



Selected Special Statistics
Stillbirths and Infant Deaths
Kansas, 2012

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

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Executive Summary

Infant mortality is an important indicator of community health. It is associated with a variety of factors such as economic development, general living conditions, social 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, 2012* 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 2012 (254).

- The single-year Kansas IMR increased slightly from the 2011 historic low (6.2 deaths per 1,000 live births) to 6.3 in 2012. 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 (5.0) met the HP2020 target. The Hispanic (8.6) and Black non-Hispanic (14.2) rates did not.
- The Black non-Hispanic infant mortality rate has remained at least twice that of the White non-Hispanic rate for most of the last 20 years.
- During 2008-2012, most Kansas resident infant deaths occurred soon after birth. Almost two-thirds (64.5% or 869 deaths) happened in the neonatal time period (less than 28 days).
- The leading cause of infant mortality was congenital anomalies (24.1%), followed by prematurity or low birth weight (18.2%), sudden unexplained infant death (SUID) causes (17.5%), and maternal factors and complications (11.2%).
- Perinatal deaths included 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 2008-2012 infant mortality rate of 44.5 per 1,000 live births for premature infants was over 19 times higher than the rate for infants born at term (2.3). The IMR for very premature infants was 196.7 deaths per 1,000 live births, over 86 times higher than infants born at term.

The *Selected Special Statistics, Stillbirths, and Infant Deaths Kansas, 2012* 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 community health 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 2011, the most recent year with preliminary death data, statistics showed an infant mortality rate of 6.0 per 1,000 live births. The leading causes of infant death were congenital malformations, short gestation or low birthweight, and sudden infant death syndrome (SIDS) [2].

The most recent national linked birth/infant death data set (2010) includes statistics collected from birth and death certificates. Risk factors for infant death included Black non-Hispanic mothers, prematurity or low birthweight, multiple births, unmarried mothers, and mother's age (both young and older mothers) [3].

Healthy People 2020 (HP2020) provides science-based, 10-year national objectives for improving the health of all Americans including 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 Public Health Informatics group calculates the official state infant mortality rate as part of its ongoing mission to provide information to program managers, policy makers, health providers, and the public. This report augments information in the KDHE *Annual Summary of Vital Statistics, 2012* and moves beyond single-year statistics in order to provide more long-term estimates of the true underlying rates.

Methods

The BEPHI Office of Vital Statistics receives reports of vital events that occur in Kansas. Kansas law (K.S.A. 65-102, K.S.A. 65-2422b, K.S.A. 65-445) mandates reporting of live births, stillbirths, deaths, marriages, marriage dissolutions, and abortions to KDHE. Live births, stillbirths, and deaths to Kansas residents that occurred in other states are received via Interstate Jurisdictional Exchange.

KDHE collects live birth, stillbirth, and death information consistent with the 2003 U.S. Standard Certificates. Data collected since 2005 are based on the standard certificate. BEPHI uses an 18 month reporting period when creating an analytical file. Thus all births and deaths that occur in a given year – reported during that year or the first six months of the year following – are included in the analytical file. The analytical files are considered 99.99 percent complete. All statistics reported are based on Kansas residence, unless otherwise noted

All birth records undergo a two-step quality improvement process. First, Office of Vital Statistics staff manually review paper certificates for missing or illogical information. The

Vital Statistics Data Analysis section performs computerized checks of the data – on an ongoing basis and once prior to closing the analytical file. Corrections or imputation occurs to geographic information, sex of the child, and mother’s age.

Stillbirths are also included in this report. In Kansas, a stillbirth is defined as a delivery of a fetus in excess of 350 grams, other than a live birth, and not an induced termination of pregnancy. These events may have risk factors similar to those for infant deaths.

Statistical tabulations were created using SAS software 9.3. In this report relative standard errors were calculated 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 calculated with values greater than 50 percent have been suppressed in this document. This is consistent with standard National Center for Health Statistics (NCHS) practice [3,5].

Confidence intervals were calculated at the 95% confidence level. If either of the two rates to be compared was based on less than 100 events, the confidence intervals (CI) were checked to see if they overlapped. If the CI values did not overlap, the difference in the two rates was statistically significant. If rates were based on 100 or more events, the z-test was used to determine statistical significance.

Five year rolling average rates were used to smooth data trends since year-to-year variation in infant mortality rates can result in a saw-tooth pattern that obscures underlying trends. Trends were evaluated over periods of 20 years, or approximately 100 years. The Poisson Joinpoint regression model was used for trend analysis for multi-year time periods [6,7,8].

Percentage comparisons between the linked deaths and live births are statistically significant at the $p < .05$ level [9].

Age Period of Death

Timing of infant deaths is categorized as occurring in the neonatal period (first 27 days of life) and the post-neonatal period (28 to 364 days). The neonatal period is further sub-divided into early days or 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. Underlying causes of death are established through the International Classification of Diseases, 10th Revision (ICD-10). This system promotes uniformity and comparability in the collection and presentation of mortality data.

This report uses a new cause of death category called sudden unexpected infant death (SUID). SUID combines deaths from sudden infant death syndrome (SIDS) (ICD-10 code R95), sleep related deaths (ICD-10 code W75) and deaths of unknown cause (ICD-10 code R99). In recent years the decline in SIDS deaths slowed as more infant deaths classified as “accidental suffocation” and “unknown cause” [10].

Population Group Reporting

This method creates a unique matrix of population groups combining race and Hispanic origin for reporting statistics. In the infant death 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 or by observation.

In the linked infant birth/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, 2012*.

Data Linkage

This report includes findings based on the linking of birth certificate and infant death certificate data. This report uses a death cohort which involves linkage of infant deaths with the corresponding live births. Births may have occurred in the same calendar year as the death or in the prior year.

Linking enables analysis of information from both records; age at death and underlying cause from the death certificate and birthweight, gestational age, and information on the mother such as age, marital status, educational level, and maternal risk factors such as tobacco use from the birth certificate.

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 BEPHI Public Health Informatics and uses a deterministic method for linking. Birth certificate IDs are identified from the death certificate file in an automated matching process. Manual matching is used for infant deaths where the automated process does not find a match. Infrequently a match may not be found.

Results

For Kansas, 2008-2012, there were 1,347 resident infant deaths reported to KDHE. Of those, 1,333 (99.0%) were linked to a birth record (Table A). Thirty-five of the linked births occurred in 2007.

Table A. Linked Infant Birth/Deaths, Percent Linked, Kansas, 2008 - 2012

Year	Infant Deaths, Total	Infant Deaths, Linked File	
	Number	Number	%
2008	303	295	97.4
2009	290	289	99.7
2010	253	251	99.2
2011	247	244	98.8
2012	254	254	100.00
Totals	1347	1333	99.0

Death Certificate Statistics

In Kansas, in 2012, the infant mortality rate was 6.3 per 1,000 live births (254 infant deaths), up slightly from 6.2 (247 infant deaths) in 2011 (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) to 6.3 (254 deaths) in 2012 (Figure 1). Stillbirths decreased 82.1 percent from 26.8 deaths per 1,000 (live births + stillbirths) in 1912 (1,047 stillbirths) to 4.8 (195 stillbirths) in 2012 (Figure 2). Incomplete reporting in the early 1900s may have resulted in under-reporting of infant deaths and stillbirths.

In the last twenty years, the Poisson Joinpoint regression model shows a fluctuation in single year IMR from a high of 8.7 in 1993, down to 6.7 in 2000, up to 7.9 in 2007, and then down to 6.3 in 2012. Overall, in the last 20 years, there was a statistically significant decreasing trend ($p = <.05$) (Figure 3).

During 2008-2012 1,347 resident infant deaths occurred. The five-year average Kansas infant mortality rate was 6.6 infant deaths per 1,000 live births.

Population Groups

In Kansas, 2012, the White non-Hispanic population group had the highest number of infant deaths (145 infant deaths), while the Black non-Hispanic group had the highest rate per 1,000 live births (14.2) (Table 3). 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, 2012

	Total	White non-Hispanic	Black non-Hispanic	Hispanic any race
Infant deaths †	6.3	5.0	14.2	8.6
Neonatal deaths †	4.3	3.3	10.8	6.4
Post neonatal deaths †	2.0	1.7	3.4	2.2
Stillbirths ‡	4.8	3.9	6.7	8.7
Perinatal period III ‡	8.3	6.5	15.2	14.4

* Perinatal period III = stillbirths + hebdomadal deaths (deaths that occur prior to the 7th day of life)

† Rate per 1,000 live births

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

Between 1993 and 2012 the Black non-Hispanic population group consistently had the highest infant mortality rates (IMR) (Figure 4). The Black non-Hispanic IMR has fluctuated, with a high of 20.5 infant deaths per 1,000 live births in 1993-1997 and a lowest during the period of 13.6 in 2008-2012. In the same 20 years, the White non-Hispanic population group showed a slight decreasing trend from 6.8 in 1993-1997 to 5.5 in 2008-2012. The IMR in the Hispanic population group fluctuated, with a low of 5.9 in 1995-1999; since then, the rate in the Hispanic population group has increased in most years, to 7.5 in 2008-2012. In this same 20 year period, the Black non-Hispanic IMR has remained over twice that of the White non-Hispanic IMR, with an average ratio of 2.5.

County Rates

The counties with the highest number of infant deaths (2008-2012) included Sedgwick (297 or 22.0% of the total), Johnson (195 or 14.5% of the total), Wyandotte (111 or 8.2% of the total), and Shawnee (90 or 6.7% of the total). These four counties accounted for 51.4 percent of the infant deaths (Table 4).

Counties with the highest infant mortality rates and a relative standard error of 30 percent or lower, which indicates reliability of the measure, included Neosho (13.8), Labette (9.9), Ford (9.5), Lyon (9.4) and Geary (8.9); while the counties with the lowest rates were Leavenworth (3.7), Douglas (3.8), Crawford (4.7), Seward (4.8) and Johnson (5.2) (Table 4).

Since the number of deaths was too small for analysis in many counties, counties were combined into Public Health Regions (Figure 5, Appendix 1). The region with the highest infant mortality rate and a relative standard error of 30 percent or lower was the Northwest Bioterrorism Region at 10.9 per 1,000 live births, and the region with the lowest infant mortality rate was the Southwest Kansas (SW KS) Health Initiative Region at 4.5 per 1,000 live births. The infant mortality rate for the Kansas City Metro Region was statistically significantly lower than the state rate (Figure 5).

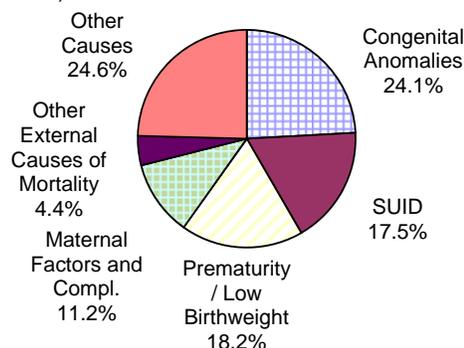
Zip Code Rates

Several zip-codes had enough deaths to allow analysis for 2008-2012. The zip-codes with the highest infant mortality rates and a relative standard error of 30% or lower included 66720 (Neosho County, 15.2), 67214 (Sedgwick County, 14.1), 66214 (Johnson County, 12.6), 67218 (Sedgwick County, 11.5), and 66204 (Johnson County, 11.4). The zip-codes with the lowest rates and a relative standard error of 30% or lower were 66062 (Johnson County, 4.1), 67901 (Seward County, 4.9), 67212 (Sedgwick County, 5.2), 66061 (Johnson County, 5.6), and 66102 (Wyandotte County, 5.9).

Causes of Infant Death

For 2008-2012, the leading cause of resident infant mortality was congenital anomalies (Figure A). The most frequent anomaly was congenital malformations of the circulatory system (24.0%, ICD-10 codes Q20-Q28), followed by chromosomal abnormalities (18.5%, ICD-10 codes Q90-Q99) (Table 5). Seventy-one percent (71.4) of deaths due to congenital anomalies occurred in the neonatal (under 28 day) time period. The category “other causes” includes conditions such as respiratory diseases, primary atelectasis, sepsis, cardiac failure/dysrhythmia, and necrotizing enterocolitis.

Figure A. Leading Causes of Infant Deaths
Kansas, 2008-2012



Analysis of underlying cause of death by population group (2008-2012) showed that prematurity was the leading cause of death among Black non-Hispanic infants. Congenital anomalies was the leading cause of death among White non-Hispanic and Hispanic infants (Table C).

Analysis of rates per 1,000 live births 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, SUID, or 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 in Selected Population Groups by Leading Causes of Death, Kansas, 2008-2012

Population Group*	Number of Deaths	Percent	Rate†
Black non-Hispanic (n=189)			
1. Prematurity or Low Birthweight	55	29.1	3.9
2. SUID	38	20.1	2.7
3. Maternal Factors	24	12.7	1.7
4. Congenital Anomalies	19	10.1	1.4
White non-Hispanic (n=799)			
1. Congenital Anomalies	209	26.1	1.4
2. SUID	150	18.8	1.0
3. Prematurity or Low Birthweight	112	14.0	0.8
4. Maternal Factors	93	11.6	0.6
Hispanic any-race (n=243)			
1. Congenital Anomalies	67	27.6	2.1
2. Prematurity or Low Birthweight	54	22.2	1.7
3. SUID	27	11.1	0.8
4. Maternal factors	22	9.1	0.7

* Non-Hispanic population group includes "unknown Hispanic origin".

† Rate per 1,000 live births.

Neonatal/Post-Neonatal Period Deaths

For Kansas, in 2008-2012, there were 869 neonatal deaths (4.3 per 1,000 live births) and 478 post-neonatal deaths (2.3 per 1,000 live births) with 64.5 percent of deaths occurring in the neonatal age period (Tables 5, 6). Congenital anomalies were the leading cause of neonatal deaths (26.7%), while SUID was the leading cause of post-neonatal deaths (49.4%) (Table 5).

In Kansas, from 1993 to 2012, neonatal death rates showed a statistically significant decreasing trend with some fluctuation; the decreasing trend in post-neonatal death rates approached significance (Table 2). For neonatal deaths, rolling-five-year averages showed a slight decrease in most years from 4.9 in 1993-1996 to 4.3 in 2008-2012 (Figure 8). The post-neonatal death rolling-five-year averages showed a decrease from 2.8 in 1993-1997 to a low of 2.3 in 2008-2012, with some fluctuation in between (Figure 6).

Perinatal Period III Deaths

For Kansas, in 2008-2012, 1,656 infants died in the perinatal period (8.1 per 1,000 live births and stillbirths), comprised of 710 stillbirths and 946 hebdomadal deaths (Table 1).

Complications of placenta, umbilical cord, and membrane (ICD-10 code P02) was the leading cause of stillbirths (31.3%) (Table 7), while prematurity or low birthweight was the leading cause of death for hebdomadal-period deaths (33.8%) (Table 5).

In Kansas, from 1993 to 2012, rolling-five-year averages showed a gradual decline in perinatal deaths, with some fluctuation, decreasing from 9.5 in 1993-1997 to 8.1 in 2008-2012 (Figure 7).

Linked Birth/Infant Death Statistics

Kansas Statistics

This section presents infant mortality statistics from the linked birth/infant death data file (linked file) by a variety of maternal and infant characteristics. The linked file differs slightly (both numbers and percents) from the mortality file, which is based entirely on death certificate data. For Kansas, in 2008-2012, 1,333 (99.0%) infant deaths were linked to a birth record (Table A).

Of the 1,333 linked records, population group could be calculated for 1,323 deaths. The mother reported her race as White non-Hispanic in 795 live births (60.1%), Black non-Hispanic in 185 live births (14.0%), Native American non-Hispanic in 13 live births (1.0%), Asian non-Hispanic in 23 live births (1.7%), Multi-racial non-Hispanic in 59 live births (4.5%), other race non-Hispanic in 10 live births (0.8%), and Hispanic (all races) in 238 live births (18.0%).

Birthweights

Of the 1,333 deaths, birthweight of the infant was known for 1,323 deaths. Three hundred and twenty-one (24.3%) of the deaths occurred to infants with birthweights of less than 500 grams; 297 (22.4%) of the deaths occurred to infants with birthweights of 500 to 1,499 grams; 214 (16.2%) of deaths occurred to infants with birthweights of 1,500 to 2,499 grams; and 491 (37.1%) of deaths occurred to infants with birthweights of 2,500 grams or more.

Among the infant deaths where birthweight was known, 832 infants (62.9%) were low birthweight (less than 2500 grams). This compares to 7.2 percent low birth weight for all live births in the same time period (2008-2012).

Gestational Age

Gestational age was known for 1,321 of the 1,333 linked records. Six hundred and eight of the infants (46.0%) were very premature (less than 32 weeks), 63 (4.8%) were moderately premature (32- 33 weeks), 149 (11.3%) were late preterm (34- 36 weeks), 201 (15.2%) were near term (37 and 38 weeks) and 300 (22.7%) were full term (39 weeks or greater).

Among the infant deaths where gestational age was known, 820 (62.1%) were premature, or less than 37 weeks gestation) (Table 8). This compares to 9.1 percent premature among all live births in the same time period (2008-2012).

During 2008-2012, 18,438 resident births were premature, 131,924 were full term, 52,954 were near term, and gestation was unknown for 258. The infant mortality rate for infants born premature was 44.5 deaths per 1,000 live births. This rate was 19.6 times higher than the IMR for full term infants, 2.3 deaths per 1,000 live births. Of the 18,438 premature births, 3,09 infants were very premature (<32 weeks gestation). The IMR for very premature infants was 196.7 deaths per 1,000 live births, over 86 times higher (86.5) than the full term IMR.

Analysis of gestational age by the mother's population group shows that among the Black non-Hispanic population, 71.9 percent of infants that died were premature; among the White non-Hispanic population, 59.4 percent were premature; and among the Hispanic population, 67.8 percent were premature (Table D).

Table D. Gestational Age by Population Group of Mother, Kansas, 2008-2012

Population Groups*	Gestational Age (weeks)							
	Very Premature	Moderately Premature	Late Pre-term	Premature	Percent Premature	Near Term	Full Term	ns†
White NH	334	41	91	466	59.4	128	191	10
Black NH	113	4	16	133	71.9	24	28	0
Native American NH	5	0	0	5	38.5	4	4	0
Asian NH	9	2	2	13	56.5	3	7	0
Multi Race NH	25	3	6	34	57.6	8	17	0
Other NH	4	0	0	4	40.0	1	5	0
Hispanic (any race)	115	12	33	160	67.8	31	45	2
ns†	3	1	1	5	50.0	2	3	0
TOTAL	608	63	149	820	62.1	201	300	12

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

† ns = Not stated..

Cause of Death

The leading cause of death among the 1,333 infants in the 2008-2012 linked file was congenital anomalies (320 deaths, 24.0%). This was followed by prematurity or low birthweight (244 deaths, 18.3%), SUID (233 deaths, 17.5%), and maternal factors (150 deaths, 11.3%) (Table 8).

Even when the primary cause of death (linked birth/death file) was not classified as prematurity or low birthweight, prematurity may have been an important factor in an infant's death. Among infants with the primary cause of death classified as congenital anomalies, half (50.6%) were born prematurely – mainly late preterm. Among deaths where the cause was classified as maternal factors, 94 percent (94.0%) were born prematurely – mostly very premature (Table 8). Maternal factors include complications such as premature rupture of the membrane, placental separation, chorioamnionitis, and incompetent cervix.

Among infants where the underlying or primary cause of death was classified as SUID, 83.7 percent were at least 37 weeks gestation (Table 8).

Prenatal Care

The month prenatal care began was known for 1,233 of the linked infant deaths. Sixty-nine percent (69.3) of mothers started prenatal care in the first trimester. This compared to 75.7 percent for all live births in the same time period as the infant deaths (2008-2012).

Plurality

Birth plurality (the total number of births resulting from a single pregnancy) was known for all of the 1,333 linked deaths. Eighty-six percent (86.1%) of the infants were singletons at birth (1,148), 12.2 percent (162) were part of twin deliveries, and 1.7 percent (23) were triplet or above deliveries. Fourteen percent (13.9) of linked deaths occurred among multiple births, compared to 3.2 percent of all births in the same time period (2008-2012).

Age Group

Age-group of the mother was known for 1,329 of the deaths. The highest percentage of deaths occurred to infants born to women aged 20-24 (32.9%), followed by women aged 25-29 (26.6%), women aged 30-34 (17.8%), and women aged 10-19 (12.3%).

Smoking

Smoking status was reported in 1,294 (97.0%) of the linked infant deaths. Mothers reported smoking at some time during pregnancy in 24.0 percent of the deaths compared with 14.9 percent of all live births (2008-2012).

Marital Status

Marital status at the time of pregnancy was known for 1,321 (99.1%) of the linked deaths (2008-2012). In fifty-two percent (51.5%), the mother was not married at the time of her pregnancy or delivery. This compared with 37.4 percent of live births where the mother reported she was not married (2008-2012).

Pay Source

Delivery payer was known for 1,278 of linked infant deaths (2008-2012). Medicaid was the payer for the highest percent of births where the infant died (41.5%), followed by private insurance (37.9%), and self-pay (9.9%). Comparing percentages between live births and infants that died shows a lower percentage of infant deaths among deliveries where private insurance was the payer and a higher percentage where Medicaid and self-pay were the payers.

Mother's Education

Education level among mothers 25 years of age and older was known for 715 linked deaths. The highest percent (22.4%) of mothers had a high school diploma or GED followed by Bachelor's degree (20.6%), some college, no degree (20.4%), 9-12 grade, no diploma (11.6%), Master's degree (8.1%), 8th grade or less (5.2%) and doctorate (1.7%)

Adequacy of Prenatal Care Utilization (APNCU) Index

The APNCU index was known for 1,119 linked deaths. Among the linked deaths, 50.5% had adequate-plus prenatal care, 24.1% had adequate, 4.4% had intermediate and 21.0% had inadequate prenatal care.

National Statistics

Nationally, final birth and death data (2010) allow calculation of the infant mortality rate for the United States 6.1 per 1,000 live births, which compares to 6.3 for Kansas residents for the same year [2,13]. The most recently published national report on linked infant death/birth statistics by race/ethnicity and state combines the years 2008-2010. The national infant mortality rate was 6.4 per 1,000 live births for this three-year time period; White non-Hispanic infant mortality was 5.3, Black non-Hispanic infant mortality was 12.2, and Hispanic infant mortality was 5.4 [3].

Using the same methodology for both national and state infant mortality statistics (2008-2010), Kansas ranked

- 29th out of 51 (6.9 per 1,000 live births) for all races/ethnicities,
- 42nd out of 51 (6.3 per 1,000 live births) for the White non-Hispanic population,
- 33rd out of 39 (6.5 per 1,000 live births) for the Hispanic population, and
- 26th out of 43 (13.1 per 1,000 live births) for the Black non-Hispanic population [3].

Discussion

Kansas Statistics

In a little over a century, the Kansas IMR has decreased dramatically (91.4%), from 73.5 deaths per 1,000 live births in 1912 (2,795 infant deaths) to 6.3 in 2012 (254 infant deaths). In the last twenty years, the overall decreasing trend in IMR was also statistically significant even with the fluctuations in this time period.

The IMR in Kansas in 2012 (6.3 per 1,000 live births) was slightly higher than the historic low of 6.2 in 2011, and both were higher than the Healthy People 2020 (HP2020) objective of 6.0 deaths per 1,000 live births. Data analysis by population groups showed the White non-Hispanic population (5.0) met the HP2020 target, but the Hispanic (8.6) and Black non-Hispanic (14.2) population groups did not [4].

Overall, in Kansas in 2008-2012, 24.1 percent of infant deaths were attributed to congenital anomalies, 18.2 percent were attributed to prematurity or low birth weight, and 17.5 percent were attributed to SIDS/sleep-related causes. Black non-Hispanics were at an increased risk of infant death from prematurity. White non-Hispanic and Hispanic infants were at an increased risk of death due to congenital anomalies.

In Kansas, in 2008-2012, most infant deaths occurred soon after birth. Almost two-thirds (64.5% or 869 deaths) happened in the neonatal time period (less than 28 days of age), and 52.7 percent, or 710 deaths, occurred in the first week.

Risk Factors

Analysis of the linked file shows that low birthweight and 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 44.5 per 1,000 live births for infants born prematurely, 20 times that for infants born at term. Similarly, the infant mortality rate for very premature infants (196.7 per 1,000) was 86 times higher than the rate for infants born at term.

Additional risk factors for infant deaths (linked file) included no prenatal care (7.1% of linked deaths), multiple births (13.9%), mothers who smoked during pregnancy (19.4%), and out-of-wedlock births (51.5%). Analysis of mother's age showed the highest percent of infant deaths among mothers age 20-24 (32.9%), but the highest rate per 1,000 live births was among 10-19 year old adolescents (8.4 per 1,000).

National Statistics

Comparison of infant mortality statistics for Kansas, other states, and national statistics 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 2012, but the most recent available final national data for deaths is for 2010 [2, 13]. Final death data for 2010 indicate a national infant mortality rate of 6.1 per 1,000 live births, compared to 6.3 for Kansas residents in 2012. The difference between these two rates is not statistically significant.

The most recently published national infant mortality report compared the U.S. and states for 2008-2010 infant deaths. Nationally, the infant mortality rate was 6.4 per 1,000 live births for this time period; White non-Hispanic infant mortality was 5.3; Black non-Hispanic infant mortality was 12.2, and Hispanic infant mortality was 5.4 [3,12].

Rate Comparison

Using the same methodology (linked data) for both the national and state statistics (2008-2010), Kansas infant mortality rates were higher than the United States for Kansas residents overall (6.9 per 1,000 live births or 7.8% higher than the U.S. rates), for the White non-Hispanic population (6.3 or 18.9% higher), for the Black non-Hispanic population (13.1 or 7.4% higher), and for the Hispanic population (6.5 or 20.4% higher) [3].

Conclusion

Analysis of infant mortality by combining years shows a more stable estimate of factors associated with infant mortality in Kansas. A statistically significant decreasing trend in infant mortality rates shows that Kansas has made progress in addressing this important public health concern.

Analysis of the 2008-2012 linked file indicated prematurity remained a primary risk factor for infant deaths. Studies indicate that many of the factors associated with preterm birth occur together [11,14]. Further study to understand the association between the causes of premature birth, mother's population group, mother's age and mother's lack of prenatal care and infant death is warranted.

Limitations

This report's findings are subject to several limitations.

Unreported Kansas resident infant deaths that occurred in other states may result in a lower infant mortality rate. The infant death file is considered 99.99 percent complete.

Unlinked death and birth records may reduce validity of some statistics. For 2008-2012 99 percent of all infant deaths were linked to a birth record.

Missing or illogical information on birth and death certificates may reduce validity of statistics. Records with missing data are excluded from the denominator when calculating rates and percents.

Physician variability in listing causes of death may impact infant death statistics. The NCHS coding system limits bias in cause of death coding. BEPHI maintains quality improvement activities to address missing or illogical cause of death information

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 [15]. Additionally, since KSA 65-2401 [16] defines stillbirth by weight of the fetus (>350 grams), vital records data does not represent the full picture of all fetal deaths.

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

Rates from the early 1900s may be under-reported due to incomplete reporting.

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Table 1
 Births, Stillbirths, and Infant Deaths by Period of Death
 Kansas, 1993-2012

Year	Total * Deliveries	Live Births	Stillbirth	Hebdomadal † Deaths	Perinatal ‡ Deaths	Neonatal§ Deaths	Postneonatal Deaths ¶	Infant Deaths #
1993	37,505	37,283	222	171	393	201	124	325
1994	37,500	37,269	231	140	371	177	108	285
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	367	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

* 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, 1993-2012

Year	Stillbirth*	Hebdomadal Deathst†	Perinatal Deaths*	Neonatal Deathst†		Postneonatal Deathst†		Infant Deathst	
				KS	US	KS	US	KS	US
1993	5.9	4.6	10.5	5.4	5.3	3.3		8.7	8.4
1994	6.2	3.8	9.9	4.7	5.1	2.9		7.6	8.0
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	4.0	2.1		6.3	6.1
2011	4.7	3.1	7.8	4.0	4.0†	2.3		6.2	6.0†
2012	4.8	3.5	8.3	4.3		2.0		6.3	

*Per 1,000 (live births + stillbirths)

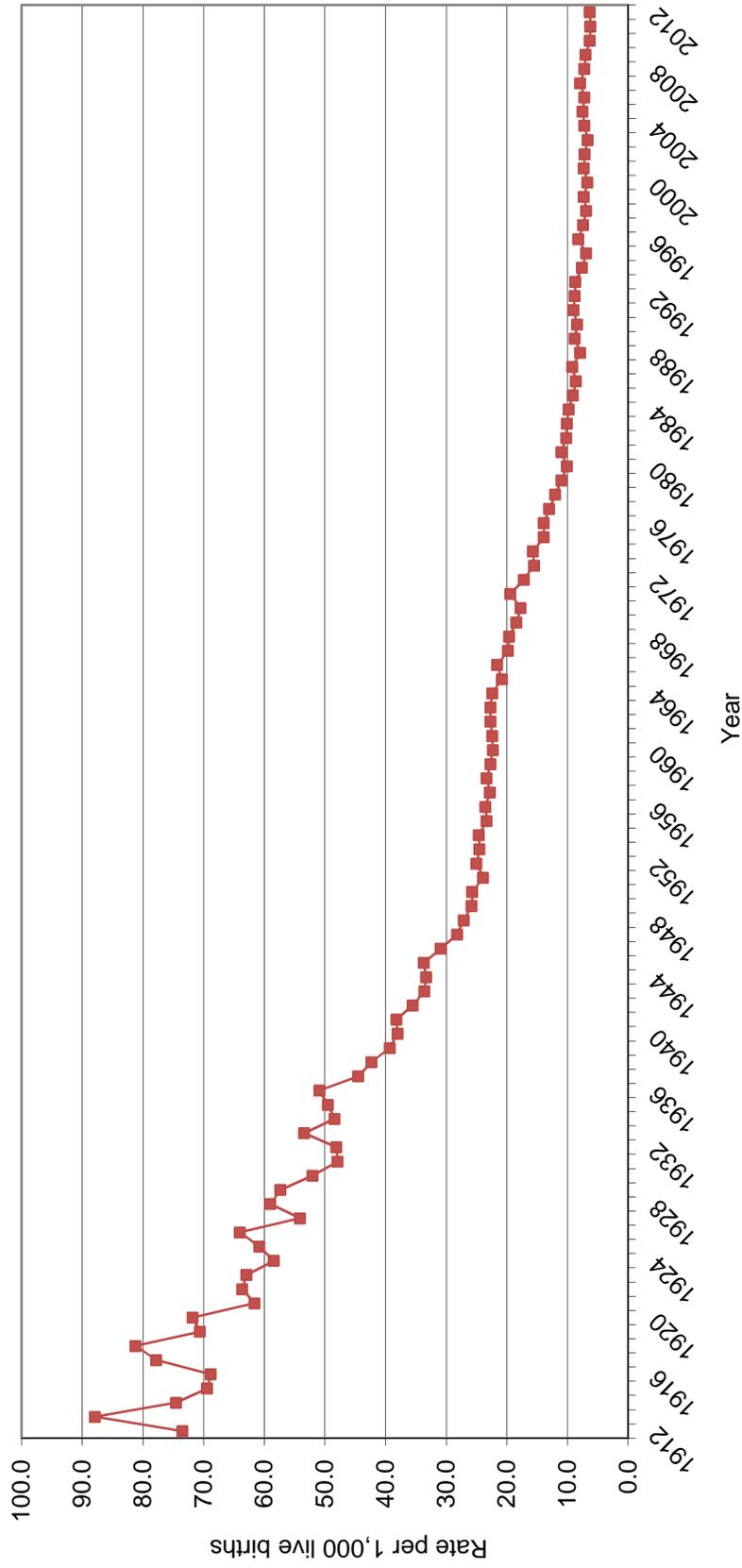
†Per 1,000 live births

‡Provisional data

Residence data

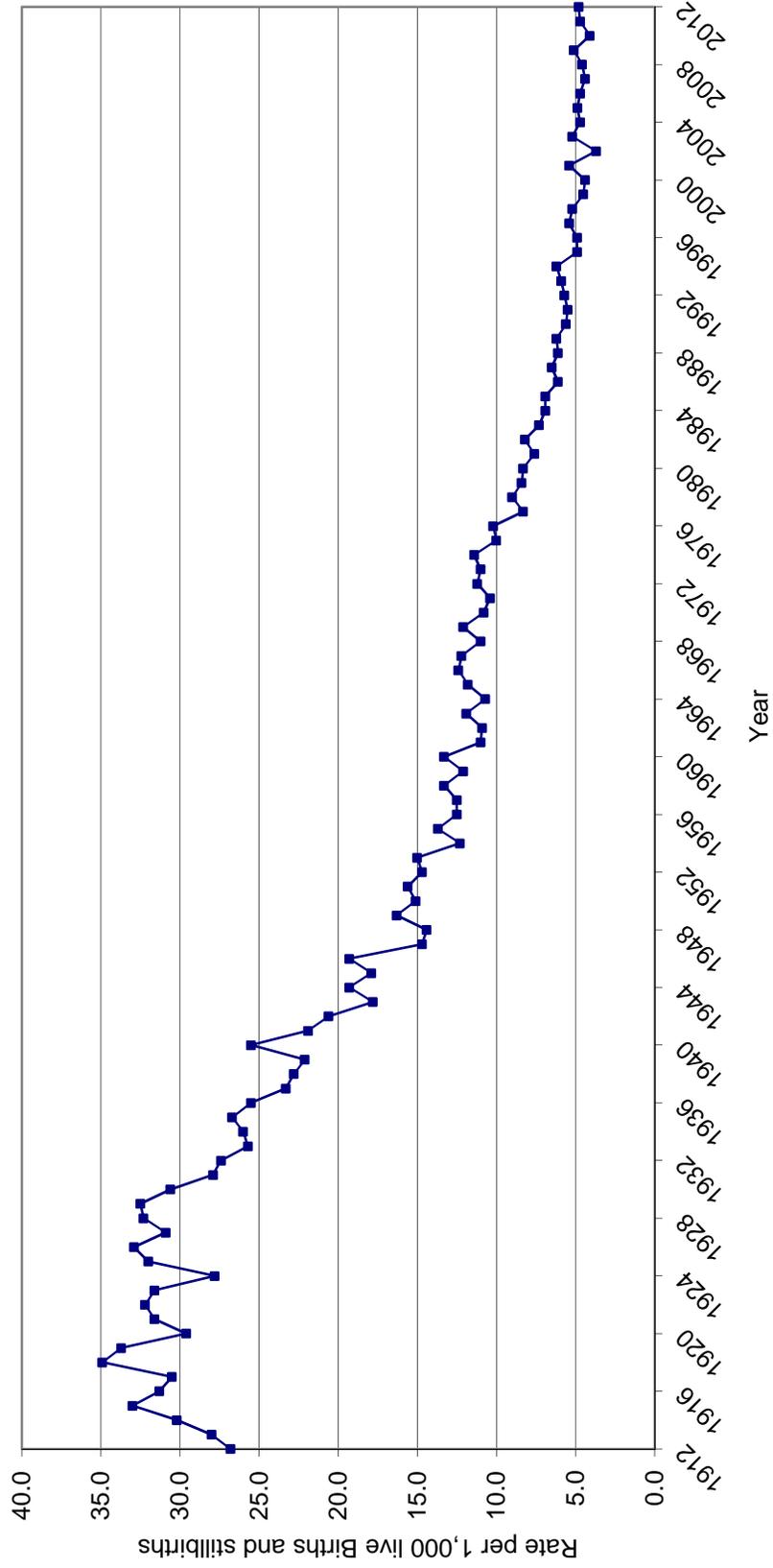
Source: Bureau of Epidemiology and Public Health Informatics
Kansas Department of Health and Environment

Figure 1
 Infant Mortality Rates
 Kansas, 1912-2012



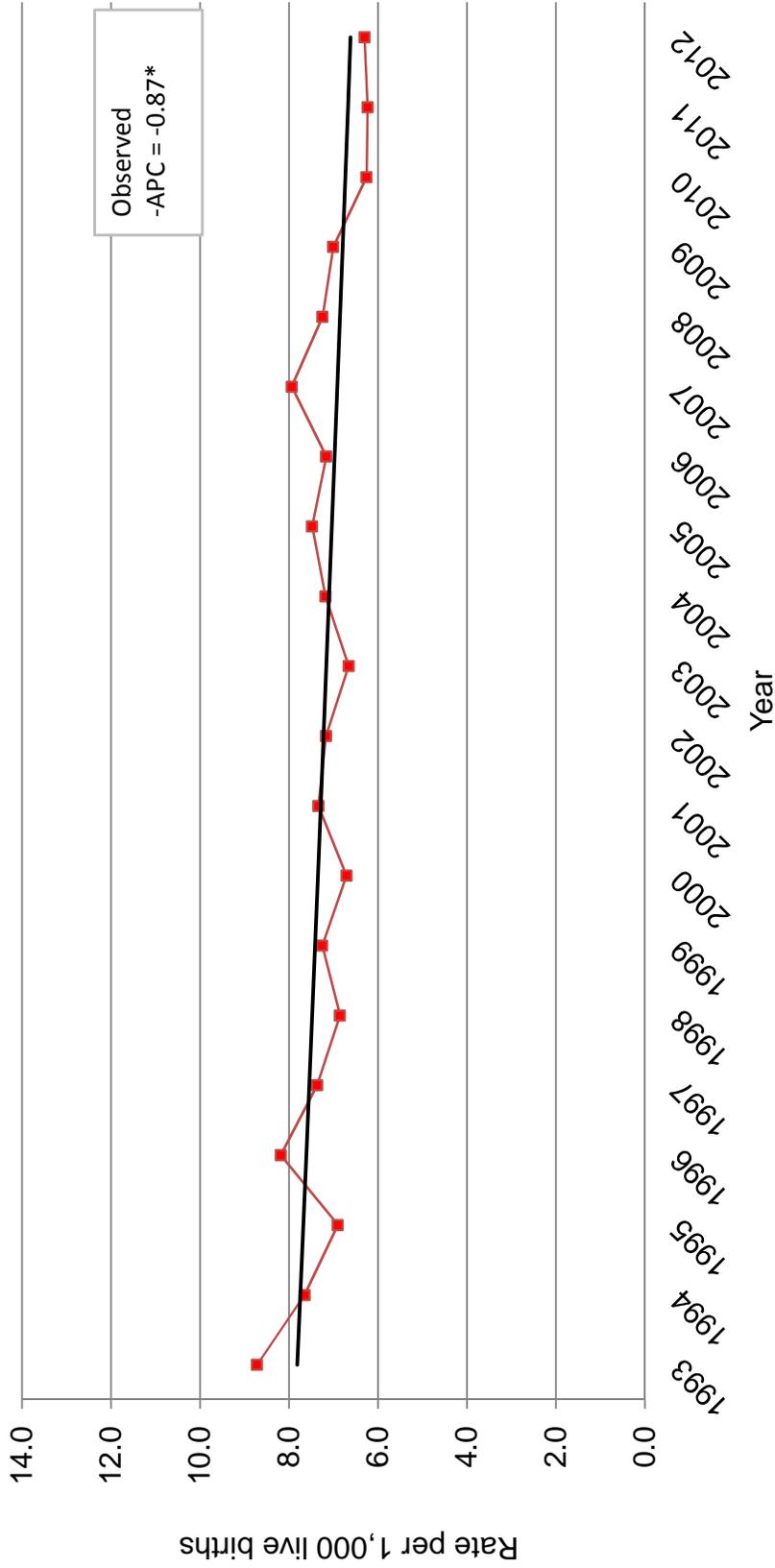
Residence data
 Source: Bureau of Epidemiology and Public Health Informatics
 Kansas Department of Health and Environment

Figure 2
 Stillbirth Mortality Rates
 Kansas, 1912-2012



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

Figure 3
Trend in Infant Mortality Rates
Kansas, 1993-2012



*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

Table 3
 Infant Deaths and Mortality Rates* by Year
 By Selected Population Group of Mothers[‡]
 Kansas, 1993-2012

Year	White Non-Hispanic†			Black Non-Hispanic†			Black NH‡ to White NH‡ Ratio		Hispanic Any Race			Total Infant Mortality Rate	
	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths		Rate
1993	30,650	224	7.3	3,206	76	23.7	3.2	18	7.8	2,305	18	7.8	8.7
1994	30,453	215	7.1	3,101	49	15.8	2.2	15	5.6	2,656	15	5.6	7.6
1995	30,221	184	6.1	2,850	51	17.9	2.9	17	6.0	2,812	17	6.0	6.9
1996	29,473	212	7.2	2,738	63	23.0	3.2	18	5.6	3,198	18	5.6	8.2
1997	29,659	189	6.4	2,766	46	16.6	2.6	29	8.2	3,525	29	8.2	7.4
1998	30,389	209	6.9	2,746	27	9.8	1.4	25	6.5	3,873	25	6.5	6.9
1999	30,362	215	7.1	2,815	42	14.9	2.1	15	3.6	4,204	15	3.6	7.3
2000	30,538	192	6.3	2,822	33	11.7	1.9	32	6.7	4,742	32	6.7	6.7
2001	29,703	190	6.4	2,745	54	19.7	3.1	36	7.4	4,875	36	7.4	7.3
2002	29,811	187	6.3	2,845	44	15.5	2.5	40	8.0	5,006	40	8.0	7.2
2003	29,482	172	5.8	2,730	40	14.7	2.5	45	8.3	5,417	45	8.3	6.7
2004	29,624	200	6.8	2,782	46	16.5	2.4	28	5.1	5,458	28	5.1	7.2
2005	28,903	181	6.3	2,670	45	16.9	2.7	52	8.6	6,073	52	8.6	7.5
2006	29,392	181	6.2	2,801	49	17.5	2.8	41	6.2	6,568	41	6.2	7.2
2007	30,170	205	6.8	2,856	56	19.6	2.9	56	8.4	6,676	56	8.4	7.9
2008	29,863	184	6.2	2,936	39	13.3	2.2	57	8.4	6,781	57	8.4	7.2
2009	29,471	178	6.0	2,830	44	15.5	2.6	40	5.9	6,790	40	5.9	7.0
2010	29,000	142	4.9	2,780	33	11.9	2.4	50	7.8	6,407	50	7.8	6.3
2011	28,382	150	5.3	2,708	35	12.9	2.4	42	6.7	6,293	42	6.7	6.2
2012	28,995	145	5.0	2,682	38	14.2	2.8	54	8.6	6,286	54	8.6	6.3

*Rate per 1,000 live births

†Due to changes in the collection of the race item on certificates, use caution when comparing 2005-2012 data to prior years. See Technical Notes.

‡NH = non-Hispanic

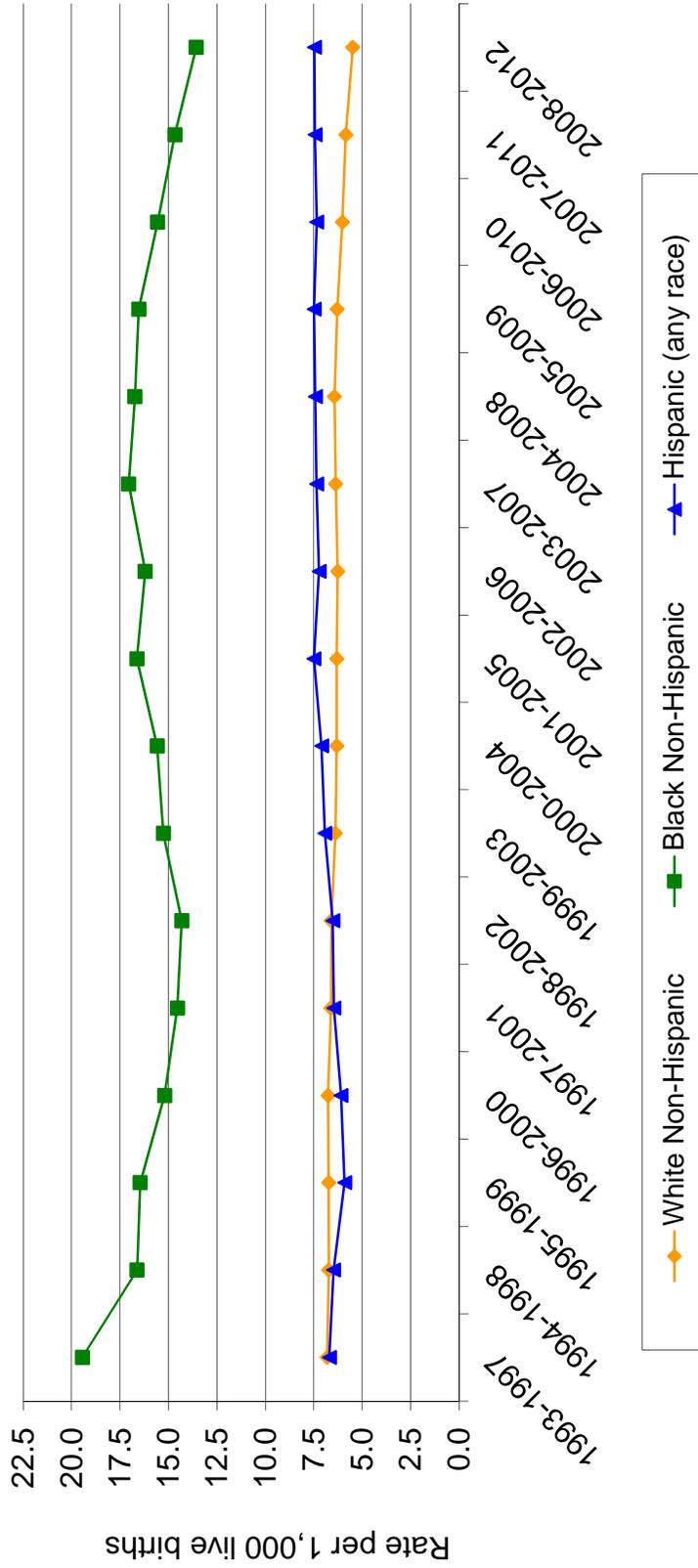
Non-Hispanic population group includes unknown Hispanic origin.

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

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, 1993-2012



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, 2008-2012

County of Residence	Year					Total Infant Deaths	Live Births	Infant Mortality Rate†	95% Confidence Intervals	
	2008	2009	2010	2011	2012	2008-2012	2008-2012	2008-2012	Lower	Upper
Kansas	303	290	253	247	254	1,347	203,574	6.6	6.3	7.0
Allen	1	1	0	2	1	5	793	6.3 ‡	2.0	14.7
Anderson	1	1	0	0	0	2	516	na	na	na
Atchison	1	2	1	3	2	9	1,069	8.4 ‡	3.8	16.0
Barber	0	0	0	0	0	0	336	0.0	0.0	0.0
Barton	2	1	3	6	2	14	1,884	7.4	4.1	12.5
Bourbon	3	1	2	1	2	9	1,083	8.3 ‡	3.8	15.8
Brown	3	0	0	3	1	7	724	9.7 ‡	3.9	19.9
Butler	6	3	8	3	3	23	3,970	5.8	3.7	8.7
Chase	0	0	0	0	0	0	125	0.0	0.0	0.0
Chautauqua	1	1	1	1	0	4	185	na	na	na
Cherokee	3	1	2	3	0	9	1,270	7.1 ‡	3.2	13.5
Cheyenne	0	1	0	0	1	2	142	na	na	na
Clark	0	0	0	1	0	1	128	na	na	na
Clay	1	3	1	1	1	7	523	13.4 ‡	5.4	27.6
Cloud	5	0	1	1	1	8	635	12.6 ‡	5.4	24.8
Coffey	1	0	1	2	0	4	438	9.1 ‡	2.5	23.4
Comanche	0	0	0	0	0	0	116	0.0	0.0	0.0
Cowley	3	4	5	4	1	17	2,404	7.1	4.1	11.3
Crawford	3	2	2	2	3	12	2,571	4.7	2.4	8.2
Decatur	1	0	0	0	1	2	136	na	na	na
Dickinson	1	1	1	2	4	9	1,190	7.6 ‡	3.5	14.4
Doniphan	0	0	0	0	0	0	423	0.0	0.0	0.0
Douglas	12	1	4	1	6	24	6,246	3.8	2.5	5.7
Edwards	0	0	0	1	2	3	182	na	na	na
Elk	0	1	0	0	0	1	144	na	na	na
Ellis	1	1	1	5	2	10	1,980	5.1 ‡	2.4	9.3
Ellsworth	0	0	0	0	1	1	317	na	na	na
Finney	5	6	2	2	7	22	3,756	5.9	3.7	8.9
Ford	9	5	7	5	7	33	3,472	9.5	6.5	13.3
Franklin	3	1	1	2	3	10	1,650	6.1 ‡	2.9	11.1
Geary	11	10	9	8	4	42	4,734	8.9	6.4	12.0
Gove	0	0	0	0	1	1	160	na	na	na
Graham	0	1	0	0	1	2	131	na	na	na
Grant	1	0	0	0	2	3	659	na	na	na
Gray	0	1	0	1	0	2	459	na	na	na
Greeley	0	0	0	0	0	0	87	0.0	0.0	0.0
Greenwood	1	0	0	0	1	2	334	na	na	na
Hamilton	0	0	0	0	0	0	240	0.0	0.0	0.0
Harper	1	1	1	0	0	3	364	na	na	na
Harvey	2	4	3	2	3	14	2,278	6.1	3.4	10.3
Haskell	1	1	2	1	1	6	331	18.1 ‡	6.7	39.5
Hodgeman	0	0	0	0	0	0	115	0.0	0.0	0.0
Jackson	1	1	1	1	2	6	841	7.1 ‡	2.6	15.5
Jefferson	0	1	4	2	2	9	967	9.3 ‡	4.3	17.7
Jewell	0	0	0	0	0	0	130	0.0	0.0	0.0
Johnson	56	41	31	36	31	195	37,590	5.2	4.5	5.9
Kearny	0	1	0	1	0	2	299	na	na	na
Kingman	0	0	0	2	0	2	417	na	na	na
Kiowa	0	2	1	0	0	3	150	na	na	na
Labette	2	3	4	3	2	14	1,408	9.9	5.4	16.7
Lane	0	0	0	0	0	0	101	0.0	0.0	0.0
Leavenworth	4	5	4	3	2	18	4,803	3.7	2.2	5.9
Lincoln	0	0	0	0	0	0	183	0.0	0.0	0.0
Linn	0	0	0	0	2	2	505	na	na	na
Logan	0	1	1	0	0	2	145	na	na	na

Table 4
 Infant Deaths and Mortality Rates by County of Residence
 And Peer Group*
 Kansas, 2008-2012

County of Residence	Year					Total Infant Deaths 2008-2012	Live Births 2008-2012	Infant Mortality Rate† 2008-2012	95% Confidence Intervals	
	2008	2009	2010	2011	2012				Lower	Upper
Lyon	3	5	4	4	5	21	2,235	9.4	5.8	14.4
McPherson	2	5	2	4	2	15	1,758	8.5	4.8	14.1
Marion	1	5	2	1	0	9	582	15.5 ‡	7.1	29.4
Marshall	1	1	1	4	0	7	590	11.9 ‡	4.8	24.4
Meade	0	0	0	1	0	1	290	na	na	na
Miami	1	2	4	1	2	10	1,931	5.2 ‡	2.5	9.5
Mitchell	2	1	1	0	0	4	378	10.6 ‡	2.9	27.1
Montgomery	1	2	0	3	4	10	2,374	4.2 ‡	2.0	7.7
Morris	0	0	0	1	0	1	307	na	na	na
Morton	0	0	0	0	0	0	219	0.0	0.0	0.0
Nemaha	1	1	0	1	3	6	642	9.3 ‡	3.4	20.3
Neosho	2	7	3	0	3	15	1,090	13.8	7.7	22.7
Ness	0	0	0	0	1	1	162	na	na	na
Norton	0	0	0	0	1	1	246	na	na	na
Osage	0	1	0	1	1	3	906	na	na	na
Osborne	0	0	0	1	1	2	199	na	na	na
Ottawa	0	0	1	0	0	1	313	na	na	na
Pawnee	0	1	0	0	2	3	373	na	na	na
Phillips	0	0	0	0	1	1	292	na	na	na
Pottawatomie	3	1	2	1	1	8	1,796	4.5 ‡	1.9	8.8
Pratt	1	1	1	1	0	4	690	5.8 ‡	1.6	14.8
Rawlins	1	0	1	1	0	3	120	na	na	na
Reno	6	7	7	7	3	30	3,961	7.6	5.1	10.8
Republic	0	0	0	0	0	0	238	0.0	0.0	0.0
Rice	0	0	1	1	0	2	599	na	na	na
Riley	5	12	4	2	9	32	5,539	5.8	4.0	8.2
Rooks	1	1	0	0	0	2	317	na	na	na
Rush	0	0	0	1	0	1	145	na	na	na
Russell	0	1	3	1	0	5	428	11.7 ‡	3.8	27.3
Saline	8	5	6	4	3	26	4,034	6.4	4.2	9.4
Scott	0	2	1	0	1	4	339	11.8 ‡	3.2	30.2
Sedgwick	55	69	60	52	61	297	40,320	7.4	6.5	8.2
Seward	6	0	2	0	4	12	2,513	4.8	2.5	8.3
Shawnee	22	25	16	17	10	90	12,417	7.2	5.8	8.9
Sheridan	0	0	0	0	1	1	138	na	na	na
Sherman	0	0	0	1	1	2	386	na	na	na
Smith	0	0	0	0	1	1	171	na	na	na
Stafford	0	0	0	0	0	0	224	0.0	0.0	0.0
Stanton	1	0	0	0	0	1	163	na	na	na
Stevens	1	0	0	0	1	2	427	na	na	na
Sumner	1	2	1	3	2	9	1,470	6.1 ‡	2.8	11.6
Thomas	5	3	0	0	0	8	548	14.6 ‡	6.3	28.8
Trego	0	0	0	0	0	0	139	0.0	0.0	0.0
Wabaunsee	0	0	0	1	0	1	439	na	na	na
Wallace	0	0	0	0	0	0	75	0.0	0.0	0.0
Washington	0	0	0	0	0	0	312	0.0	0.0	0.0
Wichita	1	0	0	0	1	2	144	na	na	na
Wilson	0	1	2	1	0	4	617	6.5 ‡	1.8	16.6
Woodson	1	0	1	0	0	2	173	na	na	na
Wyandotte	25	19	23	20	24	111	13,965	7.9	6.5	9.4
Peer Group										
Frontier	4	7	4	9	13	37	5,854	6.3	4.5	8.7
Rural	31	27	20	23	18	119	15,372	7.7	6.3	9.1
Densely -Settled										
Rural	45	43	47	52	52	239	32,996	7.2	6.3	8.2
Semi-Urban	53	58	44	34	37	226	35,934	6.3	5.5	7.1
Urban	170	155	138	129	134	726	113,417	6.4	5.9	6.9

* See Technical Notes for peer group definition

† Rate per 1,000 live births

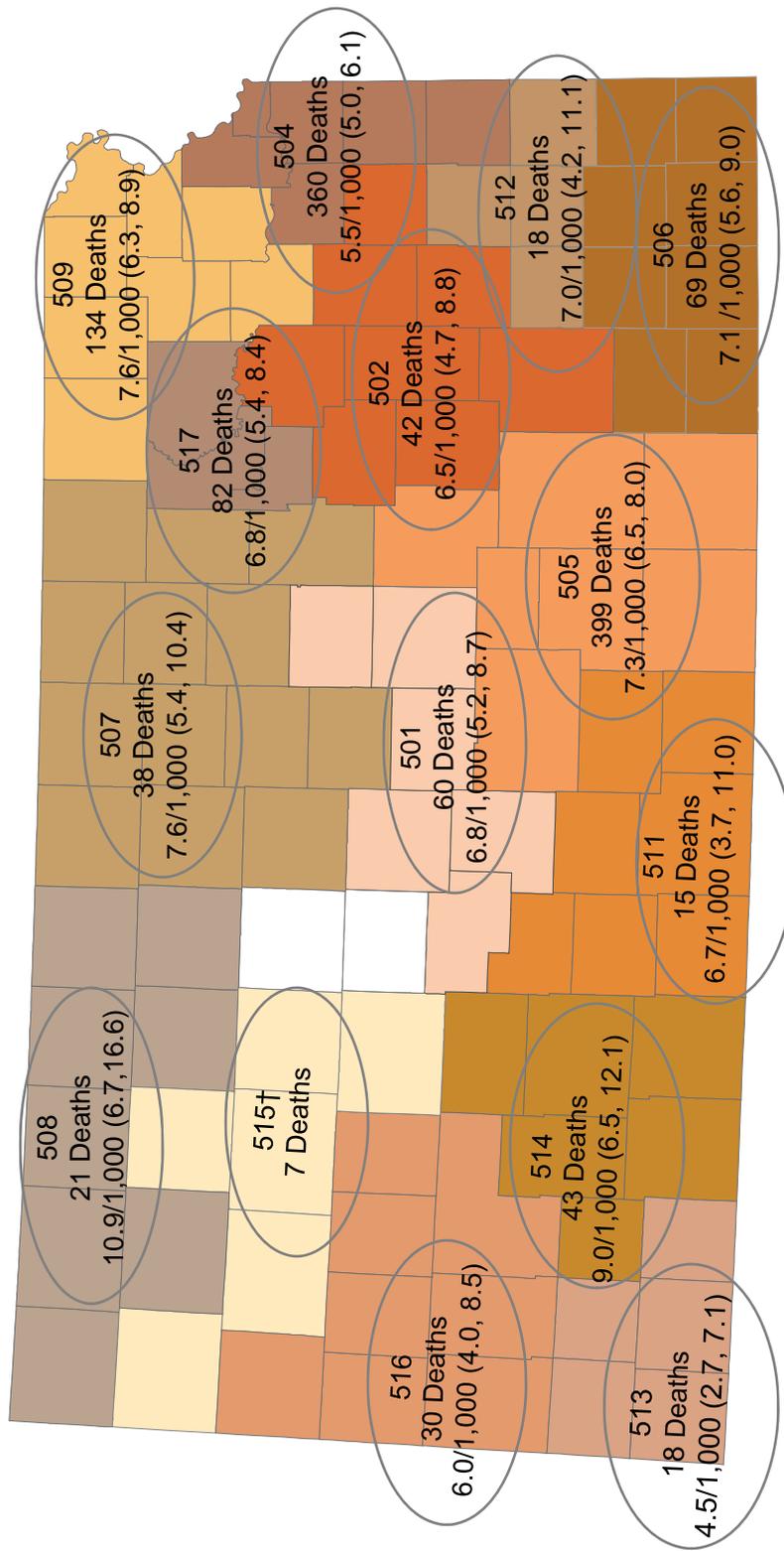
‡ Rate has a relative standard error greater than 30, should be used with caution since it doesn't meet the standard of reliability

na = Rates with an 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, 2008-2012



Kansas 5 Yr. IM Rate, 6.6/1,000 (6.3, 7.0)

Kansas Public Health Regions

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

*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
Number of Infant Deaths by Cause of Death and Period of Death
Kansas, 2008-2012

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	577	133	710	159	869	478	1347
Infectious and Parasitic Diseases (A00-B99)	0	0	0	3	3	18	21
Other Diseases and Disorders (C00-O99)	7	10	17	13	30	93	123
Certain Conditions Originating in the Perinatal Period (P00-P96)	430	69	499	68	567	13	580
-Maternal Factors and Complications of Pregnancy, Labor and Delivery (P00-P04)	129	16	145	5	150	1	151
-Disorders Relating to Short Gestation and Low Birthweight (P07)	234	6	240	2	242	3	245
-Birth Trauma (P10-P15)	0	0	0	0	0	0	0
-Hypoxia and Birth Asphyxia (P20-P21)	6	5	11	1	12	0	12
-Respiratory Distress of Newborn (P22)	4	3	7	2	9	1	10
-Congenital Pneumonia (P23)	0	0	0	3	3	0	3
-Other Respiratory Conditions of Newborn (P24-P28)	15	6	21	5	26	2	28
-Bacterial Sepsis of Newborn (P36)	4	7	11	4	15	0	15
-Omphalitis of Newborn w/wo Mild Hemorrhage (P38) (P50-P61)	0	0	0	0	0	0	0
-Fetal and Neonatal Hemorrhage (P50-P61)	1	8	9	12	21	0	21
-Other Perinatal Conditions (P05, P08, P29, P35, P37, P39, P70-P96)	37	18	55	34	89	6	95
Congenital Anomalies (Q00-Q99)	133	45	178	54	232	93	325
Symptoms and Abnormal Findings (R00-R99)	5	6	11	14	25	181	206
-Sudden Infant Death Syndrome (R95)	1	3	4	8	12	144	156
-Other (R00-R94, R96-R98)	1	1	2	0	2	1	3
- Ill-defined and unspecified causes (R99)	3	2	5	6	11	36	47
Suffocation in Bed (W75)	0	1	1	5	6	27	33
External Causes of Mortality (V01-Y89) excluding Suffocation in Bed SUID (Sudden Unexpected Infant Deaths)	2	2	4	2	6	53	59
	4	6	10	19	29	207	236

Residence data

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

Table 6
 Infant Deaths by Period of Death and
 County of Residence, Kansas, 2008 - 2012

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	710	869	478	1,347
Allen	3	3	2	5
Anderson	2	2	0	2
Atchison	6	6	3	9
Barber	0	0	0	0
Barton	8	9	5	14
Bourbon	3	7	2	9
Brown	3	4	3	7
Butler	10	11	12	23
Chase	0	0	0	0
Chautauqua	0	3	1	4
Cherokee	4	6	3	9
Cheyenne	2	2	0	2
Clark	1	1	0	1
Clay	4	4	3	7
Cloud	6	7	1	8
Coffey	4	4	0	4
Comanche	0	0	0	0
Cowley	6	7	10	17
Crawford	3	4	8	12
Decatur	0	1	1	2
Dickinson	4	4	5	9
Doniphan	0	0	0	0
Douglas	20	22	2	24
Edwards	3	3	0	3
Elk	0	0	1	1
Ellis	5	6	4	10
Ellsworth	1	1	0	1
Finney	9	11	11	22
Ford	15	18	15	33
Franklin	3	6	4	10
Geary	15	22	20	42
Gove	0	0	1	1
Graham	0	1	1	2
Grant	3	3	0	3
Gray	0	1	1	2
Greeley	0	0	0	0
Greenwood	1	2	0	2
Hamilton	0	0	0	0
Harper	1	1	2	3
Harvey	7	10	4	14
Haskell	3	4	2	6
Hodgeman	0	0	0	0
Jackson	2	2	4	6
Jefferson	6	6	3	9
Jewell	0	0	0	0
Johnson	118	135	60	195
Kearny	1	1	1	2
Kingman	1	1	1	2
Kiowa	0	0	3	3
Labette	10	10	4	14
Lane	0	0	0	0
Leavenworth	13	13	5	18
Lincoln	0	0	0	0
Linn	1	1	1	2
Logan	2	2	0	2

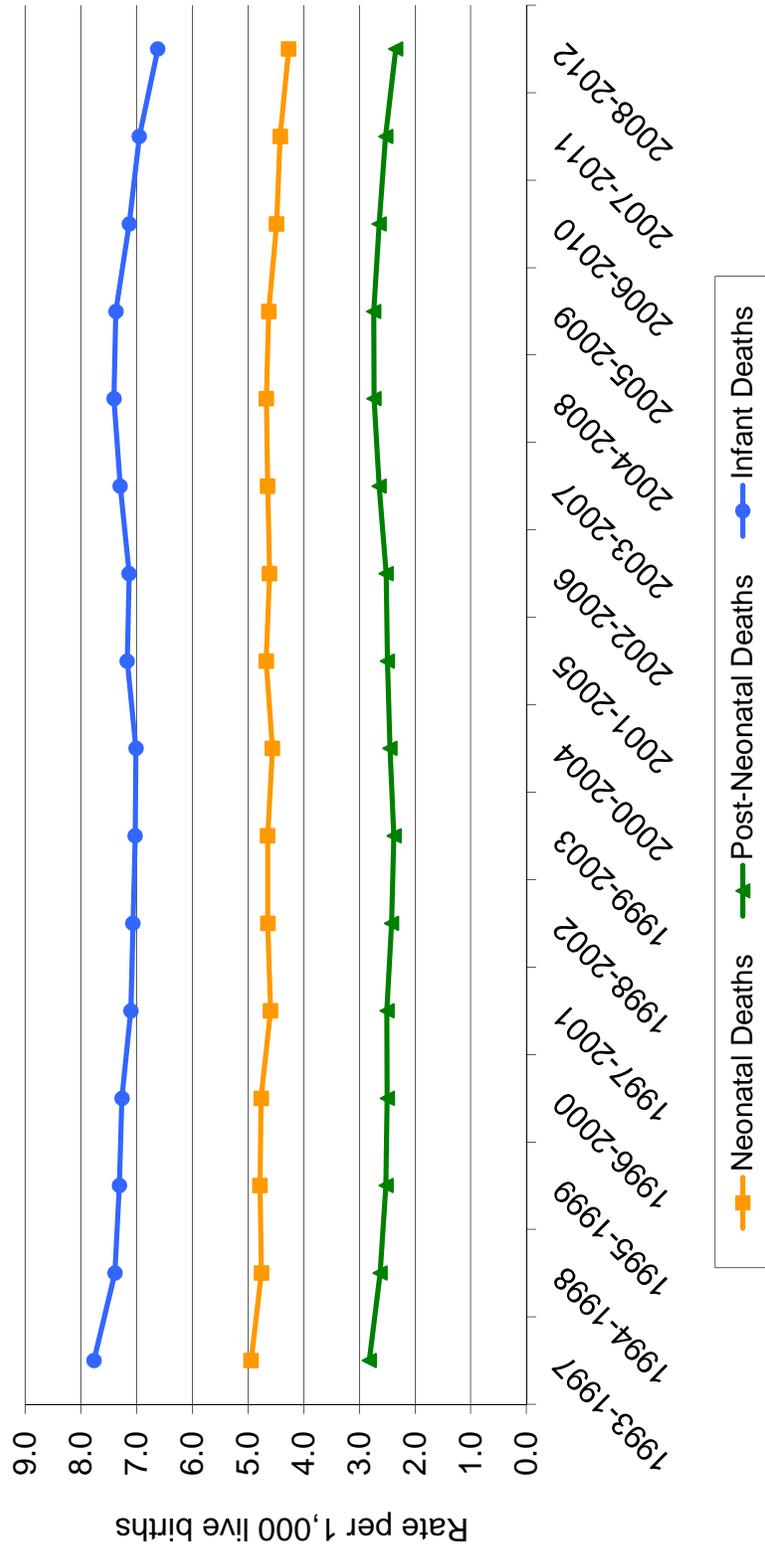
Table 6
 Infant Deaths by Period of Death and
 County of Residence, Kansas, 2008 - 2012

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	14	7	21
McPherson	7	13	2	15
Marion	7	8	1	9
Marshall	5	5	2	7
Meade	0	1	0	1
Miami	3	4	6	10
Mitchell	3	3	1	4
Montgomery	3	3	7	10
Morris	1	1	0	1
Morton	0	0	0	0
Nemaha	5	5	1	6
Neosho	5	7	8	15
Ness	1	1	0	1
Norton	0	0	1	1
Osage	1	1	2	3
Osborne	1	1	1	2
Ottawa	1	1	0	1
Pawnee	1	2	1	3
Phillips	1	1	0	1
Pottawatomie	3	6	2	8
Pratt	3	3	1	4
Rawlins	1	1	2	3
Reno	13	15	15	30
Republic	0	0	0	0
Rice	0	0	2	2
Riley	18	22	10	32
Rooks	1	1	1	2
Rush	0	1	0	1
Russell	2	5	0	5
Saline	11	13	13	26
Scott	2	2	2	4
Sedgwick	149	191	106	297
Seward	8	9	3	12
Shawnee	53	61	29	90
Sheridan	1	1	0	1
Sherman	2	2	0	2
Smith	1	1	0	1
Stafford	0	0	0	0
Stanton..	1	1	0	1
Stevens	1	1	1	2
Sumner	2	3	6	9
Thomas	5	6	2	8
Trego	0	0	0	0
Wabaunsee	1	1	0	1
Wallace	0	0	0	0
Washington	0	0	0	0
Wichita	1	1	1	2
Wilson	2	2	2	4
Woodson.	1	1	1	2
Wyandotte	65	81	30	111

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, 1993-2012



Residence data

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

Table 7
Stillbirths by Cause of Death and Weeks Gestation
Kansas, 2008-2012

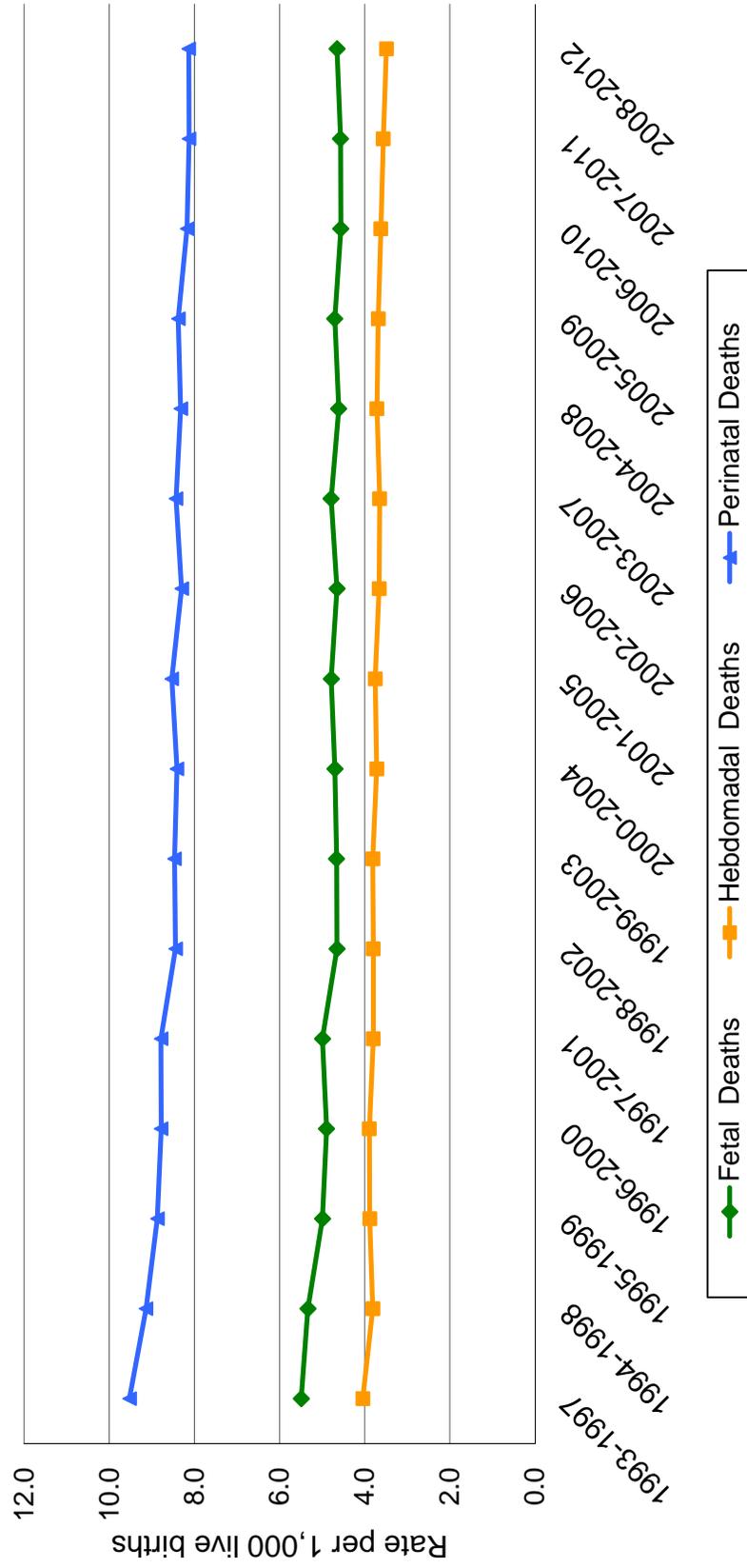
Cause of Death (ICD-10 Code)	Total Stillbirths	Weeks Gestation				
		Under 20	20-31	32-41	42 & Over	ns *
All Causes	946	11	465	461	1	8
Certain Conditions Originating in the Perinatal Period (P00-P96)	827	10	409	400	1	7
-Fetus Affected by Maternal Conditions (P00)	87	1	47	39	0	0
-Fetus Affected by Maternal Complications of Pregnancy (P01)	84	1	65	17	0	1
-Fetus Affected by Complications of Placenta, Cord & Membrane (P02)	296	4	128	161	0	3
-Fetus Affected by Complications of Labor & Delivery (P03)	6	0	4	1	1	0
-Fetus Affected by Maternal Use of Tobacco, Alcohol, and Drugs of Abuse (P04)	9	0	6	3	0	0
-Disorders Related to Short Gestation & Low Birth Weight (P07)	28	1	24	3	0	0
-Hypoxia and Birth Asphyxia (P20-P21)	1	0	0	1	0	0
-Cardiovascular Disorders (P29)	0	0	0	0	0	0
-Hemorrhagic & Hematologic Disorders of Fetus (P50-P54, P56)	0	0	0	0	0	0
-Unspecified Cause (P95)	255	1	111	140	0	3
-Other Perinatal Conditions (P05, P08-P15, P22-P28, P35-P39, P55, P57-P94, P96)	61	2	24	35	0	0
Congenital Anomalies (Q00-Q99)	108	1	47	59	0	1
All other Causes (A00-N00, R00-R99, V06-Y36)	11	0	9	2	0	0

Residence data

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

* ns = Not stated

Figure 7
 Five Year Average Perinatal Period III Mortality Rates
 By Period of Death
 Kansas, 1993-2012



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

Table 8
 Linked Infant Deaths (Death Cohort)
 By Cause of Death by Gestational Age
 Kansas, 2008-2012

Cause of Death	Total Deaths	Very Premature <32 weeks		Moderate Prematurity 32-33 weeks		Late Preterm 34-36 weeks		Total Preterm <37 weeks		Near Term 37-38 weeks		Term >=39 weeks	
		N	%	N	%	N	%	N	%	N	%	N	%
Kansas Infectious and Parasitic Diseases (A00-B99)	1,333	608	46.0	63	4.8	149	11.3	820	62.1	201	15.2	300	22.7
Other Diseases and Disorders (C00-O99)	21	7	33.3	0	0.0	2	9.5	9	42.9	4	19.0	8	38.1
Maternal Factors & Compl of Pregnancy, Labor and Delivery (P00-P04)	121	44	36.4	7	5.8	12	9.9	63	52.1	15	12.4	43	35.5
Disorders rel. to Short Gestation & Low Birth Weight (P07)	150	130	87.2	4	2.7	6	4.0	140	94.0	4	2.7	5	3.4
Hypoxia and Birth Asphyxia (P20-P21)	244	239	98.8	1	0.4	1	0.4	241	99.6	1	0.4	0	0.0
Respiratory Distress of Newborn (P22)	12	2	16.7	1	8.3	3	25.0	6	50.0	4	33.3	2	16.7
Congenital Pneumonia (P23)	10	10	100.0	0	0.0	0	0.0	10	100.0	0	0.0	0	0.0
Other Respiratory Conditions of Newborn (P24-P28)	3	3	100.0	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0
Bacterial Sepsis of Newborn (P36)	28	23	82.1	2	7.1	0	0.0	25	89.3	3	10.7	0	0.0
Hemorrhagic and Hematolog Disorders of Fetus and Newborn (P50-P61)	15	9	60.0	0	0.0	3	20.0	12	80.0	2	13.3	1	6.7
Other Perinatal Conditions (P05, P08, P29, P35, P37, P39, P70-P96)	21	17	85.0	1	5.0	0	0.0	18	90.0	2	10.0	0	0.0
Congenital Anomalies (Q00-Q99)	94	67	71.3	8	8.5	7	7.4	82	87.2	4	4.3	8	8.5
Other Symptoms and Abnormal Findings (R00-R94, R96-R98)	320	46	14.5	34	10.7	81	25.5	161	50.6	77	24.2	80	25.2
Sudden Infant Death Syndrome (R95)	3	1	33.3	0	0.0	1	33.3	2	66.7	0	0.0	1	33.3
Other Ill-Defined and Unspecified Causes of Mortality (R99)	153	5	3.3	3	2.0	19	12.5	27	17.8	42	27.6	83	54.6
Accidental Suffocation in Bed (W75)	47	2	4.4	0	0.0	4	8.9	6	13.3	11	24.4	28	62.2
External Causes of Mortality (V01-Y89), excluding sleep related deaths	33	0	0.0	0	0.0	2	6.1	2	6.1	13	39.4	18	54.5
	58	3	5.5	2	3.6	8	14.5	13	23.6	19	34.5	23	41.8

* ns = Not stated

Unknowns are excluded in calculating percents

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 chose 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.

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 160 of the *2011 Annual Summary of Vital Statistics*. 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.

Population densities are calculated using land area, not total area. Confusion over this definition led to the misclassification of Doniphan County in the 2010 Annual Summary. An errata was issued correcting the tables originally released using incorrect peer groups.

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.

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

APPENDIX 2
Population Density County Peer Groups

Frontier					
Barber	Chase	<i>Chautauqua</i>	Cheyenne	Clark	Comanche
Decatur	Edwards	Elk	Gove	Graham	Greeley
<i>Greenwood</i>	Hamilton	Hodgeman	Jewell	Kearny	Kiowa
Lane	Lincoln	Logan	Meade	Morton	Ness
Osborne	Rawlins	<i>Rooks</i>	Rush	Sheridan	<i>Sherman</i>
Smith	<i>Stafford</i>	Stanton	Trego	Wallace	Wichita
Rural					
Anderson	Brown	Clay	Cloud	Coffey	Ellsworth
Grant	Gray	Harper	Haskell	Kingman	Linn
Marion	Marshall	Mitchell	Morris	Nemaha	Norton
Ottawa	Pawnee	Phillips	Pratt	Republic	Rice
Russell	Scott	Stevens	Thomas	Wabaunsee	Washington
Wilson	Woodson				
Densely-Settled Rural					
Allen	Atchison	Barton	Bourbon	Cherokee	Cowley
Dickinson	Doniphan	Ellis	Finney	Ford	<i>Jackson</i>
Jefferson	Labette	<i>Lyon</i>	McPherson	Neosho	Osage
Pottawatomie	Seward	Sumner			
Semi-Urban					
Butler	Crawford	Franklin	Geary	Harvey	Miami
Montgomery	Reno	Riley	Saline		
Urban					
Douglas	Johnson	<i>Leavenworth</i>	Sedgwick	Shawnee	Wyandotte

Italicized counties changed peer group after the 2010 Census.

APPENDIX 3
Metric to English Conversions for Birth Weight Categories

Metric (grams)	English (pounds)	English (ounces)
500	1	2
1000	2	3
1500	3	5
2000	4	7
2500	5	8
3000	6	10
3500	7	11
4000	8	13
4500	9	15
5000	11	3

1 ounce = 28.349 grams.
English equivalents are rounded to the nearest ounce.

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		40b. FATHER	
<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	<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) _____
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 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Unknown <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)		<input type="checkbox"/> 8 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Unknown <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)		<input type="checkbox"/> 9 th - 12 th grade, no diploma <input type="checkbox"/> Associate degree (e.g., AA,AS) <input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)		
43c. DATE OF LAST LIVE BIRTH (Month, Year)		43d. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		43e. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)		
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		
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	47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)		
44c. DATE OF LAST LIVE BIRTH (Month, Year)		45c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		49. PRENATAL VISITS-Total Number (If none, enter "0")		
44d. DATE OF LAST LIVE BIRTH (Month, Year)		45d. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		50. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)		
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		
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	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		
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: _____				59. MOTHER'S MEDICAL RECORD NO. _____		
62. INFANT TRANSFERRED (Within 24 hours of delivery) <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name) FACILITY TRANSFERRED TO: _____				60. NEWBORN'S MEDICAL RECORD NO. _____		

PRENATAL (Birth)	LABOR-DELIVERY/NEWBORN				
63. NUTRITION OF MOTHER 1. Height _____ 2. Prepregnancy Weight _____ 3. Weight at delivery _____ 4. Did mother get WIC food for herself? Yes _____ No _____ Unknown _____	66. OBSTETRICAL PROCEDURES (Check all that apply.) 1. <input type="checkbox"/> Cervical cerclage 2. <input type="checkbox"/> Tocolysis 3. External cephalic version: <input type="checkbox"/> Successful <input type="checkbox"/> Failed 4. <input type="checkbox"/> None of the above	70. INFECTIONS PRESENT AND/OR TREATED (During this pregnancy, check all that apply.) 1. <input type="checkbox"/> Gonorrhea 2. <input type="checkbox"/> Syphilis 3. <input type="checkbox"/> Herpes Simplex Virus (HSV) 4. <input type="checkbox"/> Chlamydia 5. <input type="checkbox"/> Hepatitis B 6. <input type="checkbox"/> Hepatitis C 7. <input type="checkbox"/> AIDS or HIV antibody 8. <input type="checkbox"/> None of the above			
64. MEDICAL RISK FACTORS (Check all that apply.) 1. <input type="checkbox"/> Diabetes, prepregnancy 2. <input type="checkbox"/> Diabetes, gestational 3. Hypertension <input type="checkbox"/> Prepregnancy (Chronic) <input type="checkbox"/> Gestational (PIH, preeclampsia) <input type="checkbox"/> Eclampsia 4. <input type="checkbox"/> Previous preterm birth 5. <input type="checkbox"/> Other previous poor pregnancy outcome (SGA, perinatal death, etc.) 6. <input type="checkbox"/> Vaginal bleeding during this pregnancy prior to labor 7. <input type="checkbox"/> Pregnancy resulted from infertility treatment (If yes, check all that apply.) <input type="checkbox"/> Fertility-enhancing drugs, Artificial insemination or Intrauterine insemination <input type="checkbox"/> Assisted reproductive technology (e.g. in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT)) 8. <input type="checkbox"/> Mother had a previous cesarean delivery, if yes, how many? Number: _____ 9. <input type="checkbox"/> Alcohol use No. of drinks per week: _____ 10. <input type="checkbox"/> None of the above	67. ONSET OF LABOR (Check all that apply.) 1. <input type="checkbox"/> Premature Rupture of the Membranes (prolonged, ≥ 12 hours) 2. <input type="checkbox"/> Precipitous Labor (< 3 hrs) 3. <input type="checkbox"/> Prolonged Labor (≥ 20 hrs) 4. <input type="checkbox"/> None of the above	71. ABNORMAL CONDITIONS OF NEWBORN (Check all that apply) 1. <input type="checkbox"/> Assisted ventilation required immediately following delivery 2. <input type="checkbox"/> Assisted ventilation required for more than six hours 3. <input type="checkbox"/> NICU admission 4. <input type="checkbox"/> Newborn given surfactant replacement therapy 5. <input type="checkbox"/> Antibiotics received by the newborn for suspected neonatal sepsis 6. <input type="checkbox"/> Seizure or serious neurologic dysfunction 7. <input type="checkbox"/> Significant birth injury (skeletal fracture(s), peripheral nerve injury, and/or soft tissue/solid organ hemorrhage which requires intervention) 8. <input type="checkbox"/> None of the above			
65. METHOD OF DELIVERY 1. Forceps attempted? Yes _____ No _____ Successful Yes _____ No _____ 2. Vacuum extraction attempted? Yes _____ No _____ Successful Yes _____ No _____ 3. Fetal presentation at delivery <input type="checkbox"/> Cephalic <input type="checkbox"/> Breech <input type="checkbox"/> Other 4. Final route and method of delivery (check one) <input type="checkbox"/> Vaginal/spontaneous <input type="checkbox"/> Vaginal/forceps <input type="checkbox"/> Vaginal/vacuum <input type="checkbox"/> Cesarean, if cesarean was a trial of labor attempted? Yes _____ No _____	68. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply.) 1. <input type="checkbox"/> Induction of labor 2. <input type="checkbox"/> Augmentation of labor 3. <input type="checkbox"/> Non-vertex presentation 4. <input type="checkbox"/> Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery 5. <input type="checkbox"/> Antibiotics received by the mother during labor 6. <input type="checkbox"/> Clinical chorioamnionitis diagnosed during labor or maternal temperature ≥ 38 C (100.4 F) 7. <input type="checkbox"/> Moderate/heavy meconium staining of the amniotic fluid 8. <input type="checkbox"/> Fetal intolerance of labor: (examples: in-utero resuscitative measures, further fetal assessment, or operative delivery) 9. <input type="checkbox"/> Epidural or spinal anesthesia during labor 10. <input type="checkbox"/> None of the above	72. VACCINES ADMINISTERED TO NEWBORN 1. <input type="checkbox"/> Hepatitis B Date Given: _____ 2. <input type="checkbox"/> Other* Specify: _____ Date Given: _____			
73. APGAR SCORE					
<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			
74. CONGENITAL ANOMALIES OF THE NEWBORN (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					
69. MATERNAL MORBIDITY (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>_____ 1st _____ 2nd _____ 3rd (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 _____/_____/_____</p> <p style="text-align: center; margin-left: 100px;">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%; vertical-align: top;"> <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%; vertical-align: top;"> <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>				

<p>31. ANCESTRY-What is this person's ancestry or ethnic origin? Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)</p>	<p>33. RACE (Check one or more boxes to indicate what race(s) the decedent considered himself or herself to be.)</p>	<p>34. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of death.)</p>
<p>32. HISPANIC ORIGIN (Check the box or boxes that best describes whether the decedent is Spanish/Hispanic/Latino. Check the "no" box if the decedent is not Spanish/Hispanic/Latino)</p>	<p><input type="checkbox"/> White</p> <p><input type="checkbox"/> Black or African American</p> <p><input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)</p> <p>_____</p> <p>_____</p>	<p><input type="checkbox"/> 8th grade or less</p> <p><input type="checkbox"/> 9th - 12th grade; no diploma</p> <p><input type="checkbox"/> High school graduate or GED</p> <p><input type="checkbox"/> Some College credit, but no degree</p> <p><input type="checkbox"/> Associate degree (e.g., AA, AS)</p> <p><input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)</p> <p><input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)</p> <p><input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)</p> <p><input type="checkbox"/> Unknown</p>
<p><input type="checkbox"/> No, not Spanish/Hispanic/Latino</p> <p><input type="checkbox"/> Yes, Mexican/Mexican American/Chicano</p> <p><input type="checkbox"/> Yes, Puerto Rican</p> <p><input type="checkbox"/> Yes, Cuban</p> <p><input type="checkbox"/> Yes, Central American</p> <p><input type="checkbox"/> Yes, South American</p> <p><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)</p> <p>_____</p>	<p><input type="checkbox"/> 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"/> Unknown</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)
25. CAUSE/CONDITIONS CONTRIBUTING TO FETAL DEATH			
25a. INITIATING CAUSE/CONDITION (Among the choices below, please select the <u>one</u> which most likely began the sequence of events resulting in the death of the fetus.)			
Maternal Conditions/Diseases (Specify) _____			
Complications of Placenta, Cord, or Membranes – <input type="checkbox"/> Rupture of membranes prior to onset of labor <input type="checkbox"/> Abruptio placenta <input type="checkbox"/> Placental insufficiency <input type="checkbox"/> Prolapsed cord			
<input type="checkbox"/> Chorioamnionitis <input type="checkbox"/> Other (Specify) _____			
Other Obstetrical or Pregnancy Complications (Specify) _____		Fetal Anomaly (Specify) _____	
Fetal Injury (Specify) _____		Fetal Infection (Specify) _____	
Other Fetal Conditions/Disorders (Specify) _____		<input type="checkbox"/> Unknown	
25b. OTHER SIGNIFICANT CAUSES OR CONDITIONS (Select or specify all other conditions contributing to death in item 25a.)			
Maternal Conditions/Diseases (Specify) _____			
Complications of Placenta, Cord, or Membranes – <input type="checkbox"/> Rupture of membranes prior to onset of labor <input type="checkbox"/> Abruptio placenta <input type="checkbox"/> Placental insufficiency <input type="checkbox"/> Prolapsed cord			
<input type="checkbox"/> Chorioamnionitis <input type="checkbox"/> Other (Specify) _____			
Other Obstetrical or Pregnancy Complications (Specify) _____		Fetal Anomaly (Specify) _____	
Fetal Injury (Specify) _____		Fetal Infection (Specify) _____	
Other Fetal Conditions/Disorders (Specify) _____		<input type="checkbox"/> Unknown	
26. ESTIMATED TIME OF FETAL DEATH <input type="checkbox"/> Dead at time of first assessment, no labor ongoing <input type="checkbox"/> Dead at time of first assessment, labor ongoing <input type="checkbox"/> Died during labor, after first assessment <input type="checkbox"/> Unknown time of fetal death		27a. WAS AN AUTOPSY PERFORMED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned	27b. WAS A HISTOLOGICAL PLACENTAL EXAMINATION PERFORMED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned
		27c. WERE AUTOPSY OR HISTOLOGICAL PLACENTAL EXAMINATION RESULTS USED IN DETERMINING THE CAUSE OF FETAL DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No	
28. I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THE FETUS WAS BORN DEAD. Signature >		29. DATE SIGNED (Month, Day, Year)	30. ATTENDANT'S NAME AND TITLE (If delivery not attended by physician) Name (Type) _____ <input type="checkbox"/> CNM/CM <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____
31. CERTIFIER'S NAME AND TITLE (Type) <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Other (Specify) _____		32. CERTIFIER'S MAILING ADDRESS (Street and Number or Rural Route, City or Town, State, Zip Code)	
		33a. METHOD OF DISPOSITION <input type="checkbox"/> Burial <input type="checkbox"/> Cremation <input type="checkbox"/> Donation <input type="checkbox"/> Hospital Disposition <input type="checkbox"/> Removal from State <input type="checkbox"/> Other (Specify) _____	
33b. PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)		33c. LOCATION (City or Town, and State)	
34. FUNERAL DIRECTOR OR HOSPITAL ADMINISTRATOR Signature >		35. FIRM OR HOSPITAL NAME AND ADDRESS	
		36. DATE FILED BY STATE REGISTRAR (Month, Day, Year)	

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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	
				41b. FATHER	
				<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		<input type="checkbox"/> 8 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA) <input type="checkbox"/> Unknown		<input type="checkbox"/> 9 th - 12 th grade, no diploma <input type="checkbox"/> Associate degree (e.g., AA,AS) <input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)	
44a. FATHER'S EDUCATION		<input type="checkbox"/> 8 th grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA) <input type="checkbox"/> Unknown		<input type="checkbox"/> 9 th - 12 th grade, no diploma <input type="checkbox"/> Associate degree (e.g., AA,AS) <input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)	
45. PREVIOUS LIVE BIRTHS (Do not include this child.)		46. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)		47. PLURALITY - Single, Twin, Triplet, etc. (Specify)	
45a. Now living Number _____ <input type="checkbox"/> None	45b. Now dead Number _____ <input type="checkbox"/> None	46a. Before 20 weeks Number _____ <input type="checkbox"/> None	46b. 20 weeks & over Number _____ <input type="checkbox"/> None	49. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	
45c. DATE OF LAST LIVE BIRTH (Month, Year)		46c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		50. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)	
52. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No		53. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)		54. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	
				55. PRENATAL VISIT - Total number (If none, enter "0")	
56. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked per day . If none, enter "0". Average number of cigarettes or packs of cigarettes smoked per day : No. No. Three months before pregnancy: _____ cigarettes or _____ packs First three months of pregnancy: _____ cigarettes or _____ packs Second three months of pregnancy: _____ cigarettes or _____ packs Third Trimester of pregnancy: _____ cigarettes or _____ packs			57. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY <input type="checkbox"/> Medicaid <input type="checkbox"/> Private/Employer Ins. <input type="checkbox"/> Self-pay <input type="checkbox"/> Indian Health Service <input type="checkbox"/> CHAMPUS/TRICARE <input type="checkbox"/> Other government <input type="checkbox"/> Other <input type="checkbox"/> Unknown		
			58a. MOTHER TRANSFERRED IN FOR DELIVERY DUE TO MATERNAL, MEDICAL, OR FETAL INDICATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)		58b. FACILITY TRANSFERRED FROM:

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

MOTHER'S NAME _____

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

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

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

If no test made, state reason: _____