

**Errata on Page 49**



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Selected Special Statistics  
Stillbirths and Infant Deaths  
Kansas, 2014

Research  
Summary

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Our Vision – Healthy Kansans Living in Safe and Sustainable Environments

Our Mission – To Protect and Improve the Health and Environment of All Kansans

# Table of Contents

	Page Number
<u>Executive Summary</u> .....	iii
<u>Introduction</u> .....	1
<u>Methodology</u> .....	1
<u>Results</u> .....	4
<u>Trend Analyses</u> .....	4
<u>Five Year Characteristic Analysis</u> .....	5
Death Certificate Statistics .....	5
Linked Birth/Infant Death Statistics .....	8
<u>Discussion</u> .....	11
<u>Limitations</u> .....	12
<u>References</u> .....	13
<u>Tables and Figures</u> .....	15
<u>Technical Notes</u> .....	36
<u>Appendix</u> .....	38
<u>Certificates</u> .....	40

## List of Tables

Table Number		Page Number
A	Linked Birth/Infant Deaths, Percent Linked, Kansas, 2010-2014 .....	4
B	Stillbirth, Perinatal Period III, and Infant Mortality Rates by Selected Population Groups, Kansas, 2014.....	5
C	Infant Deaths by Selected Population Groups And Leading Causes of Death, Kansas, 2010-2014 .....	7
1	Births, Stillbirths, and Infant Deaths by Year by Period of Death, Kansas, 1995-2014 .....	15
2	Perinatal/Infant Mortality Rates by Period of Death, Kansas, 1995-2014 .....	16
3	Infant Deaths and Mortality Rates by Selected Population Group of Mother, Kansas, 1995-2014 .....	20
4	Infant Deaths and Mortality Rates by County of Residence and Peer Group, Kansas, 2010-2014.....	22
5	Infant Deaths by Cause of Death by Period of Death, Kansas, 2010-2014 .....	25
6	Infant Deaths by County of Residence by Period of Death, Kansas, 2010-2014.....	26
7	Stillbirths by Cause of Death by Weeks Gestation, Kansas, 2010-2014 .....	29
8	Linked Infant Deaths by Cause of Death by Gestational Age, Kansas, 2010-2014.....	31
9	Linked Infant Deaths by Birth Characteristics by Selected Population Groups of the Mother Kansas, 2010-2014 .....	32
10	Live Births by Birth Characteristics by Selected Population Groups of the Mother, Kansas, 2010-2014 .....	34

## List of Figures

Figure Number		Page Number
A	Leading Causes of Infant Deaths, Kansas, 2010-2014.....	6
1	Infant Mortality Rates, Kansas, 1912-2014 .....	17
2	Stillbirth Mortality Rates, Kansas, 1912-2014 .....	18
3	Trend in Infant Mortality Rates, Kansas, 1995-2014 .....	19
4	Five Year Average Infant Mortality Rates by Population Group of Mother, Kansas, 1995-2014 .....	21
5	Infant Deaths and Mortality (IM) Rates with 95% Confidence Intervals by Public Health Regions, Kansas, 2010-2014 .....	24
6	Five Year Average Infant Mortality Rates by Period of Death, Kansas, 1995-2014.....	28
7	Five Year Average Perinatal Period III Mortality Rates by Period of Death, Kansas, 1995-2014.....	30

# 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 wellbeing where basic needs are met, rates of illness such as diabetes and hypertension, and quality of the environment. This report builds on information in the *Annual Summary of Vital Statistics, 2014* providing a long-term assessment of progress on infant mortality. The report uses five-year average infant mortality to evaluate trends.

In the last century, the Kansas single year infant mortality rate (IMR) has decreased dramatically, from 73.5 deaths per 1,000 live births in 1912 (2,795 infant deaths) to 6.3 in 2014 (246).

- The single-year Kansas IMR decreased slightly from 2013 (6.4 deaths per 1,000 live births) to 6.3 in 2014. The Kansas rate exceeds the Healthy People 2020 (HP2020) objective of 6.0 deaths per 1,000 live births. The White non-Hispanic population IMR (5.2) met the HP2020 target. The Hispanic (6.5) and Black non-Hispanic (11.0) rates did not.
- The Black non-Hispanic infant mortality rate has remained more than twice that of the White non-Hispanic rate for most of the last 20 years.
- During 2010-2014, most Kansas resident infant deaths occurred soon after birth. Almost two-thirds (67.4% or 841 deaths) happened in the neonatal time period (less than 28 days).
- The leading cause of infant mortality was congenital anomalies (23.3%), followed by prematurity or low birth weight (19.8%), sudden unexplained infant death (SUID) causes (17.0%), and maternal factors and complications (10.3%).
- Perinatal deaths include stillbirths and hebdomadal deaths (less than seven days). Complications of placenta, umbilical cord, and membrane was the leading cause of stillbirths; Prematurity or low birthweight was the leading cause for hebdomadal deaths.
- The 2010-2014 premature infant mortality rate of 44.1 per 1,000 live births was over 23 times higher than the rate for infants born at term (1.9). The IMR for very premature infants was 198.7 deaths per 1,000 live births, approximately 105 times as high as than infants born at term.

The *Selected Special Statistics, Stillbirths and Infant Deaths, Kansas, 2014* summarizes vital records data on stillbirths and infant deaths. This report can be found at <http://www.kdheks.gov/phi/index.htm>. Persons inquiring about additional data needs can call (785) 296-8627.

# Introduction

One of the basic indicators of the health of a community or state is infant mortality, the death of an infant before one year of age. The calculated infant mortality rate (IMR), serves as one proxy indicator of population health. It reflects the apparent association between the causes of infant mortality and other factors that are likely to influence the health status of the whole population such as economic development, general living conditions, social wellbeing where basic needs are met, rates of illness such as diabetes and hypertension, and quality of the environment [1].

Nationally, for 2013, the most recent year with final death data, statistics showed the infant mortality rate was 6.0 per 1,000 live births. The leading causes of infant death were congenital malformations; prematurity or low birthweight; maternal factors and complications of pregnancy, labor and delivery; and sudden infant death syndrome (SIDS) [2].

The most recent national linked birth/infant death data set (2011-2013 data) included statistics on characteristics collected with the birth certificate in addition to the death certificate. Risk factors for infant death included Black non-Hispanic mothers, prematurity or low birthweight, multiple deliveries, unmarried mothers, mother's age (both younger and older mothers), and no prenatal care [3].

Healthy People 2020 (HP2020), which provides science-based, 10-year national objectives for improving the health of all Americans, includes infant mortality as a leading health indicator. The HP2020 target is 6.0 infant deaths per 1,000 live births [4].

The Kansas Department of Health and Environment's (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. The Bureau's Division of Public Health Informatics calculates the official state infant mortality rate as part of its ongoing mission to provide data and information to program managers, policy makers, health providers, and the public. This report augments information in the KDHE *Annual Summary of Vital Statistics, 2014* [5] and moves beyond single-year statistics in order to provide more long-term estimates of the true underlying rates.

## Methodology

### **Statistics**

Due to small numbers of events, preselected intervals of years are combined to increase data reliability. Five years (2010-2014) are combined for characteristic analysis, and intervals of 20 years and approximately 100 years are used for trend analysis. The long-term (~100 years) infant mortality numbers and rates may be under-reported due to incomplete data collection in the early 1900s.

Additionally, the relative standard error (RSE) is used in this report to evaluate reliability of rates. Values with a relative standard error of 30 percent or less are considered reliable. Values with a relative standard error greater than 30 percent but less than 50 percent are considered unreliable, and rates with RSE greater than 50 percent have been

suppressed in this document. This is consistent with standard National Center for Health Statistics (NCHS) practice [3, 6].

The following statistical tests have been applied where statistically significant differences have been noted in the document. The z-test was used for comparing two infant mortality rates [3]. Poisson Joinpoint regression models were used for trend analysis, and the average annual percent change (APC) was used to characterize the trend over time [7, 8, 9]. Confidence intervals were calculated at the 95% confidence level. If the confidence intervals of two values do not overlap it is considered a conservative estimate of a significant difference [10]. Statistical significance is considered at the 0.05 level.

Five year rolling averages were used to smooth data trends over 20 years since year-to-year variation in infant mortality rates can result in a saw-tooth pattern that obscures underlying trends.

Stillbirths are also included in this report. In Kansas, 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. [11]. These events may have risk factors similar to those for infant deaths.

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

### ***Age Period of 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). The 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). Perinatal period III includes stillbirths and hebdomadal deaths.

### ***Cause of Death Data***

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) [12]. This system promotes uniformity and comparability in the collection and presentation of mortality data.

In this document, 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) in some of the figures/tables. This combination is categorized as Sudden Unexpected Infant Death (SUID).

Analyzing SUID is important since the national campaign to reduce the risk of SIDS has entered a new phase and will now include all sleep-related SUIDs. SIDS, a major component of SUID, decreased by about 50 percent in the 1990s with the greatest decline occurring after the "Safe to Sleep" campaign was initiated in 1994 [13]. Since then, the decline in the SIDS rate has been less dramatic. The decline in SIDS is likely explained by increasing rates of infant deaths classified as "accidental suffocation and strangulation in bed" and "unknown cause" [3].

### ***Population Group Reporting***

This method creates a unique matrix of population groups combining race and Hispanic origin for reporting statistics. In the death certificate statistics (unlinked data) of this document, the population groups are classified using the race/ethnicity of the decedent as reported on the death certificate. 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 certificate for the mother. For more information on the population groups, see the Technical Notes in the *Annual Summary of Vital Statistics, 2014* [5].

### ***Data Linkage***

This report also provides findings based on the linking of birth certificate and infant death certificate data. Where referenced, the linked birth/infant death statistics are based on a death cohort. The death cohort involves linkage of infant deaths with the corresponding live births. These births may have occurred in the same calendar year as the death or in the year prior.

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.

Linked data are an important tool to examine infant mortality comparisons between Kansas and other states including the District of Columbia, or the United States. To obtain statistically reliable state-specific data stratified by race and ethnicity, it is necessary to combine years. The National Center for Health Statistics combines three years; the most recent report includes data from 2011-2013. Infant mortality rates were not calculated for states/District of Columbia when the number of events was less than 20 [3]. For this report, five years (2010-2014) of linked birth/infant deaths were combined to obtain statistically reliable data for stratification on characteristic variables.

For Kansas, between 2010 and 2014, there were 1,248 resident infant deaths reported to KDHE (Table A). Of those, 1,239 (99.3%) were linked to a birth certificate. Thirty-five of the birth records that were linked occurred in 2009. Unlinked records were due to a number of factors beyond the scope of this summary.

Table A. Linked Birth/Infant Deaths, Percent Linked, Kansas, 2010 - 2014

Year	Infant Deaths, Total	Infant Deaths, Linked File	
	Number	Number	%
2010	253	251	99.2
2011	247	244	98.8
2012	254	254	100.0
2013	248	244	98.4
2014	246	246	100.0
Totals	1248	1239	99.3

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 mother's risk factors

- The death file contains age at death and underlying cause.
- The birth file contains birthweight, gestational age, and information on the mother such as age, marital status, educational level, and maternal risk factors such as tobacco use.

## Results

### Trend Analyses

In 2014, the Kansas infant mortality rate was 6.3 per 1,000 live births (246 infant deaths). This rate is down slightly from 6.4 per 1,000 live births (248 infant deaths) in 2013 (Tables 1, 2). The change was not statistically significant.

In the last century, the IMR has decreased dramatically (91.4%) from 73.5 deaths per 1,000 live births in 1912 (2,795 infant deaths) (Figure 1). Stillbirths decreased 81.0 percent from 26.8 stillbirths per 1,000 (live births + stillbirths) in 1912 (1,047 stillbirths) to 5.1 (201 stillbirths) in 2014 (Figure 2). Incomplete reporting of live births, infant deaths, and stillbirths in the early 1900s may have resulted in slightly higher or lower estimated mortality rates for those years.

In the last twenty years, there has been some fluctuation in the IMR from a first high of 8.2 in 1996, to a first low of 6.7 in 2003, then reaching a high of 7.9 in 2007, and an overall low of 6.2 in 2011. A Poisson regression using Joinpoint and the APC [7, 8], however, indicates that overall there was a statistically significant decreasing trend (p-value < 0.05) from 1995 to 2014 (Figure 3).

### ***Neonatal/Post-Neonatal Period Deaths***

Neonatal death rates showed a statistically significant decreasing trend during the period from 1995 to 2014 with some fluctuation; post-neonatal death rates from 1995 to 2007 fluctuated greatly, resulting in no significant trend, however, from 2008 to 2014 a significant decreasing trend was present (Table 2). For neonatal death rates, rolling five year averages showed a slight decrease in most years from 4.8 in 1995-1999 to 4.2 in 2010-

2014 (Figure 6). The post-neonatal death rates rolling five year averages showed an overall decrease from 2.5 in 1995-1999 to a low of 2.1 in 2010-2014, with some fluctuation in the years between (Figure 6).

### ***Perinatal Period III Deaths***

In Kansas from 1995-2014, rolling five year averages showed a gradual decline in perinatal death rates, with some fluctuation, decreasing from 8.8 deaths per 1,000 live births in 1995-1999 to 8.1 in 2010-2014 (Figure 7).

### ***Population Groups***

For Kansas in 2014, the White non-Hispanic population group had the highest number of infant deaths (146 infant deaths), while the Black non-Hispanic group had the highest rate (11.0 per 1,000 live births) (Table B). The disparity in rates between White and Black non-Hispanic infant deaths was evident in all periods of death (Table B).

Table B. Stillbirth, Perinatal Period III\* and Infant Mortality Rates by Selected Population Groups, Kansas, 2014

	Total	White non-Hispanic	Black non-Hispanic	Hispanic any race
Infant deaths †	6.3	5.2	11.0	6.5
Neonatal deaths †	4.5	3.9	7.6	3.9
Post neonatal deaths †	1.8	1.4	3.4	2.6
Stillbirths ‡	5.1	4.1	7.6	7.1
Perinatal period III ‡	8.6	7.0	13.6	10.7

\* Perinatal period III includes stillbirths and hebdomadal deaths (deaths that occur prior to the 7<sup>th</sup> day of life)

†Rate per 1,000 live births

‡Rate per 1,000 (live births + stillbirths)

A population group comparison over 20 years based on five year moving averages (Figure 4) revealed that the Black non-Hispanic population has consistently had the highest infant mortality rates. The rate has fluctuated, reaching a high of 17.1 in 2003-2007 and a low of 13.0 in 2010-2014. In the same 20 years, the White non-Hispanic population showed a slight decreasing trend from 6.7 in 1995-1999 to 5.1 in 2010-2014. The IMR in the Hispanic population fluctuated, with a low of 5.9 in 1995-1999; since then, the rate in the Hispanic population has increased in most years to 7.4 in 2010-2014. The Black non-Hispanic IMR has remained over twice that of the White non-Hispanic population, with an average ratio of 2.5.

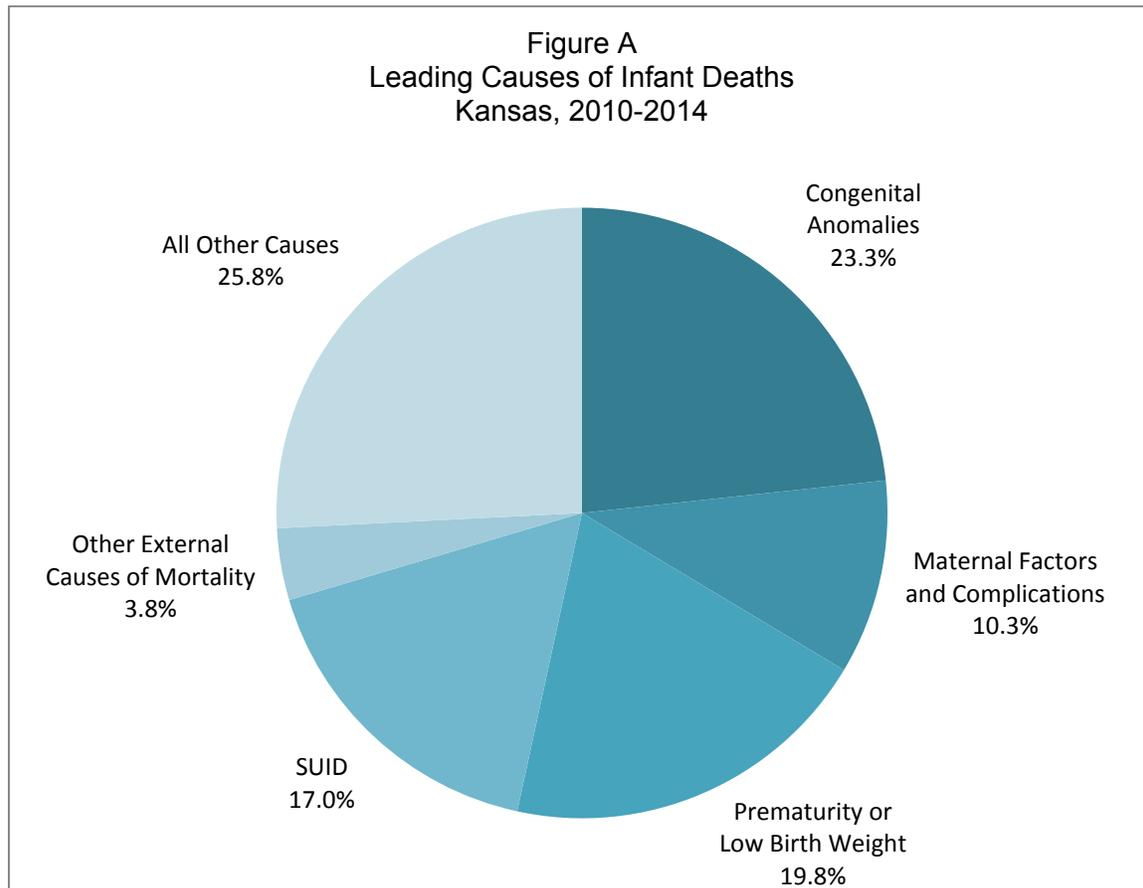
## ***Five Year Characteristic Analysis (2010-2014)***

### **Death Certificate Statistics**

#### ***Causes of Infant Death***

The Kansas infant mortality rate for the period 2010-2014 was 6.3 infant deaths per 1,000 live births. The leading cause of infant mortality was congenital anomalies (Figure A, Table 5). The most frequent congenital anomaly was congenital malformations of the circulatory system (24.1%, ICD-10 codes Q20-Q28), followed by congenital malfor-

mations of the nervous system (19.6%, ICD-10 codes Q00-Q07), and chromosomal abnormalities (17.2%, ICD-10 codes Q90-Q99). Almost seventy-four percent (73.9%, 215 deaths) of congenital anomaly deaths occurred in the neonatal period (under 28 days). The category “other causes” includes conditions such as spinal muscular atrophy, secondary pulmonary hypertension, hypertrophic cardiomyopathy, myocarditis, and disorders of the lungs.



Analysis of select population groups for the 2010-2014 cohort revealed the leading cause of infant death for Black non-Hispanic infants was prematurity or low birthweight. The leading cause of death among White non-Hispanic and Hispanic infants was congenital anomalies (Table C).

Analysis of rates by population group showed that Black non-Hispanic infants died at a significantly greater rate than White non-Hispanic and Hispanic infants where the cause of death was prematurity or low birthweight and SUID. Black non-Hispanic infants died at a significantly greater rate than White non-Hispanic, but not compared to the Hispanic population group, when the cause of death was maternal factors and complications. Among infants that died of congenital anomalies, the infant death rates were not significantly different among these three population groups (Table C).

Table C. Infant Deaths by Selected Population Groups and Leading Causes of Death, Kansas, 2010-2014

Population Group*	Number of Deaths	Percent	Rate <sup>†</sup>
<b>Black non-Hispanic (n=174)</b>			
1. Prematurity or Low Birthweight	57	32.8	4.3
2. SUID	27	15.5	2.0
3. Congenital Anomalies	21	12.1	1.6
4. Maternal Factors	20	11.5	1.5
<b>White non-Hispanic (n=720)</b>			
1. Congenital Anomalies	185	25.7	1.3
2. SUID	135	18.8	0.9
3. Prematurity or Low Birthweight	108	15.0	0.8
4. Maternal Factors	78	10.8	0.5
<b>Hispanic any-race (n=230)</b>			
1. Congenital Anomalies	59	25.7	1.9
2. Prematurity or Low Birthweight	55	23.9	1.8
3. SUID	29	12.6	0.9
4. Maternal factors	20	8.7	0.6

\*Non-Hispanic population group includes unknown Hispanic origin

<sup>†</sup>Rate per 1,000 live births

### ***Neonatal/Post-Neonatal Period Deaths***

There were 841 neonatal deaths (4.2 per 1,000 live births, 67.4%) and 407 post-neonatal deaths (2.1 per 1,000 live births) in the 2010-2014 Kansas infant death cohort (Tables 2, 5). Prematurity or low birth weight was the leading cause of neonatal deaths (29.0%), while SUID was the leading cause of post-neonatal deaths (44.5%) (Table 5).

### ***Perinatal Period III Deaths***

For the Kansas 2010-2014 cohort, 1,609 infants died in the perinatal period (8.1 per 1,000 live births and stillbirths) comprising 925 stillbirths and 684 hebdomadal deaths (Table 1). The leading cause of stillbirths was complications of placenta, umbilical cord and membrane (29.9%, ICD-10 code P02) (Table 7) while prematurity or low birthweight was the leading cause of death for hebdomadal period deaths (35.4%) (Table 5).

### ***County Rates***

The counties with the highest number of infant deaths in the 2010-2014 cohort included Sedgwick (278 or 22.3%), Johnson (166 or 13.3%), Wyandotte (110 or 8.8%), and Shawnee (70 or 5.6%). These four counties accounted for 50.0 percent of all infant deaths (Table 4).

The counties with the highest reliable (RSE  $\leq$  30%) infant mortality rates, included Jefferson (11.7 infant deaths per 1,000 live births), Reno (9.9), Labette (9.6), Dickinson (9.4), and Lyon (9.1); while the counties with the lowest (reliable) non-zero rates were

Douglas (3.7), Leavenworth (3.9), Crawford (4.4), Johnson (4.5), and Riley (5.3) (Table 4).

Since the number of deaths was too small for analysis in many counties, counties were combined into Public Health Regions (Figure 5). The region with the highest reliable (RSE  $\leq$  30%) infant mortality rate was the South Central (SC) Coalition Region at 8.4 per 1,000 live births and the region with the lowest infant mortality rate was the Southwest Kansas (SW KS) Health Initiative Region at 4.6 per 1,000 live births. The infant mortality rate for the Kansas City Metro Region (4.6) was statistically significantly lower than the state rate (Figure 5).

### ***Zip Code Rates***

Several zip codes had enough deaths to allow analysis on the 2010-2014 cohort. The zip codes with the highest reliable (RSE  $\leq$  30%) mortality rates included three zip codes located in Sedgwick County: 67214 (13.6 deaths per 1,000 live births), 67218 (13.1), 67213 (11.4), zip code 67042 (Butler County, 12.2), and zip code 66607 (Shawnee County, 12.1). The zip-codes with the lowest reliable (RSE  $\leq$  30%) rates were 66062 (Johnson County, 3.4), 66441 (Geary County, 3.8), 67216 (Sedgwick County, 5.3), 67846 (Finney, 5.7), 67401 (Saline County, 5.8).

## **Linked Birth/Infant Death Statistics**

### ***Kansas Statistics***

In this section, a variety of maternal and infant characteristics are presented on the linked birth and infant death data file (linked file) from 2010 to 2014. The linked file differs slightly from the mortality file (infant deaths from death certificates in 2010 to 2014), with 9 infant deaths not linked to a birth record. The Kansas linked file for 2010-2014 contains 1,239 (99.3%) of the 1,248 infant deaths contained in the mortality file.

Population group of the infant was known for 1,229 of the 1,239 linked records. The mother's race was reported as White non-Hispanic in 715 live births (58.2%), Black non-Hispanic in 173 live births (14.1%), Native American non-Hispanic in 10 live births (0.8%), Asian or Pacific Islander non-Hispanic in 26 live births (2.1%), Multi-racial non-Hispanic in 69 live births (5.6%), other race non-Hispanic in 8 live births (0.7%), and Hispanic (all races) in 228 live births (18.6%).

### ***Cause of Death***

The leading cause of death among the 1,239 infants in the 2010-2014 linked file was congenital anomalies (290 deaths, 23.4%). This was followed by prematurity or low birthweight (247 deaths, 19.9%), SUID (ICD-10 codes R95, R99, and W75, with combined 208 deaths, 16.8%), and maternal factors (129 deaths, 10.4%) (Table 8).

Prematurity is an important factor in infant death, even though short gestation and low birthweight may not be the primary cause. Among the infant deaths with primary cause of death as congenital anomalies, slightly over half (52.6%) were born preterm – primarily late preterm (25.1%). Ninety-one percent of the infant deaths due to maternal factors were born prematurely, with 85.2 percent born very premature (Table 8). The cause of death categorized as maternal factors and complications of pregnancy, labor and deliv-

ery include complications such as premature rupture of the membrane, placental separation, chorioamnionitis, and incompetent cervix.

Among infants where the cause of death was classified as SUID, 75.0 percent were born early term or later (Table 8).

### ***Birthweight***

Of the 1,239 linked records, birthweight of the infant was known for 1,232 (99.4%). Three hundred twelve (25.3%) of the deaths occurred to infants with birthweights of less than 500 grams; 279 (22.6%) of the deaths occurred to infants with birthweights of 500 to 1,499 grams; 211 (17.1%) of deaths occurred to infants with birthweights of 1,500 to 2,499 grams; and 430 (34.9%) of deaths occurred to infants with birthweights of 2,500 grams or more (Table 9).

Among the infant deaths where birthweight was known, 802 infants (65.1%) were low birthweight (less than 2500 grams). In the same time period (2010-2014), only 7.1 percent of all live births had low birthweight (Table 9, 10).

### ***Gestational Age***

Gestational age was known for 1,229 (91.1%) of the 1,239 linked records. Five hundred ninety of the infants (48.0%) were very premature (less than 32 weeks), 61 (5.0%) were moderately premature (32 to 33 weeks), 126 (10.3%) were late premature (34 to 36 weeks), 198 (16.1%) were early term (37 and 38 weeks), and 254 (20.7%) were born at term (Table 9).

Given that gestational age was known, 777 (63.2%) of the infant deaths were premature (less than 37 weeks gestation) (Table 9). In the same time period (2010-2014), nine percent (8.9%) of all live births were premature (Table 10).

A study of gestational age by mother's population group reveals that among the Black non-Hispanic population in 2010 through 2014, 71.7 percent of the infant deaths were premature; 60.4 percent of the infant deaths to White non-Hispanic mothers were premature, and among the Hispanic population, 66.7 percent were premature (Table 9).

### ***Plurality***

Birth plurality (the total number of births resulting from a single pregnancy) was known for all 1,239 of the linked deaths. Eighty-six percent (86.0%) of the infants were singletons at birth (1,066), 13.0 percent (161) were part of twin deliveries, and 1.0 percent (12) were triplet or above deliveries. Fourteen percent (14.0%, 173 deaths) of infant deaths in the linked file occurred among multiple births, whereas for all live births in the same time period (2010-2014) only 3.3 percent were part of a multiple birth delivery (Table 9, 10).

### ***Mother's Age Group***

Age-group of the mother was known for 1,236 (99.8%) of the infant deaths. The highest percentage of deaths occurred to infants born to women aged 20-24 (30.4%), followed by women aged 25-29 (28.5%), women aged 30-34 (19.7%), and women aged 10-19 (10.5%). The highest percent of all live births in the same time period was to mothers 25-29 years of age (32.9%), followed by 20-24 years of age (25.3%) (Table 9). A lower percentage of infant deaths occurred among mothers aged 25-34 than births for the same age group, and a higher percentage among mothers aged 10-24 (Table 10).

### ***Mother's Education***

For mothers 25 years of age and older, the education level was known for 716 (57.8%) of the linked deaths. Mothers whose education level was high school or GED had the highest percentage of infant deaths (23.7%), followed by those with some college but no degree (21.1%), and those with a Bachelor's Degree (20.1%). Mothers who have a doctorate degree had the lowest percent (1.8%) of infant deaths. When comparing to the distribution of deaths by mothers' education level for the live births in the same time period (2010-2014), there was a higher percentage of mothers with a Bachelor's Degree (29.9%) and a lower percentage of mothers with a high school degree or GED (16.1%) (Tables 9, 10).

### ***Marital Status***

Marital status at the time of pregnancy was known for 1,228 (99.1%) of the linked deaths (2010-2014). In forty-nine percent (49.2%) of the infant deaths, the mother was not married at the time of her pregnancy or delivery (Table 9). This compared with 36.9 percent of live births (2010-2014) where the mother reported she was not married (Table 10).

### ***Prenatal Care***

The month prenatal care began was known for 1,120 (90.4%) of the linked infant deaths. Seventy percent (71.4%) of these linked infant deaths started prenatal care in the first trimester. Seventy-eight percent (78.1%) of all live births in the same time period (2010-2014) started prenatal care in the first trimester. Seven percent (6.5%) of linked infant deaths had no prenatal care (73 infant deaths); however, only 0.9 percent of births had no prenatal care, resulting in a mortality rate among infants with no prenatal care at 41.2 deaths per 1,000 live births (Tables 9, 10).

### ***Adequacy of Prenatal Care Utilization (APNCU) Index***

The APNCU index was known for 1,081 (82.2%) linked records. Of these where APNCU index was known, half (50.5%) had Adequate Plus prenatal care, 25.2% had Adequate, 4.6% had Intermediate and 19.7% had Inadequate prenatal care. Inadequate prenatal care was more common for infants in the linked birth/infant death dataset (19.7%) than for live births generally (12.3%). Adequate or better prenatal care was less common for infants in the linked birth/infant death dataset (75.7%) than for live births generally (81.6%), but Adequate Plus prenatal care was much more common for infants in the linked birth/infant death dataset (50.5%) than for live births generally (31.1%) (Tables 9, 10).

### ***Smoking***

Smoking status was reported in 1,205 (97.3%) of the linked infant deaths. Mothers reported smoking at some time during pregnancy in 22.6 percent of the infant deaths compared with 13.5 percent of all live births from 2010 to 2014 (Tables 9, 10).

### ***Pay Source***

Delivery payer was known for 1,212 of linked infant deaths. The highest percent of these births were paid for by Medicaid (42.9%), followed by private insurance (41.0%), and self-pay (8.8%). For all live births in the 2010-2014 cohort with payer indicated, only 33.0 percent were paid for by Medicaid, and 52.2 percent were paid for by private insurance.

The mortality rate was 8.0 per 1,000 live births paid by Medicaid compared to 4.8 per 1,000 live births paid by private insurance (Tables 9, 10).

### ***National Statistics***

Nationally, final birth and death data allows for the creation of the linked birth/infant death data set for the United States. From the most recently published report on linked infant death/birth statistics (2013 period), the infant mortality rate for the United States was 6.0 per 1,000 live births, which compares to 6.3 for Kansas residents for the same year [3]. This report combines the years 2011-2013 for analysis of birth characteristics such as race and ethnicity. The national infant mortality rate was 6.0 per 1,000 live births for this three year period; White non-Hispanic infant mortality was 5.1, Black non-Hispanic infant mortality was 11.3, and Hispanic infant mortality was 5.1 [3]. The same methodology used for these national statistics was used for Kansas 2011-2013 and the results can be found in *Selected Special Statistics, Stillbirths and Infant Deaths, Kansas, 2013* [14].

## **Discussion**

### ***Kansas Statistics***

In a little over a century, the Kansas IMR has decreased dramatically, from 73.5 deaths per 1,000 live births in 1912 to 6.3 in 2014. In the last twenty years, the overall decreasing trend of the IMR was statistically significant even with the fluctuations in this time period.

The IMR in Kansas in 2014 was slightly higher than the historic low of 6.2 in 2011, and both exceeded the Healthy People 2020 objective of 6.0 deaths per 1,000 live births. Data analysis by population groups showed the White non-Hispanic population (4.9 per 1,000 live births) met the HP2020 target, but the Hispanic (7.5) and Black non-Hispanic (10.3) population groups did not [4].

Overall, in Kansas 2010-2014, 23.3 percent of infant deaths were attributed to congenital anomalies, 19.8 percent were attributed to prematurity or low birthweight, and 17.0 percent were attributed to SUID. Black non-Hispanics were at an increased risk of infant deaths from prematurity and SUID, and Hispanic infants were at an increased risk of death from prematurity compared to White non-Hispanics.

Most infant deaths in Kansas in 2010 to 2014 occurred soon after birth. Almost two-thirds happened in the neonatal time period (less than 28 days of age), and over half occurred in the first week (Table 5).

### ***Risk Factors***

Analysis of the linked file revealed that low birthweight or prematurity were primary risk factors for infant death even when the underlying or primary cause of death was not prematurity or low birthweight.

Gestational age-specific analysis (linked file) showed an infant mortality rate of 44.1 per 1,000 live births for infants born prematurely, over 17 times that for infants born at term

(2.5 deaths per 1,000 live births). Similarly, the infant mortality rate for very premature infants (less than 32 weeks, 198.7 per 1,000 live births) was 79 times higher than the rate for infants born at term.

Additional notable risk factors for infant deaths (linked file) included no prenatal care (6.5% of linked deaths), multiple births (14.0%), mothers who smoked during pregnancy (22.6% of infant deaths), and out-of-wedlock births (49.2%). Analysis of mother's age showed the highest percent of infant deaths among mothers age 20-24 (30.4%), but the highest rate was among 10-19 year old adolescents (8.0 infant deaths per 1,000 live births).

### *National Statistics*

Comparing Kansas, other states, and national statistics on infant mortality is complicated by the fact that national statistics are published much later than state statistics. The most recent available final national birth data is for 2013, but the most recent available final national death data is for 2012 [2, 15]. Final results indicate a national infant mortality rate of 6.1 per 1,000 live births, compared to 6.33 for Kansas residents in 2012. The difference between these two rates is not statistically significant.

The most recently published national report that analyzed linked infant mortality used 2011-2013 data. Nationally, the infant mortality rate was 6.0 per 1,000 live births for this period [3]. This report also presents the national and state infant mortality rates by race and Hispanic origin. The Kansas rates remain higher than the national rates for all population subgroups [3].

## **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. Because of delays or other late reporting, some out-of-state vital event reports have not been 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 a number of 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 are available for matching 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 effect of spelling errors or placement

of literal information in the cause of death fields. One limitation is the system's inability to take into account 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 physician 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.

The causes of stillbirths are not as well documented as those of infant deaths. The American Congress of Obstetricians and Gynecologists recommends an increase in the percentage of stillbirths for which placental evaluation is performed and autopsy is offered [16]. Additionally, since KSA 65-2401 [11] was revised in mid-2014 to change the stillbirth reporting requirements from weight of the fetus (>350 grams) to length of gestation ( $\geq 20$  weeks), vital records data for this year may not represent a consistent picture of all fetal deaths.

Smoking status and other potential risk factors may be under-reported on birth certificates.

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Table 1  
Births, Stillbirths, and Infant Deaths by Year by Period of Death  
Kansas, 1995-2014

Year	Total * Deliveries	Live Births	Stillbirth	Hebdomadal † Deaths	Perinatal ‡ Deaths	Neonatal § Deaths	Postneonatal ¶ Deaths	Infant # Deaths
1995	37,270	37,087	183	134	317	166	90	256
1996	36,703	36,524	179	157	336	199	100	299
1997	37,393	37,191	202	147	349	173	101	274
1998	38,571	38,372	199	132	331	172	91	263
1999	38,923	38,748	175	159	334	189	92	281
2000	39,831	39,654	177	146	323	174	92	266
2001	39,041	38,832	209	148	357	178	107	285
2002	39,484	39,338	146	155	301	192	90	282
2003	39,559	39,353	206	138	344	177	85	262
2004	39,739	39,553	186	144	330	176	108	284
2005	39,895	39,701	194	153	347	196	101	297
2006	41,088	40,896	192	137	329	176	117	293
2007	42,137	41,951	186	163	349	211	122	333
2008	41,997	41,815	182	160	342	193	110	303
2009	41,601	41,388	213	144	357	176	114	290
2010	40,607	40,439	168	143	311	170	83	253
2011	39,816	39,628	188	121	309	157	90	247
2012	40,499	40,304	195	142	337	173	81	254
2013	38,978	38,805	173	140	313	166	82	248
2014	39,394	39,193	201	138	339	175	71	246

\*Total Deliveries = Live Births + Stillbirths.

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

‡Perinatal Deaths = Stillbirths + 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.

Residence data

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

Table 2  
Perinatal/Infant Mortality Rates by Period of Death  
Kansas, 1995-2014

Year	Stillbirth*	Hebdomadal Deaths†	Perinatal Deaths*	Neonatal Deaths †		Postneonatal Deaths†	Infant Deaths†	
				KS	US		KS	US
1995	4.9	3.6	8.5	4.5	4.9	2.4	6.9	7.6
1996	4.9	4.3	9.2	5.4	4.8	2.7	8.2	7.3
1997	5.4	4.0	9.3	4.7	4.8	2.7	7.4	7.2
1998	5.2	3.4	8.6	4.5	4.8	2.4	6.9	7.2
1999	4.5	4.1	8.6	4.9	4.7	2.4	7.3	7.1
2000	4.4	3.7	8.1	4.4	4.6	2.3	6.7	6.9
2001	5.4	3.8	9.1	4.6	4.5	2.8	7.3	6.9
2002	3.7	3.9	7.6	4.9	4.7	2.3	7.2	7.0
2003	5.2	3.5	8.7	4.5	4.6	2.2	6.7	6.9
2004	4.7	0.1	8.3	4.4	4.5	2.7	7.2	6.8
2005	4.9	3.9	8.7	4.9	4.5	2.5	7.5	6.9
2006	4.7	3.3	8.0	4.3	4.5	2.9	7.2	6.7
2007	4.4	3.9	8.3	5.0	4.4	2.9	7.9	6.8
2008	4.3	3.8	8.1	4.6	4.3	2.6	7.2	6.6
2009	5.1	3.5	8.6	4.3	4.2	2.8	7.0	6.4
2010	4.1	3.5	7.7	4.2	4.1	2.1	6.3	6.2
2011	4.7	3.1	7.8	4.0	4.1	2.3	6.2	6.1
2012	4.8	3.5	8.3	4.3	4.0	2.0	6.3	6.0
2013	4.4	3.6	8.0	4.3	4.0	2.1	6.4	6.0
2014	5.1	3.5	8.6	4.5	n.a.	1.8	6.3	n.a.

\*Per 1,000 (live births + stillbirths).

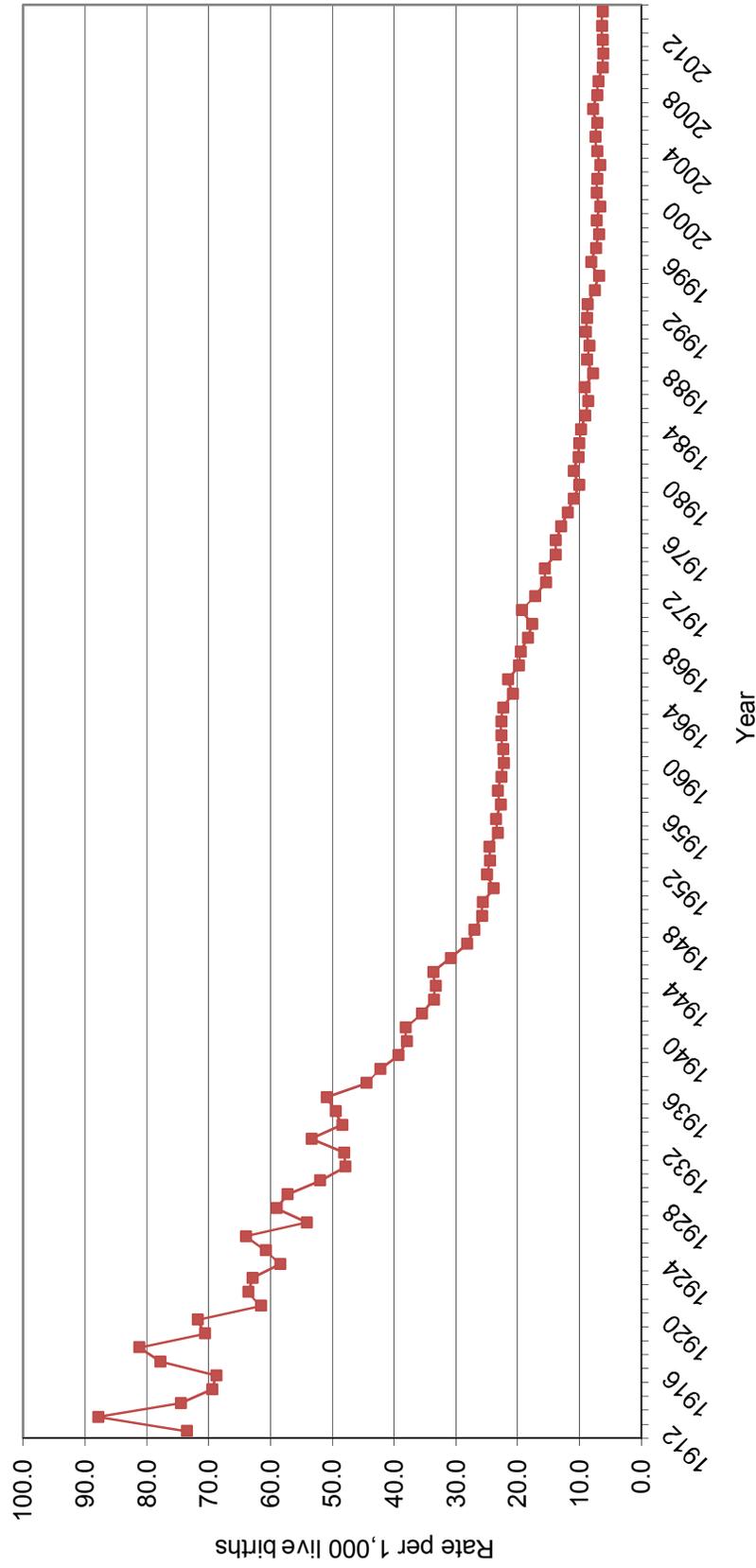
†Per 1,000 live births.

n.a. = US final death data for 2014 are not yet available

Residence data

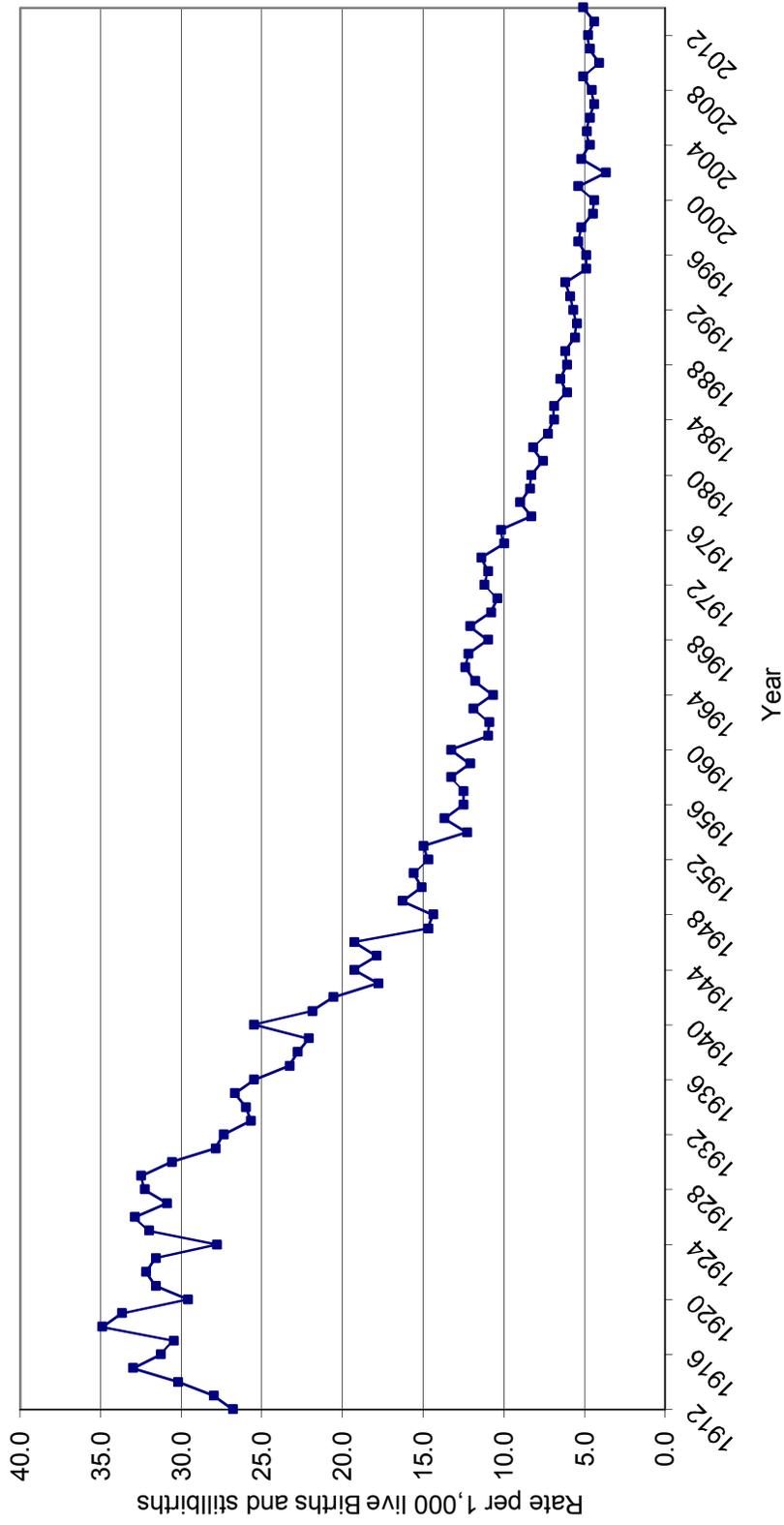
Source: Bureau of Epidemiology and Public Health Informatics  
Kansas Department of Health and Environment

Figure 1  
 Infant Mortality Rates  
 Kansas, 1912-2014



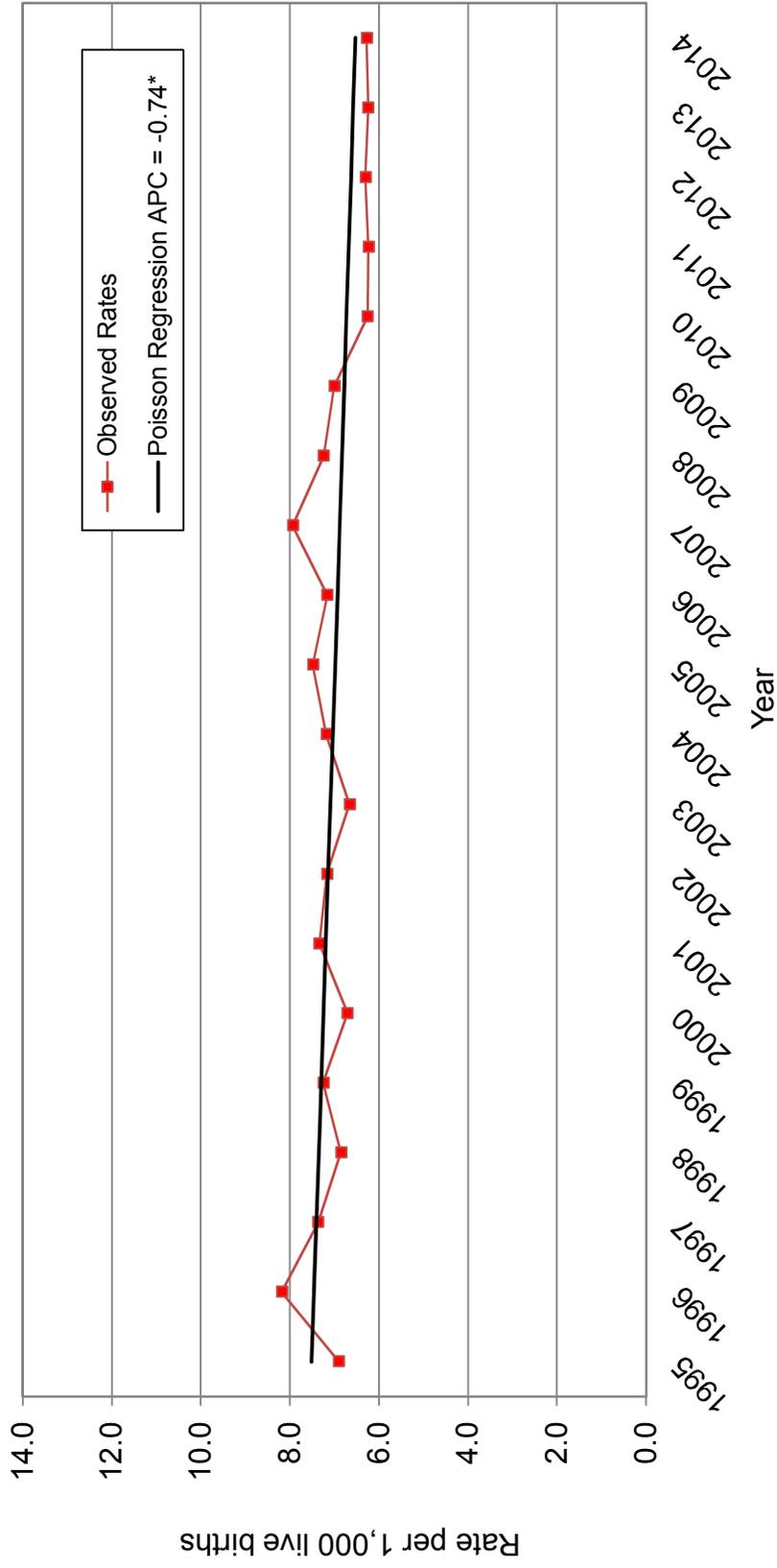
Residence data  
 Source: Bureau of Epidemiology and Public Health Informatics  
 Kansas Department of Health and Environment

Figure 2  
 Stillbirth Mortality Rates  
 Kansas, 1912-2014



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

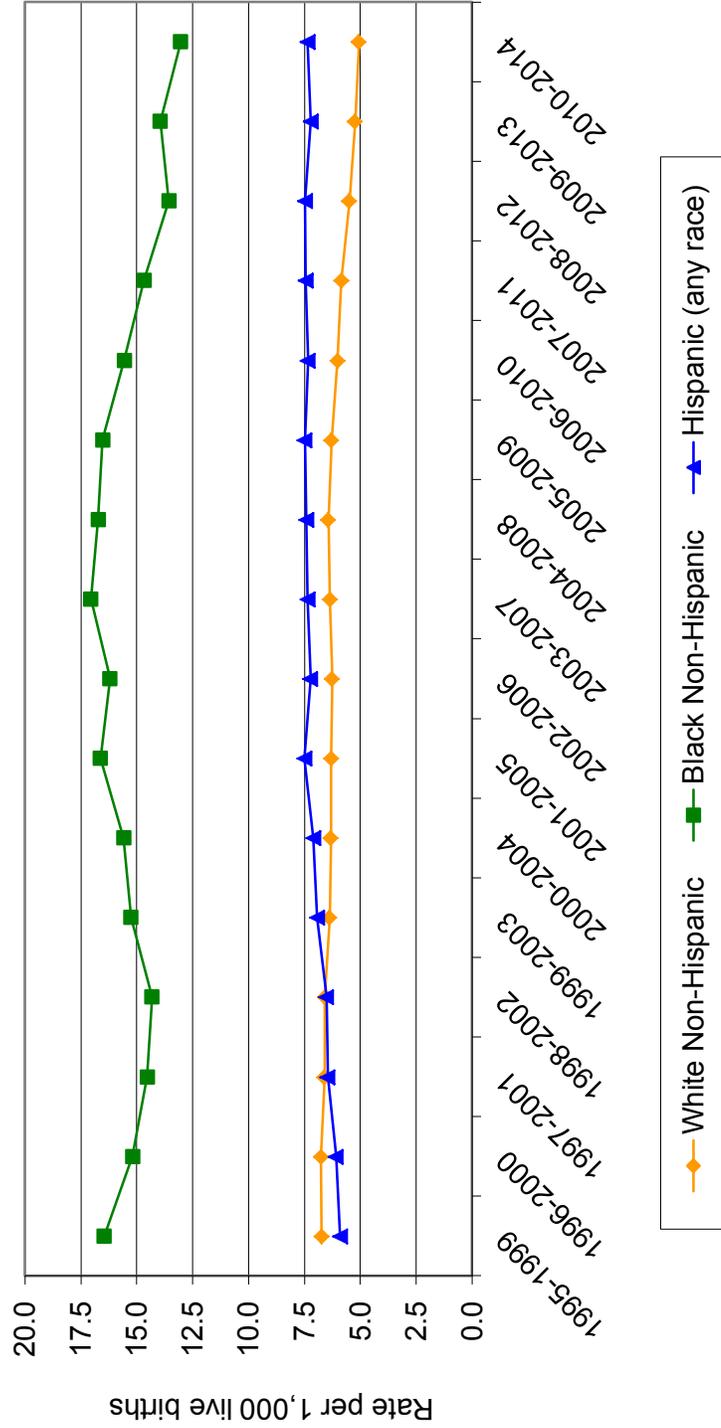
Figure 3  
Trend in Infant Mortality Rates  
Kansas, 1995-2014



\*The Annual Percent Change (APC) shows a statistically significant trend, alpha < 0.05.

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

Figure 4  
 Five Year Average Infant Mortality Rates  
 by Population Group of Mother  
 Kansas, 1995-2014



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

**Table 3**  
**Infant Deaths and Mortality Rates\***  
**By Selected Population Group of Mothers**  
**Kansas, 1995-2014**

**Errata on Page 49**

Year	White Non-Hispanic†			Black Non-Hispanic†			Black NH‡ to White NH‡ Ratio of Rates	Hispanic Any Race			Total Infant Mortality Rate
	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate		Live Births	Infant Deaths	Rate	
1995	30,221	184	6.1	2,850	51	17.9	2.9	2,812	17	6.0	6.9
1996	29,473	212	7.2	2,738	63	23.0	3.2	3,198	18	5.6	8.2
1997	29,659	189	6.4	2,766	46	16.6	2.6	3,525	29	8.2	7.4
1998	30,389	209	6.9	2,746	27	9.8	1.4	3,873	25	6.5	6.9
1999	30,362	215	7.1	2,815	42	14.9	2.1	4,204	15	3.6	7.3
2000	30,538	192	6.3	2,822	33	11.7	1.9	4,742	32	6.7	6.7
2001	29,703	190	6.4	2,745	54	19.7	3.1	4,875	36	7.4	7.3
2002	29,811	187	6.3	2,845	44	15.5	2.5	5,006	40	8.0	7.2
2003	29,482	172	5.8	2,730	40	14.7	2.5	5,417	45	8.3	6.7
2004	29,624	200	6.8	2,782	46	16.5	2.4	5,458	28	5.1	7.2
2005	28,903	181	6.3	2,670	45	16.9	2.7	6,073	52	8.6	7.5
2006	29,392	181	6.2	2,801	49	17.5	2.8	6,568	41	6.2	7.2
2007	30,170	205	6.8	2,856	56	19.6	2.9	6,676	56	8.4	7.9
2008	29,863	184	6.2	2,936	39	13.3	2.2	6,781	57	8.4	7.2
2009	29,471	178	6.0	2,830	44	15.5	2.6	6,790	40	5.9	7.0
2010	29,000	142	4.9	2,780	33	11.9	2.4	6,407	50	7.8	6.3
2011	28,382	150	5.3	2,708	35	12.9	2.4	6,293	42	6.7	6.2
2012	28,995	145	5.0	2,682	38	14.2	2.8	6,286	54	8.6	6.3
2013	27,821	137	4.9	2,549	39	15.3	3.1	6,139	44	7.2	6.4
2014	28,009	146	5.2	2,629	29	11.0	2.1	6,129	40	6.5	6.3

\* Rate per 1,000 live births.

† Due to changes in the collection of the race item on certificates, use caution when comparing 2005-2014 data to prior years. See Technical Notes.

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

§ Other non-Hispanic data is not included in this table due to small numbers but is available upon request. Residence data

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

Table 4  
 Infant Deaths and Mortality Rates by County of Residence  
 And Peer Group\*  
 Kansas, 2010-2014

County of Residence	Year					Total Infant Deaths	Total Live Births	Infant Mortality Rate†	95% Confidence Intervals	
	2010	2011	2012	2013	2014	2010-2014	2010-2014	2010-2014	Lower	Upper
Kansas	253	247	254	248	246	1,248	198,369	6.3	5.9	6.6
Allen	0	2	1	0	1	4	744	5.4 ‡	1.5	13.8
Anderson	0	0	0	2	1	3	497	na	na	na
Atchison	1	3	2	1	0	7	1,037	6.8 ‡	2.7	13.9
Barber	0	0	0	0	0	0	329	0.0	0.0	0.0
Barton	3	6	2	1	3	15	1,825	8.2	4.6	13.6
Bourbon	2	1	2	0	0	5	1,074	4.7 ‡	1.5	10.9
Brown	0	3	1	1	1	6	682	8.8 ‡	3.2	19.1
Butler	8	3	3	6	9	29	3,831	7.6	5.1	10.9
Chase	0	0	0	0	0	0	128	0.0	0.0	0.0
Chautauqua	1	1	0	0	0	2	169	na	na	na
Cherokee	2	3	0	0	0	5	1,176	4.3 ‡	1.4	9.9
Cheyenne	0	0	1	0	0	1	142	na	na	na
Clark	0	1	0	0	1	2	117	na	na	na
Clay	1	1	1	1	0	4	531	7.5 ‡	2.1	19.3
Cloud	1	1	1	0	0	3	577	na	na	na
Coffey	1	2	0	0	0	3	446	na	na	na
Comanche	0	0	0	0	0	0	119	0.0	0.0	0.0
Cowley	5	4	1	4	2	16	2,325	6.9	3.9	11.2
Crawford	2	2	3	3	1	11	2,528	4.4	2.2	7.8
Decatur	0	0	1	0	0	1	163	na	na	na
Dickinson	1	2	4	2	2	11	1,169	9.4	4.7	16.8
Doniphan	0	0	0	0	0	0	411	0.0	0.0	0.0
Douglas	4	1	6	5	7	23	6,176	3.7	2.4	5.6
Edwards	0	1	2	0	0	3	179	na	na	na
Elk	0	0	0	1	0	1	139	na	na	na
Ellis	1	5	2	1	3	12	1,885	6.4	3.3	11.1
Ellsworth	0	0	1	0	0	1	299	na	na	na
Finney	2	2	7	6	3	20	3,535	5.7	3.5	8.7
Ford	7	5	7	5	4	28	3,394	8.2	5.5	11.9
Franklin	1	2	3	1	5	12	1,610	7.5	3.9	13.0
Geary	9	8	4	6	7	34	5,122	6.6	4.6	9.3
Gove	0	0	1	0	0	1	166	na	na	na
Graham	0	0	1	0	1	2	133	na	na	na
Grant	0	0	2	0	0	2	622	na	na	na
Gray	0	1	0	2	0	3	452	na	na	na
Greeley	0	0	0	0	0	0	94	0.0	0.0	0.0
Greenwood	0	0	1	1	0	2	310	na	na	na
Hamilton	0	0	0	0	0	0	221	0.0	0.0	0.0
Harper	1	0	0	2	3	6	375	16.0 ‡	5.9	34.8
Harvey	3	2	3	4	3	15	2,213	6.8	3.8	11.2
Haskell	2	1	1	0	0	4	272	14.7 ‡	4.0	37.7
Hodgeman	0	0	0	0	0	0	117	0.0	0.0	0.0
Jackson	1	1	2	0	1	5	824	6.1 ‡	2.0	14.2
Jefferson	4	2	2	2	1	11	939	11.7	5.8	21.0
Jewell	0	0	0	0	0	0	135	0.0	0.0	0.0
Johnson	31	36	31	34	34	166	36,896	4.5	3.8	5.2
Kearny	0	1	0	0	0	1	307	na	na	na
Kingman	0	2	0	0	0	2	393	na	na	na
Kiowa	1	0	0	0	0	1	165	na	na	na
Labette	4	3	2	2	2	13	1,351	9.6	5.1	16.5
Lane	0	0	0	0	0	0	102	0.0	0.0	0.0
Leavenworth	4	3	2	5	5	19	4,821	3.9	2.4	6.2
Lincoln	0	0	0	0	0	0	165	0.0	0.0	0.0
Linn	0	0	2	0	1	3	492	na	na	na
Logan	1	0	0	0	0	1	172	na	na	na

Table 4  
 Infant Deaths and Mortality Rates by County of Residence  
 And Peer Group\*  
 Kansas, 2010-2014

County of Residence	Year					Total Infant Deaths	Total Live Births	Infant Mortality Rate†	95% Confidence Intervals	
	2010	2011	2012	2013	2014	2010-2014	2010-2014	2010-2014	Lower	Upper
Lyon	4	4	5	3	3	19	2,092	9.1	5.5	14.2
McPherson	2	4	2	1	2	11	1,676	6.6	3.3	11.7
Marion	2	1	0	0	0	3	589	na	na	na
Marshall	1	4	0	0	1	6	597	10.1 ‡	3.7	21.9
Meade	0	1	0	0	0	1	294	na	na	na
Miami	4	1	2	0	4	11	1,835	6.0	3.0	10.7
Mitchell	1	0	0	0	1	2	388	na	na	na
Montgomery	0	3	4	0	3	10	2,265	4.4 ‡	2.1	8.1
Morris	0	1	0	0	2	3	312	na	na	na
Morton	0	0	0	0	0	0	202	0.0	0.0	0.0
Nemaha	0	1	3	2	2	8	693	11.5 ‡	5.0	22.7
Neosho	3	0	3	1	3	10	1,092	9.2 ‡	4.4	16.8
Ness	0	0	1	1	0	2	179	na	na	na
Norton	0	0	1	2	0	3	257	na	na	na
Osage	0	1	1	2	2	6	850	7.1 ‡	2.6	15.4
Osborne	0	1	1	1	1	4	219	na	na	na
Ottawa	1	0	0	0	0	1	302	na	na	na
Pawnee	0	0	2	0	0	2	347	na	na	na
Phillips	0	0	1	1	1	3	319	na	na	na
Pottawatomie	2	1	1	2	2	8	1,804	4.4 ‡	1.9	8.7
Pratt	1	1	0	1	4	7	695	10.1 ‡	4.0	20.8
Rawlins	1	1	0	0	0	2	127	na	na	na
Reno	7	7	3	14	6	37	3,743	9.9	7.0	13.6
Republic	0	0	0	1	1	2	230	na	na	na
Rice	1	1	0	0	4	6	620	9.7 ‡	3.6	21.1
Riley	4	2	9	7	7	29	5,486	5.3	3.5	7.6
Rooks	0	0	0	0	1	1	310	na	na	na
Rush	0	1	0	0	0	1	138	na	na	na
Russell	3	1	0	0	1	5	439	11.4 ‡	3.7	26.6
Saline	6	4	3	7	1	21	3,851	5.5	3.4	8.3
Scott	1	0	1	0	0	2	315	na	na	na
Sedgwick	60	52	61	62	43	278	38,610	7.2	6.4	8.0
Seward	2	0	4	3	5	14	2,266	6.2	3.4	10.4
Shawnee	16	17	10	15	12	70	12,083	5.8	4.5	7.3
Sheridan	0	0	1	1	0	2	132	na	na	na
Sherman	0	1	1	0	1	3	399	na	na	na
Smith	0	0	1	0	0	1	154	na	na	na
Stafford	0	0	0	0	0	0	229	0.0	0.0	0.0
Stanton	0	0	0	0	0	0	152	0.0	0.0	0.0
Stevens	0	0	1	0	0	1	422	na	na	na
Sumner	1	3	2	2	2	10	1,378	7.3 ‡	3.5	13.3
Thomas	0	0	0	0	2	2	568	na	na	na
Trego	0	0	0	0	1	1	147	na	na	na
Wabaunsee	0	1	0	0	0	1	435	na	na	na
Wallace	0	0	0	0	1	1	89	na	na	na
Washington	0	0	0	1	0	1	331	na	na	na
Wichita	0	0	1	0	0	1	142	na	na	na
Wilson	2	1	0	2	1	6	583	10.3 ‡	3.8	22.4
Woodson	1	0	0	0	0	1	166	na	na	na
Wyandotte	23	20	24	18	25	110	13,719	8.0	6.5	9.5
n.s.										
Peer Group										
Frontier	4	9	13	5	7	38	6,485	5.9	4.1	8.0
Rural	20	23	18	18	26	105	14,246	7.4	6.0	8.8
Densely -Settled Rural	47	52	52	38	41	230	32,847	7.0	6.1	7.9
Semi-Urban	44	34	37	48	46	209	32,484	6.4	5.6	7.3
Urban	138	129	134	139	126	666	112,305	5.9	5.5	6.4

\*See Technical notes for Peer Group definitions.

†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.

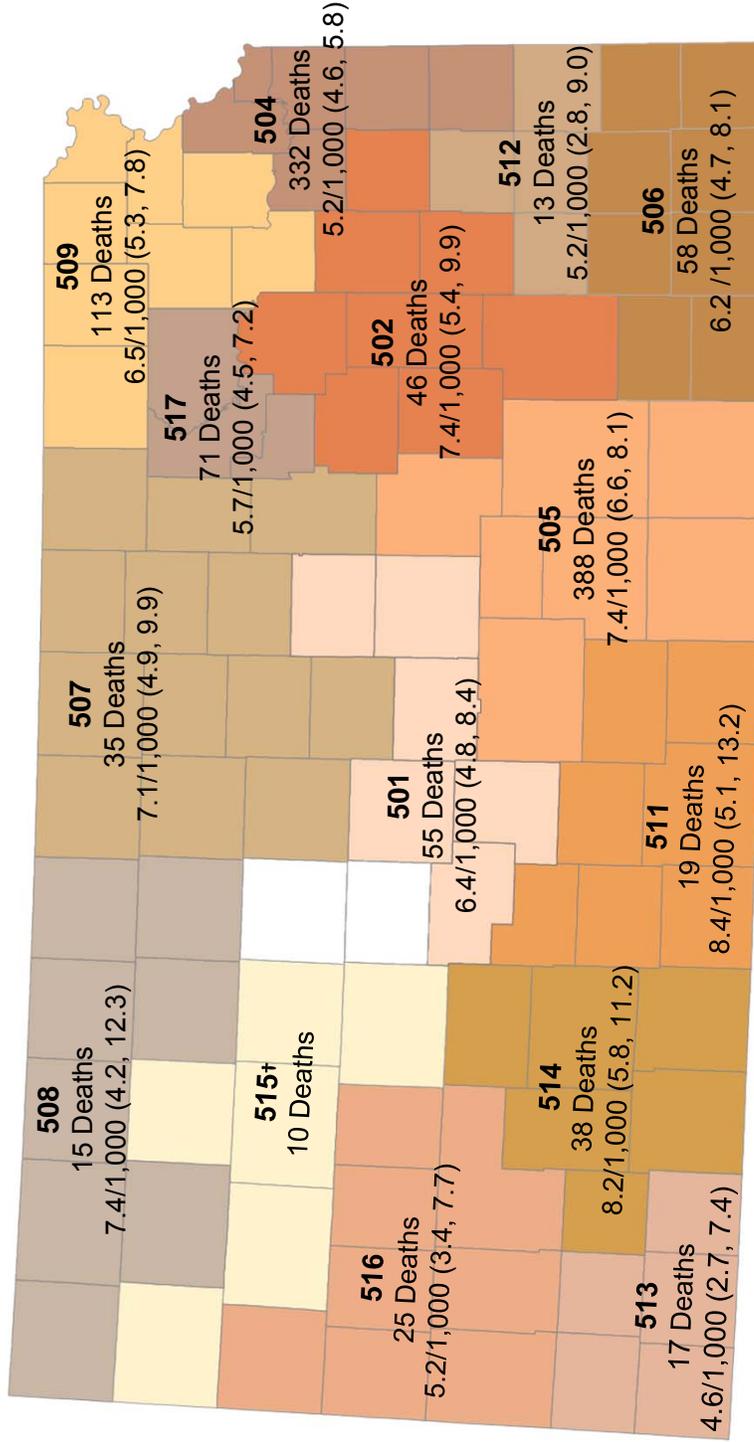
n/a = Rates with a relative standard error greater than 50% have been suppressed.

Residence data

Source: Bureau of Epidemiology and Public Health Informatics

Kansas Department of Health and Environment

Figure 5  
 Infant Deaths and Mortality (IM) Rates\* with 95% Confidence Intervals  
 by Public Health Regions, 2010-2014



**Kansas Public Health Regions**

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

Kansas 5 Yr. IM Rate, 6.3/1,000 (5.9, 6.6)

\*Rate per 1,000 live births

+Numbers too small to calculate rates (Relative Standard Error > 30), see methodology section  
 Residence data

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

Table 5  
 Infant Deaths by Cause of Death by Period of Death  
 Kansas, 2010-2014

Cause of Death (ICD-10 Code)	Age-Group of Infant						
	Under 1 Day	1-6 Days	Hebdomadal Deaths (under 7 days)	7-27 Days	Neonatal Deaths (under 28 days)	Post-Neonatal Deaths (28-364 days)	Under 1 Year
All Causes	556	128	684	157	841	407	1,248
Infectious and Parasitic Diseases (A00-B99)	0	0	0	1	1	16	17
Other Diseases and Disorders (C00-O99)	8	10	18	16	34	74	108
Certain Conditions Originating in the Perinatal Period (P00-P96)	419	69	488	70	558	14	572
Maternal Factors & Complications of Pregnancy, Labor and Delivery (P00-P04)	115	10	125	3	128	1	129
Disorders rel. to Short Gestation & Low Birth Weight (P07)	237	5	242	2	244	3	247
Birth Trauma (P10-P15)	0	0	0	0	0	0	0
Hypoxia and Birth Asphyxia (P20-P21)	7	3	10	2	12	0	12
Respiratory Distress of Newborn (P22)	5	3	8	3	11	1	12
Congenital Pneumonia (P23)	0	0	0	6	6	0	6
Other Respiratory Conditions of Newborn (P24-P28)	15	6	21	6	27	2	29
Bacterial Sepsis of Newborn (P36)	5	9	14	6	20	0	20
Omphalitis of Newborn w/wo Mild Hemorrhage (P38)	0	0	0	0	0	0	0
Fetal and Neonatal Hemorrhage (P50-P61)	4	13	17	12	29	2	31
Other Perinatal Conditions (P05 - P059, P08 -P089, P29 -P299, P35 -P359, P37 -P379, P39 -P399, P70 - P969)	31	20	51	30	81	5	86
Congenital Anomalies (Q00-Q99)	122	44	166	49	215	76	291
Symptoms and Abnormal Findings (R00-R99)	5	4	9	15	24	165	189
Sudden Infant Death Syndrome (R95)	0	3	3	5	8	114	122
Other Symptoms and Abnormal Findings (R00-R94, R96-R98)	0	0	0	0	0	1	1
Other Ill-defined and unspecified causes of mortality (R99)	5	1	6	10	16	50	66
Accidental suffocation and strangulation in bed (W75)	0	1	1	2	3	21	24
External Causes of Mortality (V01-W74,W76-Y89) excluding Suffocation in Bed (W75)	2	0	2	4	6	41	47
Sudden Unexpected Infant Deaths (SUID) (R95, R99, W75)	5	5	10	17	27	185	212

Residence data

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

Table 6  
 Infant Deaths by County of Residence  
 by Period of Death, Kansas, 2010-2014

County of Residence	Hebdomadal Deaths (under 7 days)	Neonatal Deaths (under 28 days)	Post-Neonatal Deaths (28-364 days)	Total Infant Deaths (under 1 year)
Kansas	684	841	407	1,248
Allen	2	2	2	4
Anderson	3	3	0	3
Atchison	3	3	4	7
Barber	0	0	0	0
Barton	10	11	4	15
Bourbon	1	4	1	5
Brown	4	4	2	6
Butler	15	20	9	29
Chase	0	0	0	0
Chautauqua	0	2	0	2
Cherokee	2	3	2	5
Cheyenne	1	1	0	1
Clark	2	2	0	2
Clay	1	1	3	4
Cloud	1	2	1	3
Coffey	3	3	0	3
Comanche	0	0	0	0
Cowley	10	12	4	16
Crawford	3	3	8	11
Decatur	0	1	0	1
Dickinson	6	6	5	11
Doniphan	0	0	0	0
Douglas	20	20	3	23
Edwards	3	3	0	3
Elk	1	1	0	1
Ellis	7	9	3	12
Ellsworth	1	1	0	1
Finney	10	12	8	20
Ford	13	16	12	28
Franklin	4	8	4	12
Geary	16	19	15	34
Gove	0	0	1	1
Graham	0	1	1	2
Grant	2	2	0	2
Gray	1	2	1	3
Greeley	0	0	0	0
Greenwood	1	1	1	2
Hamilton	0	0	0	0
Harper	4	5	1	6
Harvey	6	9	6	15
Haskell	3	4	0	4
Hodgeman	0	0	0	0
Jackson	3	3	2	5
Jefferson	5	6	5	11
Jewell	0	0	0	0
Johnson	111	127	39	166
Kearny	1	1	0	1
Kingman	1	1	1	2
Kiowa	0	0	1	1
Labette	10	11	2	13
Lane	0	0	0	0
Leavenworth	12	14	5	19
Lincoln	0	0	0	0
Linn	2	2	1	3
Logan	1	1	0	1

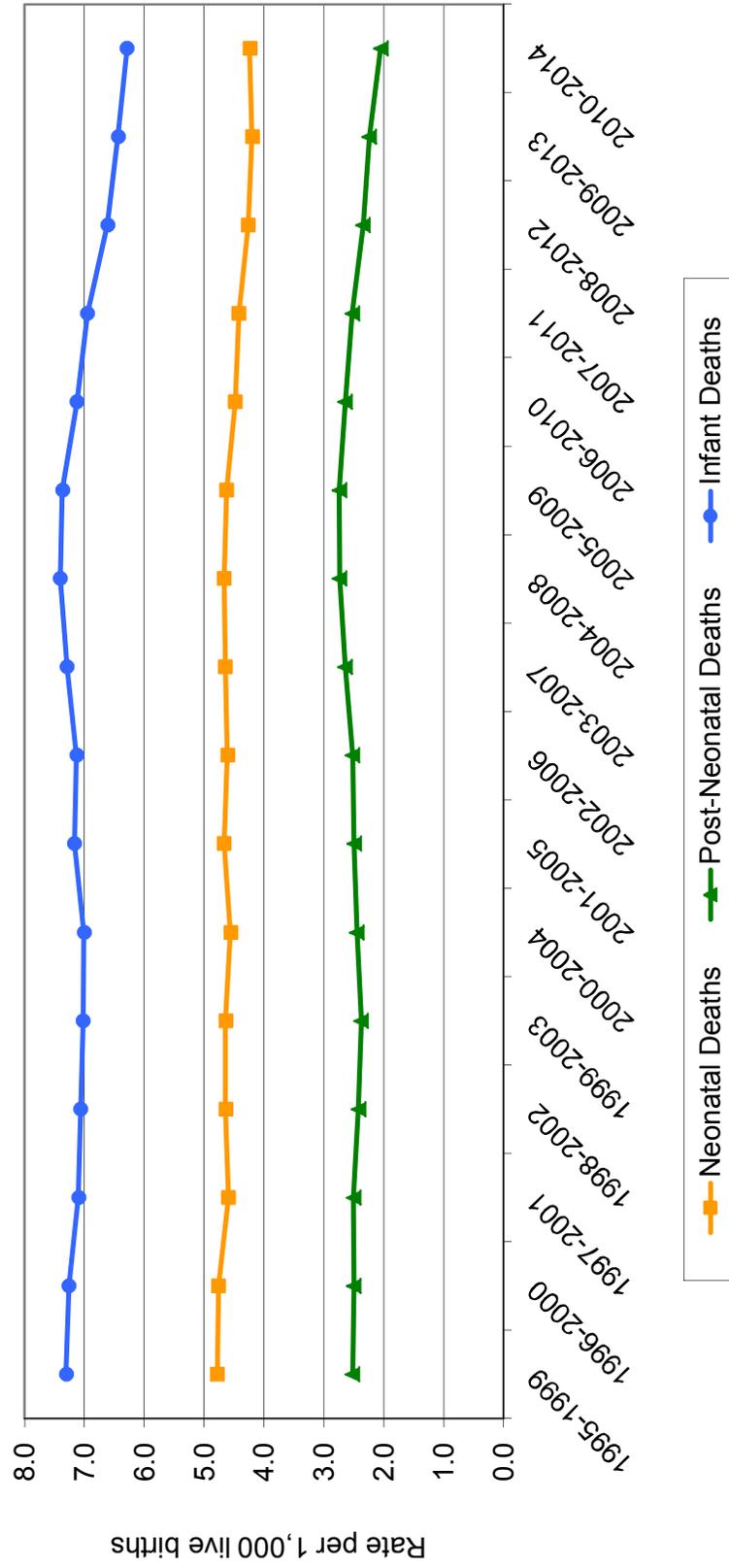
Table 6  
 Infant Deaths by County of Residence  
 by Period of Death, Kansas, 2010-2014

County of Residence	Hebdomadal Deaths (under 7 days)	Neonatal Deaths (under 28 days)	Post-Neonatal Deaths (28-364 days)	Total Infant Deaths (under 1 year)
Lyon	9	11	8	19
McPherson	5	10	1	11
Marion	3	3	0	3
Marshall	5	5	1	6
Meade	0	1	0	1
Miami	5	7	4	11
Mitchell	2	2	0	2
Montgomery	4	4	6	10
Morris	3	3	0	3
Morton	0	0	0	0
Nemaha	7	7	1	8
Neosho	4	6	4	10
Ness	1	1	1	2
Norton	2	2	1	3
Osage	2	2	4	6
Osborne	2	3	1	4
Ottawa	1	1	0	1
Pawnee	1	1	1	2
Phillips	2	3	0	3
Pottawatomie	3	5	3	8
Pratt	4	6	1	7
Rawlins	1	1	1	2
Reno	16	20	17	37
Republic	1	1	1	2
Rice	1	2	4	6
Riley	15	18	11	29
Rooks	0	0	1	1
Rush	0	1	0	1
Russell	2	4	1	5
Saline	12	13	8	21
Scott	1	1	1	2
Sedgwick	143	185	93	278
Seward	9	11	3	14
Shawnee	40	47	23	70
Sheridan	2	2	0	2
Sherman	3	3	0	3
Smith	1	1	0	1
Stafford	0	0	0	0
Stanton	0	0	0	0
Stevens	0	0	1	1
Sumner	3	5	5	10
Thomas	1	1	1	2
Trego	0	0	1	1
Wabaunsee	1	1	0	1
Wallace	1	1	0	1
Washington	0	1	0	1
Wichita	1	1	0	1
Wilson	3	3	3	6
Woodson	1	1	0	1
Wyandotte	56	72	38	110

Residence data

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

Figure 6  
 Five Year Average Infant Mortality Rates  
 by Period of Death  
 Kansas, 1995-2014



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

Table 7  
Stillbirths by Cause of Death by Weeks Gestation  
Kansas, 2010-2014

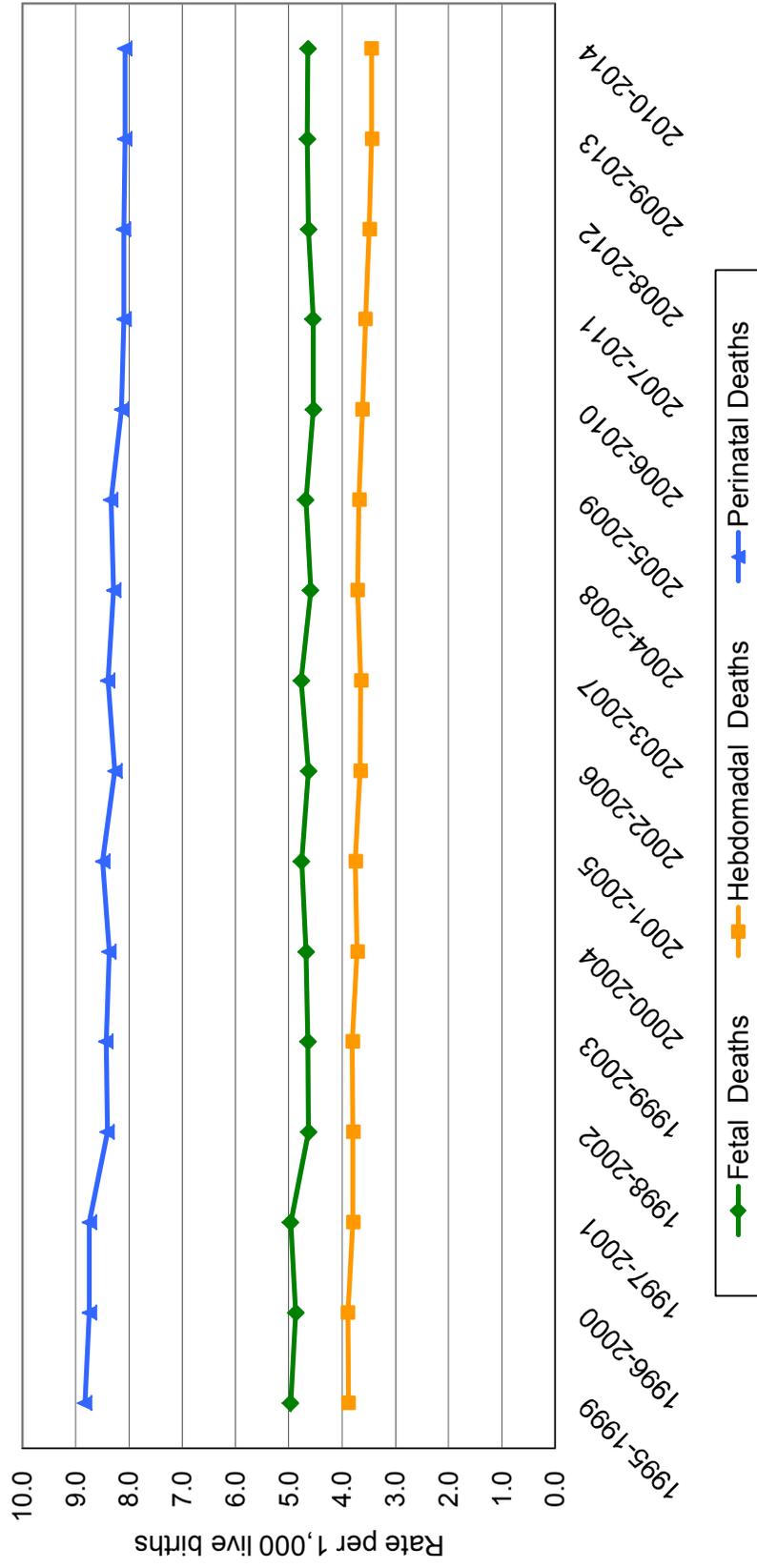
Cause of Death (ICD-10 Code)	Total Stillbirths	Weeks Gestation				
		Under 20	20-31	32-41	42 & Over	ns *
All Causes	925	11	471	437	3	3
Certain Conditions Originating in the Perinatal Period (P00-P96)	540	6	292	237	2	4
Fetus Affected by Maternal Conditions (P00)	77	0	43	34	0	0
Fetus Affected by Maternal Complications of Pregnancy (P01)	76	1	61	14	0	1
Fetus affected by Complications of Placenta, Cord & Membrane (P02)	277	4	129	142	0	2
Fetus Affected by Complications of Labor and Delivery (P03)	8	0	4	3	1	0
Fetus Affected by Maternal Use of Tobacco, Alcohol, and Drugs of Abuse (P04)	6	0	6	0	0	0
Other Perinatal Conditions (P04 - P05, P08-P15, P22-P28,P35 -P39, P55, P57 -P94, P96)	63	1	22	39	1	0
Disorders related to Short Gestation & Low Birth Weight (P07)	30	0	26	3	0	1
Hypoxia and Birth Asphyxia (P20-P21)	2	0	1	1	0	0
Cardiovascular Disorders (P24-P28)	1	0	0	1	0	0
Unspecified Cause (P95)	260	4	122	134	0	0
Congenital Anomalies (Q00-Q99)	111	1	47	62	1	0
All other Causes	14	0	10	4	0	0

\*ns = Not Stated.

Residence data

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

Figure 7  
 Five Year Average Perinatal Period III Mortality Rates  
 by Period of Death  
 Kansas, 1995-2014



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

**Table 8**  
**Linked Infant Deaths**  
**by Cause of Death by Gestational Age**  
**Kansas, 2010-2014**

Cause of Death	Total Deaths	Very Premature <32 weeks		Moderate Premature 32-33 weeks		Late Preterm 34-36 weeks		Total Preterm <37 weeks		Early Term 37-38 weeks		Term >=39 weeks		ns*
		N	%	N	%	N	%	N	%	N	%	N	%	
Kansas	1,239	590	48.0	61	5.0	126	10.3	777	63.2	198	16.1	254	20.7	10
Infectious and Parasitic Diseases (A00-B99)	17	4	23.5	0	0.0	2	11.8	6	35.3	2	11.8	9	52.9	0
Other Diseases and Disorders (C00-O99)	107	40	37.4	5	4.7	7	6.5	52	48.6	24	22.4	31	29.0	0
Maternal Factors & Compl of Pregnancy, Labor and Delivery (P00-P04)	129	109	85.2	3	2.3	5	3.9	117	91.4	6	4.7	5	3.9	1
Disorders rel. to Short Gestation & Low Birth Weight (P07)	247	243	99.2	1	0.4	0	0.0	244	99.6	1	0.4	0	0.0	2
Hypoxia and Birth Asphyxia (P20-P21)	12	4	33.3	2	16.7	2	16.7	8	66.7	3	25.0	1	8.3	0
Respiratory Distress of Newborn (P22)	12	10	83.3	2	16.7	0	0.0	12	100.0	0	0.0	0	0.0	0
Congenital Pneumonia (P23)	6	3	50.0	1	16.7	1	16.7	5	83.3	0	0.0	1	16.7	0
Other Respiratory Conditions of Newborn (P24-P28)	29	22	75.9	2	6.9	1	3.4	25	86.2	3	10.3	1	3.4	0
Bacterial Sepsis of Newborn (P36)	20	12	60.0	1	5.0	3	15.0	16	80.0	2	10.0	2	10.0	0
Hemorrhagic and Hematolog Disorders of Fetus and Newborn (P50-P61)	31	23	76.7	1	3.3	0	0.0	24	80.0	3	10.0	3	10.0	1
Other Perinatal Conditions (P05, P08, P29, P35, P37, P39, P70-P96)	85	56	65.9	7	8.2	5	5.9	68	80.0	5	5.9	12	14.1	0
Congenital Anomalies (Q00-Q99)	290	49	17.1	30	10.5	72	25.1	151	52.6	69	24.0	67	23.3	3
Other Symptoms and Abnormal Findings (R00-R94, R96-R98)	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0
Sudden Infant Death Syndrome (R95)	120	6	5.0	3	2.5	14	11.7	23	19.2	38	31.7	59	49.2	0
Other Ill-Defined and Unspecified Causes of Mortality (R99)	64	5	7.9	0	0.0	10	15.9	15	23.8	22	34.9	26	41.3	1
Accidental Suffocation in Bed (W75)	24	0	0.0	1	4.2	2	8.3	3	12.5	5	20.8	16	66.7	0
External Causes of Mortality (V01-Y89), excluding sleep related deaths (W75)	45	4	9.3	2	4.7	2	4.7	8	18.6	15	34.9	20	46.5	2

\*ns = Not stated.

Unknowns are excluded in calculating percents.  
Residence data

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

**Errata on Page 49**

Table 9  
 Linked Infant Deaths by Birth Characteristics  
 by Selected Population Groups of the Mother  
 Kansas, 2010-2014

Characteristics	All races and origins	White NH	Black NH	American Indian or Alaska Native NH	Asian or Pacific Islander	Hispanic	Multi Race	Other NH	Unknown
Total	1,239	715	173	10	26	228	69	8	10
Sex									
Female	545	308	77	2	15	106	29	4	4
Male	694	407	96	8	11	122	40	4	6
Plurality									
Single	1,066	608	141	8	24	209	61	7	8
Twin	161	99	29	2	2	18	8	1	2
Triplets or more	12	8	3	-	-	1	-	-	-
Plural	173	107	32	2	2	19	8	1	2
n.s.	-	-	-	-	-	-	-	-	-
Birth Order									
1	476	282	59	4	13	87	24	3	4
2	330	196	42	5	7	55	20	-	5
3	219	126	35	-	2	40	14	2	-
4	111	59	16	1	4	23	6	1	1
5 or more	103	52	21	-	-	23	5	2	-
n.s.	-	-	-	-	-	-	-	-	-
Birthweight									
Less than 2,500 grams	802	443	127	5	18	154	42	5	8
Less than 500 grams	312	153	75	4	6	56	13	2	3
500-1499 grams	279	163	30	1	4	63	13	1	4
1,500-2,499 grams	211	127	22	-	8	35	16	2	1
2,500 grams or more	430	267	46	4	7	74	27	3	2
n.s.	7	5	-	1	1	-	-	-	-
Gestational age									
Premature (< 37 weeks)	777	432	124	6	16	152	35	4	8
Very Premature (< 32 wks)	590	313	107	6	11	116	26	4	7
Moderate Premature (32-33 wks)	61	44	4	-	2	8	3	-	-
Late Premature (34-36 wks)	126	75	13	-	3	28	6	-	1
Early Term (37-38 weeks)	198	119	26	2	3	33	13	1	1
Term (39-45 weeks)	254	157	23	2	6	41	21	3	1
n.s.	10	7	-	-	1	2	-	-	-
Mother's age									
Under 20 years	130	73	17	1	3	29	6	1	-
20-24 years	376	181	61	3	5	87	33	1	5
25-29 years	352	222	51	3	6	51	15	3	1
30-34 years	243	159	27	3	9	30	11	2	2
35-39 years	110	64	15	-	3	23	3	1	1
40-60 years	25	13	2	-	-	8	1	-	1
n.s.	3	3	-	-	-	-	-	-	-
Marital Status									
Married	624	427	35	4	21	101	28	4	4
Unmarried	604	282	137	6	4	125	41	4	5
n.s.	11	6	1	-	1	2	-	-	1

Table 9  
 Linked Infant Deaths by Birth Characteristics  
 by Selected Population Groups of the Mother  
 Kansas, 2010-2014

Characteristics	All races and origins	White NH	Black NH	American Indian or Alaska Native NH	Asian or Pacific Islander	Hispanic	Multi Race	Other NH	Unknown
<b>Payor</b>									
Medicaid	520	271	105	3	9	86	36	4	6
Private Insurance	497	349	37	4	13	69	20	2	3
Self Pay	107	37	13	1	2	47	5	2	-
Ind Hlt Serv	-	-	-	-	-	-	-	-	-
Champus/Tricare	53	29	8	1	1	9	5	-	-
Other Government	17	8	2	-	-	5	2	-	-
Other	18	6	6	-	-	6	-	-	-
n.s.	27	15	2	1	1	6	1	-	1
<b>Mother's education*</b>									
8th Grade or Less	36	7	3	-	2	22	-	1	1
9-12 Grade, No Diploma	70	27	11	2	3	24	2	1	-
H.S. or GED	170	84	36	3	2	33	8	1	3
Some College, No Degree	151	102	23	-	1	13	11	1	-
Associate Degree	73	51	13	-	2	4	3	-	-
Bachelor's Degree	145	116	6	1	4	14	1	2	1
Master's Degree	58	51	1	-	6	-	-	-	-
Doctorate	13	11	-	-	2	-	-	-	-
n.s.	14	9	2	-	-	2	1	-	-
*Mother's Over 24 years									
<b>Prenatal Care</b>									
None	73	26	22	1	2	18	4	-	-
Month 1	42	22	8	1	2	8	-	-	1
Month 2	366	232	41	1	8	55	26	1	2
Month 3	392	252	45	3	5	62	20	2	3
First Trimester	800	506	94	5	15	125	46	3	6
Month 4	113	54	23	1	3	23	7	2	-
Month 5	71	34	8	-	3	19	4	1	2
Month 6	28	17	1	-	-	6	2	1	1
Second Trimester	212	105	32	1	6	48	13	4	3
Month 7	21	9	2	-	1	7	2	-	-
Month 8	9	3	2	1	-	3	-	-	-
Month 9	5	1	1	-	-	3	-	-	-
Third Trimester	35	13	5	1	1	13	2	-	-
n.s.	119	65	20	2	2	24	4	1	1
<b>Adequacy of Prenatal Care</b>									
Adequate Plus	546	343	83	1	9	77	27	3	3
Adequate	272	164	23	3	8	50	20	1	3
Intermediate	50	26	7	-	1	14	2	-	-
Inadequate	213	94	34	2	6	58	13	3	3
n.s.	158	88	26	4	2	29	7	1	1
<b>Smoking during pregnancy</b>									
Ever Smoked During Pregnancy	272	185	40	3	-	19	24	1	-
Smoking Status Known	1,205	296	166	10	24	222	69	8	10

Residence data

n.s. = not stated

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

Table 10  
Live Births by Birth Characteristics  
by Selected Population Groups of the Mother  
Kansas, 2010-2014

Characteristics	All races and origins	White NH	Black NH	American Indian or Alaska Native NH	Asian or Pacific Islander	Hispanic	Multi Race	Other NH	n.s.
Total	198,369	142,207	13,348	1,047	5,809	31,254	3,375	1,205	124
Sex									
Female	96,950	69,378	6,567	540	2,866	15,304	1,643	596	56
Male	101,418	72,829	6,781	507	2,943	15,949	1,732	609	68
Plurality									
Single	191,852	137,224	12,822	1,014	5,635	30,853	3,280	1,179	115
Twin	6,246	4,767	517	30	160	649	91	26	6
Triplets or more	238	195	6	3	12	18	4	-	-
Plural	6,484	4,962	523	33	172	667	95	26	6
n.s.	33	21	3	-	2	4	-	1	3
Birth Order									
1	73,477	54,390	4,654	328	2,482	9,613	1,481	481	48
2	62,260	46,084	3,754	301	2,078	8,677	948	383	35
3	36,085	25,147	2,521	227	790	6,662	520	200	18
4	15,862	10,190	1,259	101	283	3,699	243	77	10
5 or more	10,684	6,395	1,160	90	176	2,603	183	64	13
n.s.	1	1	-	-	-	-	-	-	-
Birthweight									
Less than 2,500 grams	14,118	9,361	1,782	74	504	2,013	271	103	10
Less than 500 grams	337	181	87	2	4	54	4	3	2
500-1499 grams	2,227	1,442	319	13	67	330	42	12	2
1,500-2,499 grams	11,554	7,738	1,376	59	433	1,629	225	88	6
2,500 grams or more	184,223	132,832	11,565	973	5,078	29,238	3,104	1,102	104
n.s.	28	14	1	-	-	3	-	-	10
Gestational age									
Premature (< 37 weeks)	17,628	12,269	1,735	120	503	2,530	365	100	6
Very Premature (< 32 wks)	2,969	1,937	438	14	81	430	50	16	3
Moderate Premature (32-33 wks)	2,175	1,515	210	10	57	334	42	7	-
Late Premature (34-36 wks)	12,484	8,817	1,087	96	365	1,766	273	77	3
Early Term (37-38 weeks)	48,762	34,421	3,441	281	1,547	7,852	905	290	25
Term (39-45 weeks)	131,834	95,431	8,159	646	3,756	20,712	2,103	815	79
n.s.	145	105	13	-	3	27	2	-	14
Mother's age									
Under 20 years	16,348	9,179	1,759	117	175	4,482	566	65	5
20-24 years	50,181	33,788	4,768	346	665	9,170	1,189	234	21
25-29 years	62,321	47,107	3,475	307	1,836	8,236	908	418	34
30-34 years	47,335	36,388	2,238	187	1,942	5,747	491	306	36
35-39 years	18,328	13,132	902	76	970	2,910	184	137	17
40-60 years	3,843	2,609	205	14	220	707	37	45	6
n.s.	13	4	1	-	1	2	-	-	5
Marital Status									
Married	125,119	98,688	3,774	365	4,955	14,785	1,446	1,026	80
Unmarried	73,133	43,446	9,569	681	850	16,449	1,927	179	32
n.s.	117	73	5	1	4	20	2	3	12

Table 10  
Live Births by Birth Characteristics  
by Selected Population Groups of the Mother  
Kansas, 2010-2014

Characteristics	All races and origins	White NH	Black NH	American Indian or Alaska Native NH	Asian or Pacific Islander	Hispanic	Multi Race	Other NH	n.s.
<b>Payor</b>									
Medicaid	65,064	40,821	8,608	585	1,027	11,871	1,733	388	31
Private Insurance	102,920	85,900	2,900	280	3,912	8,316	1,135	434	43
Self Pay	14,487	5,070	571	32	428	8,012	108	231	25
Ind Hlt Serv	127	29	5	72	1	10	10	-	-
Champus/Tricare	10,931	7,945	959	40	306	1,296	320	62	3
Other Government	1,558	858	89	18	34	512	29	17	1
Other	2,153	1,098	156	14	82	719	19	64	1
n.s.	1,129	486	50	6	19	518	21	9	20
<b>Mother's education*</b>									
8th Grade or Less	4,596	752	109	9	262	3,399	16	149	1
9-12 Grade, No Diploma	8,388	3,254	655	73	232	4,005	114	62	3
H.S. or GED	21,184	13,743	1,865	159	741	4,195	312	161	8
Some College, No Degree	26,281	20,069	2,128	172	634	2,671	484	114	9
Associate Degree	13,003	10,744	704	66	268	993	178	43	7
Bachelor's Degree	39,262	34,598	857	77	1,534	1,614	338	218	26
Master's Degree	14,647	12,543	380	25	990	456	141	105	7
Doctorate	3,965	3,296	87	1	390	114	33	40	4
n.s.	501	237	35	2	27	153	5	14	28
*Mother's Over 24 years									
<b>Prenatal Care</b>									
None	1,773	789	295	18	60	551	26	24	10
Month 1	5,270	3,793	324	32	167	817	97	37	3
Month 2	67,369	52,249	3,629	273	2,113	7,799	972	311	23
Month 3	79,857	59,669	4,672	408	2,136	10,923	1,363	367	49
First Trimester	152,226	115,711	8,625	713	4,416	19,539	2,432	715	75
Month 4	19,911	12,251	1,731	131	568	4,391	380	145	14
Month 5	9,391	5,353	947	70	287	2,454	200	77	3
Month 6	5,083	2,760	562	34	170	1,370	138	46	3
Second Trimester	34,385	20,364	3,240	235	1,025	8,215	718	268	20
Month 7	3,335	1,768	348	29	93	969	80	44	4
Month 8	2,095	1,069	236	24	82	619	43	20	2
Month 9	1,101	585	104	12	31	232	29	8	1
Third Trimester	6,531	3,422	688	65	206	1,920	152	72	7
n.s.	3,454	1,621	500	16	102	1,029	47	127	12
<b>Adequacy of Prenatal Care</b>									
Adequate Plus	60,174	46,294	3,546	298	1,635	7,111	1,062	201	27
Adequate	97,710	73,609	5,507	427	2,957	13,197	1,515	451	47
Intermediate	11,744	6,863	1,081	94	334	2,995	178	187	12
Inadequate	23,694	12,777	2,577	199	755	6,608	531	224	23
n.s.	5,047	2,664	637	29	128	1,343	89	142	15
<b>Smoking during pregnancy</b>									
Ever Smoked During Pregnancy	26,621	21,875	2,035	277	153	1,433	810	30	8
Smoking Status Known	196,928	141,115	13,251	1,038	5,785	31,113	3,331	1,198	97

Residence data

n.s. = not stated

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

## Technical Notes

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 aren't 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.

Beginning in July 2014, requirements for reporting stillbirths or fetal deaths to the Kansas Department of Health and Environment changed. All stillbirths in which the unborn child is 20 weeks gestation and greater must now be reported. The old law required still-

births 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.

### **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 on page 172 of the *Annual Summary of Vital Statistics, 2014*. 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 on the basis of race and is considered non-Hispanic.

### **Peer Groups**

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. (See Appendix 1 for county tables indicating population density peer group membership before and after the 2010 U.S. Census.)

Frontier counties are defined as those with less than 6.0 persons per square mile, Rural counties as those with 6.0 - 19.9 persons per square mile, Densely-Settled Rural counties as those with 20.0 - 39.9 persons per square mile, Semi-Urban counties as those with 40.0 - 149.9 persons per square mile, and Urban counties as those with 150.0 or more persons per square mile. These designations should *not* be confused with the USCB 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 [2]. Sources for calculation of population densities are population figures from the 2010 U.S. Census and land areas from the 2010 U.S. Census.

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APPENDIX 1  
 Kansas County Codes and Groupings

County Name	FIPS Code	Abbreviation	Population Density Peer Group (2010)	Population Density Peer Group (2000)
Allen	001	AL	Densely-Settled Rural	Densely-Settled Rural
Anderson	003	AN	Rural	Rural
Atchison	005	AT	Densely-Settled Rural	Densely-Settled Rural
Barber	007	BA	Frontier	Frontier
Barton	009	BT	Densely-Settled Rural	Densely-Settled Rural
Bourbon	011	BB	Densely-Settled Rural	Densely-Settled Rural
Brown	013	BR	Rural	Rural
Butler	015	BU	Semi-Urban	Semi-Urban
Chase	017	CS	Frontier	Frontier
Chautauqua	019	CQ	Frontier	Rural
Cherokee	021	CK	Densely-Settled Rural	Densely-Settled Rural
Cheyenne	023	CN	Frontier	Frontier
Clark	025	CA	Frontier	Frontier
Clay	027	CY	Rural	Rural
Cloud	029	CD	Rural	Rural
Coffey	031	CF	Rural	Rural
Comanche	033	CM	Frontier	Frontier
Cowley	035	CL	Densely-Settled Rural	Densely-Settled Rural
Crawford	037	CR	Semi-Urban	Semi-Urban
Decatur	039	DC	Frontier	Frontier
Dickinson	041	DK	Densely-Settled Rural	Densely-Settled Rural
Doniphan	043	DP	Densely-Settled Rural	Densely-Settled Rural
Douglas	045	DG	Urban	Urban
Edwards	047	ED	Frontier	Frontier
Elk	049	EK	Frontier	Frontier
Ellis	051	EL	Densely-Settled Rural	Densely-Settled Rural
Ellsworth	053	EW	Rural	Rural
Finney	055	FI	Densely-Settled Rural	Densely-Settled Rural
Ford	057	FO	Densely-Settled Rural	Densely-Settled Rural
Franklin	059	FR	Semi-Urban	Semi-Urban
Geary	061	GE	Semi-Urban	Semi-Urban
Gove	063	GO	Frontier	Frontier
Graham	065	GH	Frontier	Frontier
Grant	067	GT	Rural	Rural
Gray	069	GY	Rural	Rural
Greeley	071	GL	Frontier	Frontier
Greenwood	073	GW	Frontier	Rural
Hamilton	075	HM	Frontier	Frontier
Harper	077	HP	Rural	Rural
Harvey	079	HV	Semi-Urban	Semi-Urban
Haskell	081	HS	Rural	Rural
Hodgeman	083	HG	Frontier	Frontier
Jackson	085	JA	Densely-Settled Rural	Rural
Jefferson	087	JF	Densely-Settled Rural	Densely-Settled Rural
Jewell	089	JW	Frontier	Frontier
Johnson	091	JO	Urban	Urban
Kearny	093	KE	Frontier	Frontier
Kingman	095	KM	Rural	Rural
Kiowa	097	KW	Frontier	Frontier
Labette	099	LB	Densely-Settled Rural	Densely-Settled Rural
Lane	101	LE	Frontier	Frontier
Leavenworth	103	LV	Urban	Semi-Urban
Lincoln	105	LC	Frontier	Frontier
Linn	107	LN	Rural	Rural

County Name	FIPS Code	Abbreviation	Population Density Peer Group (2010)	Population Density Peer Group (2000)
Logan	109	LG	Frontier	Frontier
Lyon	111	LY	Densely-Settled Rural	Semi-Urban
McPherson	113	MP	Densely-Settled Rural	Densely-Settled Rural
Marion	115	MN	Rural	Rural
Marshall	117	MS	Rural	Rural
Meade	119	ME	Frontier	Frontier
Miami	121	MI	Semi-Urban	Semi-Urban
Mitchell	123	MC	Rural	Rural
Montgomery	125	MG	Semi-Urban	Semi-Urban
Morris	127	MR	Rural	Rural
Morton	129	MT	Frontier	Frontier
Nemaha	131	NM	Rural	Rural
Neosho	133	NO	Densely-Settled Rural	Densely-Settled Rural
Ness	135	NS	Frontier	Frontier
Norton	137	NT	Rural	Rural
Osage	139	OS	Densely-Settled Rural	Densely-Settled Rural
Osborne	141	OB	Frontier	Frontier
Ottawa	143	OT	Rural	Rural
Pawnee	145	PN	Rural	Rural
Phillips	147	PL	Rural	Rural
Pottawatomie	149	PT	Densely-Settled Rural	Densely-Settled Rural
Pratt	151	PR	Rural	Rural
Rawlins	153	RA	Frontier	Frontier
Reno	155	RN	Semi-Urban	Semi-Urban
Republic	157	RP	Rural	Rural
Rice	159	RC	Rural	Rural
Riley	161	RL	Semi-Urban	Semi-Urban
Rooks	163	RO	Frontier	Rural
Rush	165	RH	Frontier	Frontier
Russell	167	RS	Rural	Rural
Saline	169	SA	Semi-Urban	Semi-Urban
Scott	171	SC	Rural	Rural
Sedgwick	173	SG	Urban	Urban
Seward	175	SW	Densely-Settled Rural	Densely-Settled Rural
Shawnee	177	SN	Urban	Urban
Sheridan	179	SD	Frontier	Frontier
Sherman	181	SH	Frontier	Rural
Smith	183	SM	Frontier	Frontier
Stafford	185	SF	Frontier	Rural
Stanton	187	ST	Frontier	Frontier
Stevens	189	SV	Rural	Rural
Sumner	191	SU	Densely-Settled Rural	Densely-Settled Rural
Thomas	193	TH	Rural	Rural
Trego	195	TR	Frontier	Frontier
Wabaunsee	197	WB	Rural	Rural
Wallace	199	WA	Frontier	Frontier
Washington	201	WS	Rural	Rural
Wichita	203	WH	Frontier	Frontier
Wilson	205	WL	Rural	Rural
Woodson	207	WO	Rural	Rural
Wyandotte	209	WY	Urban	Urban

**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.)		40. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)			
39a. MOTHER		39b. FATHER		40a. 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"/> Native Hawaiian <input type="checkbox"/> Black or African American <input type="checkbox"/> Guamanian or Chamorro <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"/> Other Pacific Islander (Specify) _____ <input type="checkbox"/> Unknown	
				40b. FATHER	
				<input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Black or African American <input type="checkbox"/> Guamanian or Chamorro <input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes) _____ <input checked="" 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"/> Other Pacific Islander (Specify) _____ <input checked="" 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)	42c. MOTHER	
41b. FATHER			42b. FATHER (Usual)	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 <sup>th</sup> 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 <sup>th</sup> 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 <sup>th</sup> - 12 <sup>th</sup> grade, no diploma <input type="checkbox"/> Associate degree (e.g., AA, AS) <input checked="" 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"/> Bachelor's degree (e.g., BA, AB, BS)	
44. PREVIOUS LIVE BIRTHS (Do not include this child.)		45. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)		46. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No	47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)
44a. Now living Number _____ <input type="checkbox"/> None	44b. Now dead Number _____ <input type="checkbox"/> None	45a. Before 20 weeks Number _____ <input type="checkbox"/> None	45b. 20 weeks & over Number _____ <input type="checkbox"/> None	48. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	49. PRENATAL VISITS-Total Number (If none, enter "0")
44c. DATE OF LAST LIVE BIRTH (Month, Year)		45c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		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. 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				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) FACILITY TRANSFERRED FROM:				62. INFANT TRANSFERRED (Within 24 hours of delivery) <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name) FACILITY TRANSFERRED TO:	

PRENATAL (Birth)	LABOR-DELIVERY/NEWBORN				
<b>63. NUTRITION OF MOTHER</b> 1. Height _____ 2. Prepregnancy Weight _____ 3. Weight at delivery _____ 4. Did mother get WIC food for herself? Yes _____ No _____ Unknown _____	<b>66. OBSTETRICAL PROCEDURES</b> (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	<b>70. INFECTIONS PRESENT AND/OR TREATED</b> (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			
<b>64. MEDICAL RISK FACTORS</b> (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	<b>67. ONSET OF LABOR</b> (Check all that apply.) 1. <input type="checkbox"/> Premature Rupture of the Membranes (prolonged, $\geq 12$ hours) 2. <input type="checkbox"/> Precipitous Labor (< 3 hrs) 3. <input type="checkbox"/> Prolonged Labor ( $\geq 20$ hrs) 4. <input type="checkbox"/> None of the above	<b>71. ABNORMAL CONDITIONS OF NEWBORN</b> (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			
<b>65. METHOD OF DELIVERY</b> 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 _____	<b>68. CHARACTERISTICS OF LABOR AND DELIVERY</b> (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 $\geq 38$ 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	<b>72. VACCINES ADMINISTERED TO NEWBORN</b> 1. <input type="checkbox"/> Hepatitis B Date Given: _____ 2. <input type="checkbox"/> Other* Specify: _____ Date Given: _____			
<b>73. APGAR SCORE</b>					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">1 min</td> <td style="width: 33%; text-align: center;">5 min</td> <td style="width: 33%; text-align: center;">10 min</td> </tr> </table>			1 min	5 min	10 min
1 min	5 min	10 min			
<b>74. CONGENITAL ANOMALIES OF THE NEWBORN</b> (Check all that apply.) 1. <input type="checkbox"/> Anencephaly 2. <input type="checkbox"/> Meningocele/Spina bifida 3. <input checked="" type="checkbox"/> Cyanotic congenital heart disease 4. <input type="checkbox"/> Congenital diaphragmatic hernia 5. <input type="checkbox"/> Omphalocele 6. <input checked="" 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					
<b>69. MATERNAL MORBIDITY</b> (Check all that apply.) (These are complications associated with labor and delivery.) 1. <input type="checkbox"/> Maternal transfusion 2. <input checked="" 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					

CHILD'S NAME \_\_\_\_\_

MOTHER'S NAME \_\_\_\_\_

<p>Test required by K.S.A. 65-153f 153G Serological Test Made:</p> <p>_____ 1<sup>st</sup> _____ 2<sup>nd</sup> _____ 3<sup>rd</sup> (Trimester)</p> <p>_____ 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>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>			
<p>Infant's patient number:</p>					
<p>Infant's Primary Care Physician</p>					
<p>First</p>	<p>Middle</p>	<p>Last</p>	<p>Title (MD, DO, etc.)</p>		
<p>If screening accomplished, Date hearing screened _____ / _____ / _____ Month Day Year</p>	<p>The results of the hearing screening ✓:</p> <p>Right ear: _____ Pass _____ Refer for further testing</p> <p>Left ear: _____ Pass _____ Refer for further testing</p>				
<p>Physiologic equipment used ✓: _____ OAE _____ AABR _____ ABR</p>					
<p>If screening not accomplished, ✓ one reason:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> <p>_____ b – missed appointment</p> <p>_____ c – could not test</p> <p>_____ d – deceased</p> <p>_____ i – Incomplete test</p> <p>_____ m – Infant discharged before screening</p> <p>_____ n – transferred to NICU</p> </td> <td style="width:50%; border: none;"> <p>_____ o – other</p> <p>_____ r – did not consent</p> <p>_____ s – scheduled but not completed</p> <p>_____ t – transferred to another hospital</p> <p>_____ u – no information</p> <p>_____ x – invalid results</p> </td> </tr> </table>				<p>_____ b – missed appointment</p> <p>_____ c – could not test</p> <p>_____ d – deceased</p> <p>_____ i – Incomplete test</p> <p>_____ m – Infant discharged before screening</p> <p>_____ n – transferred to NICU</p>	<p>_____ o – other</p> <p>_____ r – did not consent</p> <p>_____ s – scheduled but not completed</p> <p>_____ t – transferred to another hospital</p> <p>_____ u – no information</p> <p>_____ x – invalid results</p>
<p>_____ b – missed appointment</p> <p>_____ c – could not test</p> <p>_____ d – deceased</p> <p>_____ i – Incomplete test</p> <p>_____ m – Infant discharged before screening</p> <p>_____ n – transferred to NICU</p>	<p>_____ o – other</p> <p>_____ r – did not consent</p> <p>_____ s – scheduled but not completed</p> <p>_____ t – transferred to another hospital</p> <p>_____ u – no information</p> <p>_____ x – invalid results</p>				

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. <span style="float:right">Approximate Interval: Onset to Death</span>							
IMMEDIATE CAUSE (Final disease or condition resulting in death)		a. _____		_____			
Sequentially list conditions, if any, leading to immediate cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST.		b. _____		_____			
		c. _____		_____			
		d. _____		_____			
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"/> 8<sup>th</sup> grade or less</p> <p><input type="checkbox"/> 9<sup>th</sup> - 12<sup>th</sup> 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>

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)
<b>25. CAUSE/CONDITIONS CONTRIBUTING TO FETAL DEATH</b>			
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		44b. OTHER EDUCATION	
<input type="checkbox"/> 8 <sup>th</sup> 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 <sup>th</sup> 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 <sup>th</sup> - 12 <sup>th</sup> 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	48. IF NOT A SINGLE BIRTH - Born First, Second, Third, etc. (Specify)	
45c. DATE OF LAST LIVE BIRTH (Month, Year)		46c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		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)	
51. WEIGHT OF FETUS (grams)		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 <b>smoked per day</b> . If none, enter "0". Average number of cigarettes or packs of cigarettes smoked <b>per day</b> : 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 \_\_\_\_\_

PRENATAL	LABOR-DELIVERY/STILLBORN FETUS
<p><b>59. NUTRITION OF MOTHER</b></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><b>60. MEDICAL RISK FACTORS</b> (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><b>61. METHOD OF DELIVERY</b></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><b>62. MATERNAL MORBIDITY</b> (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><b>63. INFECTIONS PRESENT AND/OR TREATED</b> (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><b>64. CONGENITAL ANOMALIES OF THE NEWBORN</b> (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: \_\_\_\_\_ 1<sup>st</sup> \_\_\_\_\_ 2<sup>nd</sup> \_\_\_\_\_ 3<sup>rd</sup> (Trimester) \_\_\_\_\_ At Delivery \_\_\_\_\_ Not Performed

If no test made, state reason: \_\_\_\_\_

# Errata

On March 9, 2016 the KDHE Bureau of Epidemiology and Public Health Informatics made corrections to several tables and figures in the Selected Special Statistics, Stillbirths and Infant Deaths, 2014. The pages affected were

- Executive Summary, page iii;
- Narrative, pages 10 and 12-14;
- Figure 4, Five Year Infant Mortality Rates by Population Group of Mother, page 20;
- Table 3, Infant Deaths and Mortality Rates by Selected Population Group of Mother, page 21;
- Table 9, Linked Infant Deaths by Birth Characteristics by Selected Population Groups of the Mother, pages 32-33.

The changes reflected a correction to the count of Hispanic decedents that was necessary due to non-standard coding on the death records for some Kansas residents who died in other states.