

Kansas



Selected Special Statistics Stillbirths and Infant Deaths Kansas, 2009

Research Summary

Kansas Department of Health and Environment
Division of Health
Bureau of Epidemiology & Public Health Informatics
Curtis State Office Building – 1000 SW Jackson, Topeka, KS, 66612-1354
<http://www.kdheks.gov/bepih/>
January 2011

This Research Summary Was Prepared By:

Kansas Department of Health and Environment
Robert Moser, MD, Acting Secretary

Bureau of Epidemiology and Public Health Informatics
D. Charles Hunt, MPH, Director and State Epidemiologist
Elizabeth W. Saadi, PhD, Deputy Director and State Registrar

Prepared by: Carol Moyer, MPH

Edited by: Greg Crawford, BA
David Oakley, MA

Desktop Publishing by: Laurie Stanley

Data for this report were collected by:

Office of Vital Statistics
Donna Calabrese, Director

Our Vision – Healthy Kansans Living in Safe and Sustainable Environments

Our Mission – To Protect the Health and Environment of Kansans by Promoting Responsible Choices

Table of Contents

	Page Number
<u>Executive Summary</u>	iv
<u>Introduction</u>	1
<u>Methodology</u>	1
<u>Results</u>	3
<u>Linked Birth-Infant Death Statistics</u>	6
<u>Discussion</u>	8
<u>Conclusion</u>	9
<u>Limitations</u>	9
<u>References</u>	10
<u>Tables and Figures</u>	11
<u>Technical Notes</u>	29
<u>Certificates</u>	31

List of Tables

Table Number		Page Number
1	Stillbirth, Perinatal Period III, and Infant Mortality Rates by Selected Population Groups by Period of Death, Kansas, 2009	3
2	Percent of Infant Deaths by Selected Population Groups by Leading Causes of Death, Kansas, 2005-2009	5
3	Linked Infant Birth/Deaths, Percent Linked, Kansas, 2005-2009	6
4	Births, Stillbirths, and Infant Deaths by Period of Death, Kansas, 1990-2009	11
5	Perinatal/Infant Mortality Rates by Period of Death, Kansas, 1990-2009	12
6	Infant Deaths by Period of Death and County of Residence, Kansas, 2005-2009	18
7	Infant Deaths/Mortality Rates by Population Group of Mother, Kansas, 1990-2009	20
8	Infant Deaths/Mortality Rates by County of Residence and by Peer Group, Kansas, 2005-2009	22
9	Infant Deaths by Cause of Death and Period of Death, Kansas, 2005-2009	24
10	Stillbirths by Cause of Death and Weeks Gestation, Kansas, 2005-2009	26
11	Linked Birth and Death File Cause of Death by Gestational Age Ranked by Importance, Kansas, 2005-2009	28

List of Figures

Figure Number		Page Number
1	Leading Causes of Infant Deaths, Kansas, 2005-2009	4
2	Infant Death by Year, Kansas, 1912-2009.....	13
3	Infant Mortality Rates, Kansas, 1912-2009.....	14
4	Stillbirths by Year, Kansas, 1912-2009	15
5	Stillbirth Mortality Rates, Kansas, 1912-2009.....	16
6	Trend in Infant Mortality Rates, Kansas, 1990-2009	17
7	Infant Mortality Rates – Rolling Five Year Averages by Population Group of Mother, Kansas, 1990-2009	21
8	Infant Mortality Rates – Rolling Five Year Averages by Period of Death, Kansas, 1990-2009.....	25
9	Perinatal Period III Mortality Rates – Rolling Five Year Averages by Period of Death, Kansas 1990-2009.....	27

Executive Summary

Infant mortality is an important indicator of the health of a community or state. 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. The purpose of this report is to move beyond single-year statistics reported in the *Annual Summary of Vital Statistics* and provide a more long term view of the underlying percentages or rates. The time periods used predominately in this report are five years and 20 years. At least 20 years are used to evaluate or present trends.

In the last century, the infant mortality rate (IMR) has decreased dramatically (90.2%) from 73.5 deaths per 1,000 live births in 1912 (2,795 infant deaths) to 7.0 in 2009 (290 infant deaths). Actual rates in the early 1900s may be higher due to under-reporting.

Even when considering the last 20 years (1990-2009), the overall trend in infant mortality rates decreased significantly from 8.4 in 1990 to 7.0 in 2009.

There was not a statistically significant decline in infant mortality in the last five years.

In the last 20 years (1990-2009), the Black non-Hispanic infant mortality rate has remained at least twice that of the White non-Hispanic population in most years with an average ratio of 2.6.

During 2005-2009 prematurity and low birth weight were the leading causes of death among Black non-Hispanic infants. Congenital anomalies was the leading cause of death among White non-Hispanic and Hispanic infants.

Of 1,516 infant deaths during 2005-2009, 1,453 events were matched to live birth records. Gestation was known for 1,438 events in the five-year linked birth/death file. Prematurity (less than 37 weeks gestation) was a primary risk factor in 61.5 percent (884) of the linked records. Prematurity was a primary risk factor even when the underlying cause of death was not prematurity or low birth weight.

The proportion of prematurity as an important infant mortality risk factor was significantly higher for the Black non-Hispanic population (72.8% of infant deaths) than the White non-Hispanic population (58.6%) and the Hispanic population (59.6%). A disproportionately higher prematurity rate also existed in the 2005-2009 live births among Black non-Hispanics (12.8%), compared to the White non-Hispanic population (9.3%) and Hispanic population (7.7%).

Gestational age specific analysis shows an infant mortality rate of 46.2/1,000 live births for infants born prematurely, 15 times that for infants born at term.

Similarly, the infant mortality rate for very premature infants (212.1/1,000) is 71 times higher than the rate for infants born at term.

The *Selected Special Statistics Stillbirths and Infant Deaths Kansas, 2009* 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.

Stillbirths and Infant Deaths

Introduction

One of the basic indicators of the health of a community or state is infant mortality, the death of an infant before one year of age. The calculated infant mortality rate (IMR), while not a true measure of population health, serves as one proxy indicator of population health since 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].

KDHE's Division of Health monitors infant mortality and supports programs that promote access to health services for mothers and infants. The Division's Bureau of Epidemiology and Public Health Informatics calculates the official state infant mortality rate as part of its ongoing mission to provide data and information to program managers, policy makers, health providers, and the public. This report augments information in the KDHE *Annual Summary of Vital Statistics*.

Methodology

Statistics

One feature of this report is to move beyond single-year statistics reported in the *Annual Summary of Vital Statistics* to provide more long term estimates of the true underlying rates. Most health professionals are aware that estimates based on population samples are subject to random variation. This is also true for full population counts, especially when the rate or percentage has a small number of events in the numerator. This random variation may be substantial in rare events such as infant deaths, particularly at the county level. In a single year a county may have one, two, or even no infant deaths.

In an attempt to increase data reliability, years are combined with preselected intervals. The intervals include 5 years, 20 years or approximately 100 years. The long term (~100 years) infant mortality numbers and rates may be under-reported due to incomplete data collection in the early 1900s.

Additionally, this report uses the relative standard error 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 [2, 3].

The following statistical tests have been applied where statistically significant differences have been noted in the document. The z-test was used for comparing two years of infant mortality rates and the Poisson Joinpoint regression model was used for trend analysis [4, 5, 6]. Confidence intervals were calculated at the 95% confidence interval (this is a conservative estimation of significance). If confidence intervals don't overlap, the difference between the rates is statistically significant [7].

All data reported are Kansas residence, unless otherwise noted.

Five year moving averages were used to smooth data trends since year to year variation in infant mortality rates can result in a saw tooth pattern that makes displaying trends difficult.

Cause of Death Data

The cause of death referred to in this report is the primary or underlying cause of death. It is defined as the disease or injury which initiated the chain of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury.

The underlying causes of death are established through a system known as the International Classification of Diseases, 10th Revision (ICD-10). This system promotes uniformity and comparability in the collection and presentation of mortality data.

Data Linkage

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

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 was based on the presence in the death history file of a birth certificate ID number. Linkage of the respective records was performed by the KDHE Office of Vital Statistics using a computer algorithm supplemented by a manual matching process for infant deaths that did not match automatically. Because of the timeframe for creating the annual linked birth-infant death statistical files, infant death reports received later than six months after the end of a given event year are not included in the given event year.

For Kansas, 2005-2009, there were 1,516 resident infant deaths reported to KDHE. Coinciding with the use of the new birth and death certificates, a process to create a death cohort file of linked births and infant deaths was initiated. Of the 1,516 infant deaths, 1,453 (95.8%) events were linked to a birth record. Thirty-three of the births occurred in 2004. Unlinked records were due to a number of factors beyond the scope of this summary.

Linking the infant deaths with their birth records is a valuable tool to monitor and explore the complex interrelationships between infant deaths, factors surrounding the infant's birth, and the mother's risk factors.

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

Stillbirths are also included in this report. These events may have similar risk factors as infant deaths. 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.

Results

In Kansas, 2009, the infant mortality rate was 7.0/1,000 live births (290 infant deaths), down from 7.2 (303 infant deaths) in 2008 (Table 4, 5). The change was not statistically significant.

In the last century, the IMR has decreased dramatically (90.5%) from 73.5 deaths per 1,000 live births in 1912 (2,795 infant deaths) to 7.0 in 2009 (Figure 2, 3). Stillbirths decreased 81.0 percent from 26.8 deaths per 1,000 (live births + stillbirths) in 1912 (1,047 stillbirths) to 5.1 in 2009 (Figure 4, 5). Incomplete reporting in the early 1900s may have resulted in underreporting of infant deaths and stillbirths and thus higher rates in 1912 and a higher percent decrease from 1912 to 2009.

The IMR has also decreased in the last twenty years (1990-2009). Poisson regression (Joinpoint) was used to describe the trend; the best model included one join point, a shifting time trend at 1998. Before 1998 the trend showed a statistically significant decrease in infant mortality rates (1990-1998). After that year, the trend is relatively flat (Figure 6). When evaluating this same 20 years and calculating the Average Annual Percent Change (AAPC) based on the model described previously the overall decreasing trend is also significant (1990-2009). However, the AAPC does not show a significant decrease in infant mortality in the last five years (2005-2009). In the last five years, the IMR has ranged from 7.5 in 2005, a high of 7.9 in 2007 and a low of 7.0 in 2009 (Tables 4, 5).

Population Groups

In Kansas, 2009, the White non-Hispanic population group had the highest number of infant deaths (178 infant deaths) while the Black non-Hispanic group had the highest rate per 1,000 live births (15.5) (Table 7). This disparity among Black non-Hispanic infant deaths was true in all periods at death (Table 1).

Table 1. Stillbirth, Perinatal Period III* and Infant Mortality Rates by Selected Population Groups and Period of Death, Kansas, 2009

	Total	White non-Hispanic	Black non-Hispanic	Hispanic any race
Infant deaths †	7.0	6.0	15.5	5.9
Neonatal deaths †	4.3	3.7	9.2	3.7
Post neonatal deaths †	2.8	2.4	6.4	2.2
Stillbirths ‡	5.1	4.6	11.9	4.8
Perinatal period III ‡	8.6	7.6	18.9	7.6

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

†Rate per 1,000 live births

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

A population group comparison (20 years) based on five year moving averages (Figure 7) shows that the Black non-Hispanic population had the highest infant mortality rates with a high of 20.5 in 1992-1996 and a low of 14.3 in 1998-2002; since the 1998-2002 point, the rate has fluctuated ending with 16.5 in 2005-2009. In the same 20 years the

White non-Hispanic population showed a slight decreasing trend and the Hispanic population shows a fluctuating trend from a high in 1990-1994 of 8.6 to a low of 5.9 in 1995-1999; since then, the rate has increased in most years to 7.5 in 2005-2009. In this same 20 year period, the Black non-Hispanic infant mortality rate has remained at least twice that of the White non-Hispanic population in most years with an average ratio of 2.6.

The counties with the highest number of infant deaths (2005-2009) included Sedgwick (332 or 21.9% of the total), Johnson (230 or 15.2% of the total), Wyandotte (128 or 8.4% of the total) and Shawnee (120 or 7.9% of the total). These four counties accounted for 53.4 percent of the infant deaths.

However, the counties with the highest infant mortality rates and a relative standard error of 30 percent or lower included Marion (20.9), Neosho (13.9), Allen (12.4), Geary (11.9) and Shawnee (9.4) while the counties with the lowest rates were Butler (4.9), Leavenworth (5.7), and Johnson, Finney, Montgomery and Douglas all with a rate of 6.0 (Table 8).

Cause of Death

For Kansas, 2005-2009, the leading cause of infant mortality was congenital anomalies (Figure 1, Table 9). The most frequent congenital anomaly was congenital malformations of the circulatory system (24.0%, ICD-10 codes Q20-Q28) followed closely by chromosomal abnormalities (22.3%, ICD-10 codes Q90-Q99). Almost seventy-four percent (73.7) of deaths due to congenital anomalies occurred in the neonatal (under 28 day) time period (Table 9).

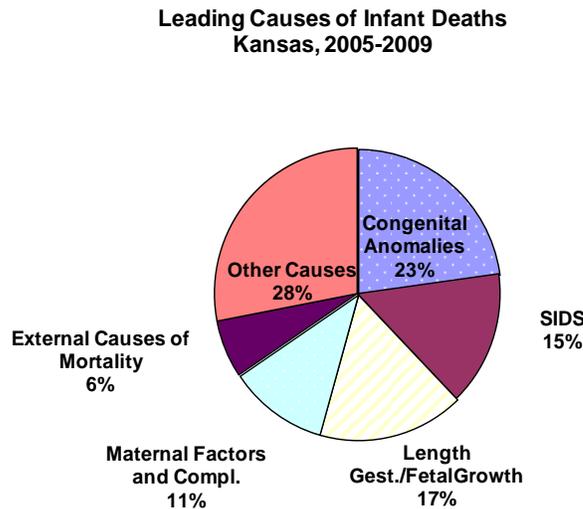


Figure 1

Analysis of underlying cause of death by population group (2005-2009) shows that prematurity is the leading cause of death among Black non-Hispanic infants and congenital anomalies is the leading cause of death among White non-Hispanic and Hispanic infants (Table 2).

Table 2. Percent of Infant Deaths by Selected Population Groups by Leading Causes of Death, Kansas, 2005-2009

Population Group*	Percent	Number of Deaths
Black non-Hispanic (n=233)		
1. Prematurity or Low Birthweight	23.2	54
2. SIDS	21.5	50
3. Congenital Anomalies	11.6	27
4. Maternal Factors	10.3	24
White non-Hispanic (n=929)		
1. Congenital Anomalies	25.4	236
2. Prematurity or Low Birthweight	14.6	136
3. SIDS	14.1	131
4. Maternal Factors	11.2	104
Hispanic any-race (n=246)		
1. Congenital Anomalies	23.6	58
2. Prematurity or Low Birthweight	17.5	43
3. Maternal factors	11.8	29
4. SIDS	9.3	23

*Non-Hispanic population group includes unknown Hispanic origin.

Age Period at 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 (deaths prior to the 7th day of life).

Neonatal/Post-Neonatal Period Deaths

For Kansas, 2005-2009, there were 952 neonatal deaths (4.6/1,000 live births) and 564 post-neonatal deaths (2.7/1,000 live births) with 62.8 percent of deaths occurring in the neonatal age period. Congenital anomalies were the leading cause of neonatal deaths while SIDS was the leading cause of post-neonatal deaths (Table 9).

In Kansas, from 1990-2009, neonatal death rates have fluctuated slightly (Table 5). Rolling five year averages show a very slight gradual decrease from 5.1 in 1990-1994 to 4.6 in 2005-2009 (Figure 8). The post-neonatal death rolling five year averages showed a decrease from 3.4 in 1990-1994 to a low of 2.4 in 1998-2002 and 1999-2003 and a slight increase to 2.7 in 2005-2009 (Figure 8).

Perinatal Period III Deaths

For Kansas 2005-2009, there were 1724 perinatal deaths (8.3/1,000 live births and stillbirths) including 967 stillbirths and 757 hebdomadal deaths (Table 4). Maternal factors (ICD-10 codes P00-P04) was the leading cause of stillbirths (51.9%) (Table 10) while prematurity or low birthweight was the leading cause of death for hebdomadal period deaths, (32.2%) (Table 9).

In Kansas, from 1990-2009, rolling five year averages show a gradual decline from 10.0 in 1990-1994 to 8.4 in 1998-2002 after which the rate was essentially level through 2005-2009 (Figure 9).

Linked Birth-Infant Death 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 (Table 3).

Table 3. Linked Infant Birth /Deaths, Percent Linked, Kansas, 2005-2009

Year	Infant Deaths, Total		Infant Deaths, Linked File	
	Number	Number	Number	%
2005	297	279	279	93.9
2006	293	274	274	93.5
2007	333	316	316	94.9
2008	303	295	295	97.4
2009	290	289	289	99.7
Totals	1,516	1,453	1,453	95.8

Of the 1,453 deaths linked to birth records, the mother reported Hispanic origin in 240 live births (16.5%), non-Hispanic origin in 1203 live births (82.8 %) and unknown Hispanic origin in 10 live births (0.7%).

Of the 1,213 mothers that reported non-Hispanic or unknown Hispanic origin, 30 (2.5 %) reported Asian race, 213 (17.6%) reported black race, 14 (1.2%) reported multi race, 14 (1.2%) reported Native American race, 14 (1.2%) reported Native Hawaiian and other Pacific Islander/other race and 926 (76.3%) reported White race. Race was unknown for two births.

Of the 1,453 deaths, birth-weight of the infant was known for 1,446 deaths. Three hundred and twenty seven (22.6%) of the deaths occurred to infants with birth-weights of less than 500 grams; 350 (24.2%) of the deaths occurred to infants with birth-weights of 500 to 1,499 grams; 208 (14.4%) of deaths occurred to infants with birth weights of 1,500 to 2,499 grams; and 561 (38.8%) of deaths occurred to infants with birth weights of 2,500 grams or more.

Among the infant deaths where birth weight was known, 885 infants (61.2%) were low birth weight (less than 2500 grams). This compares to 7.2 percent for all live births in the same time period as the infant deaths (2005-2009).

Gestational age was known for 1,438 of the 1,453 linked records. Six hundred and seventy four of the infants (46.9%) were very premature (less than 32 weeks); 59 (4.1%) were moderately premature (32- 33 weeks); 151 (10.5%) were late preterm (34- 36 weeks); and 554 (38.5%) were term, (37 weeks or greater).

Among the infant deaths where gestational age was known, 884 (61.5%) were premature or less than 37 weeks gestation. This compares to 9.3 percent among all live births in the same time period as the infant deaths (2005-2009).

Analysis of gestational age by the mother's population group shows that among the Black non-Hispanic population, 72.8 percent of infants that died were premature, among the White non-Hispanic population 58.6 percent were premature and among the Hispanic population 59.6 percent were premature.

The leading cause of death among the 1,453 infants in the 2005-2009 linked file was congenital anomalies (323 deaths, 22.2% or) (Table 11). This was followed by prematurity or low birth weight (239 deaths,16.4%), SIDS (221 deaths,15.2%), and maternal factors (163 deaths,11.2%).

Even when the primary cause of death (linked birth/death file) was not classified as prematurity or low birth weight, prematurity may be an important factor in an infant's death. Among infants with the primary cause of death classified as congenital anomalies, about half of the infants were born prematurely – mainly late preterm. Among deaths where the cause was classified as maternal factors, almost ninety seven percent were born prematurely – mostly very premature (Table 10). Maternal factors included complications such as premature rupture of the membrane, incompetent cervix, placental separation, and chorioamnionitis.

Among infants where the underlying or primary cause of death was classified SIDS, 85.8 percent were at least 37 weeks gestation or full term (Table 10).

Prenatal care (yes or no) was known for 1,453 of the linked infant deaths. No prenatal care was indicated for 5.6 percent of the infant deaths. This compared to 1.1 percent for all live births in the same time period as the infant deaths (2005-2009).

Birth plurality (the total number of births resulting from a single pregnancy) was known for 1,452 of the 1453 linked deaths. Over 85 percent (85.8%) of the infants were singletons at birth (1,246); 12.5 percent (181) were part of twin deliveries; and 1.7 percent (25) were triplet or above deliveries. Slightly over fourteen percent (14.2) of linked deaths occurred among multiple births which compares to 3.1 percent for all births in the same time period (2005-2009).

Age-group of the mother was known for 1,450 of the deaths. The highest percentage of deaths occurred to infants born to women aged 20-24 (31.4%), followed by women aged 25-29 (25.7%), women aged 30-34 (17.5%) and women aged 15-19 (15.8%). The highest age specific rates of infant mortality per 1,000 births occurred among 15-19 year old mothers (10.9) followed by 20-24 year old mothers (7.9).

In 25.0 percent of infant deaths (linked file 2005-2009), the mother reported smoking cigarettes at some time during her pregnancy which compares with 16.0 percent among all live births (2005-2009).

In 51.4 percent of infant deaths (linked file, 2005-2009) the mother was not married at the time of her pregnancy. This compared with 36.2 percent of live births where the mother reported she was not married (2005-2009).

Delivery payer was known for 1,328 of infant deaths (linked file, 2005-2009). Private insurance was the payer for the highest percent of births where the infant died. (41.8%) followed by Medicaid (37.2%) and self pay (8.9%).

Discussion

In the last century, infant mortality rate has decreased dramatically (90.5%) from 73.5 deaths per 1,000 live births in 1912 (2795 infant deaths) to 7.0 in 2009. Even when considering the last 20 years (1990-2009), the overall trend in infant mortality rates decreased significantly; however in the last five years the trend remained relatively level, with neither a statistically significant increase nor decrease.

The IMR in Kansas reached historic lows of 6.7 in 2000 and 2003, exceeding the Healthy People 2020 objective of 6.0 deaths per 1,000 live births. Data analysis by population groups for Kansas, 2009 shows that the White non-Hispanic and Hispanic groups have met this objective but not the Black non-Hispanic group.

Overall in Kansas 2005-2009, 22.8 percent of infant deaths were attributed to congenital anomalies, 16.6 percent were attributed to prematurity or low birth weight, and 15.0 percent were attributed to SIDS. Black non-Hispanics are at an increased risk of infant deaths from prematurity. White non-Hispanic and Hispanic infants are at an increased risk of death due to congenital anomalies.

In Kansas 2005-2009, infant deaths are occurring soon after birth. Almost two-thirds (62.8% or 952 deaths) occurred in the neonatal time period (less than 28 days), 49.9% or 757 deaths occurred in the first week.

Analysis of the linked file shows that low birthweight or prematurity (61.5% of infant deaths) was a primary risk factor for infant death even when the underlying or primary cause of death was not prematurity or low birthweight. Prematurity was an important risk factor for the Black non-Hispanic population (72.8% of infant deaths); White non-Hispanic population (58.6%) and the Hispanic population (59.6%).

Gestational age specific analysis (linked file) shows an infant mortality rate of 46.2/1,000 live births for infants born prematurely, 15 times that for infants born at term (3.0/1,000). Similarly, the infant mortality rate for very premature infants (212.1/1,000) was 71 times higher than the rate for infants born at term.

Because of their much greater risk of infant mortality, premature and very premature infants contribute immensely to the total infant mortality rate. Over sixty percent (61.5%) of Kansas resident infant deaths (linked file, 2005-2009) occurred among the 9.3 percent of infants born premature. Similarly, 46.2 percent of infant deaths occurred among the 1.6 percent of infants born very premature.

Additional risk factors for infant deaths (linked file) include no prenatal care (5.6% of linked deaths), multiple births (14.2%), cigarette smoking (25.0%), and out of wedlock births (51.4%). Analysis of mother's age shows the highest percent of infant deaths among mothers age 20-24 (31.4%); but the highest rate per 1,000 live births was among 15-19 year old adolescents (10.9/1,000).

Conclusion

Analysis of infant mortality by combining years shows a more stable estimate of infant mortality in Kansas – a significant decreasing trend in infant mortality rates with stagnation in recent years. Combining years with the linked file shows that prematurity was a primary risk factor in of infant deaths (about 62%). Studies indicate that many of the factors associated with preterm birth occur together [8, 9]. Thus, there is a clear need to understand the causes of premature birth as well as the risk factors such as population group of the mother, age of mother and no prenatal care and how they interrelate.

Limitations

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

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

The ICD10 death classification system limits the bias of human coding of mortality information. The system also attempts to reduce the effect of spelling errors or placement of literal information in the cause of death fields. One limitation was the system's inability to take into account differences in knowledge and attitudes among physicians who complete the cause of death information. Individual biases, unfamiliarity with the patient, or inability to perform an autopsy may affect the information available to the physician when certifying the cause of death. While many death certificates contain four full lines of detailed information on the events or illnesses leading up to the death, some death certificates contain only limited information.

The causes of stillbirths are not as well documented as infant deaths. The American Congress of Obstetricians and Gynecologists recommends an increase in the percentage of stillbirths for which placental evaluation is preformed and autopsy is offered [10]. Additionally, since KSA 65-2401 [11] defines stillbirth by weight of the fetus (>350 grams) vital records data does not represent the full picture of all fetal deaths.

References

1. Reidpath D & Allotey P. (2003). Infant Mortality rate as an indicator of population health. *J. Epidemiol Community Health*, 57, 344-346.
2. Mathews TJ, MacDorman MF. (2008) Infant mortality statistics from the 2005 period linked birth/infant death data set. *National vital statistics reports*; vol. 57 no.3. Hyattsville, MD: National Center for Health Statistics, pg. 30.
3. Cohen RA, Martinez, ME. (2009) Consumer-directed health care for persons under 65 years of age with private health insurance: United States, 2007. *NCHS data brief*, no. 15. Hyattsville, MD: National Center for Health Statistics, pg. 8.
4. National Cancer Institute. (2010, April). Joinpoint regression program. Retrieved October 26, 2010 from <http://surveillance.cancer.gov/joinpoint/>
5. Association of Maternal & Child health programs (2008). Trend analysis for MCH outcomes retrieved January 9, 2009 from <http://www.amchp.org/MCH-Topics/A-G/DataandAssessment/Documents/MCHManual08Rev.pdf>
6. National Cancer Institute. (2010, August). Average Annual Percent Change (AAPC). Retrieved December 1, 2010 from <http://surveillance.cancer.gov/joinpoint/aapc.html>
7. Washington State Health Department. (2006). Guidelines for using confidence intervals for public health assessment. Retrieved January 14, 2009, from <http://www.doh.wa.gov/data/Guidelines/guidelines.htm>
8. Report brief: preterm birth: causes, consequences, and prevention. (2006, July). Institute of Medicine of the National Academies. Retrieved December 2, 2009 from <http://www.iom.edu/Reports/2006/Preterm-Birth-Causes-Consequences-and-Prevention.aspx>
9. Dolan DM, Callaghan WM, Rasmussen SA. (2009, November). Birth defects and preterm birth: overlapping outcomes with a shared strategy for research and prevention. *Birth Defects Research, Part A: Clinical and molecular Teratology*, 85(11), 874-878.
10. ACOG News Release. (2009, February). ACOG issues new guidelines on managing stillbirths, Retrieved December 2, 2009 from http://www.acog.org/from_home/publications/press_releases/nr02-20-09-2.cfm
11. Kansas Statutes. Chapter 65: Public Health. Article 24: Uniform Vital Statistics Act. Retrieved 1/11/2010 from http://kansasstatutes.lesterama.org/Chapter_65/Article_24/65-2401.html

Table 4
 Births, Stillbirths, and Infant Deaths by Period of Death
 Kansas, 1990-2009

Year	Total * Deliveries	Live Births	Stillbirth	Hebdomadal † Deaths	Perinatal ‡ Deaths	Neonatal§ Deaths	Postneonatal Deaths ¶	Infant Deaths #
1990....	39,089	38,872	217	162	379	196	129	325
1991....	37,835	37,630	205	158	363	191	146	337
1992....	38,064	37,848	216	165	381	199	133	332
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	357	176	114	290

* 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 5
Perinatal/Infant Mortality Rates by Period of Death
Kansas, 1990-2009

Year	Stillbirth*	Hebdomadal Deathst†	Perinatal Deaths*	Neonatal Deathst		Postneonatal Deathst		Infant Deathst	
				KS	US	KS	US	KS	US
1990....	5.6	4.2	9.7	5.0	5.8	3.3		8.4	9.2
1991....	5.4	4.2	9.6	5.1	5.6	3.9		9.0	8.9
1992....	5.7	4.4	10.0	5.3	5.4	3.5		8.8	8.5
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	n.a.	2.6		7.2	6.5†
2009....	5.1	3.5	8.6	4.3	n.a.	2.8		7.0	6.3†

*Per 1,000 (live births + stillbirths)

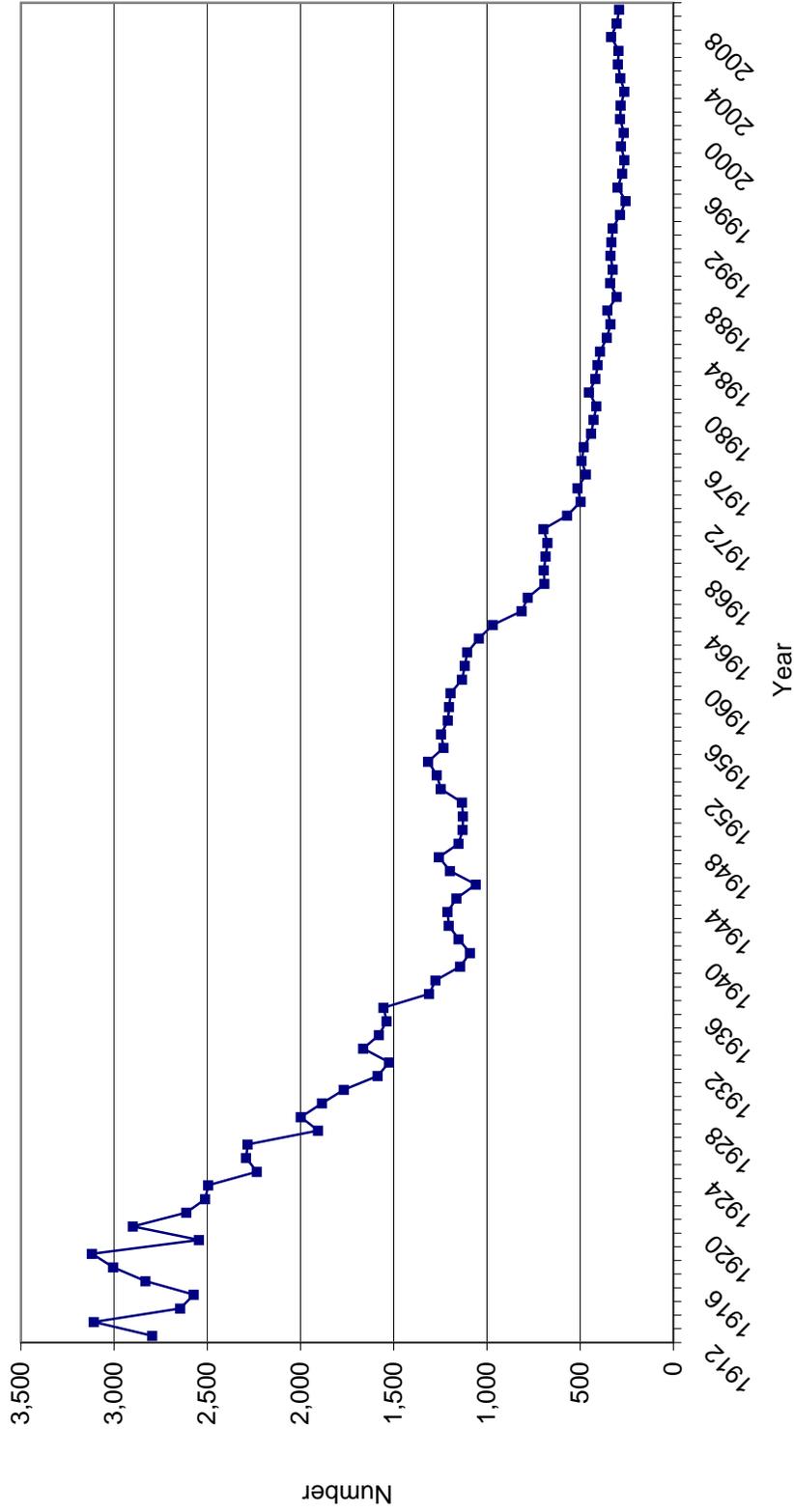
†Per 1,000 live births

‡Provisional data

Residence data

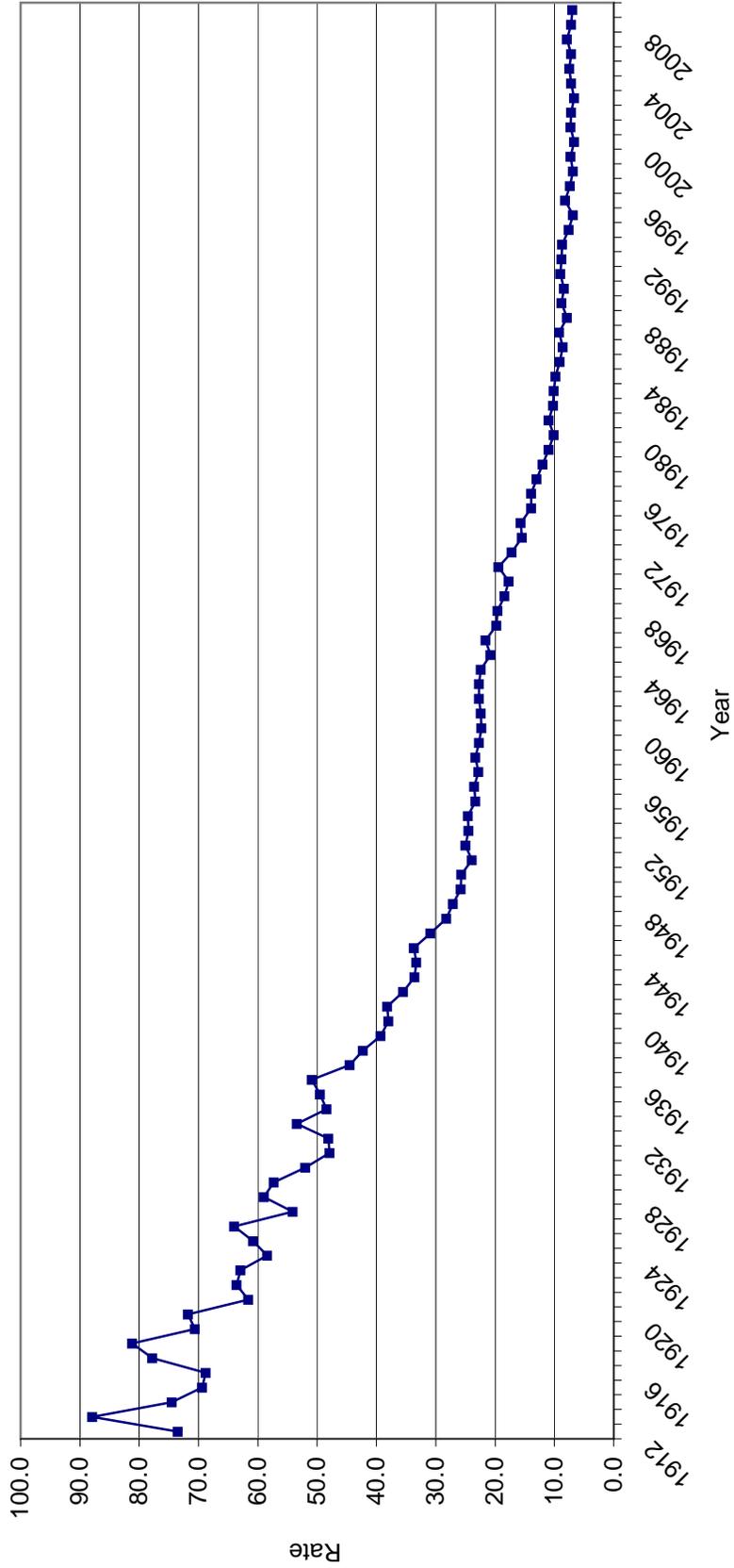
Source: Bureau of Epidemiology and Public Health Informatics
Kansas Department of Health and Environment

Figure 2
 Infant Deaths by Year
 Kansas, 1912-2009



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

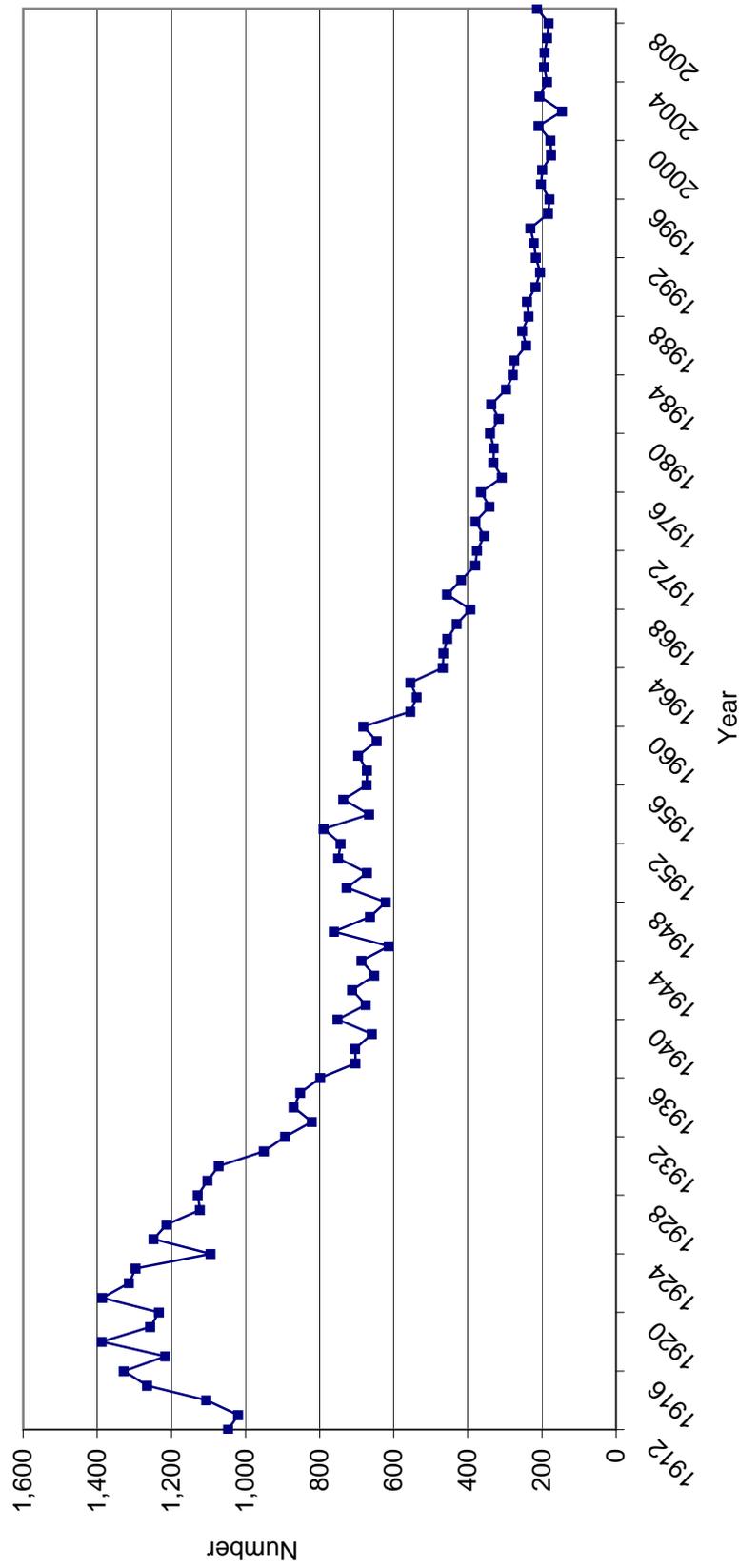
Figure 3
 Infant Mortality Rates*
 Kansas, 1912-2009



*Rate per 1,000 live births
 Residence data

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

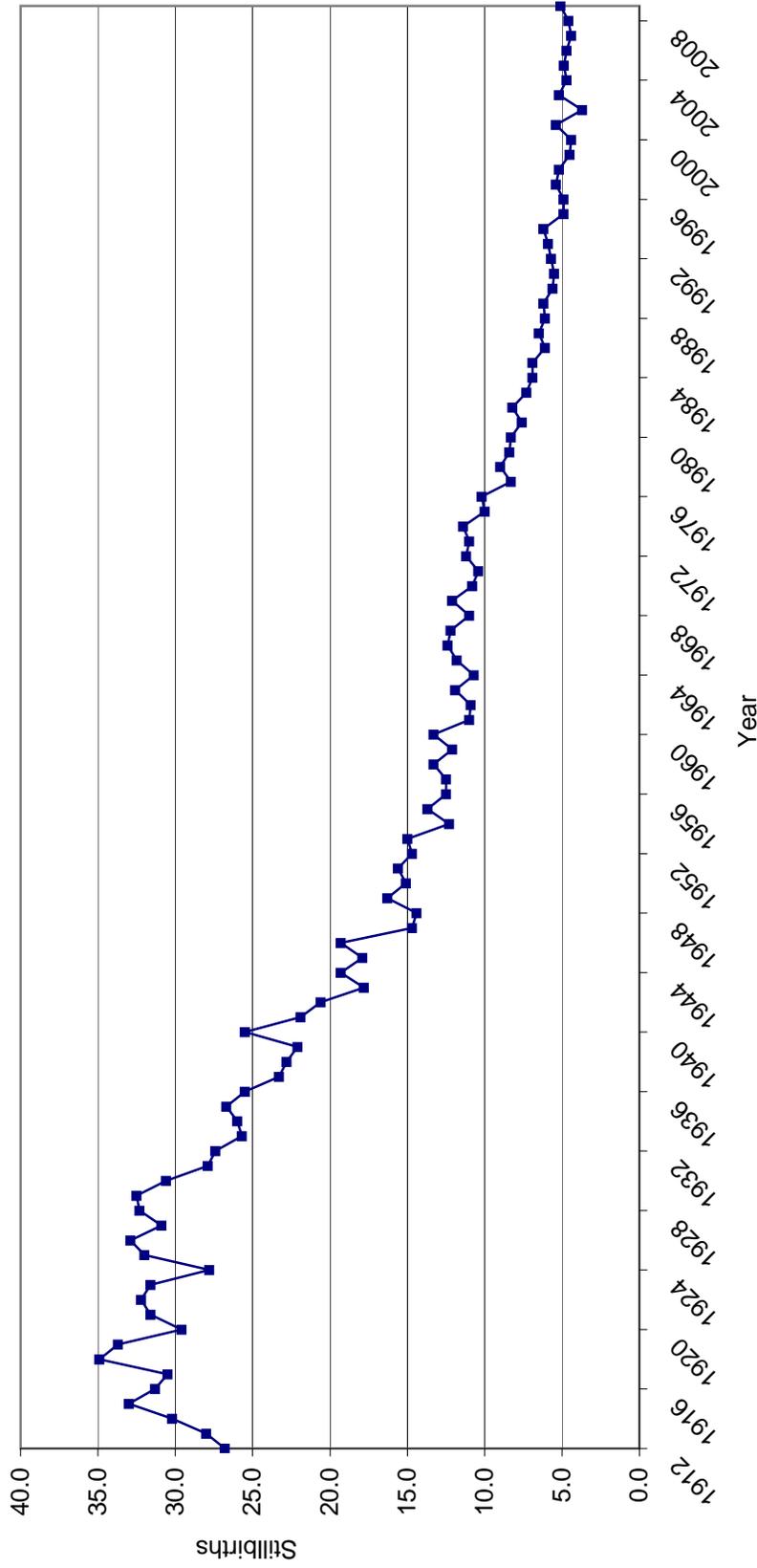
Figure 4
Stillbirths by Year
Kansas, 1912-2009



Residence data

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

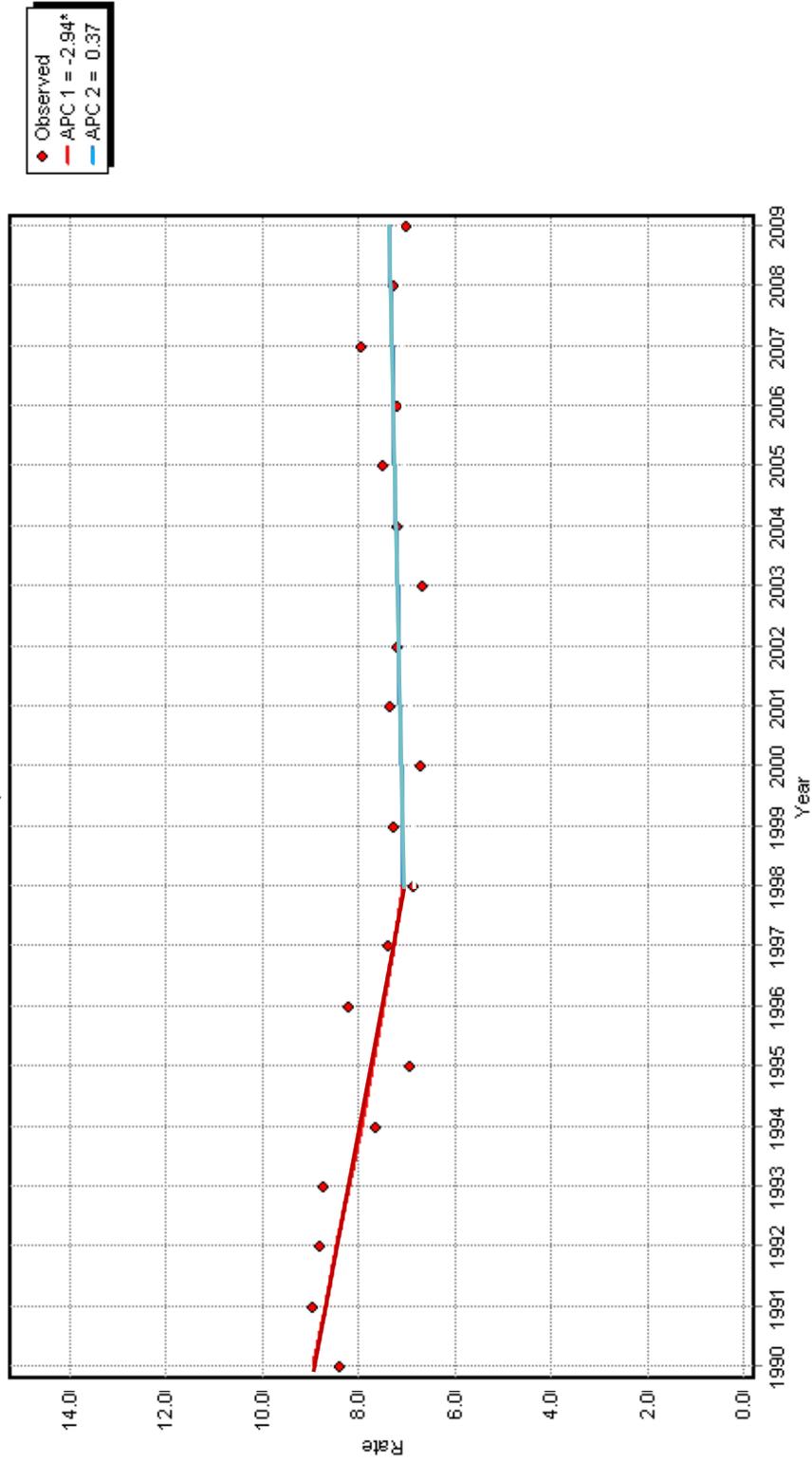
Figure 5
 Stillbirth Mortality Rates*
 Kansas, 1912-2009



*Rate per 1,000 (live births + stillbirths)
 Residence data

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

Figure 6
Trend in Infant Mortality Rate†
Kansas, 1990-2009



*The Annual Percent Change (APC) is statistically significant .
†Rate per 1,000 live births

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, 2005 - 2009

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.....	757	952	564	1,516
Allen.....	4	7	4	11
Anderson.....	3	4	0	4
Atchison.....	4	5	4	9
Barber.....	0	1	0	1
Barton.....	13	15	3	18
Bourbon.....	7	8	2	10
Brown.....	2	3	2	5
Butler.....	9	10	10	20
Chase.....	0	0	0	0
Chautauqua.....	0	3	1	4
Cherokee.....	4	5	4	9
Cheyenne.....	1	1	0	1
Clark.....	0	0	0	0
Clay.....	3	6	1	7
Cloud.....	8	8	1	9
Coffey.....	3	3	0	3
Comanche.....	0	0	0	0
Cowley.....	8	10	12	22
Crawford.....	11	14	5	19
Decatur.....	0	0	1	1
Dickinson.....	1	1	2	3
Doniphan.....	2	2	1	3
Douglas.....	24	29	9	38
Edwards.....	0	0	0	0
Elk.....	0	0	2	2
Ellis.....	5	5	2	7
Ellsworth.....	0	0	0	0
Finney.....	6	9	14	23
Ford.....	14	18	6	24
Franklin.....	4	6	5	11
Geary.....	15	24	19	43
Gove.....	0	1	0	1
Graham.....	0	1	0	1
Grant.....	2	2	3	5
Gray.....	0	0	2	2
Greeley.....	0	0	1	1
Greenwood.....	1	2	0	2
Hamilton.....	0	0	0	0
Harper.....	1	1	3	4
Harvey.....	7	8	6	14
Haskell.....	1	1	5	6
Hodgeman.....	0	0	0	0
Jackson.....	1	1	4	5
Jefferson.....	4	6	0	6
Jewell.....	0	0	1	1
Johnson.....	126	155	75	230
Kearny.....	1	1	1	2
Kingman.....	0	0	0	0
Kiowa.....	0	0	2	2
Labette.....	5	5	5	10
Lane.....	2	2	0	2
Leavenworth.....	16	19	8	27
Lincoln.....	0	0	3	3
Linn.....	2	2	0	2
Logan.....	1	1	0	1

Table 6
 Infant Deaths by Period of Death and
 County of Residence, Kansas, 2005 - 2009

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.....	7	12	6	18
Marion.....	6	9	3	12
Marshall.....	2	2	1	3
McPherson.....	7	9	5	14
Meade.....	1	1	1	2
Miami.....	7	7	5	12
Mitchell.....	2	2	1	3
Montgomery.....	5	7	8	15
Morris.....	0	0	0	0
Morton.....	1	1	0	1
Nemaha.....	6	6	1	7
Neosho.....	6	7	8	15
Ness.....	0	0	0	0
Norton.....	0	0	0	0
Osage.....	2	3	1	4
Osborne.....	1	1	0	1
Ottawa.....	0	0	3	3
Pawnee.....	2	3	0	3
Phillips.....	0	1	1	2
Pottawatomie.....	5	6	2	8
Pratt.....	1	1	1	2
Rawlins.....	0	0	1	1
Reno.....	13	16	18	34
Republic.....	1	1	1	2
Rice.....	1	1	0	1
Riley.....	15	22	10	32
Rooks.....	2	2	1	3
Rush.....	0	0	0	0
Russell.....	2	3	0	3
Saline.....	14	18	19	37
Scott.....	3	3	2	5
Sedgwick.....	165	208	124	332
Seward.....	11	13	4	17
Shawnee.....	56	71	49	120
Sheridan.....	1	1	0	1
Sherman.....	1	1	2	3
Smith.....	1	1	0	1
Stafford.....	1	1	0	1
Stanton.....	1	1	0	1
Stevens.....	4	4	0	4
Sumner.....	2	3	5	8
Thomas.....	5	6	2	8
Trego.....	1	1	0	1
Wabaunsee.....	0	1	2	3
Wallace.....	0	0	0	0
Washington.....	2	2	0	2
Wichita.....	0	0	2	2
Wilson.....	1	2	4	6
Woodson.....	0	0	1	1
Wyandotte.....	72	87	41	128

Residence data

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

Table 7
 Infant Deaths/Mortality Rates*
 By Population Group of Mother
 Kansas, 1990-2009

Year	White Non-Hispanic			Black Non-Hispanic			Black NH† to White NH‡ Ratio	Hispanic Any Race			Total Infant Death Rate: All Races§
	Live Births	Infant Deaths	Rate	Live Births	Infant Deaths	Rate		Live Births	Infant Deaths	Rate	
1990	32,778	244	7.4	3,309	59	17.8	2.4	1,869	18	9.6	8.4
1991	31,453	245	7.8	3,137	62	19.8	2.5	1,990	25	12.6	9.0
1992	31,294	234	7.5	3,291	72	21.9	2.9	2,223	19	8.5	8.8
1993	30,650	224	7.3	3,206	76	23.7	3.2	2,305	18	7.8	8.7
1994	30,453	215	7.1	3,101	49	15.8	2.2	2,656	15	5.6	7.6
1995	30,221	184	6.1	2,850	51	17.9	2.9	2,812	17	6.0	6.9
1996	29,473	212	7.2	2,738	63	23.0	3.2	3,198	18	5.6	8.2
1997	29,659	189	6.4	2,766	46	16.6	2.6	3,525	29	8.2	7.4
1998	30,389	209	6.9	2,746	27	9.8	1.4	3,873	25	6.5	6.9
1999	30,362	215	7.1	2,815	42	14.9	2.1	4,204	15	3.6	7.3
2000	30,538	192	6.3	2,822	33	11.7	1.9	4,742	32	6.7	6.7
2001	29,703	190	6.4	2,745	54	19.7	3.1	4,875	36	7.4	7.3
2002	29,811	187	6.3	2,845	44	15.5	2.5	5,006	40	8.0	7.2
2003	29,482	172	5.8	2,730	40	14.7	2.5	5,417	45	8.3	6.7
2004	29,624	200	6.8	2,782	46	16.5	2.4	5,458	28	5.1	7.2
2005	28,903	181	6.3	2,670	45	16.9	2.7	6,073	52	8.6	7.5
2006	29,392	181	6.2	2,801	49	17.5	2.8	6,568	41	6.2	7.2
2007	30,170	205	6.8	2,856	56	19.6	2.9	6,676	56	8.4	7.9
2008	29,863	184	6.2	2,936	39	13.3	2.2	6,781	57	8.4	7.2
2009	29,471	178	6.0	2,830	44	15.5	2.6	6,790	40	5.9	7.0

*Rate per 1,000 live births

†Due to changes in the collection of the race item on certificates, use caution when comparing 2005-2009 data to prior years. See Technical Notes.

‡Non-Hispanic population group includes unknown Hispanic origin.

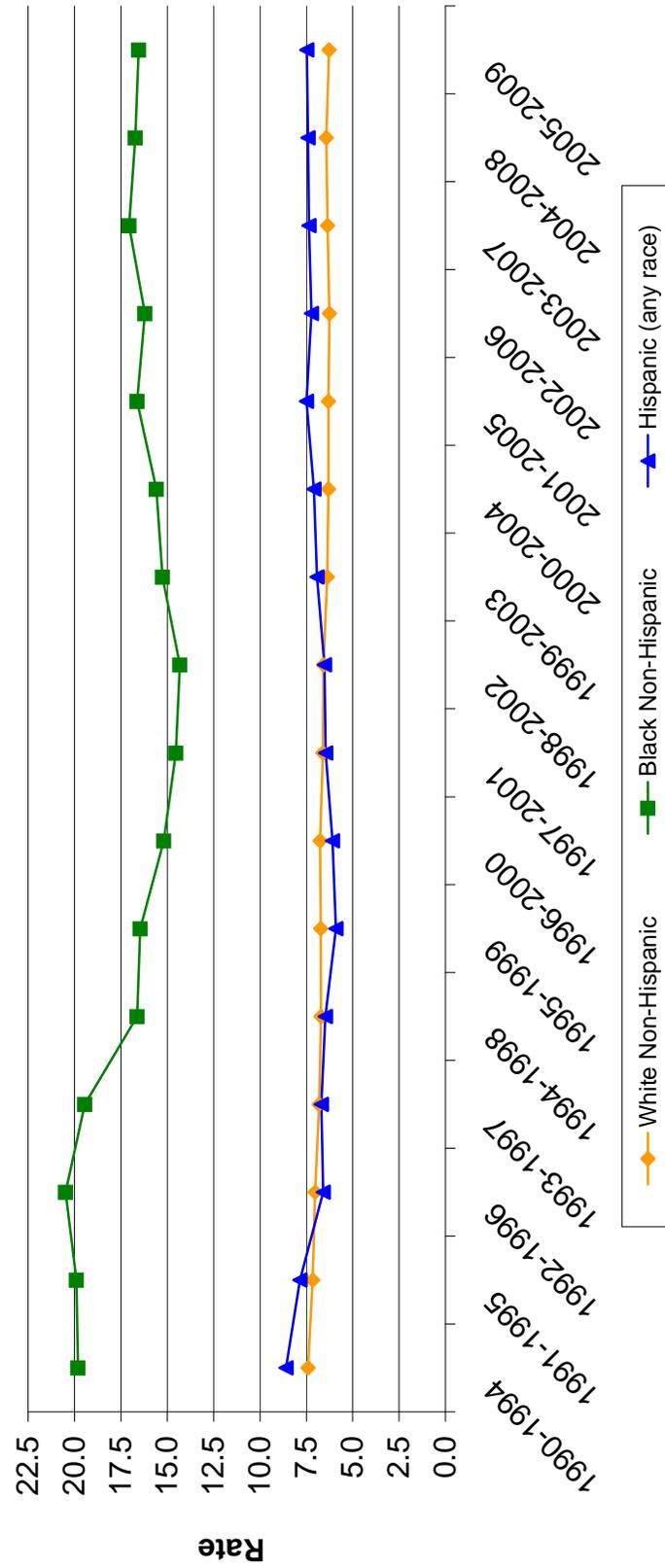
§NH = non-Hispanic

¶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 7
 Infant Mortality Rates* - Rolling Five Year Averages
 By Population Group of Mother,
 Kansas, 1990-2009



*Rate per 1,000 live births

Residence data

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

Table 8
 Infant Deaths/Mortality Rates by County of Residence
 And Peer Group*
 Kansas, 2005-2009

County of Residence						Total Infant Deaths	Live Births	Infant Death Rate†	95% Confidence Intervals	
	2005	2006	2007	2008	2009	2005-2009	2005-2009	2005-2009	Lower	Upper
						2005-2009	2005-2009	2005-2009	Lower	Upper
Kansas.....	297	293	333	303	290	1,516	205,751	7.4	7.0	7.7
Allen.....	3	2	4	1	1	11	885	12.4	6.2	22.2
Anderson.....	0	2	0	1	1	4	547	7.3 ‡	2.0	18.7
Atchison.....	2	3	1	1	2	9	1,075	8.4 ‡	3.8	15.9
Barber.....	0	0	1	0	0	1	295	§	§	§
Barton.....	6	6	3	2	1	18	1,909	9.4	5.6	14.9
Bourbon.....	3	2	1	3	1	10	1,127	8.9 ‡	4.3	16.3
Brown.....	0	1	1	3	0	5	726	6.9 ‡	2.2	16.1
Butler.....	4	1	6	6	3	20	4,058	4.9	3.0	7.6
Chase.....	0	0	0	0	0	0	140	0.0		
Chautauqua.....	0	2	0	1	1	4	194	§	§	§
Cherokee.....	1	1	3	3	1	9	1,363	6.6 ‡	3.0	12.5
Cheyenne.....	0	0	0	0	1	1	115	§	§	§
Clark.....	0	0	0	0	0	0	129	0.0	0.0	0.0
Clay.....	1	1	1	1	3	7	550	12.7 ‡	5.1	26.2
Cloud.....	1	0	3	5	0	9	599	15.0 ‡	6.9	28.5
Coffey.....	0	0	2	1	0	3	455	§	§	§
Comanche.....	0	0	0	0	0	0	83	0.0		
Cowley.....	1	3	11	3	4	22	2,353	9.3	5.9	14.2
Crawford.....	0	7	7	3	2	19	2,706	7.0	4.2	11.0
Decatur.....	0	0	0	1	0	1	110	§	§	§
Dickinson.....	0	1	0	1	1	3	1,152	§	§	§
Doniphan.....	2	0	1	0	0	3	418	§	§	§
Douglas.....	9	6	10	12	1	38	6,305	6.0	4.3	8.3
Edwards.....	0	0	0	0	0	0	210	0.0		
Elk.....	1	0	0	0	1	2	168	§	§	§
Ellis.....	4	1	0	1	1	7	1,861	3.8 ‡	1.5	7.7
Ellsworth.....	0	0	0	0	0	0	289	0.0		
Finney.....	5	2	5	5	6	23	3,848	6.0	3.8	9.0
Ford.....	3	5	2	9	5	24	3,357	7.1	4.6	10.6
Franklin.....	0	3	4	3	1	11	1,828	6.0	3.0	10.8
Geary.....	9	7	6	11	10	43	3,628	11.9	8.6	16.0
Gove.....	0	1	0	0	0	1	168	§	§	§
Graham.....	0	0	0	0	1	1	120	§	§	§
Grant.....	1	1	2	1	0	5	690	7.2 ‡	2.4	16.9
Gray.....	0	1	0	0	1	2	465	§	§	§
Greeley.....	1	0	0	0	0	1	72	§	§	§
Greenwood.....	0	0	1	1	0	2	379	§	§	§
Hamilton.....	0	0	0	0	0	0	217	§	§	§
Harper.....	1	1	0	1	1	4	382	10.5 ‡	2.9	26.8
Harvey.....	2	4	2	2	4	14	2,265	6.2	3.4	10.4
Haskell.....	3	0	1	1	1	6	353	17.0 ‡	6.2	37.0
Hodgeman.....	0	0	0	0	0	0	106	0.0		
Jackson.....	1	1	1	1	1	5	877	5.7 ‡	1.9	13.3
Jefferson.....	2	0	3	0	1	6	1,043	5.8 ‡	2.1	12.5
Jewell.....	0	1	0	0	0	1	135	§	§	§
Johnson.....	34	52	47	56	41	230	38,621	6.0	5.2	6.7
Kearny.....	0	0	1	0	1	2	305	§	§	§
Kingman.....	0	0	0	0	0	0	440	0.0		
Kiowa.....	0	0	0	0	2	2	141	§	§	§
Labette.....	2	2	1	2	3	10	1,514	6.6 ‡	3.2	12.1
Lane.....	0	0	2	0	0	2	100	§	§	§
Leavenworth.....	7	8	3	4	5	27	4,701	5.7	3.8	8.4
Lincoln.....	1	1	1	0	0	3	184	§	§	§
Linn.....	0	2	0	0	0	2	554	3.6 ‡	0.4	13.0
Logan.....	0	0	0	0	1	1	130	§	§	§

Table 8
 Infant Deaths/Mortality Rates by County of Residence
 And Peer Group*
 Kansas, 2005-2009

County of Residence						Total Infant Deaths	Live Births	Infant Death Rate†	95% Confidence Intervals	
	2005	2006	2007	2008	2009	2005-2009	2005-2009	2005-2009	Lower	Upper
						2005-2009	2005-2009	2005-2009	Lower	Upper
Lyon.....	3	3	4	3	5	18	2,626	6.9	4.1	10.8
Marion.....	1	2	3	1	5	12	573	20.9	10.8	36.6
Marshall.....	0	1	0	1	1	3	611	§	§	§
McPherson.....	1	5	1	2	5	14	1,765	7.9	4.3	13.3
Meade.....	0	0	2	0	0	2	291	§	§	§
Miami.....	4	2	3	1	2	12	1,985	6.0	3.1	10.6
Mitchell.....	0	0	0	2	1	3	334	§	§	§
Montgomery.....	5	5	2	1	2	15	2,497	6.0	3.4	9.9
Morris.....	0	0	0	0	0	0	283	0.0		
Morton.....	0	0	1	0	0	1	254	§	§	§
Nemaha.....	2	2	1	1	1	7	643	10.9 ‡	4.4	22.4
Neosho.....	1	3	2	2	7	15	1,078	13.9	7.8	23.0
Ness.....	0	0	0	0	0	0	134	0.0		
Norton.....	0	0	0	0	0	0	255	0.0		
Osage.....	2	0	1	0	1	4	956	4.2	1.1	10.7
Osborne.....	0	0	1	0	0	1	188	§	§	§
Ottawa.....	1	1	1	0	0	3	321	§	§	§
Pawnee.....	0	0	2	0	1	3	350	§	§	§
Phillips.....	1	0	1	0	0	2	278	§	§	§
Pottawatomie.....	0	0	4	3	1	8	1,655	4.8 ‡	2.1	9.5
Pratt.....	0	0	0	1	1	2	629	§	§	§
Rawlins.....	0	0	0	1	0	1	117	§	§	§
Reno.....	4	11	6	6	7	34	4,231	8.0	5.6	11.2
Republic.....	0	1	1	0	0	2	247	§	§	§
Rice.....	0	0	1	0	0	1	595	§	§	§
Riley.....	5	4	6	5	12	32	5,194	6.2	4.2	8.7
Rooks.....	0	1	0	1	1	3	315	§	§	§
Rush.....	0	0	0	0	0	0	168	0.0		
Russell.....	0	0	2	0	1	3	386	§	§	§
Saline.....	8	7	9	8	5	37	4,133	9.0	6.3	12.3
Scott.....	1	0	2	0	2	5	370	13.5 ‡	4.4	31.5
Sedgwick.....	75	57	76	55	69	332	40,472	8.2	7.3	9.1
Seward.....	2	7	2	6	0	17	2,710	6.3	3.7	10.0
Shawnee.....	30	18	25	22	25	120	12,727	9.4	7.7	11.1
Sheridan.....	0	1	0	0	0	1	143	§	§	§
Sherman.....	0	1	2	0	0	3	376	§	§	§
Smith.....	1	0	0	0	0	1	172	§	§	§
Stafford.....	0	1	0	0	0	1	258	§	§	§
Stanton.....	0	0	0	1	0	1	185	§	§	§
Stevens.....	2	1	0	1	0	4	469	8.5 ‡	2.3	21.8
Sumner.....	1	2	2	1	2	8	1,520	5.3 ‡	2.3	10.4
Thomas.....	0	0	0	5	3	8	523	15.3 ‡	6.6	30.1
Trego.....	0	0	1	0	0	1	160	§	§	§
Wabaunsee.....	2	0	1	0	0	3	434	§	§	§
Wallace.....	0	0	0	0	0	0	65	§	§	§
Washington.....	1	1	0	0	0	2	313	§	§	§
Wichita.....	1	0	0	1	0	2	162	§	§	§
Wilson.....	3	1	1	0	1	6	655	9.2 ‡	3.4	19.9
Woodson.....	0	0	0	1	0	1	179	§	§	§
Wyandotte.....	30	24	30	25	19	128	14,321	8.9	7.4	10.5
Peer Group										
Frontier	5	4	10	4	7	30	4,967	6.0	4.1	8.6
Rural	22	25	30	31	27	135	16,897	8.0	6.6	9.3
Densely - Settled Rural	41	45	47	45	43	221	31,589	7.0	6.1	7.9
Semi-Urban	51	62	58	53	58	282	39,852	7.1	6.2	7.9
Urban	178	157	188	170	155	848	112,446	7.5	7.0	8.1

* 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

§ 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

Table 9
 Infant Deaths by Cause of Death and Period of Death
 Kansas, 2005-2009

Cause of Death (ICD-10 Code)	Age-Group of Infant					
	Under 1 Day	1-6 Days	Under 7 Days*	Under 28 Days†	28-364 Days‡	Under 1 Year
All Causes	633	124	757	952	564	1,516
Infectious and Parasitic Diseases (A00-B99)	0	0	0	6	19	25
Other Diseases and Disorders (C00-O99)	8	4	12	27	116	143
Certain Conditions Originating in the Perinatal Period (P00-P96)	465	65	530	623	18	641
-Maternal Factors and Compl of Pregnancy, Labor and Delivery (P00-P04)	148	15	163	170	0	170
-Disorders Relating to Short Gestation and Low Birth Weight (P07)	237	7	244	248	3	251
-Birth Trauma (P10-P15)	0	0	0	0	0	0
-Hypoxia and Birth Asphyxia (P20-P21)	4	3	7	10	0	10
-Respiratory Distress of Newborn (P22)	7	6	13	16	1	17
-Congenital Pneumonia (P23)	0	1	1	6	0	6
-Other Respiratory Conditions of Newborn (P24-P28)	17	9	26	31	8	39
-Bacterial Sepsis of Newborn (P36)	8	8	16	28	0	28
-Omphalitis of Newborn w/wo Mild Hemorrhage (P38)	0	0	0	0	0	0
-Hemorrhagic and Hematolog Disorders of Fetus and Newborn (P50-P61)	5	7	12	23	0	23
-Other Perinatal Conditions (P05, P08, P29, P35, P37, P39, P70-P96)	39	9	48	91	6	97
Congenital Anomalies (Q00-Q99)	157	47	204	255	91	346
Symptoms and Abnormal Findings (R00-R99)	2	6	8	28	236	264
-Sudden Infant Death Syndrome (R95)	1	2	3	17	210	227
-Other (R00-R94, R96-R99)	1	4	5	11	26	37
External Causes of Mortality (V01-Y89)	1	2	3	13	84	97

*Hebdomadal Deaths

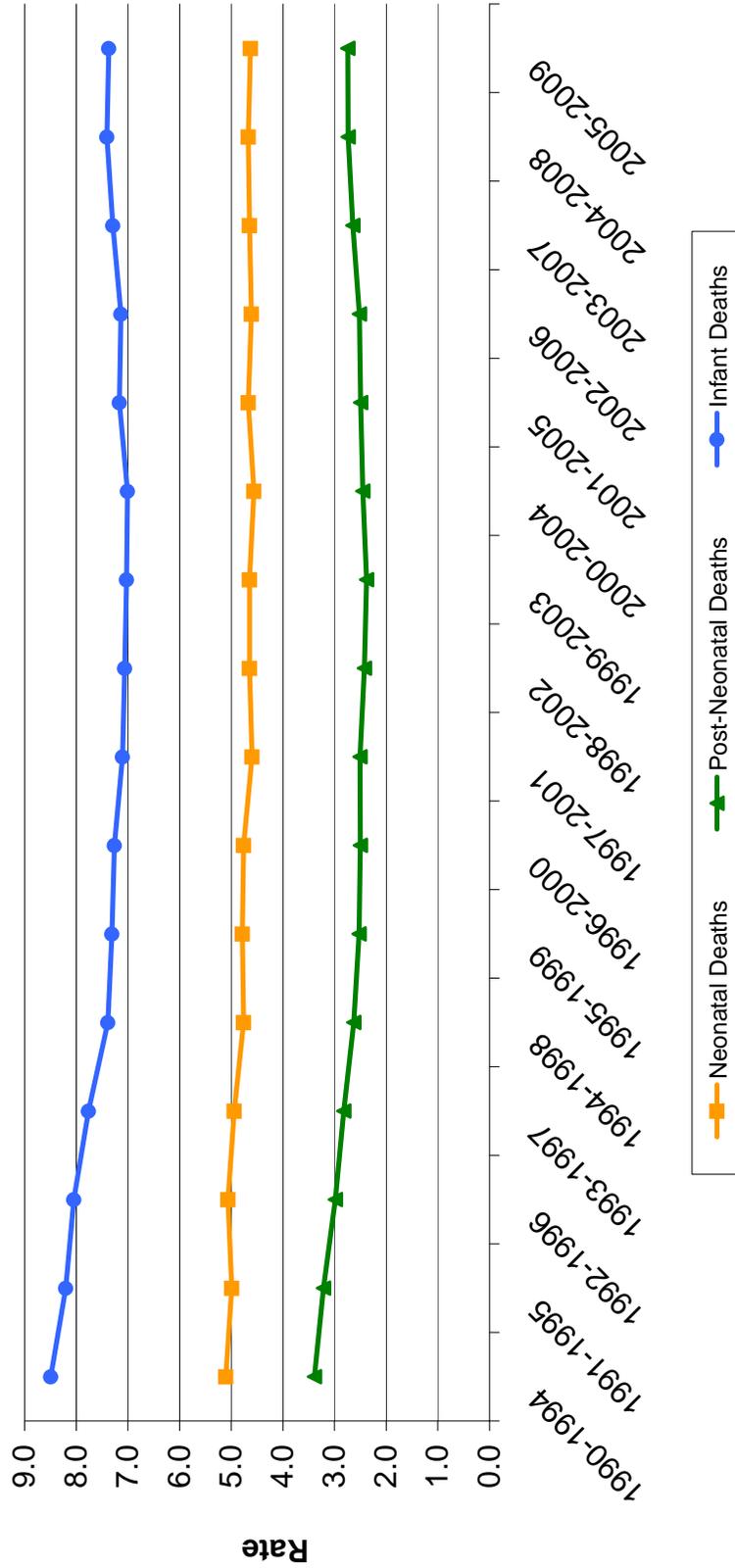
†Neonatal Deaths

‡Postneonatal Deaths

Residence data

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

Figure 8
 Infant Mortality Rates* - Rolling Five Year Averages
 By Period of Death,
 Kansas, 1990-2009



*Rate per 1,000 Live Births

Residence data

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

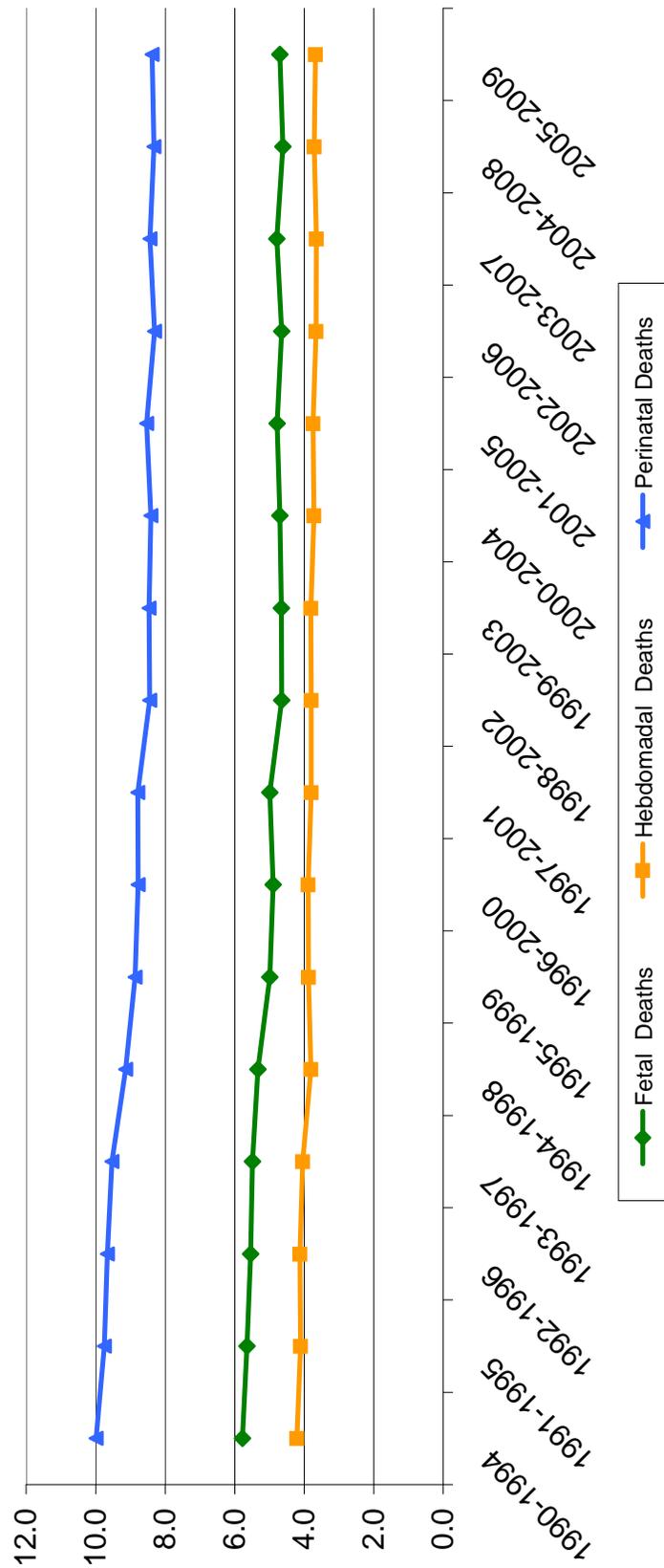
Table 10
Stillbirths by Cause of Death and Weeks Gestation
Kansas, 2005-2009

Cause of Death (ICD-10 Code)	Total Stillbirths	Weeks Gestation				
		Under 20	20-31	32-41	42 & Over	N.S.
All Causes.....	967	8	475	463	4	17
Certain Conditions Originating in the Perinatal Period (P00-P96).....	843	7	408	413	1	14
-Fetus Affected by Maternal Conditions (P00).....	96	3	49	43	0	1
-Fetus Affected by Maternal Complications of Pregnancy (P01).....	99	1	74	23	0	1
-Fetus Affected by Complications of Placenta, Cord & Membrane (P02).....	302	0	122	176	0	4
-Fetus Affected by Complications of Labor & Delivery (P03).....	5	0	2	2	0	1
-Disorders Related to Short Gestation & Low Birth Weight (P07).....	25	1	19	4	0	1
-Hypoxia and Birth Asphyxia (P20-P21).....	4	0	1	3	0	0
-Cardiovascular Disorders (P29).....	0	0	0	0	0	0
-Hemorrhagic & Hematologic Disorders of Fetus (P50-P54, P56).....	1	0	1	0	0	0
-Unspecified Cause (P95).....	248	0	118	124	1	5
-Other Perinatal Conditions (P04-P05, P08-P15, P22-P28, P35-P39, P55, P57-P94, P96).....	63	2	22	38	0	1
Congenital Anomalies (Q00-Q99).....	110	1	57	46	3	3
All other Causes (A00-N00, R00-R99, V06-Y36).....	14	0	10	4	0	0

Residence data

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

Figure 9
 Perinatal Period III Mortality Rates* - Rolling Five Year Averages
 By Period of Death
 Kansas, 1990-2009



*Rate per 1,000 Live Births
 Residence data

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

Table 11
 Linked Birth and Death File
 Cause of Death by Gestational Age
 Ranked by Frequency
 Kansas 2005-2009

Cause of Death	Total Deaths*	Very Premature <31 weeks		Moderate Premature 32-33 weeks		Late Preterm 34-36 weeks		Total Preterm <37 weeks		Term >=37 weeks		N.S.
		N	%	N	%	N	%	N	%	N	%	
Kansas	1,453	674	46.9	59	4.1	151	10.5	884	61.5	554	38.5	15
Congenital Anomalies (Q00-Q99)	323	52	16.3	35	10.9	76	23.8	163	50.9	157	49.1	3
Disorders Related to Short Gestation & Low Birth Weight (P07, 765)	239	233	98.7	2	0.8	1	0.4	236	100.0	0	0.0	3
Sudden Infant Death Syndrome (R95)	221	6	2.7	1	0.5	24	11.0	31	14.2	188	85.8	2
Maternal Factors & Compl of Pregnancy, Labor and Delivery (P00-P04)	163	149	92.0	2	1.2	6	3.7	157	96.9	5	3.1	1
Other Diseases and Disorders (C00-O99)	137	51	37.2	8	5.8	16	11.7	75	54.7	62	45.3	0
External Causes of Mortality (V01-Y89)	96	2	2.2	0	0.0	14	15.1	16	17.2	77	82.8	3
Other Perinatal Conditions (P05, P08, P29, P35, P37, P39, P70-P96)	95	77	81.9	5	5.3	4	4.3	86	91.5	8	8.5	1
Other Respiratory Conditions of Newborn (P24-P28)	38	30	78.9	3	7.9	1	2.6	34	89.5	4	10.5	0
Other Symptoms and Abnormal Findings (R00-R94, R96-R99)	37	5	13.9	2	5.6	3	8.3	10	27.8	26	72.2	1
Bacterial Sepsis of Newborn (P36)	26	20	80.0	1	4.0	0	0.0	21	84.0	4	16.0	1
Infectious and Parasitic Diseases (A00-B99)	24	8	33.3	0	0.0	3	12.5	11	45.8	13	54.2	0
Hemorrhagic and Hematolog Disorders of Fetus and Newborn (P50-P61)	22	18	81.8	0	0.0	0	0.0	18	81.8	4	18.2	0
Respiratory Distress of Newborn (P22)	17	17	100.0	0	0.0	0	0.0	17	100.0	0	0.0	0
Hypoxia and Birth Asphyxia (P20-P21, 768)	10	2	20.0	0	0.0	3	30.0	5	50.0	5	50.0	0
Congenital Pneumonia (P23)	5	4	80.0	0	0.0	0	0.0	4	80.0	1	20.0	0

*Ranked by number of deaths.

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 later years. Such comparisons are inappropriate.
- The 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.
- The 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.

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 race and origin information 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 *2009 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.

Kansas Department of Health and Environment
Office of Vital Statistics

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)	

CERTIFICATE OF LIVE BIRTH (Cont.)

CONFIDENTIAL INFORMATION FOR INTERNAL USE ONLY

34. IF HOME BIRTH, WAS DELIVERY PLANNED AT HOME? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown					
35. MOTHER'S SOCIAL SECURITY NUMBER			36. FATHER'S SOCIAL SECURITY NUMBER		
37a. WAS MOTHER EVER MARRIED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		37b. MOTHER MARRIED? (At birth, conception or any time between) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
37c. IF NO, HAS PATERNITY ACKNOWLEDGMENT BEEN SIGNED? <input type="checkbox"/> Yes <input type="checkbox"/> No		37d. MOTHER REFUSES TO GIVE HUSBAND'S INFORMATION <input type="checkbox"/> Yes <input type="checkbox"/> No			
38. WHAT IS THE PRIMARY LANGUAGE SPOKEN IN THE HOME? <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Vietnamese <input type="checkbox"/> German <input type="checkbox"/> French <input type="checkbox"/> Russian <input type="checkbox"/> Ukrainian <input type="checkbox"/> Mandarin <input type="checkbox"/> Cantonese <input type="checkbox"/> Sign Language <input type="checkbox"/> Other (Specify) _____					
39. PARENT'S HISPANIC ORIGIN (Check the box or boxes that best describes whether the parent is Spanish, Hispanic, or Latino. Check the "No" box if the parent is not Spanish, Hispanic, or Latino.)		40. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)			
39a. MOTHER		39b. FATHER		40a. MOTHER	
<input type="checkbox"/> No, not Spanish/Hispanic/Latina <input type="checkbox"/> Yes, Mexican/Mexican American/Chicana <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify) _____ <input type="checkbox"/> Unknown		<input type="checkbox"/> No, not Spanish/Hispanic/Latino <input type="checkbox"/> Yes, Mexican/Mexican American/Chicano <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify) _____ <input type="checkbox"/> Unknown		<input type="checkbox"/> White <input type="checkbox"/> 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	
				40b. 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 checked="" 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	
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, MEd, MEd, MSW, MBA)		<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, MEd, 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)	
				<input type="checkbox"/> High school graduate or GED <input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)	
44. PREVIOUS LIVE BIRTHS (Do not include this child.)		45. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)		46. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No	47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)
44a. Now living Number _____ <input type="checkbox"/> None	44b. Now dead Number _____ <input type="checkbox"/> None	45a. Before 20 weeks Number _____ <input type="checkbox"/> None	45b. 20 weeks & over Number _____ <input type="checkbox"/> None	48. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	
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")	
50. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	51. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)		52. PLURALITY - Single, Twin, Triplet, etc. (Specify)	53. IF NOT A SINGLE BIRTH - Born First, Second, Third, etc. (Specify)	54. TOTAL LIVE BIRTHS AT THIS DELIVERY
55. IS INFANT ALIVE AT THE TIME OF THIS REPORT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	56. IS INFANT BEING BREAST-FED AT DISCHARGE? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		57. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked. If none, enter "0". Average number of cigarettes or packs of cigarettes smoked per day: No. No. Three months before pregnancy: _____ cigarettes or _____ packs First three months of pregnancy: _____ cigarettes or _____ packs Second three months of pregnancy: _____ cigarettes or _____ packs Third Trimester of pregnancy: _____ cigarettes or _____ packs		
58. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY			59. MOTHER'S MEDICAL RECORD NO.		
<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			60. NEWBORN'S MEDICAL RECORD NO.		
61. MOTHER TRANSFERRED IN FOR DELIVERY DUE TO MATERNAL, MEDICAL, OR FETAL INDICATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)			62. INFANT TRANSFERRED (Within 24 hours of delivery) <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)		
FACILITY TRANSFERRED FROM:			FACILITY TRANSFERRED TO:		

CERTIFICATE OF LIVE BIRTH (Cont.)

CHILD'S NAME _____

MOTHER'S NAME _____

PRENATAL (Birth)	LABOR-DELIVERY/NEWBORN				
<p>63. 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>66. OBSTETRICAL PROCEDURES (Check all that apply.)</p> <p>1. <input type="checkbox"/> Cervical cerclage</p> <p>2. <input type="checkbox"/> Tocolysis</p> <p>3. External cephalic version: <input type="checkbox"/> Successful <input type="checkbox"/> Failed</p> <p>4. <input type="checkbox"/> None of the above</p>	<p>70. INFECTIONS PRESENT AND/OR TREATED (During this pregnancy, check all that apply.)</p> <p>1. <input type="checkbox"/> Gonorrhea 5. <input type="checkbox"/> Hepatitis B</p> <p>2. <input type="checkbox"/> Syphilis 6. <input type="checkbox"/> Hepatitis C</p> <p>3. <input type="checkbox"/> Herpes Simplex Virus (HSV) 7. <input type="checkbox"/> AIDS or HIV antibody</p> <p>4. <input type="checkbox"/> Chlamydia 8. <input type="checkbox"/> None of the above</p>			
<p>64. 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>67. ONSET OF LABOR (Check all that apply.)</p> <p>1. <input type="checkbox"/> Premature Rupture of the Membranes (prolonged, ≥ 12 hours)</p> <p>2. <input type="checkbox"/> Precipitous Labor (< 3 hrs)</p> <p>3. <input type="checkbox"/> Prolonged Labor (≥ 20 hrs)</p> <p>4. <input type="checkbox"/> None of the above</p>	<p>71. ABNORMAL CONDITIONS OF NEWBORN (Check all that apply)</p> <p>1. <input type="checkbox"/> Assisted ventilation required immediately following delivery</p> <p>2. <input type="checkbox"/> Assisted ventilation required for more than six hours</p> <p>3. <input type="checkbox"/> NICU admission</p> <p>4. <input type="checkbox"/> Newborn given surfactant replacement therapy</p> <p>5. <input type="checkbox"/> Antibiotics received by the newborn for suspected neonatal sepsis</p> <p>6. <input type="checkbox"/> Seizure or serious neurologic dysfunction</p> <p>7. <input type="checkbox"/> Significant birth injury (skeletal fracture(s), peripheral nerve injury, and/or soft tissue/solid organ hemorrhage which requires intervention)</p> <p>8. <input type="checkbox"/> None of the above</p>			
<p>65. 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>68. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply.)</p> <p>1. <input type="checkbox"/> Induction of labor</p> <p>2. <input type="checkbox"/> Augmentation of labor</p> <p>3. <input type="checkbox"/> Non-vertex presentation</p> <p>4. <input type="checkbox"/> Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery</p> <p>5. <input type="checkbox"/> Antibiotics received by the mother during labor</p> <p>6. <input type="checkbox"/> Clinical chorioamnionitis diagnosed during labor or maternal temperature ≥ 38 C (100.4 F)</p> <p>7. <input type="checkbox"/> Moderate/heavy meconium staining of the amniotic fluid</p> <p>8. <input type="checkbox"/> Fetal intolerance of labor: (examples: in-utero resuscitative measures, further fetal assessment, or operative delivery)</p> <p>9. <input type="checkbox"/> Epidural or spinal anesthesia during labor</p> <p>10. <input type="checkbox"/> None of the above</p>	<p>72. VACCINES ADMINISTERED TO NEWBORN</p> <p>1. <input type="checkbox"/> Hepatitis B Date Given: _____</p> <p>2. <input type="checkbox"/> Other* Specify: _____ Date Given: _____</p>			
		<p>73. APGAR SCORE</p> <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			
	<p>69. 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>74. 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>			

CERTIFICATE OF LIVE BIRTH (Cont.)

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;">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 _____ ABR _____ 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>				

Kansas Department Of Health And Environment
Office of Vital Statistics

CERTIFICATE OF DEATH

State File Number

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

CERTIFICATE OF DEATH (Cont.)

<p>30. ANCESTRY-What is this person's ancestry or ethnic origin? Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)</p>	<p>32. RACE (Check one or more boxes to indicate what race(s) the decedent considered himself or herself to be.)</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"/> 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><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><input type="checkbox"/> Other (Specify)</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Unknown</p>	<p>33. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of death.)</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 checked="" 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>31. 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"/> No, not Spanish/Hispanic/Latino</p> <p><input type="checkbox"/> Yes, Mexican/Mexican American/Chicano</p> <p><input type="checkbox"/> Yes, Puerto Rican</p> <p><input type="checkbox"/> Yes, Cuban</p> <p><input type="checkbox"/> Yes, Central American</p> <p><input type="checkbox"/> Yes, South American</p> <p><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)</p> <p>_____</p> <p><input type="checkbox"/> Unknown</p>	<p>34. DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired.)</p>	<p>35. 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.			24. DATE SIGNED (Month, Day, Year)
Signature of Parent (or Other Informant) >			
25. CAUSE/CONDITIONS CONTRIBUTING TO FETAL DEATH			
25a. INITIATING CAUSE/CONDITION (Among the choices below, please select the one 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
28. I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THE FETUS WAS BORN DEAD.		27c. WERE AUTOPSY OR HISTOLOGICAL PLACENTAL EXAMINATION RESULTS USED IN DETERMINING THE CAUSE OF FETAL DEATH? <input type="checkbox"/> Yes <input type="checkbox"/> No	
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)

CERTIFICATE OF STILLBIRTH (Cont.)

CONFIDENTIAL INFORMATION FOR INTERNAL USE ONLY

37. IF HOME DELIVERY, WAS DELIVERY PLANNED AT HOME? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			38. MOTHER'S MEDICAL RECORD NO.																																																																								
39a. WAS MOTHER EVER MARRIED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		39b. MOTHER MARRIED? (At birth, conception or any time between) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown																																																																									
40. PARENT'S HISPANIC ORIGIN (Check the box or boxes that best describes whether the parent is Spanish, Hispanic, or Latino. Check the "no" box if the parent is not Spanish, Hispanic, or Latino.)		41. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)																																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">40a. MOTHER-</td> <td style="width: 50%;">40b. FATHER-</td> </tr> <tr> <td><input type="checkbox"/> No, not Spanish/Hispanic/Latina</td> <td><input type="checkbox"/> No, not Spanish/Hispanic/Latino</td> </tr> <tr> <td><input type="checkbox"/> Yes, Mexican/Mexican American/Chicana</td> <td><input type="checkbox"/> Yes, Mexican/Mexican American/Chicano</td> </tr> <tr> <td><input type="checkbox"/> Yes, Puerto Rican</td> <td><input type="checkbox"/> Yes, Puerto Rican</td> </tr> <tr> <td><input type="checkbox"/> Yes, Cuban</td> <td><input type="checkbox"/> Yes, Cuban</td> </tr> <tr> <td><input type="checkbox"/> Yes, Central American</td> <td><input type="checkbox"/> Yes, Central American</td> </tr> <tr> <td><input type="checkbox"/> Yes, South American</td> <td><input type="checkbox"/> Yes, South American</td> </tr> <tr> <td><input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify)</td> <td><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)</td> </tr> <tr> <td><input type="checkbox"/> Unknown</td> <td><input type="checkbox"/> Unknown</td> </tr> </table>		40a. MOTHER-	40b. FATHER-	<input type="checkbox"/> No, not Spanish/Hispanic/Latina	<input type="checkbox"/> No, not Spanish/Hispanic/Latino	<input type="checkbox"/> Yes, Mexican/Mexican American/Chicana	<input type="checkbox"/> Yes, Mexican/Mexican American/Chicano	<input type="checkbox"/> Yes, Puerto Rican	<input type="checkbox"/> Yes, Puerto Rican	<input type="checkbox"/> Yes, Cuban	<input type="checkbox"/> Yes, Cuban	<input type="checkbox"/> Yes, Central American	<input type="checkbox"/> Yes, Central American	<input type="checkbox"/> Yes, South American	<input type="checkbox"/> Yes, South American	<input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify)	<input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">41a. MOTHER</td> <td colspan="2" style="text-align: center;">41b. FATHER</td> </tr> <tr> <td><input type="checkbox"/> White</td> <td><input type="checkbox"/> Native Hawaiian</td> <td><input type="checkbox"/> White</td> <td><input type="checkbox"/> Native Hawaiian</td> </tr> <tr> <td><input type="checkbox"/> Black or African American</td> <td><input type="checkbox"/> Guamanian or Chamorro</td> <td><input type="checkbox"/> Black or African American</td> <td><input type="checkbox"/> Guamanian or Chamorro</td> </tr> <tr> <td><input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)</td> <td><input type="checkbox"/> Samoan</td> <td><input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)</td> <td><input type="checkbox"/> Samoan</td> </tr> <tr> <td>_____</td> <td><input type="checkbox"/> Other Pacific Islander (Specify)</td> <td>_____</td> <td><input type="checkbox"/> Other Pacific Islander (Specify)</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Asian Indian</td> <td><input type="checkbox"/> Other (Specify)</td> <td><input type="checkbox"/> Asian Indian</td> <td><input type="checkbox"/> Other (Specify)</td> </tr> <tr> <td><input type="checkbox"/> Chinese</td> <td>_____</td> <td><input type="checkbox"/> Chinese</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Filipino</td> <td>_____</td> <td><input type="checkbox"/> Filipino</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Japanese</td> <td>_____</td> <td><input type="checkbox"/> Japanese</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Korean</td> <td><input type="checkbox"/> Unknown</td> <td><input type="checkbox"/> Korean</td> <td><input type="checkbox"/> Unknown</td> </tr> <tr> <td><input type="checkbox"/> Vietnamese</td> <td>_____</td> <td><input type="checkbox"/> Vietnamese</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Other Asian (Specify)</td> <td>_____</td> <td><input type="checkbox"/> Other Asian (Specify)</td> <td>_____</td> </tr> </table>				41a. MOTHER		41b. FATHER		<input type="checkbox"/> White	<input type="checkbox"/> Native Hawaiian	<input type="checkbox"/> White	<input type="checkbox"/> Native Hawaiian	<input type="checkbox"/> Black or African American	<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> Black or African American	<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)	<input type="checkbox"/> Samoan	<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)	<input type="checkbox"/> Samoan	_____	<input type="checkbox"/> Other Pacific Islander (Specify)	_____	<input type="checkbox"/> Other Pacific Islander (Specify)	_____	_____	_____	_____	<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> Chinese	_____	<input type="checkbox"/> Chinese	_____	<input type="checkbox"/> Filipino	_____	<input type="checkbox"/> Filipino	_____	<input type="checkbox"/> Japanese	_____	<input type="checkbox"/> Japanese	_____	<input type="checkbox"/> Korean	<input type="checkbox"/> Unknown	<input type="checkbox"/> Korean	<input type="checkbox"/> Unknown	<input type="checkbox"/> Vietnamese	_____	<input type="checkbox"/> Vietnamese	_____	<input type="checkbox"/> Other Asian (Specify)	_____	<input type="checkbox"/> Other Asian (Specify)	_____
40a. MOTHER-	40b. FATHER-																																																																										
<input type="checkbox"/> No, not Spanish/Hispanic/Latina	<input type="checkbox"/> No, not Spanish/Hispanic/Latino																																																																										
<input type="checkbox"/> Yes, Mexican/Mexican American/Chicana	<input type="checkbox"/> Yes, Mexican/Mexican American/Chicano																																																																										
<input type="checkbox"/> Yes, Puerto Rican	<input type="checkbox"/> Yes, Puerto Rican																																																																										
<input type="checkbox"/> Yes, Cuban	<input type="checkbox"/> Yes, Cuban																																																																										
<input type="checkbox"/> Yes, Central American	<input type="checkbox"/> Yes, Central American																																																																										
<input type="checkbox"/> Yes, South American	<input type="checkbox"/> Yes, South American																																																																										
<input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify)	<input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify)																																																																										
<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown																																																																										
41a. MOTHER		41b. FATHER																																																																									
<input type="checkbox"/> White	<input type="checkbox"/> Native Hawaiian	<input type="checkbox"/> White	<input type="checkbox"/> Native Hawaiian																																																																								
<input type="checkbox"/> Black or African American	<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> Black or African American	<input type="checkbox"/> Guamanian or Chamorro																																																																								
<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)	<input type="checkbox"/> Samoan	<input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes)	<input type="checkbox"/> Samoan																																																																								
_____	<input type="checkbox"/> Other Pacific Islander (Specify)	_____	<input type="checkbox"/> Other Pacific Islander (Specify)																																																																								
_____	_____	_____	_____																																																																								
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Other (Specify)																																																																								
<input type="checkbox"/> Chinese	_____	<input type="checkbox"/> Chinese	_____																																																																								
<input type="checkbox"/> Filipino	_____	<input type="checkbox"/> Filipino	_____																																																																								
<input type="checkbox"/> Japanese	_____	<input type="checkbox"/> Japanese	_____																																																																								
<input type="checkbox"/> Korean	<input type="checkbox"/> Unknown	<input type="checkbox"/> Korean	<input type="checkbox"/> Unknown																																																																								
<input type="checkbox"/> Vietnamese	_____	<input type="checkbox"/> Vietnamese	_____																																																																								
<input type="checkbox"/> Other Asian (Specify)	_____	<input type="checkbox"/> Other Asian (Specify)	_____																																																																								
42. ANCESTRY - What is the parents' ancestry or ethnic origin? - Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)		43. OCCUPATION AND BUSINESS/INDUSTRY																																																																									
		Occupation		Business/Industry (Do not give name of company.)																																																																							
42a. MOTHER		43a. MOTHER (Most recent)		43c. MOTHER																																																																							
42b. FATHER		43b. FATHER (Usual)		43d. FATHER																																																																							
44. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery.)																																																																											
44a. MOTHER'S EDUCATION		44a. FATHER'S EDUCATION																																																																									
<input type="checkbox"/> 8 th grade or less	<input type="checkbox"/> Some College credit, but no degree	<input type="checkbox"/> 8 th grade or less	<input type="checkbox"/> Some College credit, but no degree	<input type="checkbox"/> 9 th - 12 th grade, no diploma	<input type="checkbox"/> High school graduate or GED																																																																						
<input type="checkbox"/> Unknown	<input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)	<input type="checkbox"/> Unknown	<input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)	<input type="checkbox"/> Associate degree (e.g., AA,AS)	<input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)																																																																						
				<input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)																																																																							
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 _____		46a. Before 20 weeks Number _____		48. IF NOT A SINGLE BIRTH - Born First, Second, Third, etc. (Specify)																																																																							
<input type="checkbox"/> None		<input type="checkbox"/> None		49. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)																																																																							
45b. Now dead Number _____		46b. 20 weeks & over Number _____		50. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)																																																																							
<input type="checkbox"/> None		<input type="checkbox"/> None																																																																									
45c. DATE OF LAST LIVE BIRTH (Month, Year)		46c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		51. WEIGHT OF FETUS (grams)																																																																							
52. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No		53. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)		54. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)																																																																							
				55. PRENATAL VISIT - Total number (If none, enter "0")																																																																							
56. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			57. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY																																																																								
For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked. If none, enter "0".			<input type="checkbox"/> Medicaid <input type="checkbox"/> Private/Employer Ins. <input type="checkbox"/> Self-pay																																																																								
Average number of cigarettes or packs of cigarettes smoked per day:			<input type="checkbox"/> Indian Health Service <input type="checkbox"/> CHAMPUS/TRICARE <input type="checkbox"/> Other government																																																																								
Three months before pregnancy: _____ cigarettes or _____ packs			<input type="checkbox"/> Other <input type="checkbox"/> Unknown																																																																								
First three months of pregnancy: _____ cigarettes or _____ packs																																																																											
Second three months of pregnancy: _____ cigarettes or _____ packs																																																																											
Third Trimester of pregnancy: _____ cigarettes or _____ packs																																																																											
			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 _____

MOTHER'S NAME _____

CERTIFICATE OF STILLBIRTH (Cont.)

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 type="checkbox"/> Listeria</p> <p>6. <input type="checkbox"/> Group B Streptococcus</p> <p>7. <input type="checkbox"/> Cytomegalovirus</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: _____