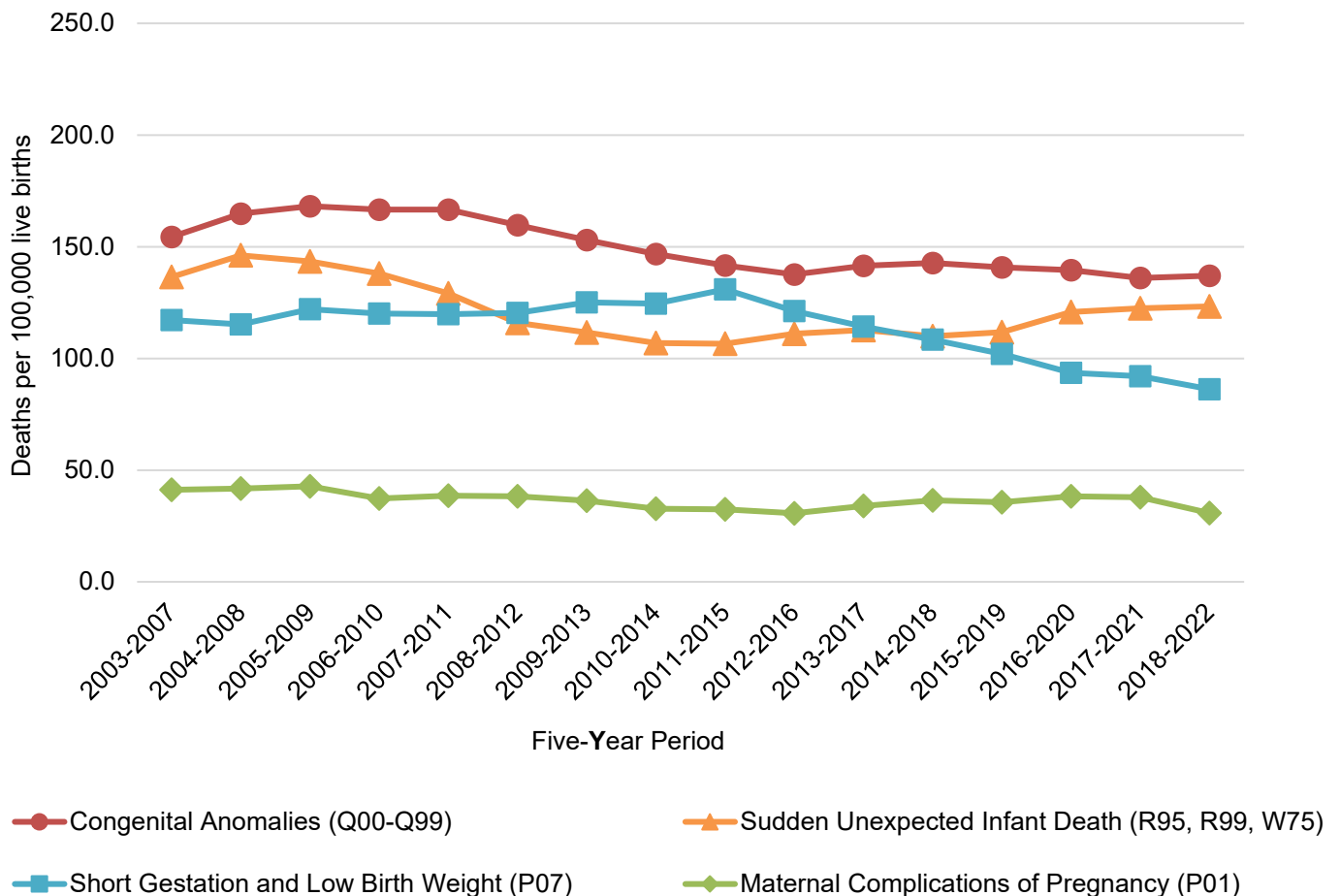
Source: Source: Kansas Department of Health and Environment, Bureau of Epidemiology and Public Health Informatics

Leading Causes of Infant Mortality

Twenty-year trends in the four leading causes of infant death are shown in Figure F. The four leading causes include:^{1,20}

- Congenital anomalies (ICD-10 codes Q00-Q99), also known as birth defects,
- Sudden Unexpected Infant Deaths or SUIDs (ICD-10 codes R95, R99, and W75),
- Short gestation and low birth weight (ICD-10 code P07) and
- Maternal complications of pregnancy (ICD-10 code P01).

Figure F. Five Year Rolling Averages Infant Mortality Rates by Four Leading Causes of Infant Death, Kansas, 2003-2022



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

The leading cause of infant death for each rolling five-year period from 2003-2022 was congenital anomalies with a corresponding rate of 137.1 infant deaths per 100,000 live births (95% CI: 119.6, 154.6) (Figure F, Table B). In 2018-2022, nearly 1 in 4 infant deaths (23.3%) were due to congenital anomalies (Figure G, Table B).

Table B. Infant Deaths by Ten Leading Causes of Infant Death, Kansas, 2018-2022

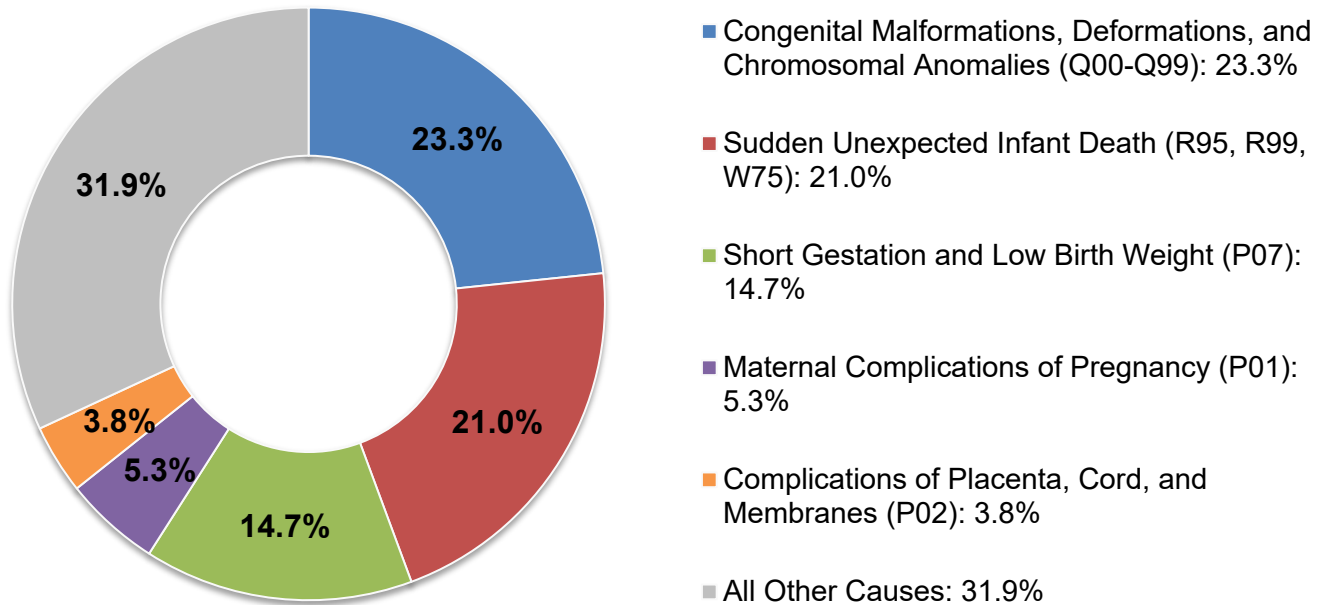
Causes of Death (ICD-10 Code)	Number of Deaths	Percent of Deaths	Rate (95% Confidence Interval)
All Causes	1028	100.0	587 (551.3, 622.7)
1. Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	240	23.3	137.1 (119.6, 154.6)
2. Sudden unexpected infant death (R95, R99, W75)	216	21.0	123.3 (106.9, 139.7)
3. Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	151	14.7	86.2 (72.5, 99.9)
4. Newborn affected by maternal complications of pregnancy (P01)	54	5.3	30.8 (23.1, 40.2)
5. Newborn affected by complications of placenta, cord and membranes (P02)	39	3.8	22.3 (15.9,30.5)
6. Accidents (unintentional injuries), excluding (V01-X59)	24	2.3	13.7 (8.8,20.4)
7. Diseases of the circulatory system (I00-I99)	17	1.7	9.7 (5.7,15.5)
8. Atelectasis (P28.0-P28.1)	14	1.4	8 (4.4, 13.4)
9. Intrauterine hypoxia and birth asphyxia (P20-P21)	13	1.3	7.4 (3.9,12.7)
10. Neonatal hemorrhage (P50-P52, P54)	12	1.2	6.9 (3.6,12.1)

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

The second leading cause of infant death during 2018-2022 was Sudden Unexpected Infant Death (SUID), with 21.0% of infant deaths, and a corresponding rate of 123.3 infant deaths per 100,000 live births (95% CI: 106.9, 139.7). SUID was the leading cause of death in infants who had reached at least 28 days of age (49.5%, Table A5).

The third leading cause of infant death during 2018-2022 was short gestation and low birth weight (14.7% of infant deaths). The fourth leading cause of infant's death was maternal complications of pregnancy (5.3%) of infant deaths. Other leading causes of infant deaths in 2018-2022 are shown in Table B.

Figure G. Leading Causes of Infant Mortality, Kansas, 2018-2022

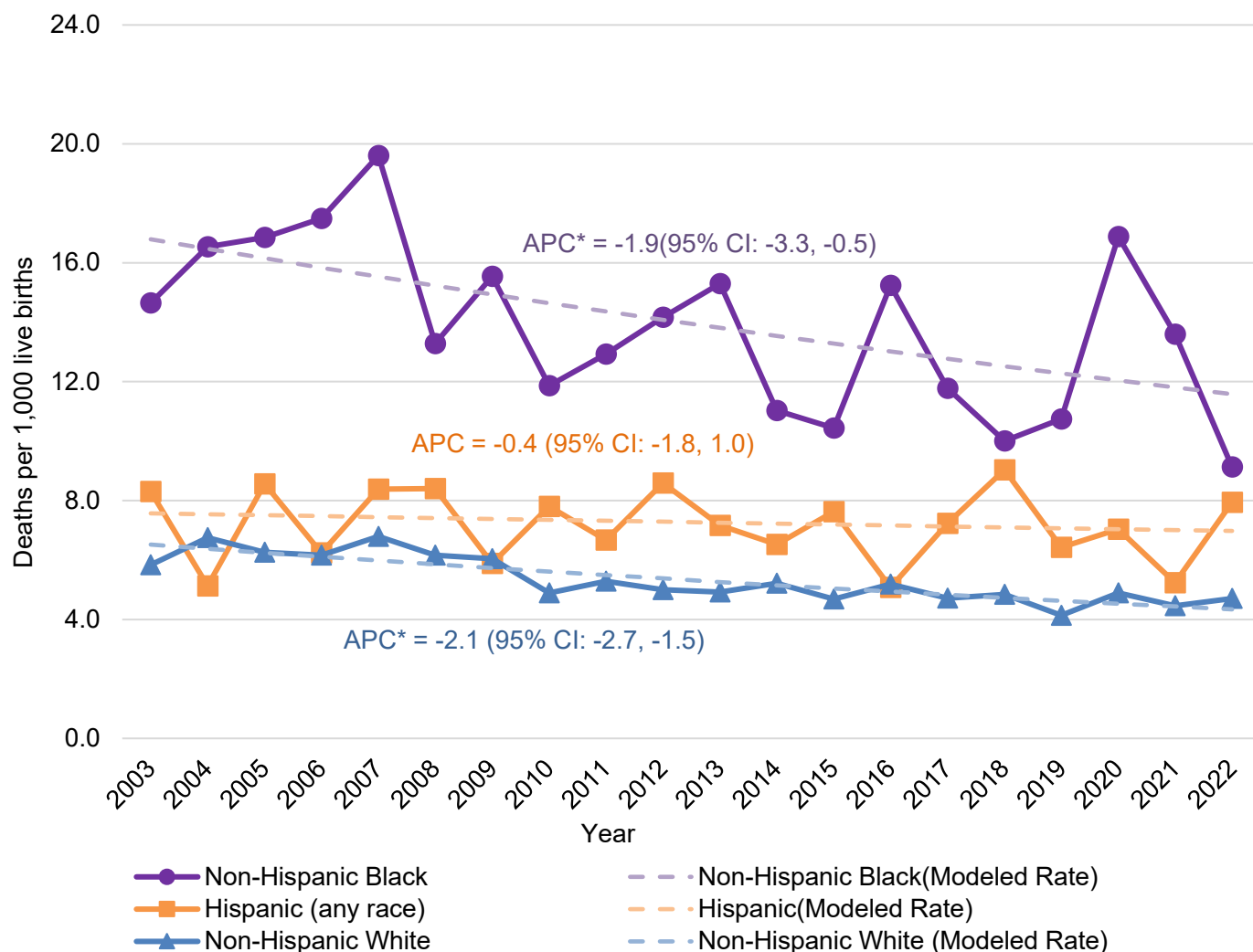


Source: Kansas Department of Health and Environment, Bureau of Epidemiology and Public Health Informatics

Infant Mortality by Race and Ethnicity

From 2003 to 2022, the annual infant mortality rate among non-Hispanic Black births remained more than twice that of non-Hispanic White births (Table A3). However, the non-Hispanic Black infant mortality rate decreased significantly (p-value <.00001), with an annual percent change of 1.9% (Figure H). The lowest mortality rate among non-Hispanic Black in the last 20 years was reached in 2022 with a rate of 9.13 deaths per 1,000 live births (95% CI: 5.6, 14.1). Infant mortality also dropped significantly (p-value <.0001) among the non-Hispanic White population, with an annual percent change of 2.1%. There was not a statistically significant trend (p-value: .5) in the Hispanic infant mortality rate during this period. Due to small sample size and unreliability of estimates, trends were not shown in Figure H for other population groups.

Figure H. Infant Mortality Rates among the Non-Hispanic White, Non- Hispanic Black, and Hispanic Populations, Kansas 2003-2022.



APC = Annual Percent Change

* Trend is statistically significant (p-value < 0.05).

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

In 2018-2022, the leading cause of death for non-Hispanic Black infants was Sudden Unexpected Infant Death, 26.1% (Table C). Meanwhile, the leading cause of death among non-Hispanic White and Hispanic infants was congenital Malformations, Deformations and Chromosomal anomalies, 28.1% and 24.0%, respectively.

Table C. Infant Deaths Among the Non-Hispanic White, Non-Hispanic Black, and Hispanic Populations by Leading Causes of Infant Death, Kansas, 2018-2022

Cause of Death (ICD-10 Code) by Population Group	Number of Deaths	Percent of Deaths	Rate* (95% Confidence Interval)
Non-Hispanic White (n=556)			
1. Congenital Malformations, Deformations and Chromosomal Anomalies (Q00-Q99)	156	28.1	129.3 (109.0, 146.9)
2. Sudden Unexpected Infant Death (R95, R99, W75)	116	20.9	96.1 (78.6, 113.6)
3. Disorders Related to Short Gestation and Low Birth Weight, Not Elsewhere Classified (P07)	71	12.8	58.8 (45.9, 74.2)
4. Newborn Affected by Maternal Complications of Pregnancy (P01)	24	4.3	19.9 (12.8, 29.6)
Non-Hispanic Black (n=142)			
1. Sudden Unexpected Infant Death (R95, R99, W75)	37	26.1	314.7 (221.6, 433.8)
2. Disorders Related to Short Gestation and Low Birth Weight, Not Elsewhere Classified (P07)	26	18.3	221.1 (144.4, 324.0)
3. Congenital Malformations, Deformations and Chromosomal Anomalies (Q00-Q99)	16	11.3	136.1 (77.8, 221.0)
4. Newborn Affected by Maternal Complications of Pregnancy (P01)	12	8.5	102.1 (52.8, 178.3)
Hispanic, any race (n=217)			
1. Congenital Malformations, Deformations and Chromosomal Anomalies (Q00-Q99)	52	24.0	170.9 (127.6, 224.1)
2. Sudden Unexpected Infant Death (R95, R99, W75)	41	18.9	134.8 (96.7, 182.9)
3. Disorders Related to Short Gestation and Low Birth Weight, Not Elsewhere Classified (P07)	28	12.9	92 (61.1, 133.0)
4. Newborn Affected by Maternal Complications of Pregnancy (P01)	9	4.1	29.6 (13.5, 56.2)

Infant deaths per 100,000 live births.

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

Some statistically significant racial/ethnic disparities were observed in the rate of infant deaths by the leading causes of death, from 2018 to 2022 (Table C). For instance, Non-Hispanic Black births experienced a significantly higher rate of infant deaths where the cause of death was Sudden Unexpected Infant Death, as well as a significantly higher rate of infant deaths due to short gestation and low birth weight as compared to Non-Hispanic White or Hispanic births (see Technical Notes), based on confidence interval comparison. There is no statistically significant difference for the cause of infant deaths between Non-Hispanic White births and Hispanic births. Also, non-Hispanic Black births had a significantly higher rate of infant deaths than non-Hispanic White due to maternal complications.

Infant Mortality by Geographic Area

The counties with the highest number of infant deaths from 2018 to 2022 included Sedgwick (229 or 22.3% infant deaths (1,028)), Johnson (137 or 13.3%), Wyandotte (90 or 8.8%), and Shawnee (80 or 7.8%). These four counties accounted for more than half (52.2%) of all Kansas infant deaths (Table A4).

The counties with the highest reliable (RSE \leq 30%) infant mortality rates during this five-year period included:

- Sumner (12.0 infant deaths per 1,000 live birth, 95% CI: 6.7, 19.7)
- Cherokee (11.3 95% CI: 5.8, 19.7)
- Harvey (8.7 95% CI: 5.0, 14.2)
- Shawnee (7.9 95% CI: 6.3, 9.9)
- Pottawatomie (7.7 95% CI: 4.2, 12.9)

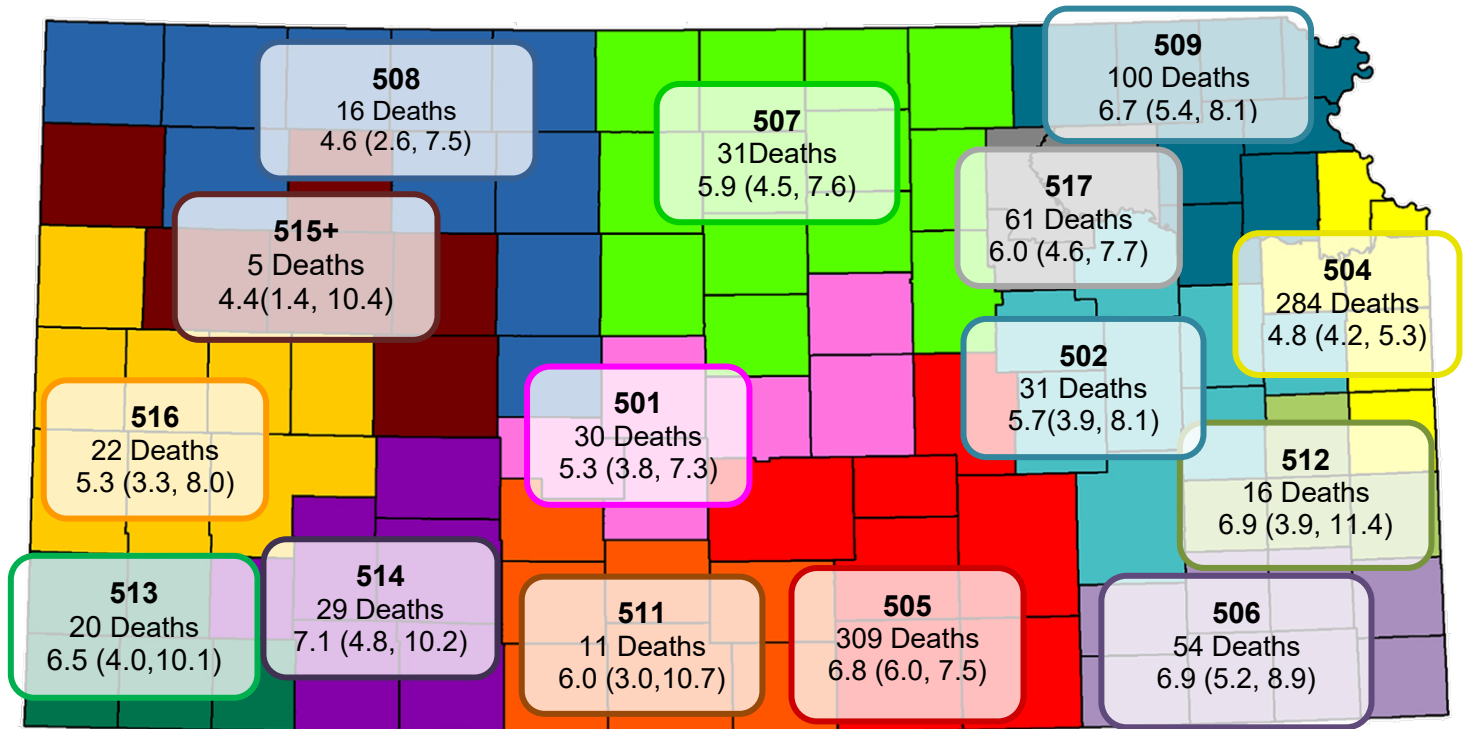
The counties with the lowest (non-zero) reliable (RSE \leq 30%) infant mortality rates during this five-year period included:

- Douglas (3.8 infant deaths per 1,000 live births, 95% CI: 2.3, 5.9)
- Johnson (3.9 95% CI: 3.3, 4.6)
- Butler (4.6 95% CI: 2.6, 7.5)
- Reno (5.3 95% CI: 3.1, 8.5)
- Riley (5.5 95% CI: 3.4, 8.4)

As the number of deaths was too small for analysis in many counties, counties were combined based on their current Public Health Emergency Preparedness Regions (Figure I). The region with the highest reliable infant mortality rate was the SW Surveillance region at 7.1 deaths per 1,000 live births (95% CI: 4.8, 10.2). The region with the lowest reliable infant mortality rate was the Northwest BT Region, at 4.6 deaths per 1,000 live births (95% CI: 2.6, 7.5).

Figure I. Infant Deaths and Five-Year Average Mortality Rates* with 95% Confidence Intervals by Kansas Health Preparedness Region, 2018-2022

Rates by Urban/Rural Residence**



Kansas Public Health Regions

- | | | |
|--------------------------------|-------------------------------|-----------------------------------|
| 501 - Central Kansas | 502 - EC Coalition | 504 - KC Metro |
| 505 - KS SC Metro | 506 - Lower 8 of SE KS | 507 - NC KS Pub Health Initiative |
| 508 - Northwest BT Region | 509 - Northeast Corner | 511 - SC Coalition |
| 512 - SEK | 513 - SW KS Health Initiative | 514 - SW Surveillance |
| 515 - WC Pub Health Initiative | 516 - Western Pyramid | 517 - Wildcat |

*Infant deaths per 1,000 live births.

†Numbers too small to calculate rates (Relative Standard Error > 30%).

** Event / Livebirths for each KHPR

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

Infant mortality rates were calculated for the county peer groups during 2018-2022 (Table A4). There was not enough statistical evidence to show that infant mortality rates differed significantly between Frontier, Rural, Densely Settled Rural, Semi-Urban, and Urban counties.

However, non-significant differences were found when categorizing counties using National Center for Health Statistics (NCHS) urban-rural classification system (Table A4). Medium metro counties had higher infant mortality rate (6.9 death per 1,000 live births; 95% CI: 5.1, 9.2) than micropolitan counties (5.7 deaths per 1,000 live births; 95% CI: 4.2, 7.5), or large fringe metro counties (4.9 deaths per 1,000 live births; 95% CI: 3.5, 6.6). But those differences are not significant. The large fringe metro counties also had lower infant mortality rate than the small metro counties (6.2 deaths per 1,000 live births; 95% CI: 4.1, 9.0). It is also not significant (Table A4).

Characteristics of Linked Infant Deaths

In this section, a variety of maternal and infant characteristics are presented for infants who died during 2018-2022, based on information in linked birth certificates from the period-linked birth death cohort. The birth-death cohort includes infant deaths that occurred during the given years, and which link to births that occurred during the same years. Rates are presented, with the numerator as the number of infants who died during 2018-2022, and the denominator as the number of births during the same period. The number of linked infant deaths was 934 from a total of 1,028 infant deaths and 175,117 live births during this period. There were four linked births that were unknown for the specific characteristics of interest, with additional unknowns depending on the characteristic.

In this section, if the confidence intervals of two values did not overlap, it was considered a conservative estimate of a significant difference. When the number of events was 100 or more deaths, the z-test was used to define a significance test statistic (See Technical Notes for detail). Additionally, unless stated otherwise all statistics reported in this section can be found in Figure K and in Tables A9 to A10.

Maternal Race/Ethnicity

Differences in infant mortality were observed among race/ ethnicity group. While most deceased infants (576 or 62.0% of linked infant deaths where the mother's race/ethnicity was known) were born to non-Hispanic White mothers, the corresponding rate was 4.8 infant deaths per 1,000 live births that occurred during those years (95% CI: 4.4, 5.2). There were 124 deceased infants born to non-Hispanic Black mothers (13.3% of linked infant deaths where mother's race/ethnicity was known), corresponding to a rate of 10.5 deaths per 1,000 live births (95% CI: 8.7, 12.4). There were 170 deceased infants born to Hispanic mothers (18.3% of linked deaths where the mother's race/ethnicity was known), corresponding to a rate of 5.6 deaths per 1,000 live births (95% CI: 4.7, 6.4).

Birth Weight

Low birth weight had a notable relationship with infant mortality. Of the linked infant deaths that occurred during 2018-2022, where birth weight was known, 574 deaths (61.9%) were born at a low birth weight (under 2,500 grams) with a rate of 43.6 deaths per 1,000 live births (95% CI: 40.0, 47.2). Nearly half (45.7%) of the linked infant deaths where birth weight was known occurred to infants born at a very low birth weight (less than 1,500 grams). Only 2.2 deaths per 1,000 babies born at a normal or higher birth weight (95% CI: 2.0, 2.4).

Gestational Age

Prematurity is another important factor in infant death.⁶ Of the linked infant deaths that occurred during 2018-2022 where gestational age was known, 409 (56.3%) were very premature (less than 32 weeks). Thirty seven deceased infants (5.1%) were moderately premature (32 to 33 weeks), 107 (14.7%) were late premature (34 to 36 weeks), 173 (23.8%) were early term (37 and 38 weeks). For preterm births that occurred from 2018 to 2022,

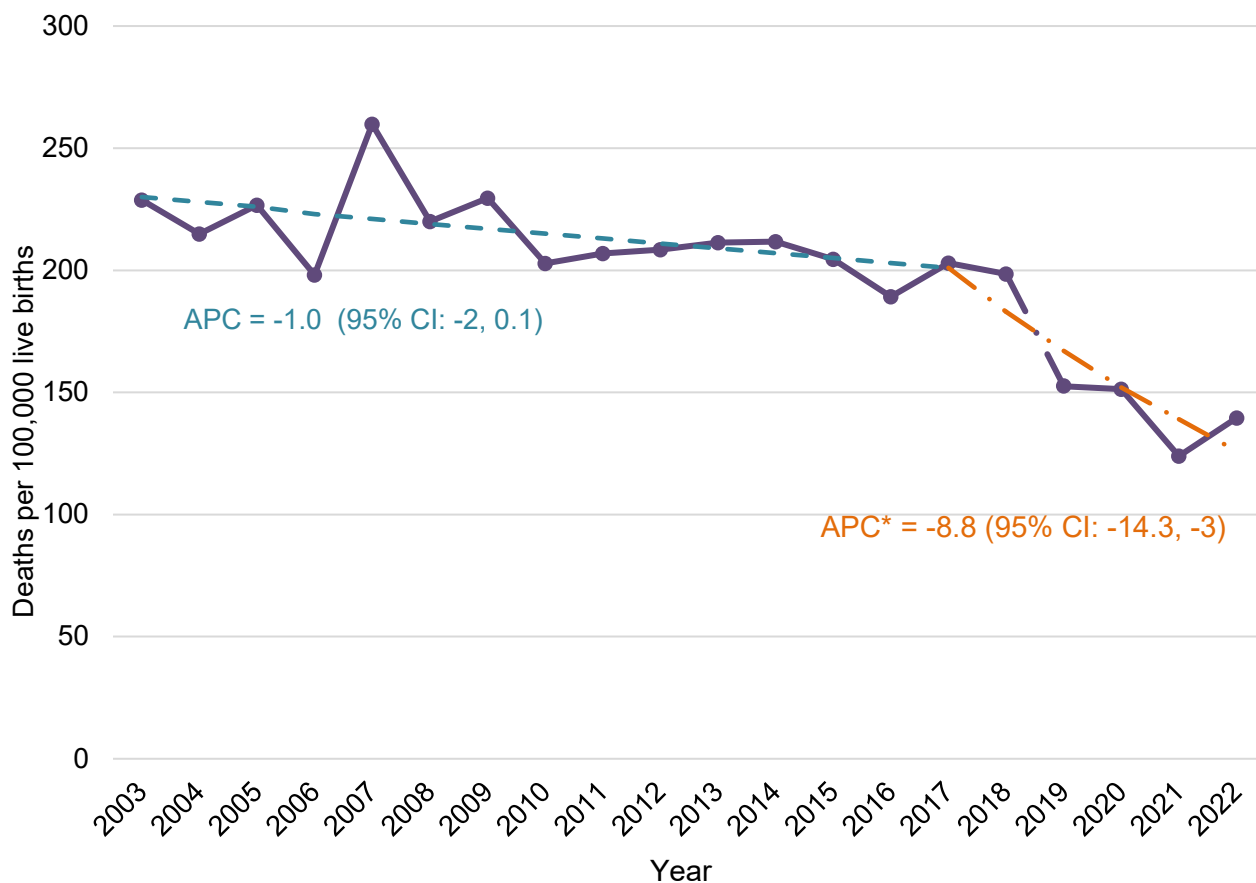
there were 31.8 infant deaths per 1,000 live births (95% CI: 29.1, 34.4).

The leading cause of death among premature infants was short gestation and low birth weight (24.9%), followed by congenital anomalies (17.0%), while the leading cause of death among infants who were born at term was Sudden Unexpected Infant Death (100/193, 51.8%) (Table A8).

Preterm-Related Mortality

Preterm-related mortality is a standard measure^{1,22} which includes deaths to infants that were born preterm, where the underlying cause of death was within a set of specific ICD-10 code categories (See Figure J footnote). From 2003 to 2022, there was a statistically significant (p-value = .01) decrease in the rate of preterm related mortality, with an annual percent change of 1.0 from 2002 to 2018, and by 8.8 from 2018 to 2022. (p-value < .001).

Figure J. Preterm-Related Mortality Rates from Linked Birth-Infant Death File, Kansas, 2003-2022**



APC = Annual Percent Change

* Trend is statistically significant (p-value < 0.05).

** Preterm-related deaths included infant deaths where the infant was born preterm, with the underlying cause of death assigned to one of the following ICD-10 cause codes: K550, P000, P010, P011, P015, P020, P021, P027, P070-P073, P102, P220-P229, P280, P281, P360-P369, P520-P523, and P77.

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

During 2018-2022, 269 preterm related deaths were reported, for a rate of 153.6 deaths per 100,000 live births (Table D). The rate of preterm-related mortality was greater among the non-Hispanic Black and Hispanic populations, compared to the non-Hispanic White population (Table D). The preterm-related mortality rate among the non-Hispanic Black population was 399.7 deaths per 100,000 live births. This rate was more than triple that of the non-Hispanic White population (123.5 deaths per 100,000 live births), and more than twice that of the Hispanic population (157.8 deaths per 100,000 live births).

Table D. Preterm-Related Infant Deaths* and Five-Year Average Mortality Rates among Population groups, Kansas 2018-2022

Race/Ethnicity	Number of Linked Infant Deaths	Preterm-Related Mortality Rate* (95% Confidence Interval)
All	269	153.6 (135.2, 172.0)
Non-Hispanic White	149	123.5 (103.7, 143.3)
Non-Hispanic Black	47	399.7 (293.7, 531.6)
Hispanic	48	157.8(116.3, 209.2)

* Preterm-related deaths included infant deaths where the infant was born preterm, with the underlying cause of death assigned to one of the following ICD-10 cause codes: K550, P000, P010, P011, P015, P020, P021, P027, P070-P073, P102, P220-P229, P250-P279, P280, P281, P360-P369, P520-P523, and P77.

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

Maternal Age

The highest percentage of infant deaths occurred among infants whose mothers were aged 25 to 29 years old (31.8%), followed by mothers aged 20 to 24 years old (25.8%), 30 to 34 years old (22.7%), and 35 to 39 years old (9.8%, Table A9). Births to mothers who were under 20 years had a significantly higher infant mortality rate (8.8 deaths per 1,000 live births, 95% CI: 7.0, 11.0) than among births where the mother was 25 to 34 years old (4.7, 95% CI: 4.3, 5.1). Births to mothers who were 20 to 24 years old also had a significantly higher infant mortality rate (6.6, 95% CI: 5.8, 7.5) than births where the mother was 25 to 34 years old (p-value <.01), or among births where the mother was 35 years or older (4.7, 95% CI: 3.9, 5.5, p-value <.01, Figure K).

Plurality

Most deceased infants (821, or 88.0%) were singletons at birth, while 105 deceased infants (11.3%) were part of twin deliveries. In total, 112 of the linked infant deaths occurred among plural births (12.0%), corresponding to an infant mortality rate of 20.3 deaths per 1,000 live plural births (95% CI: 16.5, 24.1). By comparison, for every 1,000 singleton live births, there were 4.8 infant deaths (95% CI: 4.5, 5.2).

Birth Order

The infant mortality rate among infants born with a birth order of one (6.0 deaths per 1,000 live births; 95% CI: 5.4, 6.6) and among infants born with a birth order of four or more (6.6; 95% CI: 5.6, 7.6) were significantly higher than the rate among those with a birth order of two (4.0; 95% CI: 3.5, 4.6) but insignificantly higher than the rate among those with a birth order of three (5.2; 95% CI: 4.4, 6.0).

Maternal Pre-pregnancy Body-Mass Index (BMI)

More than one-third of linked infant deaths, where BMI was known, involved infants whose mothers were obese (36.7%), overweight (26.0%) and one-third (33.6%) were to mothers of normal weight. Maternal obesity was associated with an infant mortality rate of 6.1 deaths per 1,000 live births (95% CI: 5.4, 6.8). This was significantly higher (p -value $<.01$) than the mortality rate among births to mothers of normal weight (4.5 deaths per 1,000 live births, 95% CI: 4.0, 5.1), and among births to mothers who were overweight (4.9, 95% CI: 4.3, 5.5). Births to underweight mothers were associated with an infant mortality rate of 7.6 deaths per 1,000 live births (95% CI: 5.2, 10.6).

Maternal Marital Status

For more than half of infant deaths (54.0%), the mother was not married at the time of her delivery. The infant mortality rate among births to unmarried mothers (7.9 deaths per 1,000 live births, 95% CI: 7.2, 8.6) was more than twice that of births to married mothers (3.8, 95% CI: 3.5, 4.2).

Pay Source for Delivery

The most common pay source was Medicaid (43.8%) for births linked to an infant death, followed by private insurance (40.2%), and self-pay (10.0%). The infant mortality rate among births where Medicaid was the primary payor was 7.5 deaths per 1,000 live births (95% CI: 6.8, 8.2). This was significantly higher than the rate among births primarily paid for by private insurance (3.8 deaths per 1,000 live births; 95% CI: 3.4, 4.2; p -value $<.01$). The death rate where a non-Medicaid government program was the primary payor is 4.4 deaths per 1,000 live births (95% CI: 1.4, 10.2).

Maternal Education

The mother's education level was known for 594 (63.6%) of the linked infant deaths where the mother was aged 24 years or older. The education category associated with the highest percentage of infant deaths was high school diploma/GED (26.8%), followed by some college but no degree (21.7%), and bachelor's degree (15.8%). Among births to mothers aged 24 years and older, births to mothers with at least some college education had the lowest infant mortality rate (3.6 deaths per 1,000 live births, 95% CI: 3.3, 4.0). This rate was significantly lower than births to mothers aged 24 years and older who did not have a high school diploma or GED (8.9 deaths per 1,000 live births, 95% CI: 7.2, 11.0), and to those who had a high school or GED but no college education (6.6, 95% CI: 5.6, 7.6, p -value $<.01$).

Prenatal Care Initiation

The month that prenatal care began was known for 905 (96.9%) of the linked infant deaths. For the majority of these (74.4%), the mother had started prenatal care in the first trimester of pregnancy. One in twenty linked infant deaths (5.0%) had no prenatal care. The infant mortality rate was 25.9 deaths per 1,000 live births (95% CI: 18.8, 34.8) among births which did not receive prenatal care. In comparison, among births with first- trimester initiation of prenatal care, the infant mortality rate was only 4.8 deaths per 1,000 live births (95% CI: 4.4, 5.2). The infant mortality rate among births with second-trimester initiation of prenatal care was also significantly higher than among births with first-trimester prenatal care (p - value < .01, at 6.4 deaths per 1,000 live births (95% CI: 5.4, 7.4).

Adequacy of Prenatal Care Utilization (APNCU) Index

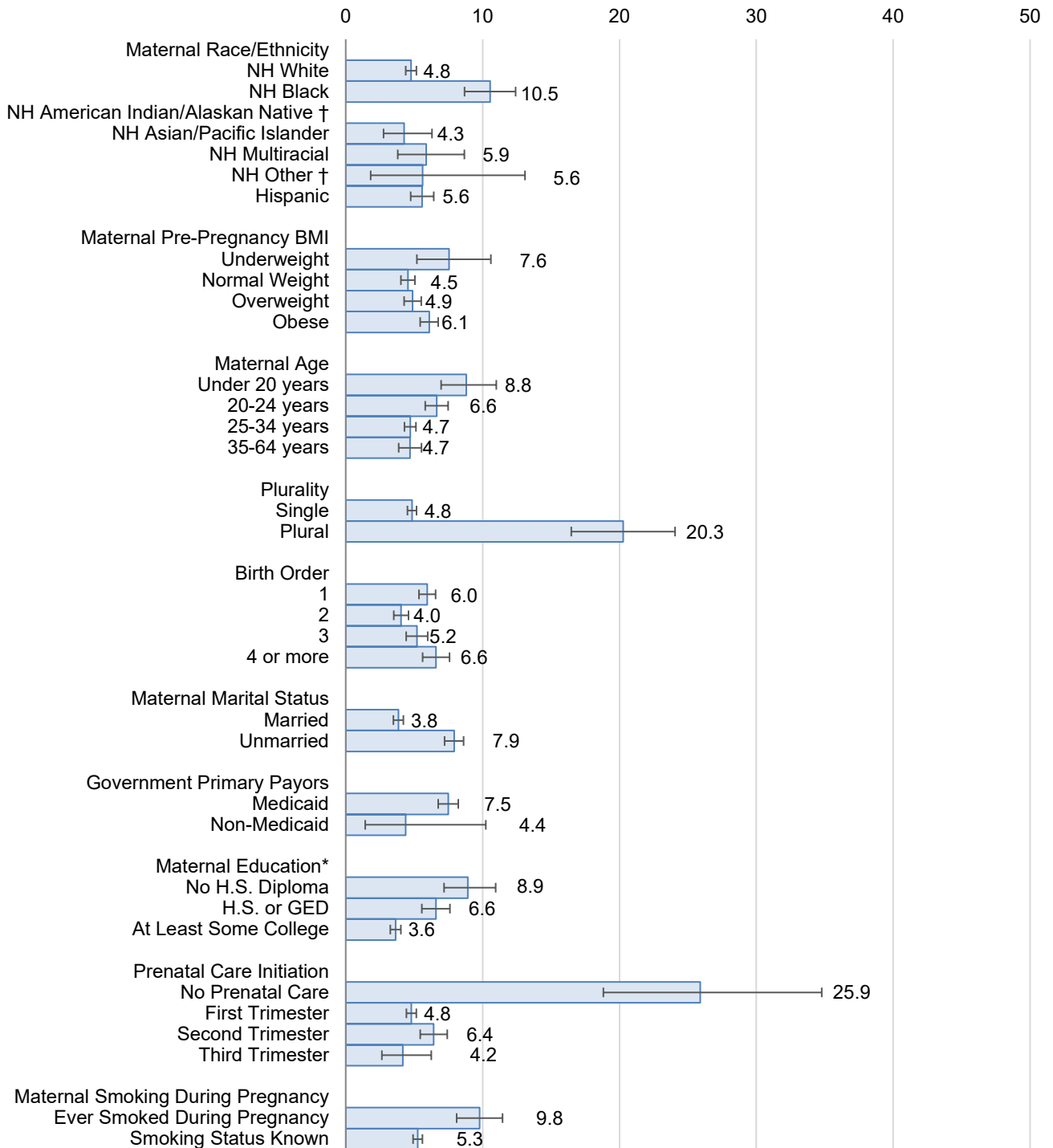
The APNCU index was known for 902 linked deaths (96.6%) in 2018-2022. The 43.2% of linked infant deaths had Adequate Plus care with 7.6 deaths per 1000 live births (95% CI: 6.8, 8.3). Also, the 28.5% of linked infant deaths had Adequate care (2.8 deaths per 1000 live births; 95% CI: 2.4, 3.1), 10.5% of linked infant deaths had Intermediate care (9.8 deaths per 1000 live births; 95% CI: 7.9, 11.9), and 17.7% of linked infant deaths had Inadequate care (8.6 deaths per 1000 live births; 95% CI: 7.2, 9.9).

Among all live births in 2018-2022, where information for the APNCU index was available, 10.8% received Inadequate care, 5.6% received Intermediate care, 53.7% received Adequate care, and 29.8% received Adequate Plus care (Table A10). In interpreting the APNCU index, it is important to remember that this is a quantitative measure that accounts only for timing and number of visits. It may not be an effective measure of the quality of care received, especially among high-risk pregnancies.

Maternal Smoking Status

Smoking status was known for 918 linked infant deaths (98.3%). For 14.4% of these, smoking at some time during pregnancy had been reported. Births to smokers had nearly twice the infant mortality rate (9.8 deaths per 1,000 live births, 95% CI: 8.1, 11.5) of births to nonsmokers (5.3, 95% CI: 4.9, 5).

Figure K. Five-Year Average Infant Mortality Rates (Deaths per 1,000 live births) by Selected Characteristics from the Linked Birth-Infant Death File, Kansas 2018-2022



NH = Non-Hispanic

Error bars represent 95% confidence intervals.

† Estimate is statistically unreliable (Relative Standard Error > 30%).

* Mothers over 24 years

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

Discussion

The overall infant mortality rate in Kansas declined significantly from 2003 to 2022. Other promising trends in the rate of stillbirths and infant mortality since 2000 include declines in infant mortality among the non-Hispanic White and non-Hispanic Black populations, and a decrease in both perinatal and preterm-related mortality.

The rate of stillbirths after 20 weeks gestation increased in Kansas from 2003 to 2022. The increase in recent years may be partially due to changes in the state's fetal death reporting law during 2014. Nevertheless, it fell under a rate of 4.8 in 2020 for the first time since 2013. However, this rate increased to 5.6 in 2021 and 5.9 in 2022. Over this twenty-year period, Kansas experienced a decline in the rate of perinatal deaths, which include stillbirths of at least 28 weeks gestation, and deaths to infants under 7 days of age.

The infant mortality rate in Kansas in 2022 (5.8 deaths per 1,000 live births) was higher than the overall rate for the United States in the same year, which was 5.5.¹⁹ However, Kansas did not meet the Healthy People 2030 objective of no more than 5.0 deaths per 1,000 live birth. The rate for non-Hispanic White infants was below the target rate, while the rate for Hispanic infants and the rate of non-Hispanic Black infants were well above the objective rate. From 2003 to 2022, the infant mortality rate among non-Hispanic White and non-Hispanic Black births decreased significantly with corresponding p-value of <.0001. No statistically significant (p-value: .5) improvements in infant mortality were seen for Hispanic births.

Some areas in the state experienced higher infant mortality than others. Sumner, Cherokee and Harvey counties had the highest infant mortality rates. Meanwhile, counties with the lowest infant mortality rates included Douglas, Johnson, and Butler counties.

Leading causes of infant death included congenital anomalies, disorders related to short gestation and low birth weight and Sudden Unexpected Infant Death, which particularly impacted the non-Hispanic Black population. Disorders related to congenital malformations, deformations and chromosomal anomalies was the leading cause of death for Hispanic and Non-Hispanic white infants. Non-Hispanic Black births also experienced a higher rate of preterm-related deaths than Hispanic or non-Hispanic White.

Limitations

This report's findings are subject to several limitations. An important concern is the issue of receiving vital events from other states within the KDHE reporting deadline. Vital statistics are gathered on an occurrence basis but are traditionally reported on a residence basis. For complete residence statistics, reports must be received from other states for events occurring to Kansas residents. Delays or other late reporting may result in some out-of-state vital events not being received by KDHE by the cutoff date of June 30 of the year following the event year. Past evaluations indicate that over 99 percent of all vital events to Kansas residents are received before the cutoff date.

Evaluation of the linked birth/infant death cohort is subject to limitations due to the inability to link all deaths to a corresponding birth report. This inability may be due to several reasons related to receipt of the corresponding record from another state, name differences between the two reports, both events not occurring in Kansas, or residency changes.

Additionally, comparison of Kansas linked data to other state or national data has limitations due to the timeliness of the national reports as well as differences in methodology. As mentioned earlier, out-of-state births may not be available to match infant deaths at the state level, but NCHS gets matching birth certificate numbers from states for all infant deaths that occurred in jurisdiction. Hence, they are available for matching annual NCHS natality and mortality data at the national level.

The ICD-10 death classification system limits the bias of human coding of mortality information. The system also attempts to reduce the impact of spelling errors or placement of literal information in the cause of death fields. One limitation is the system's inability to account for differences in knowledge and attitudes among physicians who complete the cause of death information. Individual biases, unfamiliarity with the patient, or inability to perform an autopsy may affect the information available to the medical certifier when certifying the cause of death. While many death certificates contain four full lines of detailed information on the events or illnesses leading up to the death, some death certificates contain only limited information.

A weakness in relation to stillbirth reporting is that the causes of stillbirths are not as well documented as those of infant deaths. Additionally, since KSA 65-2401 was revised in mid-2014 to change the stillbirth reporting requirements from weight of the fetus (>350 grams) to length of gestation (≥ 20 weeks), vital records data for year may not represent a consistent picture of all stillbirths.

In general, the accuracy of the information presented in this report depends on the quality of the birth and death record information that was reported to KDHE. Some characteristics of the mother and delivery, such as smoking status, may be underreported, which may affect their reliability. The analysis of risk factors that was performed in this report was intended only as a preliminary step toward assessing risk factors and causality for infant mortality. A more detailed analysis would be needed to investigate the extent to which each of these factors influences the risk for infant mortality. Finally, due to small sample size and unreliability of estimates, this report did not deeply explore trends in infant mortality among non-Hispanic Native American/Alaskan Native, non-Hispanic Asian/ Pacific Islander, non-Hispanic other race and non-Hispanic multiracial populations.

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Technical Notes

Statistical Methodology

Crude Rates. Infant mortality and stillbirth rates were calculated per year, per a combination of years and for specific subpopulations. Due to the relatively small number of infant deaths and stillbirths each year, preselected intervals of years were combined to increase data reliability. The five most recent years of data were combined for characteristic analysis and intervals of 20 years and approximately 100 years were used for trend analysis. The long-term (~100 years) infant mortality numbers and rates may be underreported due to incomplete data collection in the early 1900s.

Data Suppression. The relative standard error (RSE) was used to evaluate reliability of rates. Values with a RSE of 30 percent or less were considered reliable. Values with RSE greater than 30 percent but less than 50 percent were considered unreliable and rates with RSE greater than 50 percent have been suppressed in this document.

Statistical Significance. The following statistical tests have been applied where statistically significant differences have been noted in this document. When counts were ≥ 100 , a normal distribution was assumed, and the z-test was used to compare two infant mortality rates.²² When counts were < 100 , a Poisson probability distribution was assumed, and confidence intervals were calculated at the 95% confidence level to compare two infant mortality rates. If the confidence intervals of two values did not overlap, it was considered a conservative estimate of a significant difference. Caution should be used in interpreting these differences, due to the relatively small number of occurrences and yearly fluctuations.

Trend Analysis. Poisson JoinPoint regression was performed to model trends and the annual percent change (APC) was used to characterize the trend over time.^{23,24} Statistical significance was considered as a p-value of less than 0.05. Where the numerator was less than 20 or the denominator was less than 50, years were combined into five-year intervals and rolling averages were calculated.

Inclusion of Stillbirths. Stillbirths are also included in this report. These events may have risk factors like those for infant deaths. In Kansas, as of July 2014, a stillbirth is defined as complete expulsion or extraction from its mother of a human child, the gestational age of which is not less than 20 completed weeks, resulting in other than a live birth and which is not an induced termination of pregnancy.¹⁹ The law prior to 2014 required stillbirths to be reported when fetal weight was greater than 350 grams. The change may result in slightly different counts because of the different definitions of stillbirth and implementation occurring mid-year. The reporting certificate did not change. The new definition resulted in more events being reported. For consistency, in this publication, only stillbirths of at least 20 weeks gestation were included, for all years.

Pre-Term Related Deaths. Following the definitions of the Federally Available Data guidance, provided by the KDHE Bureau of Maternal and Child Health, the national standard for reporting pre-term related deaths rate is multiplied by 100,000. ²²

Residency. All data reported are based on Kansas residence, unless otherwise noted.

Adequacy of Prenatal Care Utilization (APNCU) Index An assessment of the adequacy of prenatal care measured by the APNCU Index (often referred to as the Kotelchuck Index), a composite measure based on gestational age of the newborn, the trimester prenatal care began, and the number of prenatal visits made.

Linkage to Birth Records

This report also provides findings based on the linking of birth record and infant death record data. Where referenced, the linked birth/infant death statistics are based on the period-linked birth death cohort. The birth-death cohort includes infant deaths that occurred during the given years, and births that occurred during or prior to the same years.

The birth/infant death data analyzed are based on a union of single year linked birth/infant death files created six months after a given event year ended. Linkage of the respective records is performed by the BEPHI Public Health Informatics group using deterministic methodology based on the presence of a birth certificate identification number in the death history file. A manual matching process is used for infant deaths that do not match automatically. Because of the timeframe for creating the annual linked birth/infant death statistical files, infant death reports received later than six months after the end of a given event year are not included in the given event year.

To obtain statistically reliable state specific data stratified by race and ethnicity, it is necessary to combine years. For this report, five years of linked birth/infant deaths were combined to obtain statistically reliable data for stratification on characteristic variables. Linked data are an important tool to examine infant mortality comparisons between Kansas and other Jurisdictions, or the United States. In Kansas, between 2018 and 2022, there were 1,028 resident infant deaths reported to KDHE (Table E). Of those, 934 (90.9%) were linked to a birth record.

This method of linking the infant death and their birth records is valuable for exploring the various relationships of the infant deaths with factors surrounding birth and with mothers' risk factors. The death file contains age at death and underlying cause. The birth file contains birth weight, gestational age and information on the mother such as age, marital status, educational level and maternal risk factors such as tobacco use.

Table E. Percent of Infant Deaths Linked to Birth Records and Infant Mortality Rate, Kansas, 2018- 2022

Year	Total Infant Deaths		Linked Infant Deaths		
	Number	Rate per 1,000 Live Birth	Number	Percent Linked	Rate per 1,000 Live Births
Total	1028	5.9	934	90.9	5.3
2018	231	6.4	227	98.3	6.3
2019	189	5.3	183	96.8	5.2
2020	224	6.5	195	87.1	5.7
2021	184	5.3	159	86.4	4.6
2022	200	5.8	170	85.0	4.9

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

Notes on Transition to the 2003 Birth Certificates

Data for 2005 and years following are based on Kansas implementation of the 2003 revision of the U.S. Standard Certificates of Live Birth, Death and Stillbirth. Data for prior years is based on the 1989 revision of the U.S. Standard Certificate of Live Birth, Death, and Stillbirth. Data analysis involving the 2005 Kansas Certificate of Live Birth is affected in several ways:

- Changes in both question wording and sources for the information collected make it inappropriate to evaluate trends across 2004 and 2005 in some variables such as month prenatal care began and education level.
- Calculating Month Prenatal Care Began – prior to 2005 – the mother was asked for the month prenatal care began. Starting in 2005, the dates used to calculate the month prenatal care began included the first day of the last menses before pregnancy and the date of the first prenatal visit. This change makes rates calculated after 2004 incompatible with earlier years. Such comparisons are inappropriate.
- KDHE publishes data on resident births and deaths. If the event occurs out of state and the state is not using the 2003 revision of the birth certificate, missing data may result. This is an important factor in border counties.
- KDHE excludes unknowns from the denominator for all calculations that result in percentage rates involving birth data. Other states may choose to include unknowns in the denominator. The Kansas method provides a more accurate representation of the rates.
- The 2003 revision process resulted in recommendations that the prenatal care information be gathered from the prenatal care or medical records, whereas the 1989 revision did not recommend a source for these data. In the case of premature births, sometimes these records are not available when the infant is delivered.
- Infant mortality rates reported by NCHS may vary slightly from rates reported by KDHE. NCHS rates are based on data reported to it by all states. Some of those out-of-state occurrence infant deaths may not be reported to KDHE in time for inclusion in the respective year’s Annual Summary of Vital Statistics or subsequent reports.
- Percentages may not add to 100 percent due to rounding.

Notes on Specific Variables & Terms

Infant Age at Death. The first year of life can be categorized by two major periods, the neonatal period (first 27 days of life) and the post neonatal period (28 to 364 days of life). Infant deaths occurring in the neonatal period are also further sub-divided into the hebdomadal deaths (0-6 days) and post-hebdomadal deaths (7-27 days).

Gestational Age. The obstetric estimate of gestational age was coded in weeks. Consistent with NCHS practice, for infants, any gestational age outside of 17-47 weeks was recoded as unknown.^{22,27} Preterm births were those of less than 37 weeks. Early term births were considered as those at 37-38 weeks. Only stillbirths of at least 20 weeks gestation were included in this report, consistent with the change in fetal death reporting requirements in Kansas, which occurred in mid-2014. Stillbirths of unknown gestational age were excluded from this report.

Perinatal Mortality. Consistent with NCHS practice, in this report, a perinatal death was defined as a death occurring to an infant fewer than 7 days old, or to a fetus of at least 28 weeks gestation.^{22,28} In the Annual Summary of Vital Statistics, perinatal death (definition III) includes infant deaths that occur at less than 7 days of age and fetal deaths with a stated or presumed gestation of 20 weeks or more.

Cause of Death. The cause of death referred to in this report is the primary or underlying cause of death. It is defined as the disease or injury which initiated the chain of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury. The underlying causes of death are established through a system known as the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10).²⁹ This system promotes uniformity and comparability in the collection and presentation of mortality data. Causes of death were ranked according to the NCHS Instruction Manual, Part 9, ICD-10 Cause-of Death Lists for Tabulating Mortality Statistics, Effective 1999.³⁰ The list of 130 Selected Causes of Infant Death was used for infant deaths, and the list of 124 Selected Causes of Fetal Death was used for stillbirths. There is one exception. In this report, when ranking leading causes of infant death, sudden infant death syndrome (SIDS) deaths (ICD-10 code R95) are combined with accidental suffocation and strangulation in bed (ICD-10 code W75) and unknown cause (ICD-10 code R99). This combination is known as Sudden Unexpected Infant Death (SUID).

Population Groups. This report uses the concept of reporting race and Hispanic origin combined into distinct categories of population groups. This was done to preserve the self-reported information on race and origin reported in the expanded categories. The use of population groups assures a better uniformity of the numerators and denominators in rate calculations. Because of different tabulation methods, totals for population groups may not equal those tabulated by either race or Hispanic origin individually. Rates calculated exclusively on Hispanic origin treat unknowns differently. The aggregation grid for population groups is listed in the Annual Summary of Vital Statistics.²⁰ Application of this grid assures that every combination of race and origin is assigned to a population group. In instances where the Hispanic origin of an individual is unknown, the person is assigned to a population group solely based on race and is considered non-Hispanic. In the death

record statistics (unlinked data) of this document, the population groups are classified using the race/ethnicity of the decedent as reported on the death record. The funeral director supplies this information, which is provided by an informant such as a family member.

In the linked birth/infant death statistics, the population groups are classified using the race/ethnicity reported on the birth record for the mother. For more information on the population groups, see the Technical Notes in the Annual Summary of Vital Statistics.²⁰

Mother’s Age. In this report, maternal age values outside the range of 10-64 years were recoded as unknown.

Body-mass Index. Body-mass index was calculated using the mother’s height and pre-pregnancy weight. Only values within the range of 13.0-69.9 were included. All other values were considered unknown.

County Peer Group and Urban-Rural Classifications. The county of residence was determined from the Federal Information Processing Standards (FIPS) code for each Kansas county. Beginning in 2011, events with unknown county FIPS codes are included in that year’s total counts. Prior to 2011, they were excluded. For various demographic studies, it is useful to consider groups of counties with similar characteristics. “Peer Groups” of counties, as used in this summary, are defined as those with similar population density based on a method derived by the KDHE Bureau of Community Health Systems (Table F). The peer county grouping system should not be confused with other definitions of urban and rural areas. The KDHE Bureau of Epidemiology and Public Health Informatics applies these definitions, updating the groups with every decennial census. Based on the 2010 U.S. Census, eight Kansas counties changed peer groups. In order to facilitate a time series comparison, Peer-Group statistics for prior years are based on the Peer-Group in effect during that decade. Sources for calculation of population densities are population figures from the 2010 U.S. Census and land areas from the 2010 U.S. Census.

In addition to peer groups, this report utilizes an urban-rural classification scheme published by the National Center for Health Statistics (NCHS) in 2014.³² The Appendix lists each Kansas county by its peer groups based on the 2000 and 2010 Census, respectively, as well as its NCHS 2013 urban-rural category.

Table F. Urban-Rural Classification Scheme, Based on the Kansas County

Kansas County Peer Groups	
Category	Description
Frontier	< 6.0 persons per square mile
Rural	6.0-19.9 persons per square mile
Densely-Settled Rural	20.0-39.9 persons per square mile
Semi-Urban	40.0-149.9 persons per square mile
Urban	150.0+ persons per square mile

Table G. 2013 Urban-Rural Classification Scheme by the National Center for Health Statistics

NCHS 2013 Urban-Rural Classification Scheme	
Category	Description
Rural	
Noncore	Nonmetropolitan counties that did not qualify as micropolitan
Micropolitan	Counties in micropolitan statistical areas
Urban	
Small metro	Counties in metropolitan statistical areas of populations less than 250,000
Medium metro	Counties in metropolitan statistical areas of populations less than 250,000 to 999,999
Large fringe metro	Counties in metropolitan statistical areas of 1 million or more population that did not qualify as large central metro counties
Large central metro*	Counties in metropolitan statistical areas of 1 million or more population that: <ul style="list-style-type: none"> • contain the entire population of the largest main city of the metropolitan statistical area, or • whose entire population is within the largest main city of the metropolitan statistical area, or • contain at least 250,000 residents of any main city of the metropolitan statistical area

APPENDIX A

Table A1. Births, Stillbirths, Perinatal Deaths, and Infant Deaths by Year and Period of Death Kansas, 2003-2022

Year	Total * Deliveries	Live Births	Stillbirths at ≥20 weeks	Stillbirths at ≥28 Weeks	hebdomadal Deaths	Perinatal † Deaths	Neonatal § Deaths	Postneonatal¶ Deaths	Infant # Deaths	Perinatal III Deaths
2003	39,551	39,353	198	117	138	255	177	85	262	336
2004	39,728	39,553	175	109	144	253	176	108	284	319
2005	39,894	39,701	193	129	153	282	196	101	297	346
2006	41,076	40,896	180	126	137	263	176	117	293	317
2007	42,134	41,951	183	121	163	284	211	122	333	346
2008	41,993	41,815	178	116	160	276	193	110	303	338
2009	41,596	41,388	208	126	144	270	176	114	290	352
2010	40,603	40,439	164	106	143	249	170	83	253	307
2011	39,811	39,628	183	112	121	233	157	90	247	304
2012	40,498	40,304	194	136	142	278	173	81	254	336
2013	38,977	38,805	172	113	140	253	166	82	248	312
2014	39,391	39,193	198	103	138	241	175	71	246	336
2015	39,357	39,126	231	102	132	234	160	70	230	363
2016	38,298	38,048	250	138	119	257	145	78	223	369
2017	36,647	36,464	183	89	128	217	154	63	217	311
2018	36,464	36,268	196	88	136	224	162	69	231	332
2019	35,587	35,395	192	88	101	189	118	71	189	293
2020	34,535	34,368	167	95	116	211	148	76	224	283
2021	34,891	34,697	194	116	87	203	106	78	184	281
2022	34,592	34,389	203	104	108	212	127	73	200	311

*Total Deliveries = Live births + stillbirths at ≥20 weeks.

†Hebdomadal Deaths = Deaths at less than 7 days of age.

‡Perinatal Deaths = Stillbirths at ≥28 weeks + hebdomadal deaths.

§Neonatal Deaths = Deaths at less than 28 days of age.

¶Postneonatal Deaths = Deaths between 28 days and 1 year of age.

#Infant Deaths = Deaths under 1 year of age.

Perinatal death, definition III, includes infant deaths that occur at less than 7 days of age and fetal deaths with a stated or presumed gestation of 20 weeks or more.

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

Table A2. Stillbirth, Perinatal Mortality, and Infant Mortality Rates by Period of Death Kansas, 2003-2022

Year	Stillbirths at ≥20 Weeks*	Hebdomadal Deaths‡	Perinatal Deaths†	Neonatal Deaths‡		Postneonatal Deaths‡	Infant Deaths‡	
				KS	US		KS	US
2003	5.0	3.5	6.5	4.5	4.6	2.2	6.7	6.9
2004	4.4	3.6	6.4	4.4	4.5	2.7	7.2	6.8
2005	4.8	3.9	7.1	4.9	4.5	2.5	7.5	6.9
2006	4.4	3.3	6.4	4.3	4.5	2.9	7.2	6.7
2007	4.3	3.9	6.8	5.0	4.4	2.9	7.9	6.8
2008	4.2	3.8	6.6	4.6	4.3	2.6	7.2	6.6
2009	5.0	3.5	6.5	4.3	4.2	2.8	7.0	6.4
2010	4.0	3.5	6.1	4.2	4.1	2.1	6.3	6.2
2011	4.6	3.1	5.9	4.0	4.1	2.3	6.2	6.1
2012	4.8	3.5	6.9	4.3	4.0	2.0	6.3	6.0
2013	4.4	3.6	6.5	4.3	4.0	2.1	6.4	6.0
2014	5.0	3.5	6.1	4.5	3.9	1.8	6.3	5.8
2015	5.9	3.4	6.0	4.1	3.9	1.8	5.9	5.9
2016	6.5	3.1	6.7	3.8	3.9	2.1	5.9	5.9
2017	5.0	3.5	5.9	4.2	3.8	1.7	6.0	5.8
2018	5.4	3.7	6.2	4.5	3.8	1.9	6.4	5.7
2019	5.4	2.9	5.3	3.3	3.7	2.0	5.3	5.6
2020	4.8	3.4	6.1	4.3	3.6	2.2	6.5	5.4
2021	5.6	2.5	5.8	3.1	3.5	2.2	5.3	5.4
2022	5.9	3.1	6.1	3.7	3.5	2.1	5.8	5.5

*Per 1,000 (live births + stillbirths at ≥20 weeks).

†Per 1,000 (live births + stillbirths at ≥28 weeks).

‡Per 1,000 live births.

Source: Bureau of Epidemiology and Public Health Informatics

Table A3. Infant Deaths and Mortality Rates by Selected Population Group of Mother, Kansas 2003-2022

Year	White Non-Hispanic [†]			Black Non-Hispanic [†]			Hispanic Any Race			Black NH [‡] to White NH [‡] Ratio of Rates	Black NH [‡] to Hispanic Ratio of Rates	Hispanic to White NH [‡] Ratio of Rates	Total Infant ^{**} Mortality Rate
	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate				
2003	29,482	172	5.8	2,730	40	14.7	5,417	45	8.3	2.5	1.8	1.4	6.7
2004	29,624	200	6.8	2,782	46	16.5	5,458	28	5.1	2.4	3.2	0.8	7.2
2005	28,903	181	6.3	2,670	45	16.9	6,073	52	8.6	2.7	2.0	1.4	7.5
2006	29,392	181	6.2	2,801	49	17.5	6,568	41	6.2	2.8	2.8	1.0	7.2
2007	30,170	205	6.8	2,856	56	19.6	6,676	56	8.4	2.9	2.3	1.2	7.9
2008	29,863	184	6.2	2,936	39	13.3	6,781	57	8.4	2.2	1.6	1.4	7.2
2009	29,471	178	6.0	2,830	44	15.5	6,790	40	5.9	2.6	2.6	1.0	7.0
2010	29,000	142	4.9	2,780	33	11.9	6,407	50	7.8	2.4	1.5	1.6	6.3
2011	28,382	150	5.3	2,708	35	12.9	6,293	42	6.7	2.4	1.9	1.3	6.2
2012	28,995	145	5.0	2,682	38	14.2	6,286	54	8.6	2.8	1.6	1.7	6.3
2013	27,821	137	4.9	2,549	39	15.3	6,139	44	7.2	3.1	2.1	1.5	6.4
2014	28,009	146	5.2	2,629	29	11.0	6,129	40	6.5	2.1	1.7	1.3	6.3
2015	27,717	130	4.7	2,585	27	10.4	6,290	48	7.6	2.2	1.4	1.6	5.9
2016	26,786	139	5.2	2,494	38	15.2	6,300	32	5.1	2.9	3.0	1.0	5.9
2017	25,431	120	4.7	2,463	29	11.8	5,945	43	7.2	2.5	1.6	1.5	6.0
2018	25,196	122	4.8	2,499	25	10.0	5,976	54	9.0	2.1	1.1	1.9	6.4
2019	24,400	101	4.1	2,419	26	10.7	6,069	39	6.4	2.6	1.7	1.6	5.3
2020	23,517	115	4.9	2,369	40	16.9	5,965	42	7.0	3.5	2.4	1.4	6.5
2021	23,965	107	4.5	2,280	31	13.6	6,114	32	5.2	3.0	2.6	1.2	5.3
2022	23,569	111	4.7	2,191	20	9.1	6,295	50	7.9	1.9	1.1	1.7	5.8

* Rate per 1,000 live births.

† Due to changes in the collection of the race item on certificates, use caution when comparing data from 2005 onward, to prior years. See Technical Notes.

‡ NH = non-Hispanic, population group includes unknown Hispanic origin.

§ Data for other non-Hispanic races are not included in this table due to small numbers, but are available upon request. Inquiries can be sent by email to KDHE.HealthStatistics@ks.gov.

Residence data

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

Table A4. Infant Deaths and Mortality Rates by County of Residence Peer Group, and Urban-Rural Classification, Kansas 2018-2022

County of Residence	Year					Total Infant Deaths	Total Live Births	Rate [†]	95% Confidence Intervals	
	2018	2019	2020	2021	2022	2018-2022	2018-2022	2018-2022	Lower	Upper
Kansas	231	189	224	184	200	1028	175,117	5.9		
Allen	4	1	0	0	1	6	695	8.6 ‡	3.2	18.8
Anderson	1	0	1	0	0	2	476	na	na	na
Atchison	0	2	1	1	2	6	897	6.7 ‡	2.5	14.6
Barber	1	0	0	0	0	1	232	na	na	na
Barton	1	1	3	3	1	9	1,550	5.8 ‡	2.7	11.0
Bourbon	0	2	3	0	1	6	1,004	6.0 ‡	2.2	13.0
Brown	0	0	0	0	0	0	557	0.0	0.0	0.0
Butler	5	2	4	3	2	16	3,472	4.6	2.6	7.5
Chase	0	0	0	0	1	1	126	na	na	na
Chautauqua	0	0	0	1	0	1	152	na	na	na
Cherokee	2	1	3	3	3	12	1,065	11.3	5.8	19.7
Cheyenne	0	0	0	0	0	0	157	0.0	0.0	0.0
Clark	1	0	0	0	0	1	111	na	na	na
Clay	0	0	0	0	0	0	412	0.0	0.0	0.0
Cloud	1	1	0	3	0	5	536	9.3 ‡	3.0	21.8
Coffey	0	0	0	0	0	0	402	0.0	0.0	0.0
Comanche	0	0	0	0	0	0	77	0.0	0.0	0.0
Cowley	2	2	1	3	4	12	1,968	6.1	3.2	10.7
Crawford	1	3	4	3	4	15	2,220	6.8	3.8	11.1
Decatur	0	0	0	0	0	0	135	0.0	0.0	0.0
Dickinson	1	2	1	4	3	11	967	11.4 ‡	5.7	20.4
Doniphan	1	1	0	0	0	2	373	na	na	na
Douglas	6	3	6	3	2	20	5,246	3.8	2.3	5.9
Edwards	1	0	0	0	0	1	147	na	na	na
Elk	0	0	0	1	0	1	103	na	na	na
Ellis	1	1	2	0	1	5	1,489	3.4 ‡	1.1	7.8
Ellsworth	0	1	0	0	0	1	286	na	na	na
Finney	4	5	2	3	2	16	2,860	5.6	3.2	9.1
Ford	5	3	3	4	4	19	2,914	6.5	3.9	10.2
Franklin	0	2	2	3	1	8	1,419	5.6 ‡	2.4	11.1
Geary	6	3	7	6	4	26	4,672	5.6	3.6	8.2
Gove	0	0	0	0	0	0	168	0.0	0.0	0.0
Graham	0	0	0	1	0	1	118	na	na	na
Grant	2	1	0	1	1	5	539	9.3 ‡	3.0	21.6
Gray	0	1	1	0	1	3	406	na	na	na
Greeley	0	0	1	0	1	2	76	na	na	na
Greenwood	1	2	0	0	1	4	269	na	na	na
Hamilton	0	0	0	0	0	0	194	0.0	0.0	0.0
Harper	1	0	0	0	0	1	340	na	na	na
Harvey	5	3	2	4	2	16	1,832	8.7	5.0	14.2
Haskell	0	0	0	0	1	1	286	na	na	na
Hodgeman	0	0	1	0	0	1	79	na	na	na
Jackson	1	0	2	1	2	6	843	7.1 ‡	2.6	15.5
Jefferson	0	0	0	2	0	2	869	na	na	na
Jewell	0	0	0	1	0	1	137	na	na	na
Johnson	27	31	30	25	24	137	34,830	3.9	3.3	4.6
Kearny	1	0	0	0	0	1	309	na	na	na
Kingman	0	0	0	1	0	1	367	na	na	na
Kiowa	0	0	0	0	0	0	142	0.0	0.0	0.0
Labette	0	0	2	0	2	4	1,230	na	na	na
Lane	0	0	0	0	0	0	78	0.0	0.0	0.0
Leavenworth	6	7	4	4	6	27	4,626	5.8	3.8	8.5
Lincoln	0	0	1	0	0	1	143	na	na	na
Linn	1	0	1	1	0	3	501	na	na	na
Logan	0	0	0	0	0	0	182	0.0	0.0	0.0
Lyon	6	2	1	2	1	12	1,813	6.6	3.4	11.6
McPherson	1	0	0	0	2	3	1,539	na	na	na
Marion	0	3	1	0	0	4	588	na	na	na
Marshall	1	0	1	0	0	2	566	na	na	na
Meade	1	0	2	0	1	4	268	na	na	na

Table A4. Infant Deaths and Mortality Rates by County of Residence Peer Group, and Urban-Rural Classification, Kansas 2018-2022

County of Residence	Year					Total Infant Deaths	Total Live Births	Rate†	95% Conf. Intervals	
	2018	2019	2020	2021	2022	2018-2022	2018-2022	2018-2022	Lower	Upper
Miami	1	2	2	1	1	7	1,742	4.0 ‡	1.6	8.3
Mitchell	0	0	0	0	0	0	355	0.0	0.0	0.0
Montgomery	0	2	2	3	2	9	1,729	5.2 ‡	2.4	9.9
Morris	0	0	0	0	1	1	234	na	na	na
Morton	2	0	0	0	0	2	170	na	na	na
Nemaha	1	1	0	0	0	2	662	na	na	na
Neosho	3	2	3	1	1	10	919	10.9 ‡	5.2	20.0
Ness	0	0	0	0	1	1	154	na	na	na
Norton	1	0	0	0	0	1	268	na	na	na
Osage	0	0	0	2	0	2	798	na	na	na
Osborne	0	0	0	0	1	1	201	na	na	na
Ottawa	0	2	2	1	1	6	294	20.4 ‡	7.5	44.4
Pawnee	1	0	0	0	0	1	287	na	na	na
Phillips	0	0	0	2	0	2	258	na	na	na
Pottawatomie	0	1	6	3	4	14	1,820	7.7	4.2	12.9
Pratt	4	1	0	1	1	7	542	12.9 ‡	5.2	26.6
Rawlins	0	0	0	0	0	0	145	0.0	0.0	0.0
Reno	2	2	4	1	8	17	3,202	5.3	3.1	8.5
Republic	0	2	0	0	0	2	238	na	na	na
Rice	0	0	1	0	2	3	536	na	na	na
Riley	10	4	3	4	0	21	3,803	5.5	3.4	8.4
Rooks	0	0	1	0	0	1	262	na	na	na
Rush	0	0	0	0	1	1	134	na	na	na
Russell	0	0	0	0	0	0	340	0.0	0.0	0.0
Saline	6	2	2	2	10	22	3,155	7.0	4.4	10.6
Scott	0	0	0	1	0	1	355	na	na	na
Sedgwick	57	36	52	45	39	229	33,203	6.9	6.0	7.8
Seward	2	3	2	2	0	9	1,903	4.7 ‡	2.2	9.0
Shawnee	16	12	21	13	18	80	10,087	7.9	6.3	9.9
Sheridan	0	0	0	0	1	1	131	na	na	na
Sherman	0	0	2	0	1	3	342	na	na	na
Smith	1	0	0	0	0	1	155	na	na	na
Stafford	0	1	0	0	0	1	233	na	na	na
Stanton	0	0	0	0	0	0	111	0.0	0.0	0.0
Stevens	0	1	0	1	2	4	334	na	na	na
Sumner	3	4	4	0	4	15	1,255	12.0	6.7	19.7
Thomas	0	1	2	0	2	5	536	9.3 ‡	3.0	21.8
Trego	0	0	0	0	0	0	147	0.0	0.0	0.0
Wabaunsee	0	2	0	0	1	3	392	na	na	na
Wallace	0	1	0	0	0	1	115	na	na	na
Washington	0	0	1	0	1	2	361	na	na	na
Wichita	0	0	1	0	0	1	157	na	na	na
Wilson	0	1	0	0	1	2	458	na	na	na
Woodson	0	0	0	0	2	2	145	na	na	na
Wyandotte	23	20	20	14	13	90	12,381	7.3	5.8	8.9
n.s							10			

Table A4. Infant Deaths and Mortality Rates by County of Residence Peer Group, and Urban-Rural Classification, Kansas 2018-2022

County of Residence	Year					Total Infant Deaths	Total Live Births	Rate [†]	95% Confidence Intervals	
	2018	2019	2020	2021	2022	2018-2022	2018-2022	2018-2022	Lower	Upper
Kansas	231	189	224	184	200	1028	175,117	5.9		
Peer Group										
Frontier	9	4	9	6	9	37	5,959	6.2	2.8	11.8
Rural	14	18	11	10	21	74	13,239	5.6	3.5	8.5
Densely -Settled Rural	37	33	39	34	34	177	28,290	6.3	4.3	8.7
Semi-Urban	36	25	32	30	34	157	27,246	5.8	4.0	8.1
Urban	135	109	133	104	102	583	100,373	5.8	4.7	6.9
Urban-rural 6-level classification (NCHS)										
Noncore	31	26	27	21	33	138	21,504	6.4	4.4	9.0
Micropolitan	38	35	40	37	49	199	35,164	5.7	4.2	7.5
Small metro	34	23	38	28	27	150	24,231	6.2	4.1	9.0
Medium metro	70	45	62	53	47	277	40,129	6.9	5.1	9.2
Large fringe metro	58	60	57	45	44	264	54,079	4.9	3.5	6.6
Urban-rural 2-level classification (NCHS)										
Rural	69	61	67	58	82	337	56,668	5.9	4.7	7.4
Urban	162	128	157	126	118	691	118,439	5.8	4.8	6.9

Residence data

[†]Rate per 1,000 live births.

[‡] Rate has a relative standard error greater than 30%, should be used with caution since it doesn't meet the standard of reliability.

n.a. = Rates with an relative standard error greater than 50% have been suppressed.

See Technical Notes for Peer Group and Urban-Rural Classification definitions.

* Butler, Harvey, Kingman, Sedgwick, and Sumner.

** Atchison, Barton, Cowley, Crawford, Ellis, Finney, Ford, Franklin, Geary, Kearny, Labette, Lyon, McPherson, Montgomery, Ottawa, Reno, Saline, and Seward.

+ Johnson, Leavenworth, Linn, Miami, and Wyandotte.

++ Doniphan, Douglas, Jackson, Jefferson, Osage, Pottawatomie, Riley, Shawnee, and Wabaunsee.

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

Table A5. Infant Deaths by Ten Leading Causes of Infant Death by Period of Death, Kansas 2018-2022

Cause of Death (ICD-10 Code)	Age of Infant						
	Under 1 Day	1-6 Days	Hebdomadal Death (under 7)	7-27 Days	Neonata Deaths (Under 28 Days)	Post Neonatal Deaths	Under 1 Year
All causes	360	89	449	63	512	268	780
1. Congenital malformations, deformations and chromosomal abnormalities(Q00-Q99)	106	55	161	27	188	52	240
2. Sudden unexpected infant death (R95, R99, W75)	9	5	14	20	34	182	216
3. Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	142	6	148	2	150	1	151
4. Newborn affected by maternal complications of pregnancy (P01)	47	4	51	3	54	0	54
5. Newborn affected by complications of placenta, cord and membranes (P02)	35	2	37	1	38	1	39
6. Accidents (unintentional injuries) (V01-X59, excluding W75)	0	1	1	0	1	23	24
7. Diseases of the circulatory system (I00-I99)	3	3	6	2	8	9	17
8. Atelectasis (P28.0-P28.1)	11	3	14	0	14	0	14
9. Intrauterine hypoxia and birth asphyxia (P20-P21)	3	3	6	7	13	0	13
10. Neonatal hemorrhage (P50-P52, P54)	4	7	11	1	12	0	12

Residence data

In the event of a tie, causes are listed in order of ICD-10 code. Source: Bureau of Epidemiology and Public Health Informatics
Kansas Department of Health and Environment

Table A6. Infant Deaths by County of Residence and Period of Death Kansas, 2018-2022

County of Residence	Hebdomadal Death (under 7 days)	Neonatal Deaths (Under 28 days)	Post-Neonatal Deaths (28-364 days)	Total Infant Deaths (under 1 year)
Kansas	548	113	367	1028
Allen	3	0	3	6
Anderson	1	0	1	2
Atchison	2	1	3	6
Barber	1	0	0	1
Barton	4	2	3	9
Bourbon	5	1	0	6
Brown	0	0	0	0
Butler	10	0	6	16
Chase	1	0	0	1
Chautauqua	0	0	1	1
Cherokee	7	2	3	12
Cheyenne	0	0	0	0
Clark	0	0	1	1
Clay	0	0	0	0
Cloud	2	1	2	5
Coffey	0	0	0	0
Comanche	0	0	0	0
Cowley	9	2	1	12
Crawford	6	4	5	15
Decatur	0	0	0	0
Dickinson	4	1	6	11
Doniphan	1	0	1	2
Douglas	8	4	8	20
Edwards	0	0	1	1
Elk	0	0	1	1
Ellis	3	1	1	5
Ellsworth	0	0	1	1
Finney	8	1	7	16
Ford	8	4	7	19
Franklin	5	1	2	8
Geary	19	0	7	26
Gove	0	0	0	0
Graham	0	0	1	1
Grant	4	1	0	5
Gray	2	0	1	3
Greeley	0	1	1	2
Greenwood	2	0	2	4
Hamilton	0	0	0	0
Harper	0	0	1	1
Harvey	9	0	7	16
Haskell	0	0	1	1
Hodgeman	0	0	1	1
Jackson	3	1	2	6
Jefferson	2	0	0	2
Jewell	0	0	1	1
Johnson	82	11	44	137
Kearny	1	0	0	1
Kingman	0	0	1	1
Kiowa	0	0	0	0
Labette	3	0	1	4
Lane	0	0	0	0
Leavenworth	13	5	9	27
Lincoln	1	0	0	1
Linn	1	0	2	3
Logan	0	0	0	0

Table A6. Infant Deaths by County of Residence and Period of Death Kansas, 2018-2022

County of Residence	Hebdomadal Deaths (under 7 days)	Neonatal Deaths (Under 28 days)	Post-Neonatal Deaths (28-364 days)	Total Deaths (under 1 year)
Lyon	7	1	4	12
McPherson	2	0	1	3
Marion	3	0	1	4
Marshall	1	0	1	2
Meade	3	1	0	4
Miami	4	0	3	7
Mitchell	0	0	0	0
Montgomery	4	0	5	9
Morris	0	0	1	1
Morton	1	0	1	2
Nemaha	0	0	2	2
Neosho	5	0	5	10
Ness	0	1	0	1
Norton	1	0	0	1
Osage	1	1	0	2
Osborne	0	0	1	1
Ottawa	2	2	2	6
Pawnee	1	0	0	1
Phillips	1	0	1	2
Pottawatomie	6	2	6	14
Pratt	2	1	4	7
Rawlins	0	0	0	0
Reno	8	1	8	17
Republic	1	0	1	2
Rice	2	1	0	3
Riley	10	7	4	21
Rooks	0	1	0	1
Rush	0	0	1	1
Russell	0	0	0	0
Saline	15	0	7	22
Scott	0	0	1	1
Sedgwick	122	27	80	229
Seward	4	2	3	9
Shawnee	46	5	29	80
Sheridan	1	0	0	1
Sherman	1	0	2	3
Smith	1	0	0	1
Stafford	1	0	0	1
Stanton	0	0	0	0
Stevens	3	0	1	4
Sumner	9	3	3	15
Thomas	2	1	2	5
Trego	0	0	0	0
Wabaunsee	3	0	0	3
Wallace	0	0	1	1
Washington	0	0	2	2
Wichita	1	0	0	1
Wilson	0	0	2	2
Woodson.	2	0	0	2
Wyandotte	42	12	36	90
Unknown	0	0	0	0

Residence data

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

Table A7. Stillbirths by Ten Leading Causes of Fetal Death and Weeks Gestation Kansas, 2018-2022

(ICD-10 Code)	Stillbirths	20-27	28-31	32-41	42-47
All Causes	912	436	127	346	3
1.P95. Fetal death of unspecified cause	289	145	41	102	1
2.P02. Fetus affected by complications of placenta, cord and membranes	202	84	23	94	1
3.P00. Fetus affected by maternal conditions that may be unrelated to present pregnancy	126	49	27	50	0
4.P01. Fetus affected by maternal complications of pregnancy	84	68	9	7	0
5.Q00-Q99. Congenital malformations, deformations and chromosomal abnormalities	76	34	9	33	0
6.All other causes	62	29	11	21	1
7.P70.0-P70.2. Syndrome of infant of a diabetic mother and neonatal diabetes mellitus	32	3	2	27	0
8.P05. Slow fetal growth and fetal malnutrition	16	9	1	6	0
9.D00-D48. In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	13	12	1	0	0
9.P04. Fetus affected by noxious influences transmitted via placenta	12	3	3	6	0
9.P83.2. Hydrops fetalis not due to hemolytic disease	13	9	2	2	0
10.P03. Fetus affected by other complications of labor and delivery	10	4	1	5	0

Residence Data

In the event of a tie, causes are listed in order of ICD-10 code.

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

Table A8. Linked Infant Deaths by Ten Leading Causes of Infant Death and by Ten Leading Causes of Infant Death and Weeks Gestation, Kansas 2018-2022

Cause of Death	Total	Very Premature	Moderate Premature	Late Premature	Total Premature	Early Term	Term	n.s.*
(ICD-10 Code)		<32 weeks	32-33 week	34-36 week	<37 weeks	37-38 week	>=39 weeks	
All causes	934	409	37	107	553	173	193	15
1. Sudden unexpected infant death (R95, R99, W75)	208	8	5	25	38	68	100	2
2. Congenital Malformations, Deformations, and Chromosomal Anomalies (Q00-Q99)	190	32	17	45	94	61	32	3
3. Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	146	138	0	0	138	0	0	8
4. Newborn affected by maternal complications of pregnancy (P01)	53	47	1	1	49	2	1	1
5. Newborn affected by complications of placenta, cord and membranes (P02)	35	27	2	2	31	1	3	0
6. Accidents (unintentional injuries) (V01-X59, excluding W75)	21	0	0	5	5	7	9	0
7. Diseases of the circulatory system (I00-I99)	16	4	1	3	8	3	5	0
8. Atelectasis (P28.0-P28.1)	13	13	0	0	13	0	0	0
9. Diarrhea and gastroenteritis of infectious origin (A09)	11	8	0	1	9	1	1	0
9. Neonatal hemorrhage (P50-P52,P54)	11	10	0	0	10	0	1	0
10. Intrauterine hypoxia and birth asphyxia (P20-P21)	10	7	0	0	7	1	2	0

*n.s. = Unknown or not stated. Records with gestation outside of 17-47 weeks were classified as unknown gestation. excluded in Unknowns are percents

In the event of a tie, causes are listed in order of ICD-10 code. Residence data

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

Table A9. Linked Infant Deaths by Birth Characteristics and Selected Population Groups of the Mother, Kansas, 2018-2022

Characteristics	All races and origins	White NH*	Black NH*	American Indian or Alaska Native NH*	Asian or Pacific Islander NH*	Multi Race NH*	Other NH*	Hispanic	Unknown
Total	934	576	124	3	25	25	6	170	5
Sex									
Female	418	268	48	1	18	7	0	75	1
Male	516	308	76	2	7	18	6	95	4
Plurality									
Single	821	509	104	3	19	21	5	156	4
Twin	105	61	19	0	6	4	1	14	0
Triplets or more	7	6	1	0	0	0	0	0	0
Plural	112	67	20	0	6	4	1	14	0
n.s.	1	0	0	0	0	0	0	0	1
Birth Order									
1	372	226	48	1	10	7	3	74	3
2	218	150	17	0	9	7	1	33	1
3	169	100	29	1	1	3	1	34	0
4	90	48	20	0	4	4	0	14	0
5 or more	84	52	10	1	1	4	1	15	0
n.s.	1	0	0	0	0	0	0	0	1
Birthweight									
Less than 2,500 grams	574	339	88	1	23	15	4	102	2
Less than 500 grams	230	125	50	1	10	3	1	39	1
500-1499 grams	194	112	23	0	10	6	2	40	1
1,500-2,499 grams	150	102	15	0	3	6	1	23	0
2,500 grams or more	354	233	36	2	2	10	2	68	1
n.s.	6	4	0	0	0	0	0	0	2
Gestational Age									
Premature (< 37 weeks)	553	323	86	1	23	12	3	103	2
Very Premature (< 32 wks)	409	228	71	1	20	10	2	75	2
Moderate Premature (32-33 wks)	37	26	4	0	1	0	1	5	0
Late Premature (34-36 wks)	107	69	11	0	2	2	0	23	0
Early Term (37-38 weeks)	173	112	20	1	1	5	1	33	0
Term (39-47 weeks)	193	134	15	1	1	8	1	32	1
n.s.	15	7	3	0	0	0	1	2	2
Mother's Age									
Under 20 years	78	37	12	0	1	3	0	25	0
20-24 years	244	152	28	0	5	6	0	53	0
25-29 years	264	166	46	1	6	9	3	31	2
30-34 years	223	148	23	1	6	4	2	38	1
35-39 years	98	57	13	1	6	3	1	16	1
40-64 years	25	15	2	0	1	0	0	7	0
n.s.	2	1	0	0	0	0	0	0	1
Marital Status									
Married	429	313	29	1	19	8	3	55	1
Unmarried	503	263	95	2	6	17	3	115	2
n.s.	2	0	0	0	0	0	0	0	2

Table A9. Linked Infant Deaths by Birth Characteristics and Selected Population Groups of the Mother, Kansas, 2018-2022

Characteristics	All races and origins	White NH*	Black NH*	American Indian or Alaska Native NH*	Asian or Pacific Islander NH*	Multiracial NH*	Other NH*	Hispanic	Unknown
Payor									
Medicaid	403	235	75	3	5	15	1	67	2
Private Insurance	370	277	32	0	12	3	2	44	0
Self Pay	92	29	2	0	4	4	3	50	0
Indian Health Service	0	0	0	0	0	0	0	0	0
Tricare	36	17	11	0	2	2	0	4	0
Other Government	5	1	0	0	2	1	0	1	0
Other	14	11	3	0	0	0	0	0	0
n.s.	14	6	1	0	0	0	0	4	3
Mother's Education*									
8th Grade or Less	34	8	3	0	2	0	0	21	0
9-12 Grade, No Diploma	57	26	9	0	1	3	1	17	0
H.S. or GED	159	97	34	2	2	4	0	19	1
Some College, No Degree	129	78	23	0	4	5	3	16	0
Associate Degree	60	46	6	1	1	1	0	5	0
Bachelor's Degree	94	77	4	0	3	1	0	9	0
Master's Degree	47	33	4	0	4	2	2	2	0
Doctorate	14	11	1	0	1	0	0	1	0
n.s.	16	10	0	0	1	0	0	2	3
*Mothers Over 24 years	610	386	84	3	19	16	6	92	4
Prenatal Care									
None	45	17	8	0	3	5	0	10	2
Month 1	31	19	5	0	2	0	0	5	0
Month 2	311	213	39	1	7	6	2	42	1
Month 3	331	221	41	0	8	9	0	52	0
First Trimester	673	453	85	1	17	15	2	99	1
Month 4	96	45	18	1	3	1	1	26	1
Month 5	40	24	3	0	1	1	1	10	0
Month 6	28	11	5	0	0	0	2	9	1
Second Trimester	164	80	26	1	4	2	4	45	2
Month 7	13	7	1	0	0	2	0	3	0
Month 8	4	2	1	0	0	0	0	1	0
Month 9 & Higher	6	2	0	1	1	0	0	2	0
Third Trimester	23	11	2	1	1	2	0	6	0
n.s.	29	15	3	0	0	1	0	10	0
Adequacy of Prenatal Care									
Adequate Plus	390	259	47	2	11	5	1	64	1
Adequate	257	171	31	0	6	8	1	39	1
Intermediate	95	53	21	0	2	2	1	16	0
Inadequate	160	74	23	1	6	9	3	41	3
n.s.	32	19	2	0	0	1	0	10	0
Smoking During Pregnancy									
Ever Smoked During Pregnancy	132	102	9	1	2	7	0	11	0
Smoking Status Known	918	567	123	3	25	23	5	169	3

Table A9. Linked Infant Deaths by Birth Characteristics and Selected Population Groups of the Mother Kansas, 2018-2022

Characteristics	All races and origins	White NH*	Black NH*	American Indian or Alaska Native NH*	Asia or Pacific Islander NH*	Multi Race NH*	Other NH*	Hispanic	Unknown
Pre-pregnancy BMI									
Underweight	33	23	4	0	0	1	0	4	1
Normal weight	304	207	32	0	8	10	2	44	1
Overweight	235	143	29	0	9	5	2	46	1
Obese	332	192	54	3	6	6	1	70	0
n.s.	30	11	5	0	2	3	1	6	2

*NH = Non-Hispanic, population group includes unknown Hispanic origin.

Residence data

n.s. = not stated

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

Table A10. Live Births by Birth Characteristics and Selected Population Groups of the Mother, Kansas, 2018-2022

Characteristics	All races and origins	White NH*	Black NH*	American Indian or Alaska Native NH*	Asian or Pacific Islander NH*	Multi Race NH*	Other NH*	Hispanic	Unknown
Total	175,117	120,647	11,758	804	5,855	4,257	1,069	30,419	308
Sex									
Female	85,739	58,991	5,738	395	2,824	2,115	540	14,979	157
Male	89,375	61,655	6,019	409	3,031	2,142	529	15,439	151
n.s.	3	1	1	0	0	0	0	1	0
Plurality									
Single	169,580	116,705	11,236	788	5,713	4,112	1,032	29,691	303
Twin	5,386	3,830	514	16	142	130	36	714	4
Triplets or more	139	108	6	0	0	12	0	13	0
Plural	5,525	3,938	520	16	142	142	36	727	4
n.s.	12	4	2	0	0	3	1	1	1
Birth Order									
1	62,427	43,718	3,898	255	2,458	1,691	389	9,917	101
2	53,849	38,518	3,197	225	1,990	1,231	315	8,279	94
3	32,478	22,253	2,177	163	833	724	199	6,069	60
4	15,072	9,552	1,247	78	344	331	94	3,398	28
5 or more	11,289	6,605	1,239	83	230	279	72	2,756	25
n.s.	2	1	0	0	0	1	0	0	0
Birthweight									
Less than 2,500 grams	13,165	8,191	1,684	53	520	378	91	2,219	29
Less than 500 grams	280	152	62	1	13	3	2	46	1
500-1499 grams	1,936	1,189	273	13	71	36	12	334	8
1,500-2,499 grams	10,949	6,850	1,349	39	436	339	77	1,839	20
2,500 grams or more	161,931	112,444	10,074	750	5,335	3,877	978	28,197	276
n.s.	21	12	0	1	0	2	0	3	3
Gestational Age									
Premature (< 37 weeks)	17,414	11,482	1,653	78	586	449	109	3,019	38
Very Premature (< 32 wks)	2,465	1,525	350	15	91	47	15	415	7
Moderate Premature (32-33 wks)	2,000	1,355	209	4	56	54	11	307	4
Late Premature (34-36 wks)	12,949	8,602	1,094	59	439	348	83	2,297	27
Early Term (37-38 weeks)	48,715	32,571	3,660	267	1,775	1,162	282	8,918	80
Term (≥39 weeks)	108,827	76,505	6,438	459	3,488	2,639	675	18,438	185
n.s.	161	89	7	0	6	7	3	44	5
Mother's Age									
Under 20 years	8,848	4,418	986	51	89	436	34	2,821	13
20-24 years	36,718	22,512	3,280	223	508	1,414	190	8,549	42
25-29 years	54,367	38,617	3,478	241	1,587	1,244	294	8,834	72
30-34 years	49,013	36,732	2,498	179	2,219	794	329	6,161	101
35-39 years	22,002	15,751	1,230	91	1,210	315	178	3,163	64
40-64 years	4,158	2,615	286	19	242	53	44	891	8
n.s.	11	2	0	0	0	1	0	0	8
Marital Status									
Married	111,522	85,549	3,705	300	5,031	1,734	873	14,133	197
Unmarried	63,537	35,066	8,052	504	824	2,523	196	16,270	102
n.s.	58	32	1	0	0	0	0	16	9

Table A10. Live Births by Birth Characteristics and Selected Population Groups of the Mother, Kansas, 2018-2022

Characteristics	ances and origins	White NH*	Black NH*	American Indian or Alaska Native NH*	Asian or Pacific Islander NH*	Multi Race NH*	Other NH*	Hispanic	Unknown
Payor									
Medicaid	53,807	31,433	6,875	413	1,034	2,178	356	11,441	77
Private Insurance	97,015	76,969	3,378	239	4,044	1,559	432	10,272	122
Self Pay	12,101	4,770	432	31	325	130	183	6,196	34
Indian Health Service	128	26	1	71	0	19	0	11	0
Tricare	7,799	5,127	829	30	320	275	39	1,175	4
Other Government	1,140	692	83	5	32	34	16	274	4
Other	1,694	1,026	101	5	69	31	27	433	2
n.s.	1,433	604	59	10	31	31	16	617	65
Mother's Education*									
8th Grade or Less	3,900	894	222	5	233	21	108	2,408	9
9-12 Grade, No Diploma	6,299	2,566	600	45	170	127	75	2,707	9
H.S. or GED	24,139	14,406	2,403	129	740	551	167	5,719	24
Some College, No Degree	22,302	15,594	1,976	142	509	629	91	3,343	18
Associate Degree	13,702	10,628	742	71	304	303	50	1,595	9
Bachelor's Degree	38,053	32,357	947	99	1,653	528	203	2,219	47
Master's Degree	15,710	13,125	426	31	1,181	178	89	665	15
Doctorate	4,670	3,806	107	5	428	67	50	197	10
n.s.	765	339	69	3	40	2	12	196	104
*Mothers Over 24 years	129,540	93,715	7,492	530	5,258	2,406	845	19,049	245
Prenatal Care									
None	1,737	856	261	18	71	49	19	439	24
Month 1	4,048	2,733	260	14	111	91	26	798	15
Month 2	61,589	44,630	3,641	197	2,101	1,286	371	9,295	68
Month 3	74,700	54,210	4,368	306	2,380	1,834	380	11,098	124
First Trimester	140,337	101,573	8,269	517	4,592	3,211	777	21,191	207
Month 4	15,449	9,336	1,382	109	534	438	116	3,512	22
Month 5	6,366	3,307	724	49	273	188	46	1,764	15
Month 6	3,687	1,867	416	43	149	119	35	1,048	10
Second Trimester	25,502	14,510	2,522	201	956	745	197	6,324	47
Month 7	2,606	1,306	272	16	80	99	21	804	8
Month 8	1,901	873	203	19	70	63	25	645	3
Month 9 & Higher	1,014	516	95	14	35	35	9	304	6
Third Trimester	5,521	2,695	570	49	185	197	55	1,753	17
n.s.	2,020	1,013	136	19	51	55	21	712	13
Adequacy of Prenatal Care									
Adequate Plus	51,532	37,179	3,109	243	1,828	1,268	217	7,604	84
Adequate	92,849	67,522	5,312	317	3,017	2,065	562	13,937	117
Intermediate	9,733	5,365	1,033	57	253	269	100	2,635	21
Inadequate	18,702	9,371	2,165	168	698	599	168	5,462	71
n.s.	2,301	1,210	139	19	59	56	22	781	15
Smoking During Pregnancy									
Ever Smoked During Pregnancy	13,496	10,650	1,115	144	76	585	11	906	9
Smoking Status Known	174,465	120,254	11,704	798	5,842	4,230	1,065	30,293	279
Pre-pregnancy BMI									
Underweight	4,370	2,927	358	13	283	143	35	605	6
Normal weight	66,906	48,607	3,646	236	3,116	1,458	424	9,304	115
Overweight	48,026	32,210	3,125	224	1,630	1,098	363	9,304	72
Obese	54,452	36,263	4,510	319	793	1,515	216	10,753	83
n.s.	1,363	640	119	12	33	43	31	453	32

*NH = Non-Hispanic, population group includes unknown Hispanic origin.

Residence data

n.s. = not stated

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

APPENDIX B

CERTIFICATE OF LIVE BIRTH

115-

State File Number

1. CHILD'S NAME (First, Middle, Last, Suffix)		2. DATE OF BIRTH (Month, Day, Year)		3. TIME OF BIRTH M	
4. SEX	5. BIRTH WEIGHT (Grams)	6. CITY, TOWN, OR LOCATION OF BIRTH		7. COUNTY OF BIRTH	
8. PLACE OF BIRTH <input type="checkbox"/> Hospital <input type="checkbox"/> Freestanding Birthing Center <input type="checkbox"/> Home Birth <input type="checkbox"/> Clinic/Doctor's Office <input type="checkbox"/> Other (Specify) _____			9. FACILITY NAME (If not institution, give street and number)		
10. I CERTIFY THAT THE STATED INFORMATION CONCERNING THIS CHILD IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF. Certifier's Signature ➤ _____		11. DATE SIGNED (Month, Day, Year)	12. ATTENDANT'S NAME AND TITLE (Type) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____		
13. Certifier's Name and Title (Type) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Hosp Adm. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____		14. ATTENDANT'S MAILING ADDRESS (Street and Number or Rural Route, City, or Town, State, Zip Code)			
15. MOTHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)			16. MOTHER'S LAST NAME PRIOR TO FIRST MARRIAGE		
17. DATE OF BIRTH (Month, Day, Year)		18. BIRTHPLACE (State, Territory, or Foreign Country)		19. PRESENT RESIDENCE-STATE	
20. COUNTY		21. CITY, TOWN, OR LOCATION		22. STREET AND NUMBER OF PRESENT RESIDENCE	
23. ZIP CODE	24. INSIDE CITY LIMITS? <input type="checkbox"/> YES <input type="checkbox"/> NO	25. MOTHER'S MAILING ADDRESS (If same as residence, leave blank)			
26. FATHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)		27. DATE OF BIRTH (Month, Day, Year)		28. BIRTHPLACE (State, Territory, or Foreign Country)	
29. PARENTS REQUEST SOCIAL SECURITY NUMBER ISSUANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO		30. IMMUNIZATION REGISTRY I wish to enroll my child in the Immunization Registry <input type="checkbox"/> YES <input type="checkbox"/> NO			
31. I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THE CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. Signature of Parent (or Other Informant) ➤ _____		32. DATE SIGNED (Month, Day, Year)		33. DATE FILED BY STATE REGISTRAR (Month, Day, Year) (Vital Statistics only)	

34. IF HOME BIRTH, WAS DELIVERY PLANNED AT HOME? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
35. MOTHER'S SOCIAL SECURITY NUMBER	36. FATHER'S SOCIAL SECURITY NUMBER
37a. WAS MOTHER EVER MARRIED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
37b. MOTHER MARRIED? (At birth, conception or any time between) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
37c. IF NO, HAS PATERNITY ACKNOWLEDGMENT BEEN SIGNED? <input type="checkbox"/> Yes <input type="checkbox"/> No	
37d. MOTHER REFUSES TO GIVE HUSBAND'S INFORMATION <input type="checkbox"/> Yes <input type="checkbox"/> No	
38. WHAT IS THE PRIMARY LANGUAGE SPOKEN IN THE HOME? <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Vietnamese <input type="checkbox"/> German <input type="checkbox"/> French <input type="checkbox"/> Russian <input type="checkbox"/> Ukrainian <input type="checkbox"/> Mandarin <input type="checkbox"/> Cantonese <input type="checkbox"/> Sign Language <input type="checkbox"/> Other (Specify) _____	
39. PARENT'S HISPANIC ORIGIN (Check the box or boxes that best describes whether the parent is Spanish, Hispanic, or Latino. Check the "No" box if the parent is not Spanish, Hispanic, or Latino.)	
39a. MOTHER	39b. FATHER
<input type="checkbox"/> No, not Spanish/Hispanic/Latina	<input type="checkbox"/> No, not Spanish/Hispanic/Latino
<input type="checkbox"/> Yes, Mexican/Mexican American/Chicana	<input type="checkbox"/> Yes, Mexican/Mexican American/Chicano
<input type="checkbox"/> Yes, Puerto Rican	<input type="checkbox"/> Yes, Puerto Rican
<input type="checkbox"/> Yes, Cuban	<input type="checkbox"/> Yes, Cuban
<input type="checkbox"/> Yes, Central American	<input type="checkbox"/> Yes, Central American
<input type="checkbox"/> Yes, South American	<input type="checkbox"/> Yes, South American
<input type="checkbox"/> Yes, other Spanish/Hispanic/Latina	<input type="checkbox"/> Yes, other Spanish/Hispanic/Latino
(Specify) _____	(Specify) _____
<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown
40. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)	
40a. MOTHER	40b. FATHER
<input type="checkbox"/> White	<input type="checkbox"/> White
<input type="checkbox"/> Black or African American	<input type="checkbox"/> Black or African American
<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes) _____	<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes) _____
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Asian Indian
<input type="checkbox"/> Chinese	<input type="checkbox"/> Chinese
<input type="checkbox"/> Filipino	<input type="checkbox"/> Filipino
<input type="checkbox"/> Japanese	<input type="checkbox"/> Japanese
<input type="checkbox"/> Korean	<input type="checkbox"/> Korean
<input type="checkbox"/> Vietnamese	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Other Asian (Specify) _____	<input type="checkbox"/> Other Asian (Specify) _____
<input type="checkbox"/> Native Hawaiian	<input type="checkbox"/> Native Hawaiian
<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> Guamanian or Chamorro
<input type="checkbox"/> Samoan	<input type="checkbox"/> Samoan
<input type="checkbox"/> Other Pacific Islander (Specify) _____	<input type="checkbox"/> Other Pacific Islander (Specify) _____
<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown
41. ANCESTRY - What is the parents' ancestry or ethnic origin? - Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)	
42. OCCUPATION AND BUSINESS/INDUSTRY	
Occupation	Business/Industry (Do not give name of company.)
41a. MOTHER	42a. MOTHER (Most recent)
41b. FATHER	42b. FATHER (Usual)
42c. MOTHER	42d. FATHER
43. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery.)	
43a. MOTHER'S EDUCATION	43b. FATHER'S EDUCATION
<input type="checkbox"/> 8 th grade or less	<input type="checkbox"/> 8 th grade or less
<input type="checkbox"/> Some College credit, but no degree	<input type="checkbox"/> Some College credit, but no degree
<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown
<input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)	<input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)
<input type="checkbox"/> 9 th - 12 th grade; no diploma	<input type="checkbox"/> 9 th - 12 th grade; no diploma
<input type="checkbox"/> Associate degree (e.g., AA,AS)	<input type="checkbox"/> Associate degree (e.g., AA,AS)
<input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)	<input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)
<input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)	<input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)
<input type="checkbox"/> High school graduate or GED	<input type="checkbox"/> High school graduate or GED
44. PREVIOUS LIVE BIRTHS (Do not include this child.)	
44a. Now living Number _____	44b. Now dead Number _____
<input type="checkbox"/> None	<input type="checkbox"/> None
45. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)	
45a. Before 20 weeks Number _____	45b. 20 weeks & over Number _____
<input type="checkbox"/> None	<input type="checkbox"/> None
46. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No	
47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)	
48. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	
49. PRENATAL VISITS-Total Number (If none, enter "0")	
50. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	
51. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)	
52. PLURALITY-Single, Twin, Triplet, etc. (Specify)	53. IF NOT A SINGLE BIRTH - Born First, Second, Third, etc. (Specify)
54. TOTAL LIVE BIRTHS AT THIS DELIVERY	
55. IS INFANT ALIVE AT THE TIME OF THIS REPORT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
56. IS INFANT BEING BREAST-FED AT DISCHARGE? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
57. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked per day during each time period. If none, enter "0".	
Average number of cigarettes or packs of cigarettes smoked per day for each period:	
No. No.	
Three months before pregnancy: _____ cigarettes or _____ packs	
First three months of pregnancy: _____ cigarettes or _____ packs	
Second three months of pregnancy: _____ cigarettes or _____ packs	
Third Trimester of pregnancy: _____ cigarettes or _____ packs	
58. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY	
<input type="checkbox"/> Medicaid <input type="checkbox"/> Private/Employer Ins. <input type="checkbox"/> Self-pay	
<input type="checkbox"/> Indian Health Service <input type="checkbox"/> CHAMPUS/TRICARE <input type="checkbox"/> Other government	
<input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Unknown	
59. MOTHER'S MEDICAL RECORD NO.	60. NEWBORN'S MEDICAL RECORD NO.
61. MOTHER TRANSFERRED IN FOR DELIVERY DUE TO MATERNAL, MEDICAL, OR FETAL INDICATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)	
62. INFANT TRANSFERRED (Within 24 hours of delivery) <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)	
FACILITY TRANSFERRED FROM:	
FACILITY TRANSFERRED TO:	

CHILD'S NAME _____

MOTHER'S NAME _____

PRENATAL (Birth)	LABOR-DELIVERY/NEWBORN				
63. NUTRITION OF MOTHER 1. Height _____ 2. Prepregnancy Weight _____ 3. Weight at delivery _____ 4. Did mother get WIC food for herself? Yes _____ No _____ Unknown _____	66. OBSTETRICAL PROCEDURES (Check all that apply.) 1. <input type="checkbox"/> Cervical cerclage 2. <input type="checkbox"/> Tocolysis 3. External cephalic version: <input type="checkbox"/> Successful <input type="checkbox"/> Failed 4. <input type="checkbox"/> None of the above	70. INFECTIONS PRESENT AND/OR TREATED (During this pregnancy, check all that apply.) 1. <input type="checkbox"/> Gonorrhea 2. <input type="checkbox"/> Syphilis 3. <input type="checkbox"/> Herpes Simplex Virus (HSV) 4. <input type="checkbox"/> Chlamydia 5. <input type="checkbox"/> Hepatitis B 6. <input type="checkbox"/> Hepatitis C 7. <input type="checkbox"/> AIDS or HIV antibody 8. <input type="checkbox"/> None of the above			
	64. MEDICAL RISK FACTORS (Check all that apply.) 1. <input type="checkbox"/> Diabetes, prepregnancy 2. <input type="checkbox"/> Diabetes, gestational 3. Hypertension <input type="checkbox"/> Prepregnancy (Chronic) <input type="checkbox"/> Gestational (PIH, preeclampsia) <input type="checkbox"/> Eclampsia 4. <input type="checkbox"/> Previous preterm birth 5. <input type="checkbox"/> Other previous poor pregnancy outcome (SGA, perinatal death, etc.) 6. <input type="checkbox"/> Vaginal bleeding during this pregnancy prior to labor 7. <input type="checkbox"/> Pregnancy resulted from infertility treatment (If yes, check all that apply.) <input type="checkbox"/> Fertility-enhancing drugs, Artificial insemination or Intrauterine insemination <input type="checkbox"/> Assisted reproductive technology (e.g. in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT)) 8. <input type="checkbox"/> Mother had a previous cesarean delivery, if yes, how many? Number: _____ 9. <input type="checkbox"/> Alcohol use No. of drinks per week: _____ 10. <input type="checkbox"/> None of the above	67. ONSET OF LABOR (Check all that apply.) 1. <input type="checkbox"/> Premature Rupture of the Membranes (prolonged, ≥ 12 hours) 2. <input type="checkbox"/> Precipitous Labor (< 3 hrs) 3. <input type="checkbox"/> Prolonged Labor (≥ 20 hrs) 4. <input type="checkbox"/> None of the above	71. ABNORMAL CONDITIONS OF NEWBORN (Check all that apply) 1. <input type="checkbox"/> Assisted ventilation required immediately following delivery 2. <input type="checkbox"/> Assisted ventilation required for more than six hours 3. <input type="checkbox"/> NICU admission 4. <input type="checkbox"/> Newborn given surfactant replacement therapy 5. <input type="checkbox"/> Antibiotics received by the newborn for suspected neonatal sepsis 6. <input type="checkbox"/> Seizure or serious neurologic dysfunction 7. <input type="checkbox"/> Significant birth injury (skeletal fracture(s), peripheral nerve injury, and/or soft tissue/solid organ hemorrhage which requires intervention) 8. <input type="checkbox"/> None of the above		
65. METHOD OF DELIVERY 1. Forceps attempted? Yes _____ No _____ Successful Yes _____ No _____ 2. Vacuum extraction attempted? Yes _____ No _____ Successful Yes _____ No _____ 3. Fetal presentation at delivery <input type="checkbox"/> Cephalic <input type="checkbox"/> Breech <input type="checkbox"/> Other 4. Final route and method of delivery (check one) <input type="checkbox"/> Vaginal/spontaneous <input type="checkbox"/> Vaginal/forceps <input type="checkbox"/> Vaginal/vacuum <input type="checkbox"/> Cesarean, if cesarean was a trial of labor attempted? Yes _____ No _____	68. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply.) 1. <input type="checkbox"/> Induction of labor 2. <input type="checkbox"/> Augmentation of labor 3. <input type="checkbox"/> Non-vertex presentation 4. <input type="checkbox"/> Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery 5. <input type="checkbox"/> Antibiotics received by the mother during labor 6. <input type="checkbox"/> Clinical chorioamnionitis diagnosed during labor or maternal temperature ≥ 38 C (100.4 F) 7. <input type="checkbox"/> Moderate/heavy meconium staining of the amniotic fluid 8. <input type="checkbox"/> Fetal intolerance of labor: (examples: in-utero resuscitative measures, further fetal assessment, or operative delivery) 9. <input type="checkbox"/> Epidural or spinal anesthesia during labor 10. <input type="checkbox"/> None of the above	72. VACCINES ADMINISTERED TO NEWBORN 1. <input type="checkbox"/> Hepatitis B Date Given: _____ 2. <input type="checkbox"/> Other* Specify: _____ Date Given: _____			
	69. MATERNAL MORBIDITY (Check all that apply.) (These are complications associated with labor and delivery.) 1. <input type="checkbox"/> Maternal transfusion 2. <input type="checkbox"/> Third or fourth degree perineal laceration 3. <input type="checkbox"/> Ruptured uterus 4. <input type="checkbox"/> Unplanned hysterectomy 5. <input type="checkbox"/> Admission to intensive care unit 6. <input type="checkbox"/> Unplanned operating room procedure following delivery 7. <input type="checkbox"/> None of the above	73. APGAR SCORE <table border="1"> <tr> <td>1 min</td> <td>5 min</td> <td>10 min</td> </tr> </table>		1 min	5 min
1 min	5 min	10 min			
		74. CONGENITAL ANOMALIES OF THE NEWBORN (Check all that apply.) 1. <input type="checkbox"/> Anencephaly 2. <input type="checkbox"/> Meningomyelocele/Spina bifida 3. <input type="checkbox"/> Cyanotic congenital heart disease 4. <input type="checkbox"/> Congenital diaphragmatic hernia 5. <input type="checkbox"/> Omphalocele 6. <input type="checkbox"/> Gastroschisis 7. <input type="checkbox"/> Limb reduction defect (excluding congenital amputation and dwarfing syndromes) 8. <input type="checkbox"/> Cleft Lip with or without Cleft Palate 9. <input type="checkbox"/> Cleft Palate alone 10. <input type="checkbox"/> Down Syndrome <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending 11. <input type="checkbox"/> Suspected chromosomal disorder <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending 12. <input type="checkbox"/> Hypospadias 13. <input type="checkbox"/> Fetal alcohol syndrome 14. <input type="checkbox"/> Other congenital anomalies (Specify) _____ 15. <input type="checkbox"/> None of the above			

Parent's Telephone Number: _____

CHILD'S NAME _____

MOTHER'S NAME _____

<p>Test required by K.S.A. 65-153f 153G Serological Test Made:</p> <p>_____ 1st _____ 2nd _____ 3rd (Trimester) _____ At Delivery _____ Not Performed</p> <p>If no test made, state reason:</p>	<p>Test required by K.S.A. 65-180 Infant Neonatal Screening specimen taken:</p> <p>_____ Yes _____ No</p> <p>Kit Number _____</p> <p>If no test made, state reason:</p>	<p>Test required by K.S.A. 65-1157A Newborn Hearing Screening Accomplished:</p> <p>_____ Yes _____ No</p>
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Infant's patient number: _____

Infant's Primary Care Physician

First	Middle	Last	Title (MD, DO, etc.)
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<p>If screening accomplished, Date hearing screened _____</p> <p>Month / Day / Year</p>	<p>The results of the hearing screening ✓:</p> <p>Right ear: _____ Pass _____ Refer for further testing Left ear: _____ Pass _____ Refer for further testing</p>
---	--

Physiologic equipment used ✓: _____ OAE _____ AABR _____ ABR

If screening not accomplished, ✓ one reason:

_____ b – missed appointment	_____ o – other
_____ c – could not test	_____ r – did not consent
_____ d – deceased	_____ s – scheduled but not completed
_____ i – Incomplete test	_____ t – transferred to another hospital
_____ m – Infant discharged before screening	_____ u – no information
_____ n – transferred to NICU	_____ x – invalid results

Kansas Department of Health and Environment
Office of Vital Statistics

CERTIFICATE OF STILLBIRTH (FETAL DEATH)

State File Number

1. NAME (First, Middle, Last, Suffix)		2. DATE OF DELIVERY (Month, Day, Year)	3. TIME OF DELIVERY M
4. SEX	5. CITY, TOWN, OR LOCATION OF DELIVERY		6. COUNTY OF DELIVERY
7. PLACE OF DELIVERY <input type="checkbox"/> Hospital <input type="checkbox"/> Freestanding Birthing Center <input type="checkbox"/> Home Delivery <input type="checkbox"/> Clinic/Doctor's Office <input type="checkbox"/> Other (Specify) _____		8. FACILITY NAME (If not institution, give street and number and zip code)	
9. MOTHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)			10. MOTHER'S LAST NAME PRIOR TO FIRST MARRIAGE
11. DATE OF BIRTH (Month, Day, Year)	12. BIRTHPLACE (State, Territory, or Foreign Country)		13. PRESENT RESIDENCE-STATE
14. COUNTY	15. CITY, TOWN, OR LOCATION	16. STREET AND NUMBER OF PRESENT RESIDENCE	
17. ZIPCODE	18. INSIDE CITY LIMITS? <input type="checkbox"/> Yes <input type="checkbox"/> No	19. MOTHER'S MAILING ADDRESS (If same as residence, leave blank)	
20. FATHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)		21. DATE OF BIRTH (Month, Day, Year)	22. BIRTHPLACE (State, Territory, or Foreign Country)
23. I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THE CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. Signature of Parent (or Other Informant) >			24. DATE SIGNED (Month, Day, Year)
25. CAUSE/CONDITIONS CONTRIBUTING TO FETAL DEATH			
25a. INITIATING CAUSE/CONDITION (Among the choices below, please select the <u>one</u> which most likely began the sequence of events resulting in the death of the fetus.)			
Maternal Conditions/Diseases (Specify) _____			
Complications of Placenta, Cord, or Membranes – <input type="checkbox"/> Rupture of membranes prior to onset of labor <input type="checkbox"/> Abruptio placenta <input type="checkbox"/> Placental insufficiency <input type="checkbox"/> Prolapsed cord			
<input type="checkbox"/> Chorioamnionitis <input type="checkbox"/> Other (Specify) _____			
Other Obstetrical or Pregnancy Complications (Specify) _____		Fetal Anomaly (Specify) _____	
Fetal Injury (Specify) _____		Fetal Infection (Specify) _____	
Other Fetal Conditions/Disorders (Specify) _____		<input type="checkbox"/> Unknown	
25b. OTHER SIGNIFICANT CAUSES OR CONDITIONS (Select or specify all other conditions contributing to death in item 25a.)			
Maternal Conditions/Diseases (Specify) _____			
Complications of Placenta, Cord, or Membranes – <input type="checkbox"/> Rupture of membranes prior to onset of labor <input type="checkbox"/> Abruptio placenta <input type="checkbox"/> Placental insufficiency <input type="checkbox"/> Prolapsed cord			
<input type="checkbox"/> Chorioamnionitis <input type="checkbox"/> Other (Specify) _____			
Other Obstetrical or Pregnancy Complications (Specify) _____		Fetal Anomaly (Specify) _____	
Fetal Injury (Specify) _____		Fetal Infection (Specify) _____	
Other Fetal Conditions/Disorders (Specify) _____		<input type="checkbox"/> Unknown	
26. ESTIMATED TIME OF FETAL DEATH <input type="checkbox"/> Dead at time of first assessment, no labor ongoing <input type="checkbox"/> Dead at time of first assessment, labor ongoing <input type="checkbox"/> Died during labor, after first assessment <input type="checkbox"/> Unknown time of fetal death		27a. WAS AN AUTOPSY PERFORMED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned	27b. WAS A HISTOLOGICAL PLACENTAL EXAMINATION PERFORMED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned
		27c. WERE AUTOPSY OR HISTOLOGICAL PLACENTAL EXAMINATION RESULTS USED IN DETERMINING THE CAUSE OF FETAL DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No	
28. I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THE FETUS WAS BORN DEAD. Signature >		29. DATE SIGNED (Month, Day, Year)	30. ATTENDANT'S NAME AND TITLE (If delivery not attended by physician) Name (Type) _____ <input type="checkbox"/> CNM/CM <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____
31. CERTIFIER'S NAME AND TITLE (Type) <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Other (Specify) _____		32. CERTIFIER'S MAILING ADDRESS (Street and Number or Rural Route, City or Town, State, Zip Code)	
		33a. METHOD OF DISPOSITION <input type="checkbox"/> Burial <input type="checkbox"/> Cremation <input type="checkbox"/> Donation <input type="checkbox"/> Hospital Disposition <input type="checkbox"/> Removal from State <input type="checkbox"/> Other (Specify) _____	
33b. PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)		33c. LOCATION (City or Town, and State)	
34. FUNERAL DIRECTOR OR HOSPITAL ADMINISTRATOR Signature >		35. FIRM OR HOSPITAL NAME AND ADDRESS	
		36. DATE FILED BY STATE REGISTRAR (Month, Day, Year)	

CONFIDENTIAL INFORMATION FOR INTERNAL USE ONLY

37. IF HOME DELIVERY, WAS DELIVERY PLANNED AT HOME? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			38. MOTHER'S MEDICAL RECORD NO.		
39a. WAS MOTHER EVER MARRIED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		39b. MOTHER MARRIED? (At birth, conception or any time between) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
40. PARENT'S HISPANIC ORIGIN (Check the box or boxes that best describes whether the parent is Spanish, Hispanic, or Latino. Check the "no" box if the parent is not Spanish, Hispanic, or Latino.)			41. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)		
40a. MOTHER-		40b. FATHER-		41a. MOTHER	
<input type="checkbox"/> No, not Spanish/Hispanic/Latina <input type="checkbox"/> Yes, Mexican/Mexican American/Chicana <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify) _____ <input type="checkbox"/> Unknown		<input type="checkbox"/> No, not Spanish/Hispanic/Latino <input type="checkbox"/> Yes, Mexican/Mexican American/Chicano <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify) _____ <input type="checkbox"/> Unknown		<input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes) _____ <input type="checkbox"/> Asian Indian <input type="checkbox"/> Chinese <input type="checkbox"/> Filipino <input type="checkbox"/> Japanese <input type="checkbox"/> Korean <input type="checkbox"/> Vietnamese <input type="checkbox"/> Other Asian (Specify) _____ <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Guamanian or Chamorro <input type="checkbox"/> Samoan <input type="checkbox"/> Other Pacific Islander (Specify) _____ <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Unknown	
42. ANCESTRY - What is the parents' ancestry or ethnic origin? - Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)			43. OCCUPATION AND BUSINESS/INDUSTRY		
			Occupation		Business/Industry (Do not give name of company.)
42a. MOTHER		43a. MOTHER (Most recent)		43c. MOTHER	
42b. FATHER		43b. FATHER (Usual)		43d. FATHER	
44. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery.)					
44a. MOTHER'S EDUCATION		44a. FATHER'S EDUCATION			
<input type="checkbox"/> 8 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Unknown <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)		<input type="checkbox"/> 8 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Unknown <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)		<input type="checkbox"/> 9 th - 12 th grade, no diploma <input type="checkbox"/> Associate degree (e.g., AA,AS) <input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)	
45. PREVIOUS LIVE BIRTHS (Do not include this child.)		46. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)		47. PLURALITY - Single, Twin, Triplet, etc. (Specify)	
45a. Now living Number _____ <input type="checkbox"/> None	45b. Now dead Number _____ <input type="checkbox"/> None	46a. Before 20 weeks Number _____ <input type="checkbox"/> None	46b. 20 weeks & over Number _____ <input type="checkbox"/> None	49. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	
45c. DATE OF LAST LIVE BIRTH (Month, Year)		46c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		50. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)	
52. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No		53. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)		54. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	
				55. PRENATAL VISIT - Total number (If none, enter "0")	
56. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked per day . If none, enter "0". Average number of cigarettes or packs of cigarettes smoked per day : No. No. Three months before pregnancy: _____ cigarettes or _____ packs First three months of pregnancy: _____ cigarettes or _____ packs Second three months of pregnancy: _____ cigarettes or _____ packs Third Trimester of pregnancy: _____ cigarettes or _____ packs			57. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY <input type="checkbox"/> Medicaid <input type="checkbox"/> Private/Employer Ins. <input type="checkbox"/> Self-pay <input type="checkbox"/> Indian Health Service <input type="checkbox"/> CHAMPUS/TRICARE <input type="checkbox"/> Other government <input type="checkbox"/> Other <input type="checkbox"/> Unknown		
			58a. MOTHER TRANSFERRED IN FOR DELIVERY DUE TO MATERNAL, MEDICAL, OR FETAL INDICATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)		58b. FACILITY TRANSFERRED FROM:

CHILD'S NAME _____
VS233 Rev. 05/01/2010

MOTHER'S NAME _____
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PRENATAL	LABOR-DELIVERY/STILLBORN FETUS
<p>59. NUTRITION OF MOTHER</p> <p>1. Height _____</p> <p>2. Prepregnancy Weight _____</p> <p>3. Weight at delivery _____</p> <p>4. Did mother get WIC food for herself? Yes _____ No _____ Unknown _____</p> <p>60. MEDICAL RISK FACTORS (Check all that apply.)</p> <p>1. <input type="checkbox"/> Diabetes, prepregnancy</p> <p>2. <input type="checkbox"/> Diabetes, gestational</p> <p>3. Hypertension <input type="checkbox"/> Prepregnancy (Chronic) <input type="checkbox"/> Gestational (PIH, preeclampsia) <input type="checkbox"/> Eclampsia</p> <p>4. <input type="checkbox"/> Previous preterm birth</p> <p>5. <input type="checkbox"/> Other previous poor pregnancy outcome (SGA, perinatal death, etc.)</p> <p>6. <input type="checkbox"/> Vaginal bleeding during this pregnancy prior to labor</p> <p>7. <input type="checkbox"/> Pregnancy resulted from infertility treatment (If yes, check all that apply.) <input type="checkbox"/> Fertility-enhancing drugs, Artificial insemination or Intrauterine insemination <input type="checkbox"/> Assisted reproductive technology (e.g. in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT))</p> <p>8. <input type="checkbox"/> Mother had a previous cesarean delivery, if yes, how many Number _____</p> <p>9. <input type="checkbox"/> Alcohol use No. of drinks per week: _____</p> <p>10. <input type="checkbox"/> None of the above</p> <p>61. METHOD OF DELIVERY</p> <p>1. Forceps attempted? Yes _____ No _____ Successful: Yes _____ No _____</p> <p>2. Vacuum extraction attempted? Yes _____ No _____ Successful: Yes _____ No _____</p> <p>3. Fetal presentation at delivery <input type="checkbox"/> Cephalic <input type="checkbox"/> Breech <input type="checkbox"/> Other</p> <p>4. Final route and method of delivery (check one) <input type="checkbox"/> Vaginal/spontaneous <input type="checkbox"/> Vaginal/forceps <input type="checkbox"/> Vaginal/vacuum <input type="checkbox"/> Cesarean, if cesarean was a trial of labor attempted? Yes _____ No _____</p> <p>5. Hysterotomy/Hysterectomy Yes _____ No _____</p>	<p>62. MATERNAL MORBIDITY (Check all that apply.) (These are complications associated with labor and delivery.)</p> <p>1. <input type="checkbox"/> Maternal transfusion</p> <p>2. <input type="checkbox"/> Third or fourth degree perineal laceration</p> <p>3. <input type="checkbox"/> Ruptured uterus</p> <p>4. <input type="checkbox"/> Unplanned hysterectomy</p> <p>5. <input type="checkbox"/> Admission to intensive care unit</p> <p>6. <input type="checkbox"/> Unplanned operating room procedure following delivery</p> <p>7. <input type="checkbox"/> None of the above</p> <p>63. INFECTIONS PRESENT AND/OR TREATED (During this pregnancy, check all that apply.)</p> <p>1. <input type="checkbox"/> Gonorrhea</p> <p>2. <input type="checkbox"/> Syphilis</p> <p>3. <input type="checkbox"/> Herpes Simplex Virus (HSV)</p> <p>4. <input type="checkbox"/> Chlamydia</p> <p>5. <input checked="" type="checkbox"/> Listeria</p> <p>6. <input type="checkbox"/> Group B Streptococcus</p> <p>7. <input type="checkbox"/> Cytomeglovirus</p> <p>8. <input type="checkbox"/> Parvo virus</p> <p>9. <input type="checkbox"/> Toxoplasmosis</p> <p>10. <input type="checkbox"/> AIDS or HIV antibody</p> <p>11. <input type="checkbox"/> None of the above</p> <p>12. <input type="checkbox"/> Other (Specify) _____</p> <p>64. CONGENITAL ANOMALIES OF THE NEWBORN (Check all that apply.)</p> <p>1. <input type="checkbox"/> Anencephaly</p> <p>2. <input type="checkbox"/> Meningocele/Spina bifida</p> <p>3. <input type="checkbox"/> Cyanotic congenital heart disease</p> <p>4. <input type="checkbox"/> Congenital diaphragmatic hernia</p> <p>5. <input type="checkbox"/> Omphalocele</p> <p>6. <input type="checkbox"/> Gastroschisis</p> <p>7. <input type="checkbox"/> Limb reduction defect (excluding congenital amputation and dwarfing syndromes)</p> <p>8. <input type="checkbox"/> Cleft Lip with or without Cleft Palate</p> <p>9. <input type="checkbox"/> Cleft Palate alone</p> <p>10. <input type="checkbox"/> Down Syndrome <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending</p> <p>11. <input type="checkbox"/> Suspected chromosomal disorder <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending</p> <p>12. <input type="checkbox"/> Hypospadias</p> <p>13. <input type="checkbox"/> Fetal alcohol syndrome</p> <p>14. <input type="checkbox"/> Other congenital anomalies (Specify) _____</p> <p>15. <input type="checkbox"/> None of the above</p>

THIS IS NOT PART OF THE CERTIFICATE OF STILLBIRTH
Test required by K.S.A. 65-153F, 153G

Serological Test Made: _____ 1st _____ 2nd _____ 3rd (Trimester) _____ At Delivery _____ Not Performed

If no test made, state reason: _____

Kansas Department Of Health And Environment
Office of Vital Statistics

CERTIFICATE OF DEATH

State File Number

1. DECEDENT'S LEGAL NAME (First, Middle, Last)		2. SEX	3. IF FEMALE, NAME PRIOR TO FIRST MARRAIGE		4. DATE OF DEATH (Month, Day, Year)	
5. SOCIAL SECURITY NUMBER	6. DATE OF BIRTH (Month, Day, Year)	7a. AGE-Last Birthday (Years)	7b. UNDER 1 YEAR Months Days	7c. UNDER 1 DAY Hours Minutes	8. PLACE OF BIRTH (City and State or Foreign Country)	
9. WAS DECEDENT EVER IN U.S. ARMED FORCES? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	10a. PLACE OF DEATH (Check only one)					
	HOSPITAL <input type="checkbox"/> Inpatient <input type="checkbox"/> DOA <input type="checkbox"/> ER/Outpatient		<input type="checkbox"/> Nursing Home <input type="checkbox"/> Hospice Facility <input type="checkbox"/> Assisted Living Facility <input type="checkbox"/> Decedent's Residence <input type="checkbox"/> Other (Specify) _____			
10b. FACILITY NAME (If not institution, give street and number)		10c. COUNTY OF DEATH		10d. CITY OR TOWN OF DEATH		10e. ZIP CODE
11. MARITAL STATUS <input type="checkbox"/> Married <input type="checkbox"/> Married, but separated <input type="checkbox"/> Widowed <input type="checkbox"/> Divorced <input type="checkbox"/> Never Married <input type="checkbox"/> Unknown				12. SURVIVING SPOUSE (If wife, give name before first marriage)		
13a. RESIDENCE-STREET ADDRESS & APARTMENT NO.				13b. STATE		
13c. COUNTY		13d. CITY OR TOWN		13e. ZIP CODE	13f. INSIDE CITY LIMITS? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
14. FATHER'S NAME (First, Middle, Last)			15. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last)			
16a. INFORMANT'S NAME (First, Middle, Last)		16b. MAILING ADDRESS (Street and Number, City, State, Zip Code)			16c. RELATIONSHIP TO DECEDENT	
17. METHOD OF DISPOSITION <input type="checkbox"/> Burial <input type="checkbox"/> Cremation <input type="checkbox"/> Removal from State <input type="checkbox"/> Donation <input type="checkbox"/> Entombment <input type="checkbox"/> Other (Specify) _____		18a. PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)		18b. LOCATION-City or Town, and State		
19. FUNERAL SERVICE LICENSEE & LICENSE NO. (Signature) ➤			20. NAME OF EMBALMER & LICENSE NO.			
21. NAME AND ADDRESS OF FIRM						
22. CAUSE OF DEATH – Part I. Enter the chain of events - diseases, injuries, or complications that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines, if necessary.						
IMMEDIATE CAUSE (Final disease or condition resulting in death)						Approximate Interval: Onset to Death
a. _____ DUE TO (OR AS A CONSEQUENCE OF):						
b. _____ DUE TO (OR AS A CONSEQUENCE OF):						
c. _____ DUE TO (OR AS A CONSEQUENCE OF):						
d. _____ DUE TO (OR AS A CONSEQUENCE OF):						
PART II. Enter other significant conditions contributing to death, but not resulting in the underlying cause given in Part I.			23a. AUTOPSY <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	23b. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Not Applicable	23c. WAS CORONER CONTACTED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
24. DID TOBACCO USE CONTRIBUTE TO DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> Probably <input type="checkbox"/> No <input type="checkbox"/> Unknown	25. IF FEMALE <input type="checkbox"/> Not pregnant within past year <input type="checkbox"/> Not pregnant, but pregnant 43 days to 1 year before death <input type="checkbox"/> Pregnant at time of death <input type="checkbox"/> Unknown if pregnant within the last year <input type="checkbox"/> Not pregnant, but pregnant within 42 days of death			26. MANNER OF DEATH <input type="checkbox"/> Natural <input type="checkbox"/> Homicide <input type="checkbox"/> Accident <input type="checkbox"/> Pending Investigation <input type="checkbox"/> Suicide <input type="checkbox"/> Could not be determined		
27a. DATE OF INJURY (Month, Day, Year)	27b. TIME OF INJURY A.M. P.M.	27c. INJURY AT WORK <input type="checkbox"/> Yes <input type="checkbox"/> No	27d. DESCRIBE HOW INJURY OCCURRED			
27e. PLACE OF INJURY-Residence, farm, street, factory, building, etc. (Specify)			27f. LOCATION (Street and Number or Rural Route, City or Town, State, Zip Code)			
28a. DATE PRONOUNCED DEAD (Month, Day, Year)	28b. TIME PRONOUNCED DEAD A.M. P.M.	28c. ACTUAL OR PRESUMED TIME OF DEATH A.M. P.M.	28d. NAME OF PERSON PRONOUNCING DEATH (If applicable)		28e. LICENSE NO.	
29a. CERTIFIER (Check only one) <input type="checkbox"/> Certifying physician - To the best of my knowledge, death occurred due to the cause(s) and manner stated. <input type="checkbox"/> Pronouncing & Certifying physician - To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated. <input type="checkbox"/> Coroner - On the basis of examination, and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated.						
Signature of certifier ➤			LICENSE NO.		DATE CERTIFIER SIGNED	
29b. NAME, ADDRESS, AND ZIP CODE OF PERSON COMPLETING CAUSE OF DEATH <input type="checkbox"/> M.D. <input type="checkbox"/> D.O.					30. DATE FILED BY STATE REGISTRAR (Month, Day, Year)	

<p>31. ANCESTRY-What is this person's ancestry or ethnic origin? Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)</p>	<p>33. RACE (Check one or more boxes to indicate what race(s) the decedent considered himself or herself to be.)</p>	<p>34. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of death.)</p>
<p>32. HISPANIC ORIGIN (Check the box or boxes that best describes whether the decedent is Spanish/Hispanic/Latino. Check the "no" box if the decedent is not Spanish/Hispanic/Latino)</p>	<p><input type="checkbox"/> White</p> <p><input type="checkbox"/> Black or African American</p> <p><input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)</p> <p>_____</p> <p>_____</p>	<p><input type="checkbox"/> 8th grade or less</p> <p><input type="checkbox"/> 9th - 12th grade; no diploma</p> <p><input type="checkbox"/> High school graduate or GED</p> <p><input type="checkbox"/> Some College credit, but no degree</p> <p><input type="checkbox"/> Associate degree (e.g., AA, AS)</p> <p><input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)</p> <p><input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)</p> <p><input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)</p> <p><input type="checkbox"/> Unknown</p>
<p><input type="checkbox"/> No, not Spanish/Hispanic/Latino</p> <p><input type="checkbox"/> Yes, Mexican/Mexican American/Chicano</p> <p><input type="checkbox"/> Yes, Puerto Rican</p> <p><input type="checkbox"/> Yes, Cuban</p> <p><input type="checkbox"/> Yes, Central American</p> <p><input type="checkbox"/> Yes, South American</p> <p><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)</p> <p>_____</p> <p><input type="checkbox"/> Unknown</p>	<p><input type="checkbox"/> Asian Indian</p> <p><input type="checkbox"/> Chinese</p> <p><input type="checkbox"/> Filipino</p> <p><input type="checkbox"/> Japanese</p> <p><input type="checkbox"/> Korean</p> <p><input type="checkbox"/> Vietnamese</p> <p><input type="checkbox"/> Other Asian (Specify)</p> <p>_____</p> <p>_____</p>	<p>35. DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired.)</p>
	<p><input type="checkbox"/> Native Hawaiian</p> <p><input type="checkbox"/> Guamanian or Chamorro</p> <p><input type="checkbox"/> Samoan</p> <p><input type="checkbox"/> Other Pacific Islander (Specify)</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Other (Specify)</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Unknown</p>	<p>36. KIND OF BUSINESS/INDUSTRY (Do not give name of company.)</p>