



Infant Mortality Kansas, 2010 Provisional Findings

**Bureau of Epidemiology and Public Health Informatics
Division of Health**

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Our Vision – Healthy Kansans Living in Safe and Sustainable Environments

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

Update (7-19-2011) – The term confidence interval was changed to confidence level and footnote was added to one of the tables to indicate infant mortality rates were calculated based on 1,000 live births.

Infant Mortality, 2010, Kansas, Provisional Findings

Introduction

Infant mortality is an important indicator of the health of a community or a state. It serves as one proxy indicator of population health since it reflects the potential association between the causes of infant mortality and other factors that are likely to influence health status of the whole population. KDHE's Division of Health monitors infant mortality and supports programs that promote access to health services and prevention for mothers and infants.

Methods

The Kansas Department of Health and Environment Bureau of Epidemiology and Public Health Informatics (BEPHI) maintains the Kansas civil registration system through the Office of Vital Statistics (OVS). All vital events that occur in Kansas are reported to KDHE. Vital events occurring in other states to Kansas residents are reported to OVS via inter-state jurisdictional exchange agreements with other states. On July 1 history files of events that occurred the previous calendar year are created. Prior to the creation of history files quality improvement programs validate the quality of the data or report records that need corrections. History files are then used as the basis of statistical summaries (annual tables) and the Kansas Annual Summary of Vital Statistics. All data reported herein are residence data, regardless of where the event occurred.

Findings

The number of infant deaths to Kansas residents dropped from 290 in 2009 to 254 in 2010. The number of Kansas resident births in 2010 was 40,439. This resulted in an infant mortality rate of 6.28 per 1,000 live births compared to 7.01 in 2009. Although the one year decline was not statistically significant at the 95% confidence level, the number of infant deaths is the lowest in Kansas since recordkeeping began in 1912. The infant mortality rate is the lowest recorded. Over the last 22 years Kansas has experienced a statistically significant declining trend in the annual infant mortality rate (with a lot of ups and downs in between).

The 2010 infant mortality rate represents a 28.4 percent decrease from the 1989 IMR of 8.77. That change is statistically significant at the 95% confidence level.

Most of the reduction (31 of 36 fewer deaths) in infant mortality occurred among infants classified as post-neonatal (28-364 days of age). The decrease was smaller among neonatal infants (five). Decreases occurred among all racial groups except persons who are more than one race (multi-race). Infant deaths increased among persons of Hispanic origin. Most of the reductions occurred in two broad cause of death categories: External Causes, and Congenital Anomalies.

Discussion

The reduction in infant mortality observed in Kansas in 2010 is encouraging, but it is important to note that the relatively small number of events that occur are subject to volatility, and trends should not be based on analyses of single year fluctuations.

Poisson Joinpoint regression analysis showed a statistically significant decrease in infant mortality rates from 1989 to 1998, and a stable rate from 1999-2010. Joinpoint regression analysis of IMR from 2007-2010 indicates a statistically significant decrease during the four year period. The Bureau of Epidemiology and Public Health Informatics, with the initiation of an expanded report on infant mortality, began reporting the trends on a rolling five year basis. This smoothing of rates makes trends more apparent.

These findings are subject to at least two limitations. Some very small under-reporting of vital events may occur. Additionally some infant deaths occur in other states. Late reporting of those events may affect totals. BEPHI quality improvement processes identified no under-reporting by other state vital events jurisdictions.

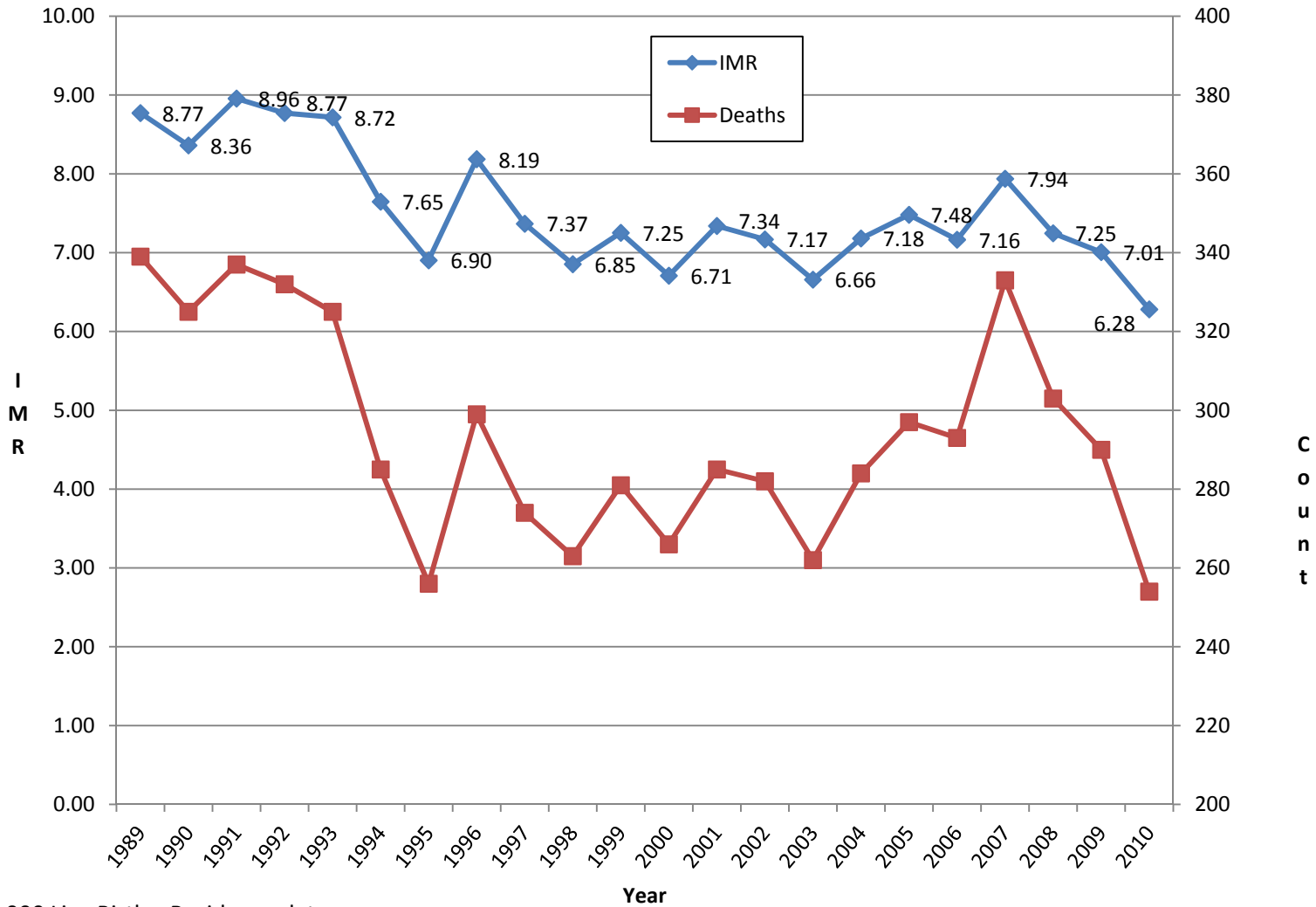
These findings are provisional. This means that only some analyses have been performed on the data. Results released as part of the 2010 Annual Summary of Vital Statistics, and Selected Special Statistics, Stillbirths and Infant Deaths, Kansas, 2010 will be more complete and comprehensive.

Prepared by Vital Statistics Data Analysis, Public Health Informatics
Bureau of Epidemiology and Public Health Informatics, Division of Health
Kansas Department of Health and Environment

Source Data Office of Vital Statistics, Public Health Informatics
Bureau of Epidemiology and Public Health Informatics, Division of Health
Kansas Department of Health and Environment

Prepared on: July 13, 2011

Infant Mortality Counts, Rate, 1989-2010, Kansas



*Per 1,000 Live Births, Residence data
 Source: Bureau of Epidemiology and Public Health Informatics
 Kansas Department of Health and Environment
 Prepared: July 13, 2011

Provisional

INFANT DEATHS BY SELECTED CHARACTERISTICS AND CHANGE, KANSAS RESIDENTS, 2009 & 2010, PROVISIONAL (Figures displayed in rows highlighted by a green column represent decreases in counts from 2009 to 2010)

Sex By Year			
	Year of Death		
	2009	2010	
FEMALE	141	104	
MALE	149	150	
Total	290	254	

Age-Group by Year			
	Year of Death		
	2009	2010	
UNDER 1 HOUR	45	45	
1 HOUR TO UNDER 1 DAY	70	74	
1 DAY TO UNDER 1 WEEK	29	24	
1 WEEK TO UNDER 1 MONTH	32	28	
1 MONTH TO UNDER 1 YEAR	114	83	
Total	290	254	

Race by Year			
	Year of Death		
	2009	2010	
ASIAN	6	5	
BLACK	44	34	
MULTI	15	26	
NAT AM	3	1	
NHOPI	1	0	
OTHER	25	21	
UNK	4	3	
WHITE	192	164	
Total	290	254	

Hispanic Origin by Year			
	Year of Death		
	2009	2010	
HISPANIC ORIGIN	40	50	
NON-HISPANIC	247	202	
UNKNOWN	3	2	
Total	290	254	

Cause of Death by Year			
	Year of Death		
	2009	2010	
A047-ENTEROCOLITIS DUE TO CLOSTRIDIUM DIFFICILE	0	1	
A090-OTHER AND UNSPECIFIED GASTROENTERITIS AND COLITIS OF INFECTIOUS ORIGIN	4	0	
A379-WHOOPING COUGH UNSPECIFIED	1	1	
A415-SEPTICEMIA DUE TO OTHER GRAM-NEGATIVE ORGANISMS	0	1	
A419-SEPTICEMIA UNSPECIFIED	1	0	
B004-HERPES-VIRAL ENCEPHALITIS	1	0	
C222-HEPATOBLASTOMA	1	0	
C717-BRAIN STEM	1	0	
C749-ADRENAL GLAND UNSPECIFIED	1	0	
C920-ACUTE MYELOID LEUKEMIA	0	1	
D66-HEREDITARY FACTOR VIII DEFICIENCY	1	0	
D760-LANGERHANS' CELL HISTIOCYTOSIS NOT ELSEWHERE CLASSIFIED	1	0	
E711-OTHER DISORDERS OF BRANCHED-CHAIN AMINO-ACID METABOLISM	0	1	
E831-DISORDERS OF IRON METABOLISM	1	0	
G002-STREPTOCOCCAL MENINGITIS	1	0	
G008-OTHER BACTERIAL MENINGITIS	0	1	
G049-ENCEPHALITIS MYELITIS AND ENCEPHALOMYELITIS UNSPECIFIED	0	1	
G120-INFANTILE SPINAL MUSCULAR ATROPHY TYPE I [WERDNIG-HOFFMAN]	0	1	
G129-SPINAL MUSCULAR ATROPHY UNSPECIFIED	3	1	
G319-DEGENERATIVE DISEASE OF NERVOUS SYSTEM UNSPECIFIED	0	1	
G404-OTHER GENERALIZED EPILEPSY AND EPILEPTIC SYNDROMES	1	0	
G710-MUSCULAR DYSTROPHY	1	0	
G712-CONGENITAL MYOPATHIES	0	1	
G969-DISORDER OF CENTRAL NERVOUS SYSTEM UNSPECIFIED	0	1	
I272-OTHER SECONDARY PULMONARY HYPERTENSION	0	1	

I281-ANEURYSM OF PULMONARY ARTERY	1	0	
I313-PERICARDIAL EFFUSION (NONINFLAMMATORY)	0	1	
I319-DISEASE OF PERICARDIUM UNSPECIFIED	0	1	
I420-DILATED CARDIOMYOPATHY	1	1	
I424-ENDOCARDIAL FIBROELASTOSIS	1	0	
I429-CARDIOMYOPATHY UNSPECIFIED	0	1	
I509-HEART FAILURE UNSPECIFIED	0	2	
I514-MYOCARDITIS UNSPECIFIED	1	0	
I629-INTRACRANIAL HEMORRHAGE (NONTRAUMATIC) UNSPECIFIED	1	0	
I678-OTHER SPECIFIED CEREBROVASCULAR DISEASES	2	1	
I710-DISSECTION OF AORTA [ANY PART]	1	0	
I823-EMBOLISM AND THROMBOSIS OF RENAL VEIN	0	1	
J159-BACTERIAL PNEUMONIA UNSPECIFIED	1	0	
J189-PNEUMONIA UNSPECIFIED	2	0	
J219-ACUTE BRONCHIOLITIS UNSPECIFIED	1	0	
J690-PNEUMONITIS DUE TO FOOD AND VOMIT	1	0	
J80-ADULT RESPIRATORY DISTRESS SYNDROME	0	1	
J840-ALVEOLAR AND PARIETOALVEOLAR CONDITIONS	0	1	
J969-RESPIRATORY FAILURE UNSPECIFIED	1	0	
J988-OTHER SPECIFIED RESPIRATORY DISORDERS	1	0	
K550-ACUTE VASCULAR DISORDERS OF INTESTINE	1	0	
K561-INTUSSUSCEPTION	1	0	
N19-UNSPECIFIED RENAL FAILURE	2	1	
P000-FETUS AND NEWBORN AFFECTED BY MATERNAL HYPERTENSIVE DISORDERS	1	0	
P003-FETUS AND NEWBORN AFFECTED BY OTHER MATERNAL CIRCULATORY AND RESPIRATORY DISEASES	0	1	
P008-FETUS AND NEWBORN AFFECTED BY OTHER MATERNAL CONDITIONS	0	1	
P010-FETUS AND NEWBORN AFFECTED BY INCOMPETENT CERVIX	3	7	
P011-FETUS AND NEWBORN AFFECTED BY PREMATURE RUPTURE OF MEMBRANES	16	4	
P012-FETUS AND NEWBORN AFFECTED BY OLIGOHYDRAMNIOS	2	2	

P015-FETUS AND NEWBORN AFFECTED BY MULTIPLE PREGNANCY	0	1	
P020-FETUS AND NEWBORN AFFECTED BY PLACENTA PREVIA	1	1	
P021-FETUS AND NEWBORN AFFECTED BY OTHER FORMS OF PLACENTAL SEPARATION AND HEMORRHAGE	7	5	
P023-FETUS AND NEWBORN AFFECTED BY PLACENTAL TRANSFUSION SYNDROMES	0	1	
P024-FETUS AND NEWBORN AFFECTED BY PROLAPSED CORD	0	1	
P025-FETUS AND NEWBORN AFFECTED BY OTHER COMPRESSION OF UMBILICAL CORD	0	1	
P027-FETUS AND NEWBORN AFFECTED BY CHORIOAMNIONITIS	5	10	
P038-FETUS AND NEWBORN AFFECTED BY OTHER SPECIFIED COMPLICATIONS OF LABOR AND DELIVERY	1	0	
P059-SLOW FETAL GROWTH UNSPECIFIED	0	3	
P072-EXTREME IMMATURITY	34	31	
P073-OTHER PRETERM INFANTS	18	8	
P209-INTRAUTERINE HYPOXIA UNSPECIFIED	0	2	
P220-RESPIRATORY DISTRESS SYNDROME OF NEWBORN	3	3	
P235-CONGENITAL PNEUMONIA DUE TO PSEUDOMONAS	1	0	
P250-INTERSTITIAL EMPHYSEMA ORIGINATING IN THE PERINATAL PERIOD	1	0	
P271-BRONCHOPULMONARY DYSPLASIA ORIGINATING IN THE PERINATAL PERIOD	0	1	
P280-PRIMARY ATELECTASIS OF NEWBORN	2	6	
P290-NEONATAL CARDIAC FAILURE	3	1	
P291-NEONATAL CARDIAC DYSRHYTHMIA	1	3	
P351-CONGENITAL CYTOMEGALOVIRUS INFECTION	0	2	
P352-CONGENITAL HERPES-VIRAL [HERPES SIMPLEX] INFECTION	1	1	
P360-SEPSIS OF NEWBORN DUE TO STREPTOCOCCUS GROUP B	0	1	
P369-BACTERIAL SEPSIS OF NEWBORN UNSPECIFIED	1	4	

P378-OTHER SPECIFIED CONGENITAL INFECTIOUS AND PARASITIC DISEASES	1	0	
P523-UNSPECIFIED INTRAVENTRICULAR (NONTRAUMATIC) HEMORRHAGE OF NEWBORN	3	1	
P549-NEONATAL HEMORRHAGE UNSPECIFIED	0	1	
P560-HYDROPS FETALIS DUE TO ISOIMMUNIZATION	1	0	
P77-NECROTIZING ENTEROCOLITIS OF NEWBORN	3	3	
P832-HYDROPS FETALIS NOT DUE TO HEMOLYTIC DISEASE	1	3	
P912-NEONATAL CEREBRAL LEUKOMALACIA	0	1	
P916-HYPOXIC, ISCHAEMIC ENCEPHALOPATY	0	1	
P968-OTHER SPECIFIED CONDITIONS ORIGINATING IN THE PERINATAL PERIOD	1	1	
P969-CONDITION ORIGINATING IN THE PERINATAL PERIOD UNSPECIFIED	3	0	
Q000-ANENCEPHALY	5	8	
Q002-INOENCEPHALY	0	1	
Q019-ENCEPHALOCELE UNSPECIFIED	1	1	
Q039-CONGENITAL HYDROCEPHALUS UNSPECIFIED	2	1	
Q042-HOLOPROSENCEPHALY	3	1	
Q043-OTHER REDUCTION DEFORMITIES OF BRAIN	1	0	
Q046-CONGENITAL CEREBRAL CYSTS	1	0	
Q049-CONGENITAL MALFORMATION OF BRAIN UNSPECIFIED	1	0	
Q054-UNSPECIFIED SPINA BIFIDA WITH HYDROCEPHALUS	1	0	
Q059-SPINA BIFIDA UNSPECIFIED	0	1	
Q200-COMMON ARTERIAL TRUNK	2	0	
Q203-DISCORDANT VENTRICULOARTERIAL CONNECTION	1	2	
Q225-EBSTEIN'S ANOMALY	0	1	
Q234-HYPOPLASTIC LEFT HEART SYNDROME	3	4	
Q246-CONGENITAL HEART BLOCK	1	0	
Q248-OTHER SPECIFIED CONGENITAL MALFORMATIONS OF HEART	0	1	
Q249-CONGENITAL MALFORMATION OF THE HEART UNSPECIFIED	9	5	
Q250-PATENT DUCTUS ARTERIOSUS	1	0	
Q251-COARCTATION OF AORTA	1	0	

Q253-STENOSIS OF AORTA	1	0	
Q269-CONGENITAL MALFORMATION OF GREAT VEIN UNSPECIFIED	1	0	
Q321-OTHER CONGENITAL MALFORMATIONS OF TRACHEA	1	0	
Q332-SEQUESTRATION OF LUNG	1	0	
Q336-HYPOPLASIA AND DYSPLASIA OF LUNG	3	4	
Q369-CLEFT LIP UNILATERAL	0	1	
Q431-HIRSCHSPRUNG'S DISEASE	0	1	
Q433-CONGENITAL MALFORMATIONS OF INTESTINAL FIXATION	0	1	
Q438-OTHER SPECIFIED CONGENITAL MALFORMATIONS OF INTESTINE	0	1	
Q601-RENAL AGENESIS BILATERAL	1	1	
Q602-RENAL AGENESIS UNSPECIFIED	2	1	
Q606-POTTER'S SYNDROME	1	4	
Q613-POLYCYSTIC KIDNEY UNSPECIFIED	1	1	
Q614-RENAL DYSPLASIA	0	2	
Q620-CONGENITAL HYDRONEPHROSIS	1	0	
Q771-THANATOPHORIC SHORT STATURE	0	1	
Q782-OSTEOPETROSIS	0	1	
Q789-OSTEOCHONDRODYSPLASIA UNSPECIFIED	1	0	
Q790-CONGENITAL DIAPHRAGMATIC HERNIA	2	5	
Q793-GASTROSCHISIS	1	3	
Q798-OTHER CONGENITAL MALFORMATIONS OF MUSCULOSKELETAL SYSTEM	1	0	
Q870-CONGENITAL MALFORMATION SYNDROMES PREDOMINANTLY AFFECTING FACIAL APPEARANCE	0	1	
Q878-OTHER SPECIFIED CONGENITAL MALFORMATION SYNDROMES NOT ELSEWHERE CLASSIFIED	1	0	
Q897-MULTIPLE CONGENITAL MALFORMATIONS NOT ELSEWHERE CLASSIFIED	5	2	
Q898-OTHER SPECIFIED CONGENITAL MALFORMATIONS	1	0	
Q899-CONGENITAL MALFORMATION UNSPECIFIED	2	1	
Q909-DOWN'S SYNDROME UNSPECIFIED	4	0	
Q913-EDWARDS' SYNDROME UNSPECIFIED	5	5	
Q917-PATAU'S SYNDROME UNSPECIFIED	1	2	

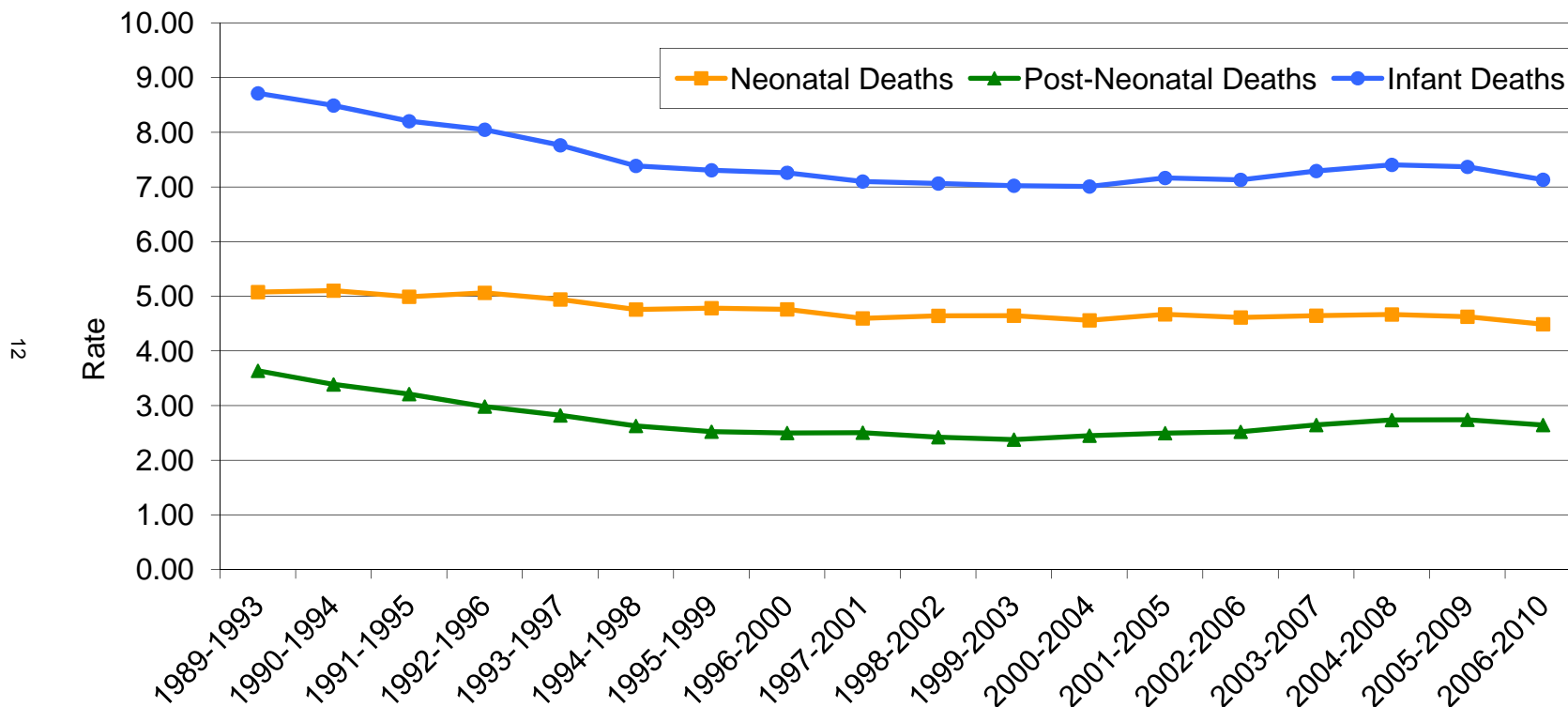
Q987-MALE WITH SEX CHROMOSOME MOSAICISM	0	1	
Q998-OTHER SPECIFIED CHROMOSOME ABNORMALITIES	1	0	
Q999-CHROMOSOMAL ABNORMALITY UNSPECIFIED	1	1	
R95-SUDDEN INFANT DEATH SYNDROME	28	26	
R99-OTHER ILL-DEFINED AND UNSPECIFIED CAUSES OF MORTALITY	10	10	
V090-PEDESTRIAN INJURED IN NONTRAFFIC ACCIDENT INVOLVING OTHER AND UNSPECIFIED MOTOR VEHICLES	1	0	
V436-PASSENGER INJURED IN TRAFFIC ACCIDENT	1	0	
V536-PASSENGER INJURED IN TRAFFIC ACCIDENT	1	0	
W04-FALL WHILE BEING CARRIED OR SUPPORTED BY OTHER PERSONS	1	0	
W23-CAUGHT CRUSHED JAMMED OR PINCHED IN OR BETWEEN OBJECTS	3	0	
W75-ACCIDENTAL SUFFOCATION AND STRANGULATION IN BED	11	6	
W76-OTHER ACCIDENTAL HANGING AND STRANGULATION	1	0	
W80-INHALATION AND INGESTION OF OTHER OBJECTS CAUSING OBSTRUCTION OF RESPIRATORY TRACT	0	1	
W83-OTHER SPECIFIED THREATS TO BREATHING	1	1	
W84-UNSPECIFIED THREAT TO BREATHING	0	1	
X16-CONTACT WITH HOT HEATING APPLIANCES RADIATORS AND PIPES	0	1	
X30-EXPOSURE TO EXCESSIVE NATURAL HEAT	1	0	
X599-EXPOSURE TO UNSPECIFIED FACTOR CAUSING OTHER AND UNSPECIFIED INJURY	2	1	
X91-ASSAULT (HOMICIDE) BY HANGING STRANGULATION AND SUFFOCATION	1	0	
X92-ASSAULT (HOMICIDE) BY DROWNING AND SUBMERSION	1	0	
Y00-ASSAULT (HOMICIDE) BY BLUNT OBJECT	0	1	
Y061-BY PARENT	0	1	
Y079-BY UNSPECIFIED PERSON	1	1	
Y08-ASSAULT (HOMICIDE) BY OTHER SPECIFIED MEANS	1	0	

Y09-ASSAULT (HOMICIDE) BY UNSPECIFIED MEANS	1	0	
Y482-OTHER AND UNSPECIFIED GENERAL ANESTHETICS	0	1	
Y838-OTHER SURGICAL PROCEDURES	0	1	
Total	290	254	

Cause of Death Group by Year			
	Year of Death		
	2009	2010	
INFECTIOUS AND PARASITIC DISEASES	7	3	
OTHER DISEASES AND DISORDERS	31	21	
CONDITIONS IN PERINATAL PERIOD	114	112	
CONGENITAL ANOMALIES	72	66	
SIDS & OTHR ABNORMAL FINDINGS	38	36	
EXTERNAL CAUSES	28	16	
Total	290	254	

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Infant Mortality Rates* - Rolling Five Year Averages By Period of Death, Kansas, 1989-2010



*Per 1,000 Live Births, Residence data

Source: Bureau of Epidemiology and Public Health Informatics
Kansas Department of Health and Environment
Prepared: July 13, 2011

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