

Kansas

Preliminary Findings Comparison of Kansas Mortality ICD-9 vs. ICD-10, 1990-1999



**Research
Summary**

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March 2002

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Introduction

This report provides preliminary results describing the effects of the changes in mortality coding of Kansas resident deaths due to the implementation of the Tenth Revision of the International Classification of Diseases (ICD-10). The Kansas Department of Health and Environment implemented ICD-10 in 1999, replacing the Ninth Revision of the ICD (ICD-9) that had been in effect since 1979.

The Tenth Revision of the International Classification of Diseases instituted several mortality coding changes. While these changes are necessary to stay current with advances in medical science, they can introduce major disruptions in the mortality statistics time series.

Comparison of two periods within a time series mortality trend requires a determination of whether the difference in the frequencies, crude rates, or age-adjusted rates between the two periods is statistically significant. Applying a comparability ratio, derived by double-coding a year of deaths, to counts and rates for 1998 eliminates the effects of the ICD-10 revision changes. If the 95% confidence intervals of 1999 and 1998 age-adjusted mortality rates did not overlap, the reported increase or decrease was statistically significant. Thus, the difference was not due to ICD-10 classification and coding changes but an actual change in a mortality trend.

Implementation of ICD-10 changed the classification, processing, and presentation of mortality data. Some titles changed and some diseases have moved from one section to another. ICD-10 is more detailed, incorporating about 8,000 causes of death compared to about 5,000 causes in ICD-9. ICD-10 codes are alpha-numeric while ICD-9 codes are numeric. In the case of the overlapping use of some ICD-9 values an 'E' was placed before the number to distinguish between natural of injury and external cause codes. Some of the classification chapters have been reorganized. The rules for processing mortality data have changed slightly but account for only a portion of the changes seen in mortality statistics

Concurrent with ICD-10 revisions new tabulation lists were developed. The List of 113 Selected Causes of Death (113-cause list) was developed for the general analysis of ICD-10 mortality statistics and for ranking leading causes of death in the United States. It expands and replaces the List of 72 Selected Causes. While the name implies 113 causes of death, it in effect contains 135 categories when groups of causes are included. The standard formats used in the United States to report mortality are the 39 Selected Causes of Mortality and the 113 Selected Causes of Mortality. When the summary groupings of the 113 Selected Cause list are included the total number of displayed categories is 135.

Methods and Materials

Kansas mortality data is used by program managers and policy makers to identify public health concerns and assess progress in meeting health goals. Frequently, these assessments track a mortality trend over several years. This Kansas study was begun

to identify the impact of the ICD-10 conversion and serve as baseline data for establishing mortality trends from the 1990s into the new decade.

In an effort to measure the discontinuity in the cause-of-death statistics resulting from ICD-10, the National Center for Health Statistics undertook a comparability study. This study, also known as a bridge-coding study, was designed to measure the effects of ICD-10 with the previous revision of mortality statistics by cause of death. NCHS researchers recoded deaths from 1996 using ICD-10. Since the 1996 cause-of-death coding was originally produced using ICD-9, this enabled researchers to create a comparability ratio from the dual classification. This ratio was created by dividing the number of deaths for an ICD-10 cause or category by the number of deaths coded for that category under ICD-9. The comparability ratios (Table 1) represent the impact of ICD-10 on mortality coding and can be used to adjust pre-1999 count data, crude mortality rates, and age-adjusted mortality rates.

The ratios represent the net effect of the new revision on cause-of-death statistics. Within limits the ratios can be used to adjust mortality statistics coded under ICD-9. The comparability ratios used herein are preliminary values from NCHS. About 20 percent of the 2,314,690 deaths in 1996, initially rejected by automated coding systems, were being manually coded under ICD-10. In such instances where records have not been recoded or ratios were considered unreliable, NCHS did not publish comparability ratios. Final comparability ratios may differ slightly when the remaining 1996 deaths are recoded.

A comparability ratio of 1.00 means the same number of deaths was assigned to the category under both ICD-9 and ICD-10, thus showing no net effect from the new revision on that particular cause. A comparability ratio of less than 1.00 results in fewer deaths being classified to a category under ICD-10 than under the prior revision. Comparability ratios greater than 1.00 mean a larger number of deaths will be reclassified to a category under ICD-10.

The data in this report are from the 1990 –1999 Kansas annual mortality history files. Only resident deaths were analyzed. Due to confidentiality requirements AIDS deaths in the annual history files are recoded to cause unknown, and thus were not available for the full nine-year data analysis. AIDS deaths for 1998 and 1999 were compared.

As part of its comparison, NCHS produced a crosswalk (appendix 1) to enable regrouping of pre-1999 deaths into broad ICD-10 cause groups. The List of 113 Selected Causes of Death includes 22 groups of causes for a total of 135 categories.

In order to assess mortality trends during the 1998-1999 bridgeover period, the first step involved regrouping pre-1999 Kansas resident deaths into the 135 categories of the List of 113 Selected Causes of Death. SAS software programming recoded the underlying cause for 1990 to 1998 deaths to the 135 categories. US Census Bureau estimates for 1990-1999 were imported for use as the population denominator data. Additional

programming coded the deaths into 11 age-groups for calculation of age-specific rates and age-adjusted rates.

Programming summarized category-specific frequencies and generated age-specific rates, crude mortality rates, age-adjusted rates, standard error values, relative standard error values, and 95% confidence interval values for each category. Comparability ratio-modified counts, crude mortality rates, and age-adjusted rates were created by multiplying the original values by the NCHS comparability ratio. The programming created 95% confidence intervals for those categories where the number of events was 100 or greater. Application of the upper and lower limits of the Poisson distribution enabled creation of confidence intervals for categories with less than 100 events.

The modified counts and rates for 1998 were compared to the 1999 counts and rates. If the 95% confidence intervals for the rates did not overlap the change was considered statistically significant.

ICD-9 and ICD-10 age-adjusted rates were plotted to compare trends between the two coding methods (Figures 1-10). As the charts are not intended to compare rates among different causes or categories of death the y-axis does not start at zero. Each of the ten leading causes of death are plotted and compared in Figure 11.

Findings and Discussion

NCHS' recoding of 1996 deaths and grouping into the ICD-10 groups resulted in preliminary comparability ratios that decreased the counts and mortality rates for pre-1999 deaths assigned to 62 categories (Table 1). Fifty-one categories had higher counts and rates as the result of applying the ratios. In one category there was no change. Comparability ratios could not be established for 21 categories because manual coding of deaths in the categories was incomplete or due to the relatively small number of events in that category.

Among the 135 categories mortality rates (crude and age-adjusted) were lower for 46 causes in 1999 compared to comparability-modified values for 1998 (Table 4). Mortality rates for 34 causes were higher in 1999 than in 1998. In seven instances rates were unchanged. Small frequencies or the absence of a comparability ratio made rate comparisons impossible for 48 causes.

The makeup of the top ten leading causes of death in Kansas changed as a result of the ICD-10 revision. The top six leading causes remain unchanged in ranking (Table 2). Alzheimer's disease became the 9th leading cause of death in 1998 after the comparability ratio was applied to ICD-9 mortality totals. In 1999 Alzheimer's was the 8th leading cause moving kidney diseases to 9th. Atherosclerosis ranked 11th in the 1998 comparability ratio modified mortality data, with suicide ranked 10th. Rankings for the two causes of death reversed in 1999.

Table 4 compares the 1999 counts, crude mortality rates, and age-adjusted rates for the 135 categories to the unmodified values and comparability-modified values for 1998. Table 5 provides the 1999 age-adjusted and the 1990-1998 comparability-modified age-adjusted mortality rates for the 135 categories. Table 6 provides actual counts for the 135 categories with 1990-1998 deaths grouped into ICD-10 categories. Table 7 shows the counts for 1990-1998 modified by the comparability ratios.

Three Increases Statistically Significant

Of the 113 Selected Causes of Death only three showed a statistically significant change from 1998 to 1999 in spite of the application of the comparability ratio. The three causes were Alzheimer's Disease, Atherosclerosis and pneumonitis due to solids and liquids. In each group the number of deaths and rates increased significantly despite application of the comparability ratio.

Preliminary results from the National Center for Health Statistics dual coding of 1996 deaths produced a preliminary comparability ratio of 1.5536 (Table 1). Under ICD-9 only 247 Alzheimer's deaths were recorded in Kansas in 1998. Applying the comparability ratio modified the 1998 count to 384 (Table 2). This compares to the 1999 Alzheimer's death total of 509. Alzheimer's Disease became the 8th leading cause of death in Kansas in 1999.

Many deaths formerly considered senile dementia are now Alzheimer's Disease. The 1998 comparability modified crude mortality rate for Alzheimer's Disease was 14.6 deaths per 100,000 population. The 1999 crude mortality rate (19.2) was 31.5 percent higher. The 1998 comparability-modified age-adjusted mortality rate was 12.7 (95%CI \pm RSE 8.0) (Table 3). The 1999 age-adjusted rate of 16.5 (95%CI \pm RSE 4.6) represented a statistically significant 29.9 percent increase.

The NCHS comparability ratio of 1.5536 means about 55 percent more Alzheimer's deaths were expected 1999 compared to 1998 due in part to the implementation of ICD-10. However, due to the better understanding of the disease, the number of Alzheimer's and Presenile dementia deaths continued rising in 1997 and 1998. That rapid change is not addressed in the comparability ratio based on 1996 data.

NCHS applied the ratio of 1.5536 when comparing 1998 Alzheimer's deaths to 1999 data in *Deaths: Final Data for 1999*. It noted that had comparability ratios been based on double-coding 1997-1999 Alzheimer's and Presenile dementia deaths the ratio would have been higher. Based on a higher ratio the 1998-1999 increase would not be statistically significant.

Atherosclerosis, the 9th leading cause of death in 1998, fell to the 10th leading cause of death in 1999 (Table 2). Atherosclerosis deaths showed a statistically significant increase despite the application of the NCHS comparability ratio of 0.9637 (Table 1). Applying the ratio to the 1998 deaths modified the actual number Atherosclerosis deaths from 272 to 262. This compared to 345 deaths in 1999 (Table 2). The 1998

comparability modified crude mortality rate for Atherosclerosis was 10.0 deaths per 100,000 population. The 1999 crude mortality rate was 13.0, a 30.0 percent increase (Table 4). The 1998 comparability-modified age-adjusted mortality rate was 8.5 (95%CI \pm 1.0 RSE 6.0) (Table 3). The 1999 age-adjusted rate of 11.1 (95%CI \pm 1.2 RSE 5.4) was a statistically significant 30.6 percent increase.

Nationally the 1999 age-adjusted mortality rate for Atherosclerosis was 5.5 per 100,000 population. The figure represented a 1.8 percent drop from the 1998 comparability-modified age-adjusted rate of 5.6.

Pneumonitis due to Solids and Liquids accounted for 103 deaths in 1998 (Table 4). Applying the comparability ratio of 1.1185 produced a modified count of 115. The 1998 comparability-modified crude mortality rate for Pneumonitis was 4.4 per 100,000 population. The 1999 crude mortality rate was 6.4. The comparability-modified age-adjusted mortality rate for 1998 was 3.9 (95%CI \pm 0.8 RSE 10.5). The 1999 age-adjusted mortality rate was 5.6 (95%CI \pm 0.9 RSE 7.7), a statistically significant 43.6 percent increase over the previous year.

The 1999 Kansas age-adjusted mortality rate equaled the 1999 U.S. rate. The U.S. rate however increased only 3.7% from the comparability modified 1998 age-adjusted mortality rate of 5.4 per 100,000. Kansas' comparability modified age-adjusted mortality rate for Pneumonitis due to Solids and Liquids has increased 55.6% since 1990 (Table 5).

Discussion of the extent of change and the statistical significance of the three causes remains incomplete. The figures are based on preliminary, national comparability ratios. The use of state-based comparability ratios, something NCHS plans to issue for all 50 states, would likely alter the findings.

Changes to Kansas Leading Causes of Mortality

Heart Disease

The leading cause of death in Kansas, heart disease claimed 6,956 Kansans in 1999. Re-grouping 1998 deaths into the ICD 10 categories produced an actual count of 7,164 heart disease deaths. Applying the comparability ratio of 0.9858, produced a modified count of 7,062 (Tables 1, 2). The comparability-modified crude mortality rate was 268.6 deaths per 100,000 population. The 1999 crude mortality rate was 262.1. The 1998 comparability-modified age-adjusted mortality rate was 244.3 (95%CI \pm 5.7 RSE 1.1) compared to the 1999 age-adjusted rate of 236.8 (95%CI \pm 5.6 RSE 1.2) (Tables 3, 4). The decrease was not statistically significant.

Cancer

Cancer, reported as malignant neoplasms, accounted for 5,315 deaths in 1999. In 1998 the re-grouping of deaths in ICD10 categories resulted in an actual count of 5,109. The comparability ratio for cancer is 1.0068. Applying the ratio to the 1998 count produced

a comparability-modified count of 5,144 deaths (Tables 1, 2). The 1999 crude mortality rate for the second leading cause of death in Kansas was 200.3 deaths per 100,000 population compared to a 1998 comparability modified crude mortality rate of 195.6. The 1999 age-adjusted mortality rate of 192.3 (95%CI \pm 5.2 RSE 1.4) was not a statistically significant increase over the 1998 comparability modified age-adjusted mortality rate of 187.8 (95%CI \pm 5.2 RSE 1.4) (Tables 3, 4).

Cerebrovascular Disease

In 1999 cerebrovascular disease accounted for 1,837 deaths. The re-grouping of the prior year's deaths into ICD-10 categories identified 1,814 deaths. Applying the cerebrovascular disease comparability ratio, 1.0588 (Tables 1, 2), generated a comparability-modified tally of 1,921. The 1999 crude mortality rate of 69.2 deaths per 100,000 population was lower than the 1998 comparability-modified crude rate of 73.1. The 1999 age-adjusted mortality rate of 61.6 (95%CI \pm 2.9 RSE 2.3) did not represent a statistically significant decrease from the 1998 comparability-modified age-adjusted mortality rate of 65.2 (95%CI \pm 3.1 RSE 2.4) (Tables 3, 4).

Chronic Lower Respiratory Disease

The fourth leading cause of death in Kansas Chronic lower respiratory disease (CLRD) was known as Chronic obstructive pulmonary disease (COPD) in the ICD-9 List of 72 Selected Causes of Death. In 1999, 1,387 Kansas residents died from CLRD. The re-grouping of 1998 deaths into ICD-10 categories identified 1,194 deaths. A comparability ratio of 1.0478 produced a comparability-modified count of 1,251 deaths (Tables 1 2). The 1999 crude mortality rate for CLRD was 52.3 deaths per 100,000 population. This compared to a 1998 comparability modified crude rate of 47.6. The 1999 age-adjusted mortality rate was 48.9 (95%CI \pm 2.6 RSE 2.7). The 1998 comparability-modified age-adjusted rate was 44.5 (95%CI \pm 2.6 RSE 3.0) (Tables 3, 4). The increase was not statistically significant.

Unintentional Injuries

The number of 1999 unintentional injury deaths, 1,093 (Table 2), is 31 less than the total reported in the *Annual Summary of Vital Statistics, Kansas, 1999*. The annual summary, to remain consistent with prior years' reports, retained the ICD-9 grouping of unintentional injuries and adverse effects from medical and surgical care. The List of 113 Selected Causes of Death separates adverse effects from unintentional injuries. Adverse effects are now list number 135 Complications of medical and surgical care.

The 1999 total of unintentional injury deaths, 1,093, compares to an actual count of 1,092 deaths in 1998 when re-grouped into ICD-10 categories. The total when modified by the comparability ratio of 1.0305 was 1,125 (Tables 1, 2). The 1999 crude mortality rate was 41.2 deaths per 100,000 population. The 1998 comparability-modified crude mortality rate was 42.8. The 1999 age-adjusted mortality rate of 39.7 (95%CI \pm 2.4 RSE 3.0) was not a statistically significant decrease from the 1998 comparability-modified age-adjusted mortality rate of 41.3 (95%CI \pm 2.5 RSE 3.1) (Tables 3,4).

Pneumonia & Influenza

Pneumonia and influenza (P&I) was the sixth leading cause of death in Kansas in 1999, responsible for 670 deaths. This figure compares to an actual count of 984 deaths in 1998, when that year's deaths are summarized into the ICD-10 groupings. The total when modified by the comparability ratio of 0.6982 was 687 (Tables 1, 2). The 1999 crude mortality rate for P&I was 25.2 per 100,000 population. This compared to the 1998 comparability-modified crude rate of 26.1. The 1999 age-adjusted mortality rate of 22.0 (95%CI \pm 1.7 RSE 3.9) did not represent a statistically significant decrease from the 1998 comparability-modified age-adjusted rate of 22.9 (95%CI \pm 1.2 RSE 2.7) (Tables 3, 4).

In the case of Pneumonia and Influenza with a comparability ratio of 0.6982, implementation of ICD-10 will decrease the number and rate for P & I deaths by about 30 percent.

Diabetes

Diabetes, the seventh leading cause of death in Kansas in 1999, claimed a total of 645 individuals. When 1998 deaths are reallocated to the ICD-10 groupings, an actual count of 643 deaths is produced. Applying the comparability ratio of 1.0082, generates a comparability-modified count of 648 (Tables 1, 2). The 1999 diabetes crude mortality rate was 24.3 deaths per 100,000 population. The 1998 comparability-modified crude rate was 24.7. The 1999 age-adjusted mortality rate of 22.8 (95%CI \pm 1.8 RSE 4.0) is not a statistically significant decrease from the 1998 comparability-modified age-adjusted rate of 23.2 (95%CI \pm 1.8 RSE 4.0) (Tables 3, 4).

Kidney Diseases

Kidney diseases (nephritis, nephrotic syndrome and nephrosis) was the ninth leading cause of death in Kansas in 1999. A total of 386 persons died from kidney diseases that year. Reallocating 1998 deaths to the ICD-10 groupings produced an actual count of 348. Modifying that count by the comparability ratio of 1.2320 increased it to 429 (Tables 1, 2). The 1999 kidney disease crude mortality rate was 14.5 deaths per 100,000 population. The 1998 comparability-modified crude rate was 16.3. The 1999 age-adjusted mortality rate was 13.0 (95%CI \pm 1.3 RSE 5.1). The 1998 comparability-modified age-adjusted rate was 14.7 (95%CI \pm 1.8 RSE 6.0) (Tables 3, 4). The decrease was not statistically significant.

AIDS

The number and age-adjusted rate of AIDS deaths to Kansas residents were higher in 1999 compared to 1998. The actual number of AIDS deaths in 1998 was 27. Applying the comparability ratio of 1.1448 produced a modified 1998 figure of 31 (Tables 1, 2). This compared to 40 AIDS deaths in 1999. The 1998 comparability-modified age-adjusted mortality rate for AIDS was 1.2 per 100,000 population (95%CI 0.1-1.7 RSE 18.0). This compared to a 1999 age-adjusted mortality rate of 1.6 (95%CI 1.1-2.1 RSE 15.8) (Tables 3, 4). The increase was not statistically significant.

Conclusions

Implementation of ICD-10 has provided public health researchers with greater detail on mortality. Use of the preliminary comparability ratios for 1990-1998 Kansas mortality data has preserved time-series trends in age-adjusted mortality rates. For the 10 leading causes of death in Kansas (Figures 1-10), trends are largely unchanged from ICD-9 age-adjusted rates.

ICD-10 impacted the rankings at the bottom of the ten leading causes of death in Kansas (Table 2). The order of the top seven leading causes remains unchanged.

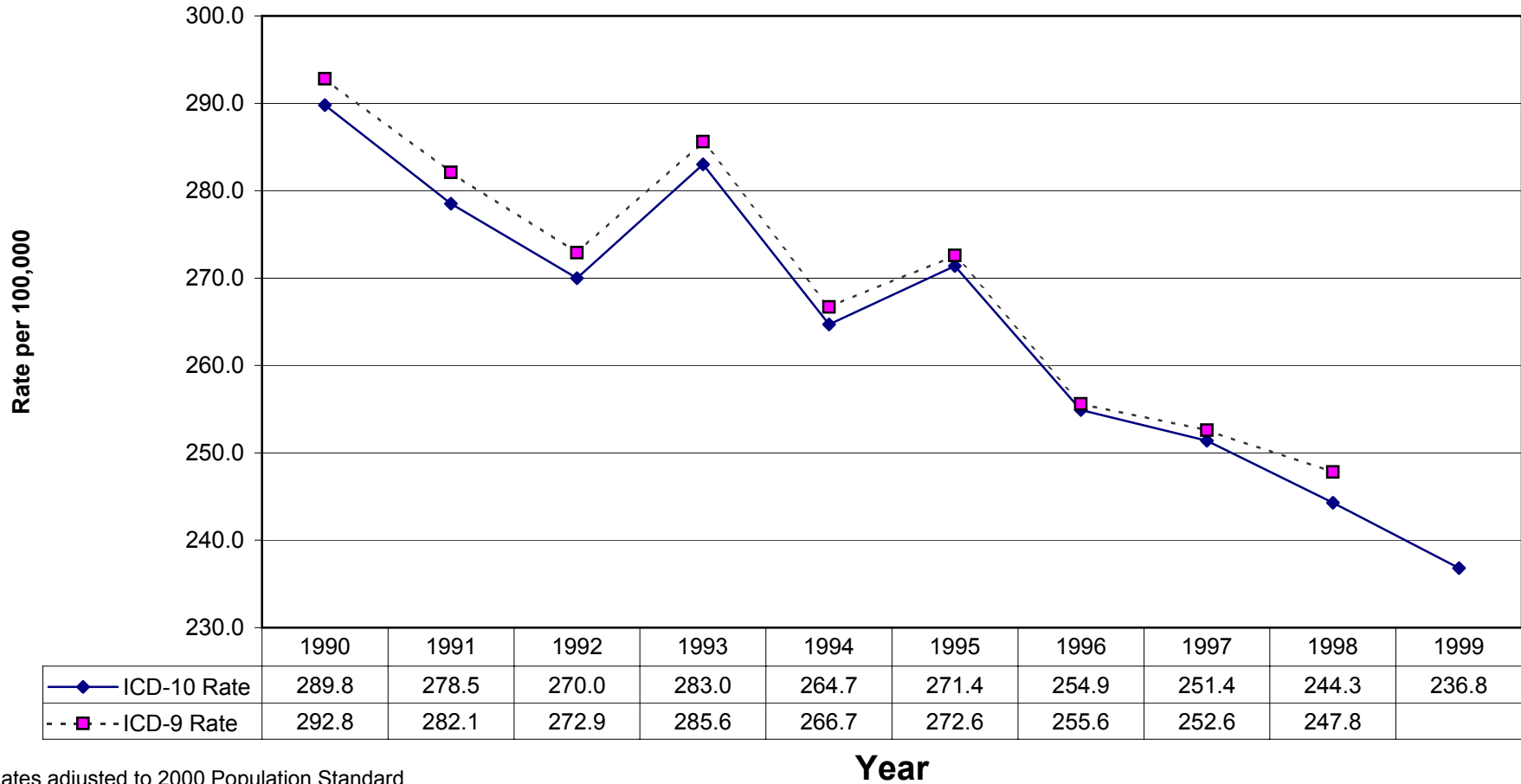
Comparability ratios represent an important tool for comparison of the 10 leading causes of Kansas' mortality during the bridgeover period. While useful in evaluating the entire 1998 mortality cohort, comparability ratios may not be as helpful when comparing mortality among sub-populations such as race, county, and age-group. Many of the ratios range between 0.95 and 1.05. Some causes of death experience that level of random fluctuation from year to year. The random variation may be greater in sub-populations.

NCHS noted in *Deaths: Final Data for 1999* some selected causes have problems of interpretation. Researchers evaluating mortality trends for these causes should review NCHS findings. Because of changes in the components of the causes of deaths prior to 1996, comparability ratios become less applicable for comparisons.

Since manual ICD-10 coding of a portion of 1996 deaths remains to be completed, the comparability ratios are subject to change. Modified counts and rates may also change when NCHS provides states with state-specific comparability ratios. These final ratios will impact the comparison of 1999 mortality data to 1998.

Further evaluation of Kansas' mortality trends using final and state-specific comparability ratios should give greater insight into the causes of death not covered in this study.

Figure 1
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Heart Disease, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

Figure 2
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Cancer, 1990-1999

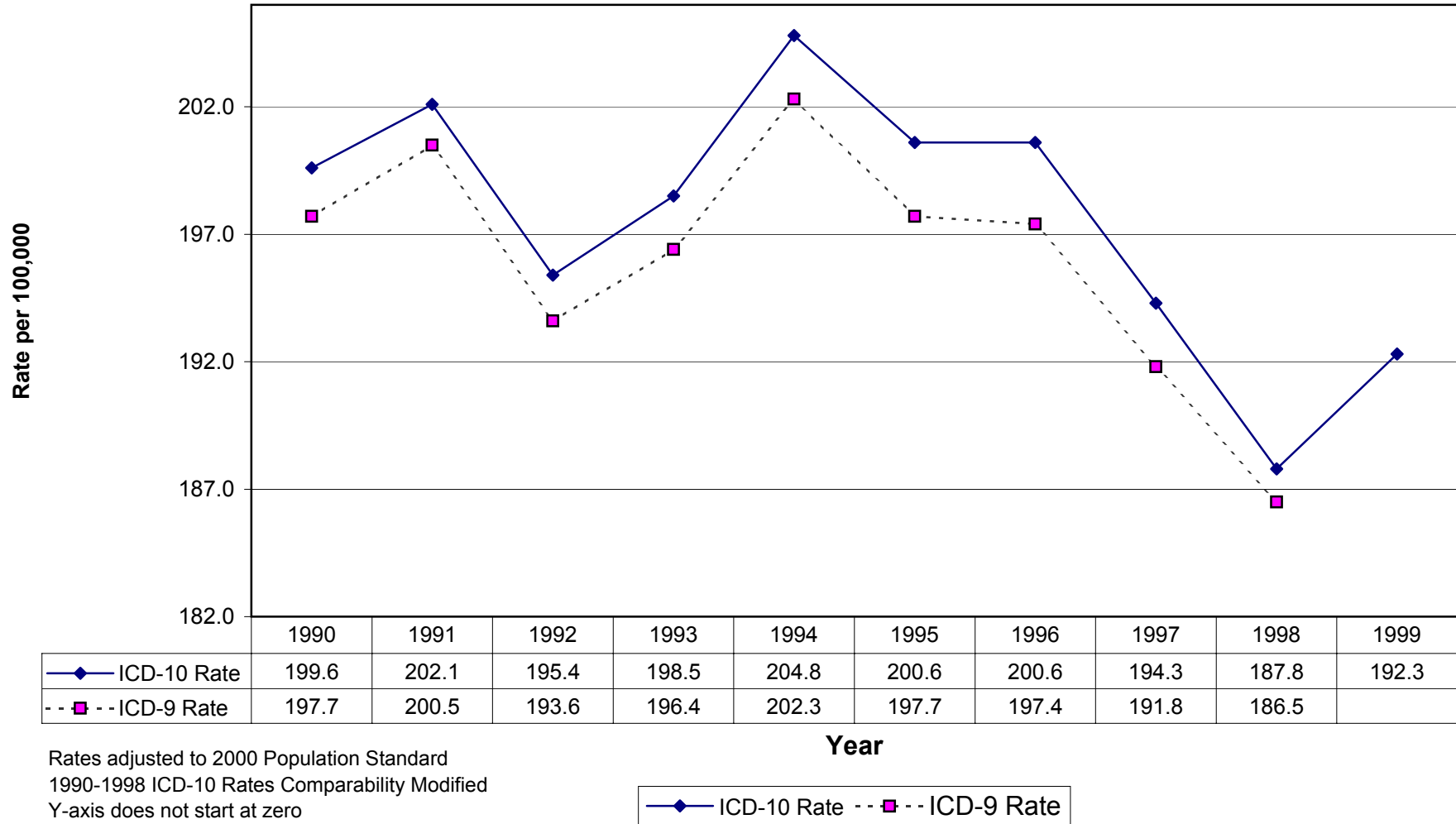
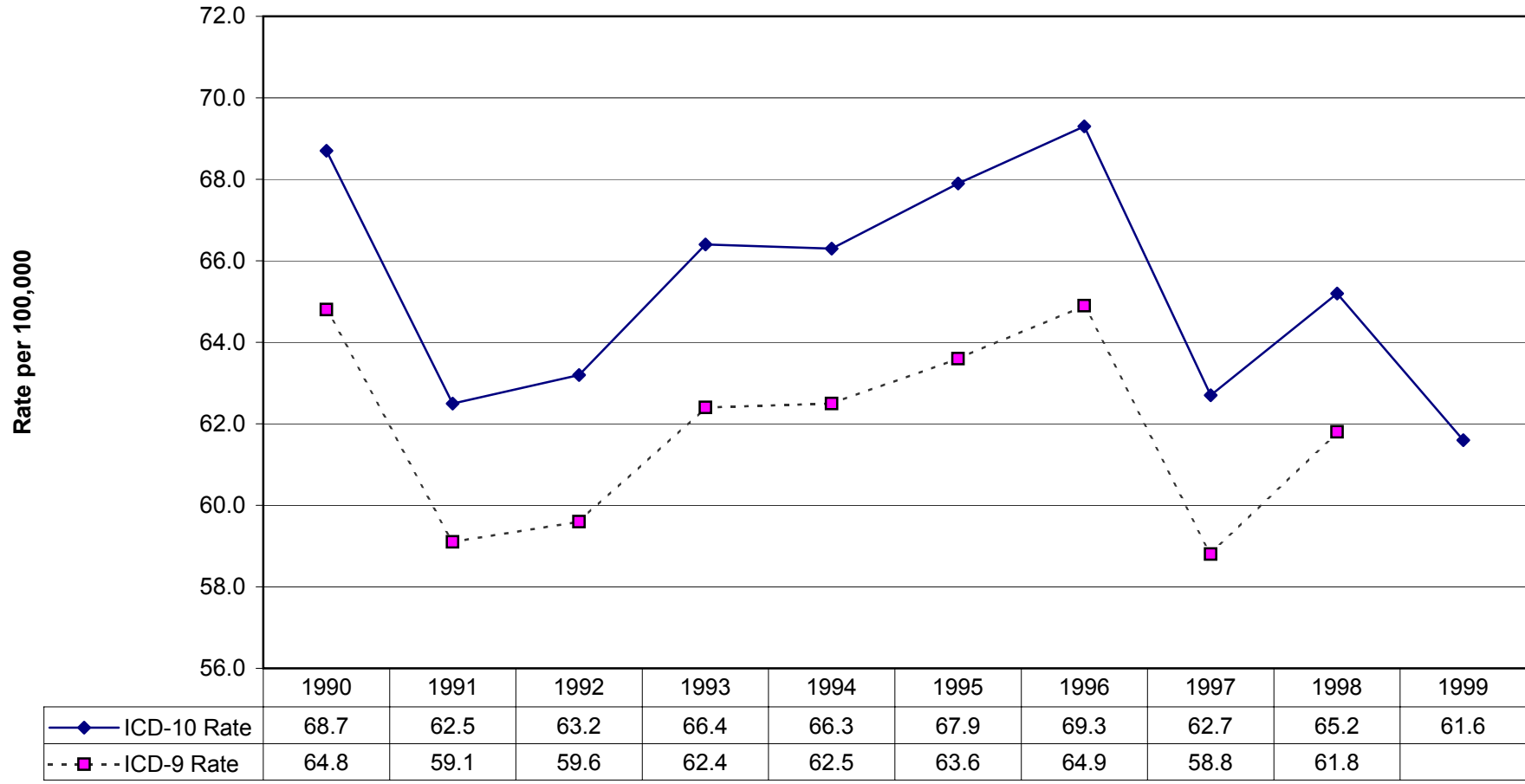


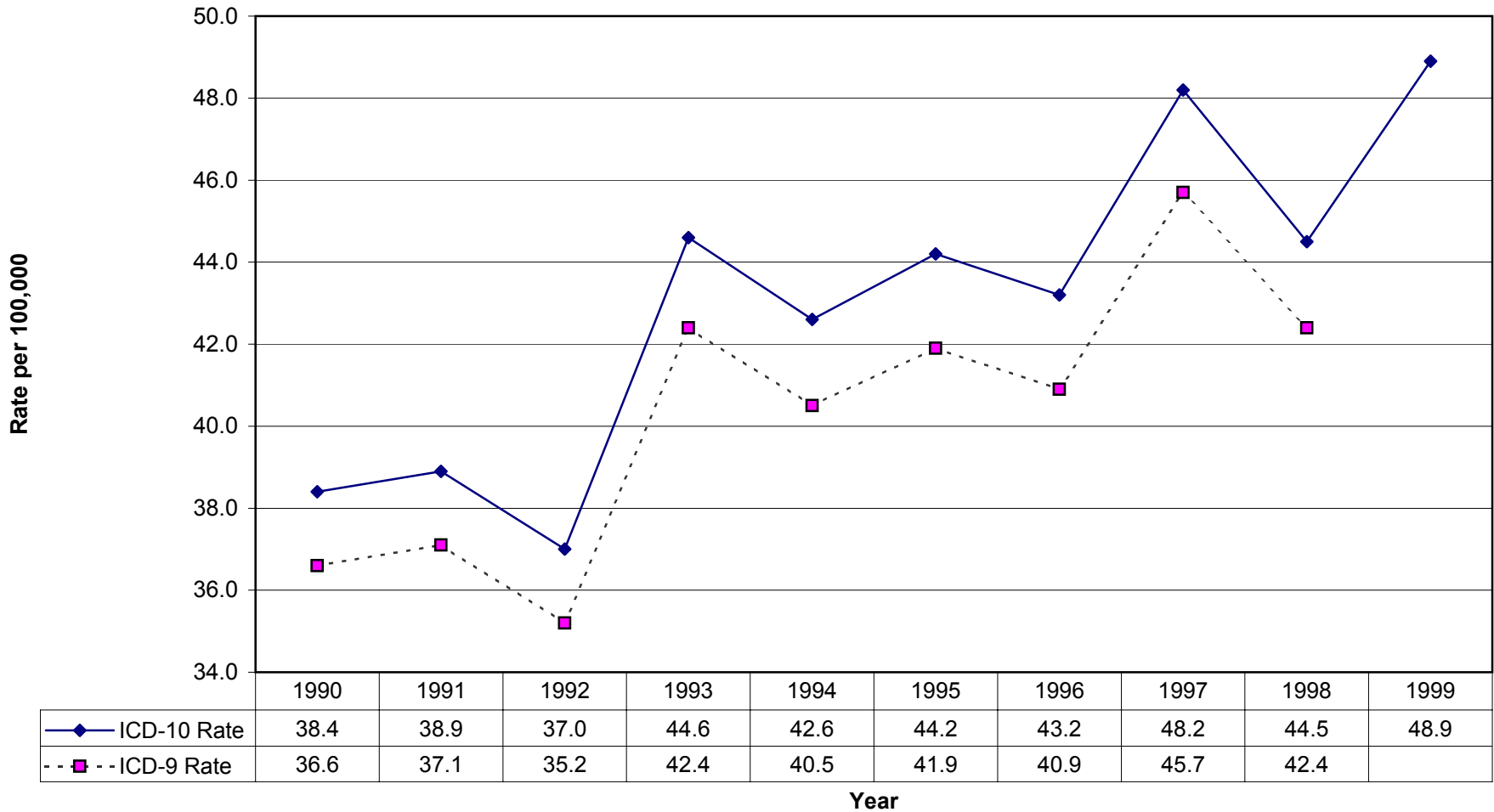
Figure 3
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Cerebrovascular Disease, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

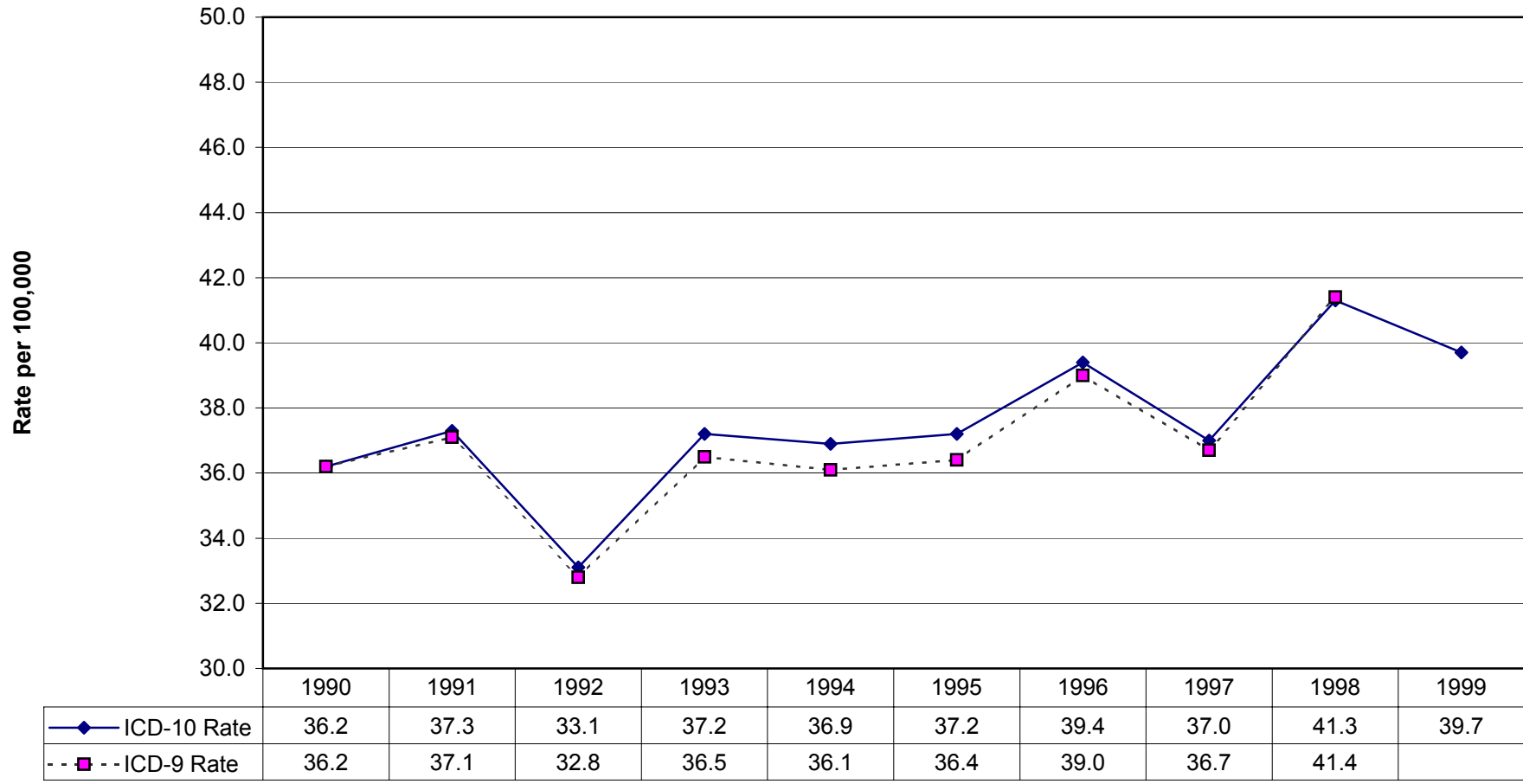
Figure 4
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Chronic Lower Respiratory Disease, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

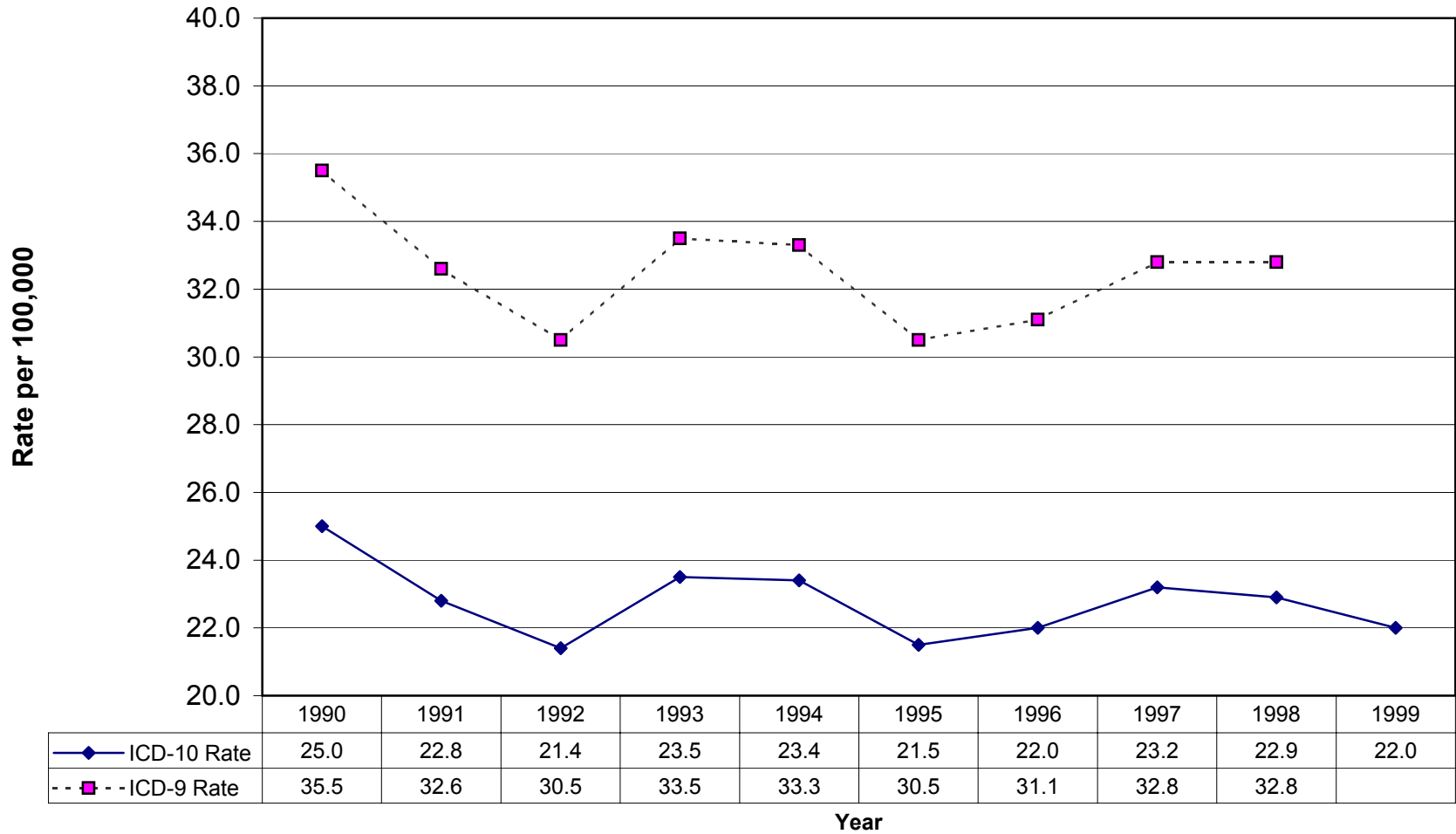
Figure 5
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Unintentional Injuries, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

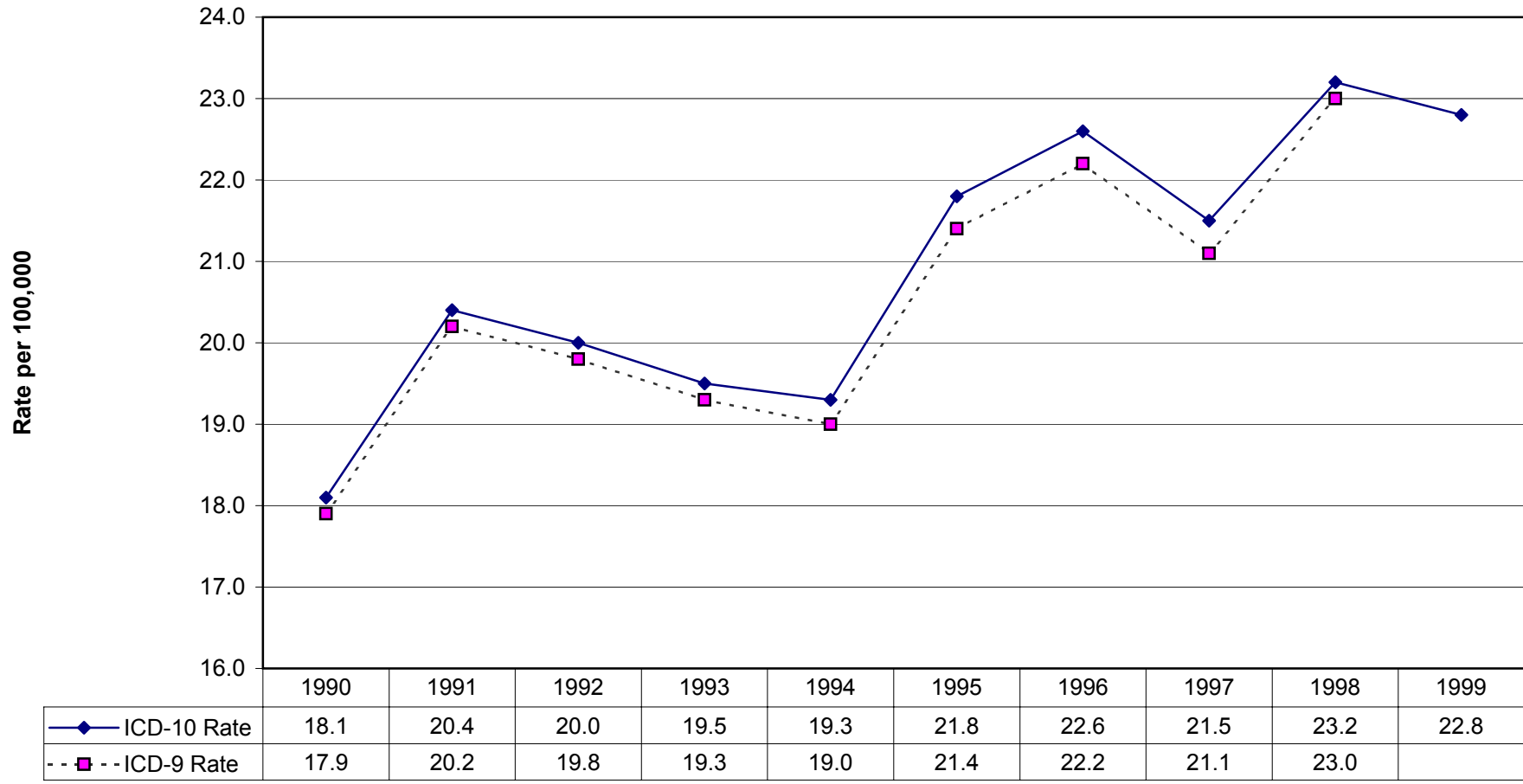
Figure 6
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Pneumonia & Influenza, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

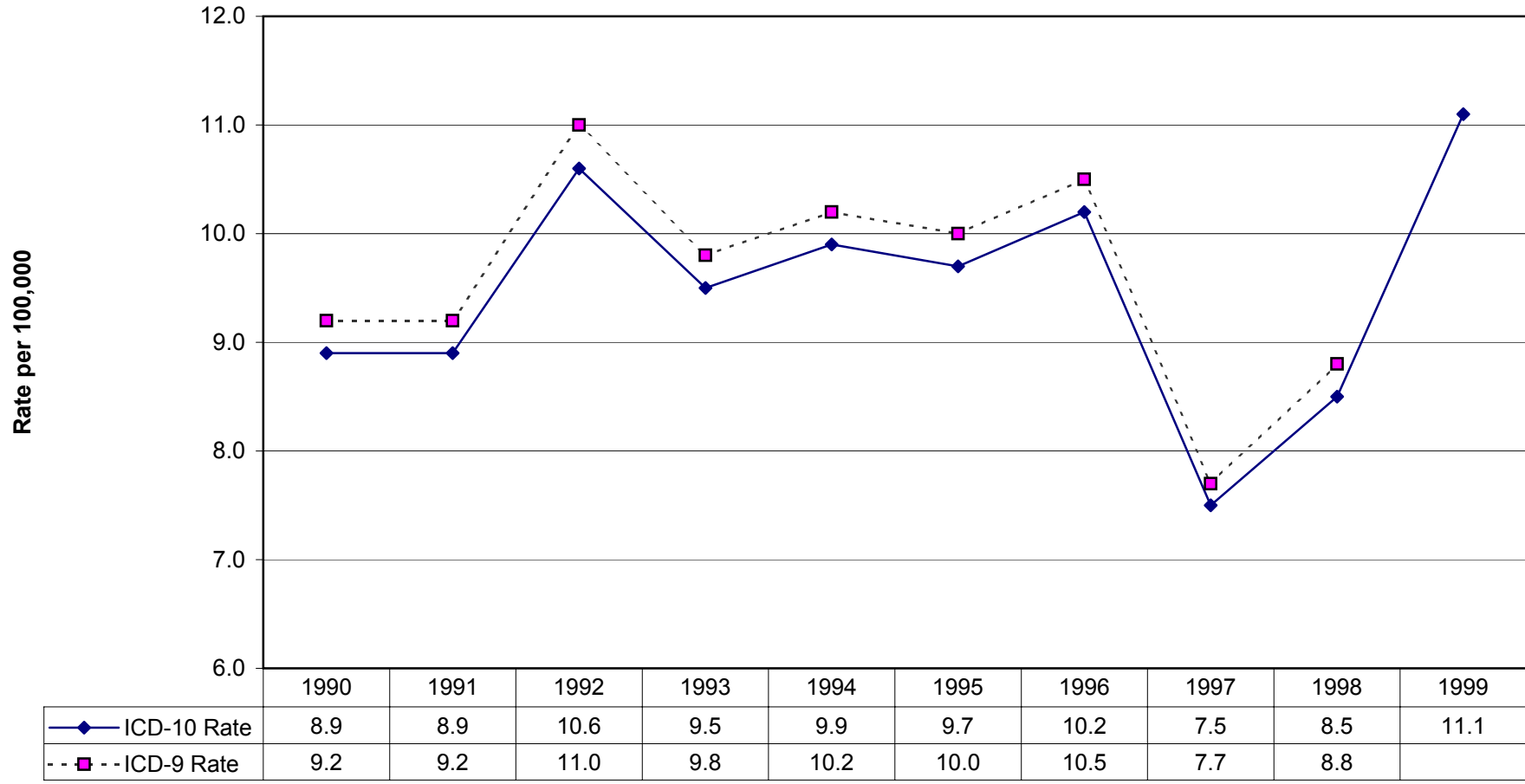
Figure 7
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Diabetes, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

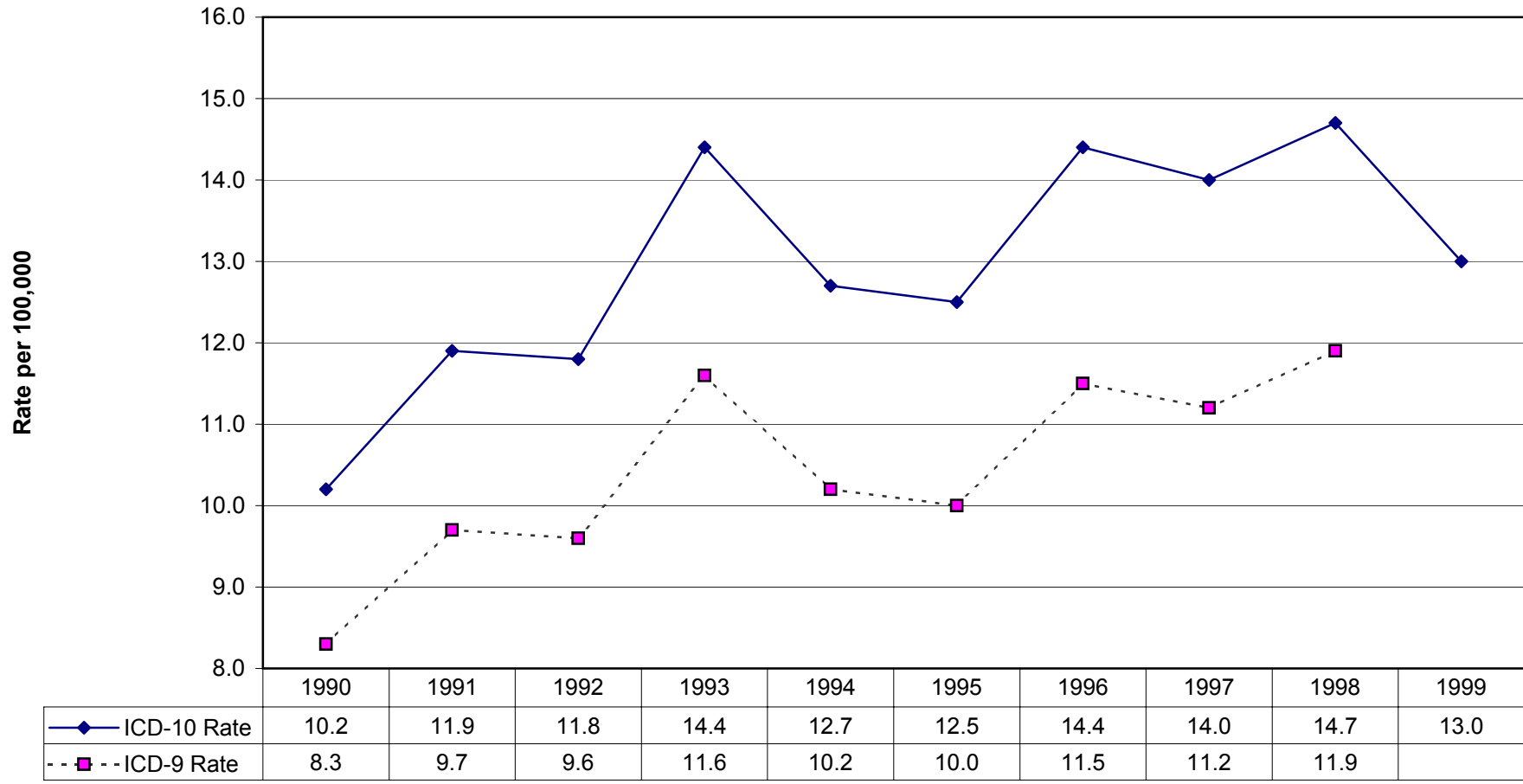
Figure 8
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Atherosclerosis, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

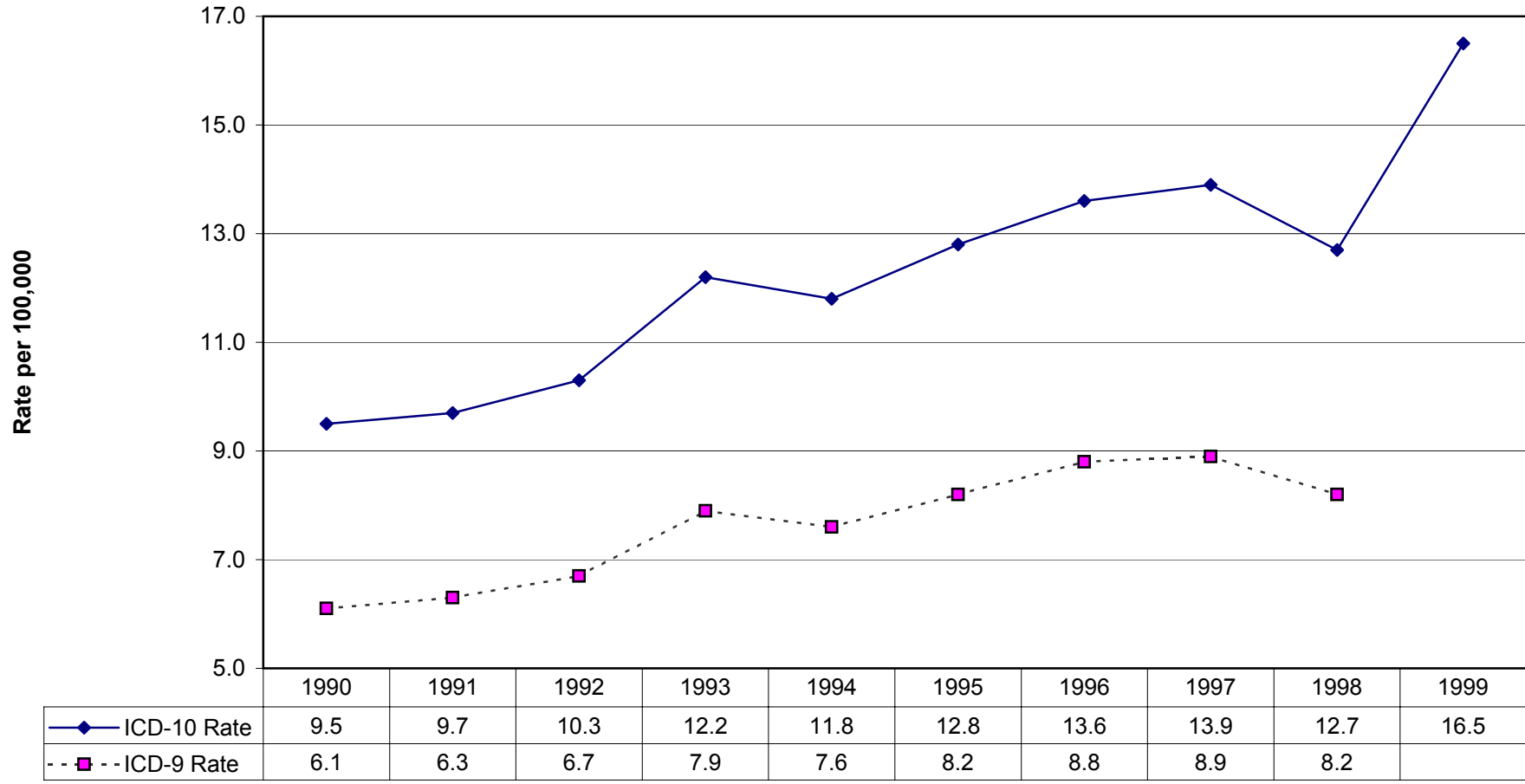
Figure 9
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Kidney Disease, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

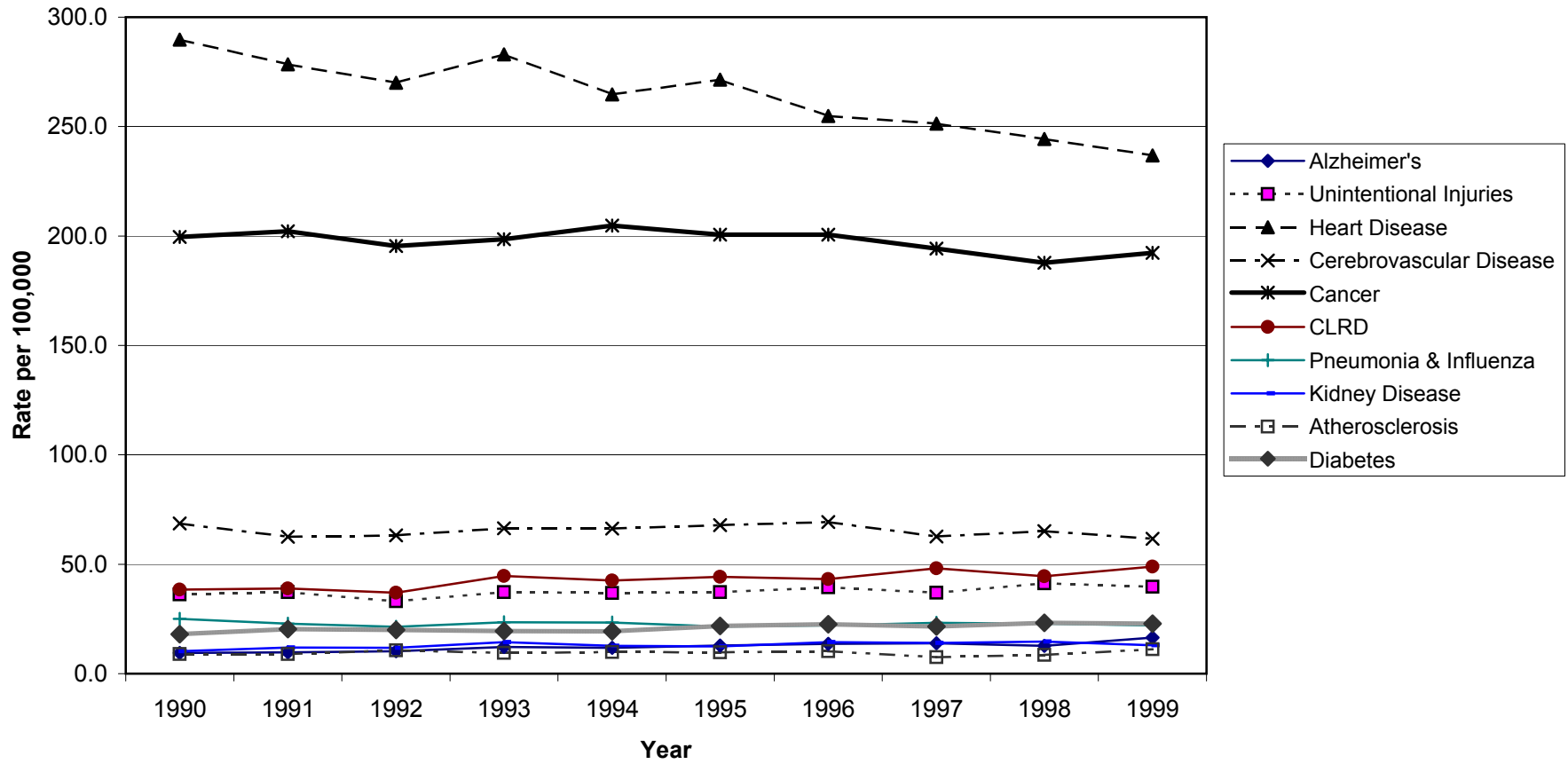
Figure 10
 Comparison of ICD-10 & ICD-9 Age-Adjusted Mortality Rates
 Alzheimer's Disease, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified
 Y-axis does not start at zero

—◆— ICD-10 Rate - - ■ - - ICD-9 Rate

Figure 11
 Ten Leading Causes of Death by Age-adjusted Mortality Rate, Kansas, 1990-1999



Rates adjusted to 2000 Population Standard
 1990-1998 ICD-10 Rates Comparability Modified

Table 1
Preliminary Comparability Ratios, ICD9 - ICD10

List # and Cause Group	Ratio
001 Salmonella infections	0.8108
002 Shigellosis and amebiasis	**
003 Certain other intestinal infections	**
004 Tuberculosis	0.8547
005 Respiratory tuberculosis	0.9056
006 Other tuberculosis	0.7031
007 Whooping cough	**
008 Scarlet fever and erysipelas	**
009 Meningococcal infection	0.9955
010 Septicemia	1.1949
011 Syphilis	0.6364
012 Acute poliomyelitis	**
013 Arthropod-borne viral encephalitis	**
014 Measles	**
015 Viral hepatitis	0.8343
016 HIV/AIDS.....	1.1448
017 Malaria	**
018 Other & unspecified infectious/parasitic diseases & sequelae.....	1.0990
019 Malignant Neoplasms	1.0068
020 Malignant neoplasm of lip oral cavity & pharynx.....	0.9603
021 Malignant neoplasm of esophagus	0.9965
022 Malignant neoplasm of stomach	1.0063
023 Malignant neoplasm of colon rectum and anus	0.9993
024 Malignant neoplasm of liver & intrahepatic bile ducts	0.9634
025 Malignant neoplasm of pancreas	0.9980
026 Malignant neoplasm of larynx	1.0047
027 Malignant neoplasm of trachea bronchus and lung	0.9837
028 Malignant melanoma of skin	0.9677
029 Malignant neoplasm of breast	1.0056
030 Malignant neoplasm of cervix uteri	0.9871
031 Malignant neoplasm of corpus uteri & uterus part unspecified....	1.0260
032 Malignant neoplasm of ovary	0.9954
033 Malignant neoplasm of prostate	1.0134
034 Malignant neoplasm of kidney and renal pelvis	1.0000
035 Malignant neoplasm of bladder	0.9968
036 Malignant neoplasm of meninges, brain and other CNS	0.9691
037 Malignant neoplasms of lymphoid/related tissue	1.0042
038 Hodgkin's disease	0.9855
039 non-Hodgkin's lymphoma	0.9781
040 Leukemia	1.0119
041 Multiple myeloma and immunoproliferative neoplasms	1.0383
042 Oth/unspec malig neo lymphoid hematopoietic/relat tissue	**
043 Other and unspecified malignant neoplasms	1.1251
044 Benign/in situ/uncertain/unknown neoplasms	1.6744
045 Anemias	0.9559
046 Diabetes	1.0082
047 Nutritional deficiencies	1.1636

Table 1
Preliminary Comparability Ratios, ICD9 - ICD10

List # and Cause Group	Ratio
048 Malnutrition	0.9782
049 Other nutritional deficiencies	6.2041
050 Meningitis	1.0137
051 Parkinsons disease	1.0012
052 Alzheimer's disease	1.5536
053 Major cardiovascular diseases	0.9981
054 Diseases of heart	0.9858
055 Rheumatic heart diseases: acute and chronic	0.8208
056 Hypertensive heart disease	0.8028
057 Hypertensive heart and renal disease	1.0705
058 Ischemic heart diseases	0.9990
059 Acute myocardial infarction	0.9887
060 Other acute ischemic heart diseases	1.0110
061 Other forms of chronic ischemic heart disease.....	1.0054
062 Atherosclerotic cardiovascular dis (so described)	1.0488
063 All other forms of chronic ischemic heart disease	0.9935
064 Other heart diseases	0.9716
065 Acute and subacute endocarditis	0.9964
066 Diseases of pericardium and acute myocarditis	1.0295
067 Heart failure	1.0410
068 All other forms of heart disease	0.9373
069 Essential (primary) hypertension/hypert renal disease.....	1.1192
070 Cerebrovascular diseases (Stroke).....	1.0588
071 Atherosclerosis	0.9637
072 Other diseases of circulatory system	0.9456
073 Aortic aneurysm and dissection	1.0012
074 Other diseases of arteries/arterioles/capillaries	0.8497
075 Other disorders of circulatory system	1.0293
076 Influenza & pneumonia	0.6982
077 Influenza	1.0088
078 Pneumonia	0.6957
079 Other acute lower respiratory infections	0.9746
080 Acute bronchitis and bronchiolitis	0.7465
081 Unspecified acute lower respiratory infections.....	**
082 Chronic lower respiratory diseases	1.0478
083 Bronchitis: chronic and unspecified	0.3935
084 Emphysema	0.9726
085 Asthma	0.8938
086 Other chronic lower respiratory diseases	1.0970
087 Pneumoconioses and chemical effects	1.0178
088 Pneumonitis due to solids and liquids	1.1185
089 Other diseases of respiratory system	1.1673
090 Peptic ulcer	0.9696
091 Diseases of appendix	1.0347
092 Hernia	1.0395
093 Chronic liver disease & cirrhosis	1.0367

Table 1
Preliminary Comparability Ratios, ICD9 - ICD10

List # and Cause Group	Ratio
094 Alcoholic liver disease	1.0183
095 Other chronic liver disease and cirrhosis	1.0535
096 Cholelithiasis & other gallbladder disorders.....	0.9567
097 Nephritis, nephrotic syndrome & nephrosis	1.2320
098 Acute nephrotic syndrome	0.6466
099 Chronic glomerulonephritis, nephritis not acute/chronic	0.3858
100 Renal failure	1.2949
101 Other disorders of kidney	0.9091
102 Infections of kidney	1.0069
103 Hyperplasia of prostate	0.9969
104 Inflammatory diseases of female pelvic organs.....	0.9844
105 Pregnancy childbirth & puerperium	**
106 Pregnancy with abortive outcome	**
107 Other complications of pregnancy	**
108 Certain conditions originating in perinatal period	1.0658
109 Congenital malformations/chromosomal anomalies	0.8470
110 Symptoms and signs, not elsewhere classified.....	0.9553
111 All other diseases (Residual)	0.8996
112 Accidents (unintentional injuries)	1.0305
113 Transport accidents	0.9978
114 Motor vehicle crashes	0.9754
115 Other land transport accidents	**
116 Water, air, space, other & unspecified transport accidents	1.0115
117 Nontransport accidents	1.0763
118 Falls	0.8409
119 Accidental discharge of firearms	1.0579
120 Accidental drowning and submersion	0.9965
121 Accidental exposure to smoke fire and/or flames	0.9743
122 Accidental poisoning & exposure to noxious substances	**
123 Other & unspecified nontransport accidents	1.4188
124 Intentional self-harm (suicide)	0.9962
125 Intentional self-harm (suicide) discharge of firearms	0.9982
126 Intentional self-harm (suicide) by other & unspecified means	0.9896
127 Assault (homicide)	0.9983
128 Assault (homicide) by discharge of firearms	0.9969
129 Assault (homicide) by other & unspecified means	1.0017
130 Legal intervention	**
131 Events of undetermined origin	**
132 Discharge of firearms of undetermined intent	**
133 Other & unspecified events of undetermined intent	**
134 War/sequelae	**
135 Complications of medical & surgical care	**

Source: National Center for Health Statistics, CDC

National Vital Statistics Reports, Vol 49, No 8

** Compability Ratios considered statistically unreliable

Table 2
 Ranking and Counts for Top 10 Leading Causes of Death
 Kansas, 1998 & 1999

Cause	1998				1999	
	Unmodified		Comparability Modified		Ranking	Deaths
	Ranking	Deaths	Ranking	Deaths		
Heart Disease	1	7,164	1	7,062	1	6,956
Cancer	2	5,109	2	5,144	2	5,315
Cerebrovascular Disease	3	1,814	3	1,921	3	1,837
CLRD	4	1,194	4	1,251	4	1,387
Unintentional Injuries	5	1,092	5	1,125	5	1,093
Pneumonia and Influenza	6	984	6	687	6	670
Diabetes	7	643	7	648	7	645
Kidney Disease	8	348	8	429	9	386
Suicide	9	328	10	327	11	298
Atherosclerosis	10	272	11	262	10	345
Alzheimer's Disease	11	247	9	384	8	509

Table 3
 Comparability Modified Age-adjusted Mortality Rates and 95% Confidence Intervals
 Ten Leading Causes of Death, Kansas, 1998-1999

Cause	1998		1999	
	AA Rate	95% CI	AA Rate	95% CI
Heart Disease	244.3	5.7	236.8	5.6
Cancer	187.8	5.2	192.3	5.2
Cerebrovascular Disease	65.2	3.1	61.6	2.9
CLRD	44.5	2.6	48.9	2.6
Unintentional Injuries	41.3	2.5	39.7	2.4
Pneumonia and Influenza	22.9	1.2	22.0	1.7
Diabetes	23.2	1.8	22.8	1.8
Alzheimer's Disease	12.7	2.0	16.5	1.5
Kidney Disease	14.7	1.8	13.0	1.3
Atherosclerosis	8.5	1.0	11.1	1.2

Source: KDHE Center for Health and Environmental Statistics
 Residence Data

Table 4
113 Selected Causes of Death, Rates, & Age-Adjusted Rates, Kansas, 1998-1999

List Number	1999			1998					
	N	Rate	AA Rate	Comparability-Modified			Comparability-Unmodified		
				N	Rate	AA Rate	N	Rate	AA Rate
001 Salmonella infections	-	*	*	1	*	*	1	*	*
002 Shigellosis and amebiasis	-	*	*	**	*	*	-	*	*
003 Certain other intestinal infections	8	*	*	**	*	*	8	*	*
004 Tuberculosis	4	*	*	4	*	*	5	*	*
005 Respiratory tuberculosis	4	*	*	2	*	*	2	*	*
006 Other tuberculosis	-	*	*	2	*	*	3	*	*
007 Whooping cough	-	*	*	**	*	*	-	*	*
008 Scarlet fever and erysipelas	-	*	*	**	*	*	1	*	*
009 Meningococcal infection	3	*	*	5	*	*	5	*	*
010 Septicemia	263	9.9	9.1	246	9.4	8.6	206	7.8	7.2
011 Syphilis	-	*	*	-	*	*	-	*	*
012 Acute poliomyelitis	-	*	*	**	*	*	-	*	*
013 Arthropod-borne viral encephalitis	-	*	*	**	*	*	-	*	*
014 Measles	-	*	*	**	*	*	-	*	*
015 Viral hepatitis	27	1.0	1.0	23	0.9	0.9	28	1.1	1.1
016 HIV/AIDS ¹	40	1.5	1.6	31	1.0	1.2	27	1.0	1.0
017 Malaria	-	*	*	**	*	*	-	*	*
018 Other & unspecified infectious/parasitic diseases & sequelae.....	84	3.2	3.1	86	3.3	3.1	78	3.0	2.9
019 Malignant Neoplasms	5,315	200.3	192.3	5,144	195.6	187.8	5,109	194.3	186.5
020 Malignant neoplasm of lip oral cavity & pharynx.....	63	2.4	2.2	70	2.7	2.5	73	2.8	2.7
021 Malignant neoplasm of esophagus	127	4.8	4.7	101	3.8	3.7	101	3.8	3.8
022 Malignant neoplasm of stomach	100	3.8	3.6	93	3.5	3.4	92	3.5	3.4
023 Malignant neoplasm of colon rectum and anus	584	22.0	20.7	530	20.1	19.1	530	20.2	19.1
024 Malignant neoplasm of liver & intrahepatic bile ducts	104	3.9	3.9	78	3.0	2.9	81	3.1	3.0
025 Malignant neoplasm of pancreas	305	11.5	11.0	276	10.5	10.1	277	10.5	10.1
026 Malignant neoplasm of larynx	28	1.1	1.1	32	1.2	1.2	32	1.2	1.2
027 Malignant neoplasm of trachea bronchus and lung	1,476	55.6	54.3	1,451	55.2	53.7	1,475	56.1	54.6
028 Malignant melanoma of skin	84	3.2	3.1	84	3.2	3.1	87	3.3	3.2
029 Malignant neoplasm of breast	392	14.8	14.3	403	15.3	14.9	401	15.3	14.8
030 Malignant neoplasm of cervix uteri	27	1.0	1.0	32	1.2	1.2	32	1.2	1.2
031 Malignant neoplasm of corpus uteri & uterus part unspecified.....	71	2.7	2.5	63	2.4	2.2	61	2.3	2.2
032 Malignant neoplasm of ovary	137	5.2	5.0	141	5.4	5.2	142	5.4	5.2
033 Malignant neoplasm of prostate	313	11.8	10.7	336	12.8	11.7	332	12.6	11.6
034 Malignant neoplasm of kidney and renal pelvis	111	4.2	4.1	112	4.3	4.2	112	4.3	4.2
035 Malignant neoplasm of bladder	105	4.0	3.6	122	4.6	4.3	122	4.6	4.3
036 Malignant neoplasm of meninges, brain and other CNS	139	5.2	5.2	138	5.2	5.2	142	5.4	5.4
037 Malignant neoplasms of lymphoid/related tissue	570	21.5	20.6	548	20.9	19.9	546	20.8	19.8
038 Hodgkin's disease	20	0.8	0.7	10	*	*	10	*	*
039 non-Hodgkin's lymphoma	228	8.6	8.2	232	8.8	8.4	237	9.0	8.6
040 Leukemia	217	8.2	7.9	220	8.4	8.0	217	8.3	7.9
041 Multiple myeloma and immunoproliferative neoplasms	103	3.9	3.7	85	3.2	3.0	82	3.1	2.9
042 Oth/unspec malig neo lymphoid hematopoietic/relat tissue	2	*	*	**	*	*	-	*	*
043 Other and unspecified malignant neoplasms	579	21.8	20.7	530	20.2	19.2	471	17.9	17.1
044 Benign/in situ/uncertain/unknown neoplasms	134	5.0	4.6	111	4.2	3.8	66	2.5	2.3
045 Anemias	81	3.1	2.7	66	2.5	2.3	69	2.6	2.4
046 Diabetes	645	24.3	22.8	648	24.7	23.2	643	24.5	23.0
047 Nutritional deficiencies	76	2.9	2.5	77	2.9	2.5	66	2.5	2.1
048 Malnutrition	71	2.7	2.3	65	2.5	2.1	66	2.5	2.1

Table 4
113 Selected Causes of Death, Rates, & Age-Adjusted Rates, Kansas, 1998-1999

List Number	1999			1998					
	N	Rate	AA Rate	Comparability-Modified			Comparability-Unmodified		
				N	Rate	AA Rate	N	Rate	AA Rate
049 Other nutritional deficiencies	5	*	*	-	*	*	-	*	*
050 Meningitis	6	*	*	3	*	*	3	*	*
051 Parkinsons disease	171	6.4	5.7	169	6.4	5.7	169	6.4	5.7
052 Alzheimer's disease	509	19.2	16.5	384	14.6	12.7	247	9.4	8.2
053 Major cardiovascular diseases	9,606	361.9	325.5	9,657	367.3	332.2	9,675	368.0	332.8
054 Diseases of heart	6,956	262.1	236.8	7,062	268.6	244.3	7,164	272.5	247.8
055 Rheumatic heart diseases: acute and chronic	23	0.9	0.8	32	1.2	1.1	39	1.5	1.4
056 Hypertensive heart disease	119	4.5	3.9	97	3.7	3.3	121	4.6	4.1
057 Hypertensive heart and renal disease	23	0.9	0.7	14	*	*	13	*	*
058 Ischemic heart diseases	4,605	173.5	158.0	4,792	182.3	166.6	4,797	182.5	166.8
059 Acute myocardial infarction	1,881	70.9	65.6	1,999	76.0	70.6	2,022	76.9	71.4
060 Other acute ischemic heart diseases	14	*	*	9	*	*	9	*	*
061 Other forms of chronic ischemic heart disease.....	2,710	102.1	92.0	2,781	105.8	95.6	2,766	105.2	95.0
062 Atherosclerotic cardiovascular dis (so described)	388	14.6	13.3	397	15.1	13.5	379	14.4	12.9
063 All other forms of chronic ischemic heart disease	2,322	87.5	78.7	2,371	90.2	81.6	2,387	90.8	82.2
064 Other heart diseases	2,186	82.4	73.4	2,132	81.1	72.9	2,194	83.5	75.1
065 Acute and subacute endocarditis	13	*	*	7	*	*	7	*	*
066 Diseases of pericardium and acute myocarditis	8	*	*	3	*	*	3	*	*
067 Heart failure	853	32.1	27.5	845	32.2	27.8	812	30.9	26.7
068 All other forms of heart disease	1,312	49.4	45.1	1,286	48.9	44.9	1,372	52.2	47.9
069 Essential (primary) hypertension/hypert renal disease.....	164	6.2	5.5	161	6.1	5.5	144	5.5	4.9
070 Cerebrovascular diseases (Stroke).....	1,837	69.2	61.6	1,921	73.1	65.2	1,814	69.0	61.5
071 Atherosclerosis	345	13.0	11.1	262	10.0	8.5	272	10.3	8.8
072 Other diseases of circulatory system	304	11.5	10.5	266	10.1	9.2	281	10.7	9.8
073 Aortic aneurysm and dissection	186	7.0	6.6	167	6.4	5.9	167	6.4	5.9
074 Other diseases of arteries/arterioles/capillaries	118	4.4	4.0	97	3.7	3.3	114	4.3	3.9
075 Other disorders of circulatory system	39	1.5	1.4	43	1.6	1.5	42	1.6	1.4
076 Influenza & pneumonia	670	25.2	22.0	687	26.1	22.9	984	37.4	32.8
077 Influenza	13	*	*	11	*	*	11	*	*
078 Pneumonia	657	24.8	21.5	677	25.7	22.5	973	37.0	32.4
079 Other acute lower respiratory infections	15	*	*	6	*	*	6	*	*
080 Acute bronchitis and bronchiolitis	5	*	*	4	*	*	6	*	*
081 Unspecified acute lower respiratory infections.....	10	*	*	**	*	*	-	*	*
082 Chronic lower respiratory diseases	1,387	52.3	48.9	1,251	47.6	44.5	1,194	45.4	42.4
083 Bronchitis: chronic and unspecified	18	*	*	15	0.6	0.5	38	1.4	1.3
084 Emphysema	165	6.2	6.0	146	5.5	5.3	150	5.7	5.4
085 Asthma	49	1.8	1.8	37	1.4	1.3	41	1.6	1.5
086 Other chronic lower respiratory diseases	1,155	43.5	40.6	1,059	40.3	37.5	965	36.7	34.2
087 Pneumoconioses and chemical effects	2	*	*	3	*	*	3	*	*
088 Pneumonitis due to solids and liquids	169	6.4	5.6	115	4.4	3.9	103	3.9	3.4
089 Other diseases of respiratory system	283	10.7	9.9	299	11.4	10.6	256	9.7	9.0
090 Peptic ulcer	53	2.0	1.8	56	2.1	2.0	58	2.2	2.0
091 Diseases of appendix	6	*	*	5	*	*	5	*	*
092 Hernia	20	0.8	0.7	23	0.9	0.8	22	0.8	0.8
093 Chronic liver disease & cirrhosis	188	7.1	7.1	194	7.4	7.5	187	7.1	7.2
094 Alcoholic liver disease	80	3.0	3.1	90	3.4	3.5	88	3.3	3.5
095 Other chronic liver disease and cirrhosis	108	4.1	4.0	104	4.0	3.9	99	3.8	3.7

Table 4
113 Selected Causes of Death, Rates, & Age-Adjusted Rates, Kansas, 1998-1999

List Number	1999			1998					
	N	Rate	AA Rate	Comparability-Modified			Comparability-Unmodified		
				N	Rate	AA Rate	N	Rate	AA Rate
096 Cholelithiasis & other gallbladder disorders.....	23	0.9	0.8	27	1.0	0.9	28	1.1	1.0
097 Nephritis, nephrotic syndrome & nephrosis	386	14.5	13.0	429	16.3	14.7	348	13.2	11.9
098 Acute nephrotic syndrome	1	*	*	4	*	*	6	*	*
099 Chronic glomerulonephritis, nephritis not acute/chronic	2	*	*	7	0.3	0.2	18	0.7	0.6
100 Renal failure	383	14.4	12.9	418	15.9	14.3	323	12.3	11.1
101 Other disorders of kidney	-	*	*	1	*	*	1	*	*
102 Infections of kidney	11	*	*	6	*	*	6	*	*
103 Hyperplasia of prostate	2	*	*	3	*	*	3	*	*
104 Inflammatory diseases of female pelvic organs.....	1	*	*	1	*	*	1	*	*
105 Pregnancy childbirth & puerperium	4	*	*	**	*	*	3	*	*
106 Pregnancy with abortive outcome	-	*	*	**	*	*	-	*	*
107 Other complications of pregnancy	4	*	*	**	*	*	3	*	*
108 Certain conditions originating in perinatal period	127	4.8	4.7	126	4.8	4.8	118	4.5	4.5
109 Congenital malformations/chromosomal anomalies	116	4.4	4.3	109	4.2	4.1	129	4.9	4.8
110 Symptoms and signs, not elsewhere classified.....	452	17.0	15.7	385	14.6	13.6	403	15.3	14.2
111 All other diseases (Residual)	1,917	72.2	65.5	1,818	69.2	62.7	2,021	76.9	69.7
112 Accidents (unintentional injuries)	1,093	41.2	39.7	1,125	42.8	41.3	1,092	41.5	40.0
113 Transport accidents	590	22.2	22.0	564	21.4	21.2	565	21.5	21.3
114 Motor vehicle crashes	541	20.4	20.1	519	19.8	19.5	533	20.3	20.0
115 Other land transport accidents	25	0.9	1.0	**	*	*	8	*	*
116 Water, air, space, other & unspecified transport accidents	24	0.9	0.9	24	0.9	1.0	24	0.9	1.0
117 Nontransport accidents	503	19.0	17.7	567	21.6	20.2	527	20.0	18.8
118 Falls	186	7.0	6.3	179	6.8	6.0	213	8.1	7.2
119 Accidental discharge of firearms	7	*	*	12	*	*	11	*	*
120 Accidental drowning and submersion	26	1.0	1.0	47	1.8	1.8	47	1.8	1.8
121 Accidental exposure to smoke fire and/or flames	27	1.0	1.0	27	1.0	1.0	28	1.1	1.0
122 Accidental poisoning & exposure to noxious substances	64	2.4	2.5	**	*	*	60	*	*
123 Other & unspecified nontransport accidents	193	7.3	6.8	238	9.1	8.7	168	6.4	6.1
124 Intentional self-harm (suicide)	298	11.2	11.3	327	12.4	12.5	328	12.5	12.5
125 Intentional self-harm (suicide) discharge of firearms	165	6.2	6.2	203	7.7	7.7	203	7.7	7.7
126 Intentional self-harm (suicide) by other & unspecified means	133	5.0	5.1	124	4.7	4.8	125	4.8	4.8
127 Assault (homicide)	138	5.2	5.1	158	6.0	5.9	158	6.0	5.9
128 Assault (homicide) by discharge of firearms	97	3.7	3.6	110	4.2	4.1	110	4.2	4.1
129 Assault (homicide) by other & unspecified means	41	1.5	1.6	48	1.8	1.8	48	1.8	1.8
130 Legal intervention	1	*	*	**	*	*	2	*	*
131 Events of undetermined origin	16	*	*	**	*	*	12	*	*
132 Discharge of firearms of undetermined intent	4	*	*	**	*	*	1	*	*
133 Other & unspecified events of undetermined intent	12	*	*	**	*	*	11	*	*
134 War/sequelae	-	*	*	**	*	*	-	*	*
135 Complications of medical & surgical care	31	1.2	1.1	**	*	*	37	*	*

Source: KDHE Center for Health & Environmental Statistics

* Rate statistically unreliable (RSE > 23 or no NCHS Comparability Ratio)

** Modified count not produced (no NCHS Comparability Ratio)

¹ AIDS/HIV deaths coded to unknown for confidentiality

Rates per 100,000 population

Residence Data

Table 5
 113 Selected Causes of Death by Year by Age-adjusted Mortality Rates, Kansas, 1990-1999
 1990 to 1998 Rates Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
001 Salmonella infections	*	*	*	*	*	*	*	*	*	*
002 Shigellosis and amebiasis	*	*	*	*	*	*	*	*	*	*
003 Certain other intestinal infections	*	*	*	*	*	*	*	*	*	*
004 Tuberculosis	*	*	*	*	*	*	*	*	*	*
005 Respiratory tuberculosis	*	*	*	*	*	*	*	*	*	*
006 Other tuberculosis	*	*	*	*	*	*	*	*	*	*
007 Whooping cough	*	*	*	*	*	*	*	*	*	*
008 Scarlet fever and erysipelas	*	*	*	*	*	*	*	*	*	*
009 Meningococcal infection	*	*	*	*	*	*	*	*	*	*
010 Septicemia	7.8	7.5	8.2	7.6	7.5	7.3	8.8	8.0	8.6	9.1
011 Syphilis	*	*	*	*	*	*	*	*	*	*
012 Acute poliomyelitis	*	*	*	*	*	*	*	*	*	*
013 Arthropod-borne viral encephalitis	*	*	*	*	*	*	*	*	*	*
014 Measles	*	*	*	*	*	*	*	*	*	*
015 Viral hepatitis	*	*	*	*	0.6	*	0.6	1.0	0.9	1.0
016 HIV/AIDS ¹	*	*	*	*	*	*	*	*	1.2	1.6
017 Malaria	*	*	*	*	*	*	*	*	*	*
018 Other & unspecified infectious/parasitic diseases & sequelae..	2.4	2.5	2.2	2.2	2.3	2.2	2.6	2.8	3.1	3.1
019 Malignant Neoplasms	199.6	202.1	195.4	198.5	204.8	200.6	200.6	194.3	187.8	192.3
020 Malignant neoplasm of lip oral cavity & pharynx.....	2.9	3.0	2.8	2.6	2.5	2.6	2.9	2.5	2.5	2.2
021 Malignant neoplasm of esophagus	3.5	3.2	3.2	3.3	3.0	3.5	3.7	3.3	3.7	4.7
022 Malignant neoplasm of stomach	4.7	4.2	4.3	4.9	4.4	4.0	4.4	3.2	3.4	3.6
023 Malignant neoplasm of colon rectum and anus	24.4	23.1	20.6	22.7	21.7	21.2	20.8	21.0	19.1	20.7
024 Malignant neoplasm of liver & intrahepatic bile ducts	2.6	2.7	2.8	2.8	2.4	2.7	3.7	3.1	2.9	3.9
025 Malignant neoplasm of pancreas	9.7	10.9	9.9	10.5	10.9	11.6	9.7	10.0	10.1	11.0
026 Malignant neoplasm of larynx	1.2	1.3	1.4	1.2	1.1	0.8	1.6	1.1	1.2	1.1
027 Malignant neoplasm of trachea bronchus and lung	53.2	54.2	52.7	51.4	55.8	54.1	55.1	56.9	53.7	54.3
028 Malignant melanoma of skin	3.2	2.9	3.0	3.1	2.6	2.8	2.7	2.4	3.1	3.1
029 Malignant neoplasm of breast	18.4	17.2	16.9	15.2	18.0	16.9	15.2	15.0	14.9	14.3
030 Malignant neoplasm of cervix uteri	1.6	1.9	1.6	2.0	1.7	1.3	1.3	1.7	1.2	1.0
031 Malignant neoplasm of corpus uteri & uterus part unspecified	2.7	3.0	2.7	2.7	2.6	2.7	2.4	2.1	2.2	2.5
032 Malignant neoplasm of ovary	5.7	5.7	5.0	5.4	7.0	5.6	5.2	4.2	5.2	5.0
033 Malignant neoplasm of prostate	13.9	13.3	13.2	13.4	13.5	13.1	13.8	10.6	11.7	10.7
034 Malignant neoplasm of kidney and renal pelvis	4.5	4.4	4.7	4.9	4.6	5.0	4.0	4.4	4.2	4.1
035 Malignant neoplasm of bladder	3.3	3.4	3.7	4.1	4.0	3.7	4.2	4.4	4.3	3.6
036 Malignant neoplasm of meninges, brain and other CNS	4.7	5.9	5.6	6.0	5.4	5.7	5.9	4.7	5.2	5.2
037 Malignant neoplasms of lymphoid/related tissue	19.8	23.1	21.6	22.0	22.6	21.9	21.8	21.8	19.9	20.6
038 Hodgkin's disease	*	*	*	0.8	0.7	*	*	*	*	0.7
039 non-Hodgkin's lymphoma	7.6	9.3	7.8	8.7	8.7	8.7	8.1	9.2	8.4	8.2
040 Leukemia	7.9	8.8	8.8	8.2	8.1	7.6	8.4	7.8	8.0	7.9
041 Multiple myeloma and immunoproliferative neoplasms	3.7	4.4	4.5	4.3	5.1	4.9	5.0	4.4	3.0	3.7
042 Oth/unspec malig neo lymphoid hematopoietic/relat tissue ..	*	*	*	*	*	*	*	*	*	*
043 Other and unspecified malignant neoplasms	19.3	18.3	19.3	20.0	20.9	21.8	22.4	21.8	19.2	20.7
044 Benign/in situ/uncertain/unknown neoplasms	3.4	4.1	4.3	4.2	4.9	3.8	4.1	4.0	3.8	4.6
045 Anemias	1.4	1.5	2.0	1.8	1.4	1.9	1.7	1.7	2.3	2.7
046 Diabetes	18.1	20.4	20.0	19.5	19.3	21.8	22.6	21.5	23.2	22.8
047 Nutritional deficiencies	1.9	2.5	1.9	2.7	2.3	2.4	2.6	2.9	2.5	2.5
048 Malnutrition	1.5	2.1	1.5	2.2	1.9	2.0	2.1	2.4	2.1	2.3

Table 5
 113 Selected Causes of Death by Year by Age-adjusted Mortality Rates, Kansas, 1990-1999
 1990 to 1998 Rates Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
049 Other nutritional deficiencies	*	*	*	*	*	*	*	*	*	*
050 Meningitis	*	*	*	*	*	*	*	*	*	*
051 Parkinsons disease	3.5	3.7	3.9	4.2	4.1	4.7	5.2	4.8	5.7	5.7
052 Alzheimer's disease	9.5	9.7	10.3	12.2	11.8	12.8	13.6	13.9	12.7	16.5
053 Major cardiovascular diseases	382.0	364.5	358.4	373.4	355.5	363.8	350.2	336.3	332.2	325.5
054 Diseases of heart	289.8	278.5	270.0	283.0	264.7	271.4	254.9	251.4	244.3	236.8
055 Rheumatic heart diseases: acute and chronic	1.9	1.9	1.7	1.6	1.1	1.3	1.5	1.3	1.1	0.8
056 Hypertensive heart disease	3.8	3.9	3.9	4.7	5.0	4.7	4.6	3.5	3.3	3.9
057 Hypertensive heart and renal disease	0.9	*	*	1.2	0.8	*	1.1	*	*	0.7
058 Ischemic heart diseases	209.2	200.8	193.4	200.9	184.6	187.9	175.2	173.4	166.6	158.0
059 Acute myocardial infarction	102.2	97.8	93.4	90.0	82.1	83.1	77.5	74.4	70.6	65.6
060 Other acute ischemic heart diseases	*	*	*	*	*	*	*	*	*	*
061 Other forms of chronic ischemic heart disease.....	106.3	102.5	99.4	110.5	102.3	104.4	97.2	98.6	95.6	92.0
062 Atherosclerotic cardiovascular dis (so described)	13.2	13.9	11.3	11.9	13.7	14.0	13.0	13.5	13.5	13.3
063 All other forms of chronic ischemic heart disease	92.5	88.1	87.5	97.9	88.1	89.9	83.7	84.7	81.6	78.7
064 Other heart diseases	74.5	71.7	70.5	74.9	73.2	76.8	72.6	72.8	72.9	73.4
065 Acute and subacute endocarditis	*	*	*	*	*	*	*	*	*	*
066 Diseases of pericardium and acute myocarditis	*	*	*	*	*	*	*	*	*	*
067 Heart failure	26.0	25.5	25.9	29.2	27.5	29.3	27.0	27.5	27.8	27.5
068 All other forms of heart disease	47.7	45.6	44.2	45.5	45.4	47.1	45.3	45.0	44.9	45.1
069 Essential (primary) hypertension/hypert renal disease.....	3.5	3.7	4.0	4.8	4.9	4.3	5.0	4.9	5.5	5.5
070 Cerebrovascular diseases (Stroke).....	68.7	62.5	63.2	66.4	66.3	67.9	69.3	62.7	65.2	61.6
071 Atherosclerosis	8.9	8.9	10.6	9.5	9.9	9.7	10.2	7.5	8.5	11.1
072 Other diseases of circulatory system	10.9	10.4	10.3	9.6	9.7	10.6	11.1	10.0	9.2	10.5
073 Aortic aneurysm and dissection	7.2	7.7	7.1	6.5	5.9	7.4	6.7	6.9	5.9	6.6
074 Other diseases of arteries/arterioles/capillaries	3.7	2.9	3.2	3.1	3.7	3.2	4.3	3.2	3.3	4.0
075 Other disorders of circulatory system	1.1	1.4	2.2	1.5	1.9	1.8	1.5	1.4	1.5	1.4
076 Influenza & pneumonia	25.0	22.8	21.4	23.5	23.4	21.5	22.0	23.2	22.9	22.0
077 Influenza	2.1	1.1	*	*	1.0	*	*	0.9	*	*
078 Pneumonia	23.4	22.0	21.0	23.0	22.7	21.3	21.8	22.5	22.5	21.5
079 Other acute lower respiratory infections	*	*	*	*	*	*	*	*	*	*
080 Acute bronchitis and bronchiolitis	*	*	*	*	*	*	*	*	*	*
081 Unspecified acute lower respiratory infections.....	*	*	*	*	*	*	*	*	*	*
082 Chronic lower respiratory diseases	38.4	38.9	37.0	44.6	42.6	44.2	43.2	48.2	44.5	48.9
083 Bronchitis: chronic and unspecified	0.7	0.7	0.8	0.6	0.7	0.6	0.5	0.6	0.5	*
084 Emphysema	5.3	5.1	4.9	5.5	5.8	5.5	5.2	6.5	5.3	6.0
085 Asthma	1.4	1.7	1.4	1.9	1.6	1.6	1.7	1.6	1.3	1.8
086 Other chronic lower respiratory diseases	30.5	31.1	29.3	36.6	34.2	36.3	35.8	39.4	37.5	40.6
087 Pneumoconioses and chemical effects	*	*	*	*	*	*	*	*	*	*
088 Pneumonitis due to solids and liquids	3.6	3.5	3.2	4.3	4.2	4.1	3.9	4.6	3.9	5.6
089 Other diseases of respiratory system	8.5	8.8	8.2	8.3	8.8	8.8	8.4	10.2	10.6	9.9
090 Peptic ulcer	2.8	2.4	2.8	2.1	2.2	1.9	1.6	1.4	2.0	1.8
091 Diseases of appendix	*	*	*	*	*	*	*	*	*	*
092 Hernia	0.8	0.8	*	*	*	*	*	*	0.8	0.7
093 Chronic liver disease & cirrhosis	7.4	6.5	6.5	6.9	7.6	6.9	6.8	6.9	7.5	7.1
094 Alcoholic liver disease	3.1	2.9	2.5	2.7	3.5	2.8	3.0	2.6	3.5	3.1
095 Other chronic liver disease and cirrhosis	4.3	3.6	4.1	4.1	4.1	4.1	3.8	4.4	3.9	4.0

Table 5
 113 Selected Causes of Death by Year by Age-adjusted Mortality Rates, Kansas, 1990-1999
 1990 to 1998 Rates Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
096 Cholelithiasis & other gallbladder disorders.....	1.0	1.0	*	0.9	1.1	1.2	1.0	0.9	0.9	0.8
097 Nephritis, nephrotic syndrome & nephrosis	10.2	11.9	11.8	14.4	12.7	12.5	14.4	14.0	14.7	13.0
098 Acute nephrotic syndrome	*	*	*	*	*	*	*	*	*	*
099 Chronic glomerulonephritis, nephritis not acute/chronic	0.2	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.2	*
100 Renal failure	10.0	11.5	11.9	14.4	12.3	11.8	14.2	14.0	14.3	12.9
101 Other disorders of kidney	*	*	*	*	*	*	*	*	*	*
102 Infections of kidney	*	*	*	0.7	*	*	*	*	*	*
103 Hyperplasia of prostate	*	*	*	*	*	*	*	*	*	*
104 Inflammatory diseases of female pelvic organs.....	*	*	*	*	*	*	*	*	*	*
105 Pregnancy childbirth & puerperium	*	*	*	*	*	*	*	*	*	*
106 Pregnancy with abortive outcome	*	*	*	*	*	*	*	*	*	*
107 Other complications of pregnancy	*	*	*	*	*	*	*	*	*	*
108 Certain conditions originating in perinatal period	5.0	5.2	5.5	4.8	4.2	4.3	5.1	4.7	4.8	4.7
109 Congenital malformations/chromosomal anomalies	3.8	4.4	3.9	3.9	3.6	3.6	4.4	3.9	4.1	4.3
110 Symptoms and signs, not elsewhere classified.....	14.7	16.9	17.2	16.8	17.1	19.7	17.4	15.0	13.6	15.7
111 All other diseases (Residual)	47.0	49.5	46.6	52.9	52.5	57.5	58.0	60.9	62.7	65.5
112 Accidents (unintentional injuries)	36.2	37.3	33.1	37.2	36.9	37.2	39.4	37.0	41.3	39.7
113 Transport accidents	19.6	18.2	17.4	18.8	19.5	18.5	20.7	20.0	21.2	22.0
114 Motor vehicle crashes	18.2	16.5	15.9	17.4	17.8	17.2	19.2	18.7	19.5	20.1
115 Other land transport accidents	*	*	*	*	*	*	*	*	*	1.0
116 Water, air, space, other & unspecified transport accidents ..	0.9	1.1	*	1.0	1.1	*	0.8	*	1.0	0.9
117 Nontransport accidents	16.7	19.3	15.8	18.6	17.5	18.8	18.8	17.1	20.2	17.7
118 Falls	4.8	4.3	3.8	5.5	4.9	6.7	5.8	5.3	6.0	6.3
119 Accidental discharge of firearms	*	1.0	*	*	*	*	*	*	*	*
120 Accidental drowning and submersion	1.1	1.3	1.2	1.3	1.2	0.9	1.2	0.8	1.8	1.0
121 Accidental exposure to smoke fire and/or flames	1.4	1.8	1.7	1.4	1.7	1.4	1.3	1.4	1.0	1.0
122 Accidental poisoning & exposure to noxious substances	*	*	*	*	*	*	*	*	*	2.5
123 Other & unspecified nontransport accidents	8.0	10.2	7.3	8.2	7.7	7.8	8.2	7.3	8.7	6.8
124 Intentional self-harm (suicide)	12.0	12.4	12.6	13.2	11.3	11.9	13.1	12.3	12.5	11.3
125 Intentional self-harm (suicide) discharge of firearms	8.2	8.5	8.4	8.6	7.4	7.4	8.0	6.9	7.7	6.2
126 Intentional self-harm (suicide) by other & unspecified means	3.9	3.9	4.2	4.6	3.8	4.5	5.1	5.3	4.8	5.1
127 Assault (homicide)	4.3	6.1	6.1	7.6	7.0	6.5	5.4	5.7	5.9	5.1
128 Assault (homicide) by discharge of firearms	2.6	3.9	4.1	5.2	4.8	4.5	3.8	3.8	4.1	3.6
129 Assault (homicide) by other & unspecified means	1.6	2.2	2.0	2.4	2.2	2.0	1.6	1.9	1.8	1.6
130 Legal intervention	*	*	*	*	*	*	*	*	*	*
131 Events of undetermined origin	*	*	*	*	*	*	*	*	*	*
132 Discharge of firearms of undetermined intent	*	*	*	*	*	*	*	*	*	*
133 Other & unspecified events of undetermined intent	*	*	*	*	*	*	*	*	*	*
134 War/sequelae	*	*	*	*	*	*	*	*	*	*
135 Complications of medical & surgical care	*	*	*	*	*	*	*	*	*	1.1

Source: KDHE Center for Health & Environmental Statistics

* Rate statistically unreliable (RSE > 23 or no NCHS Comparability Ratio)

¹ AIDS/HIV deaths coded to unknown for confidentiality

Table 6
113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
001 Salmonella infections	-	-	1	-	-	1	2	-	1	-
002 Shigellosis and amebiasis	-	-	-	-	-	-	-	-	-	-
003 Certain other intestinal infections	4	6	4	10	4	9	7	16	8	8
004 Tuberculosis	7	8	5	11	6	7	7	5	5	4
005 Respiratory tuberculosis	6	7	4	9	3	6	6	4	2	4
006 Other tuberculosis	1	1	1	2	3	1	1	1	3	-
007 Whooping cough	-	-	-	-	-	-	-	-	-	-
008 Scarlet fever and erysipelas	-	-	-	2	-	-	-	-	1	-
009 Meningococcal infection	1	3	4	1	1	2	2	1	5	3
010 Septicemia	172	167	184	171	173	168	202	189	206	263
011 Syphilis	-	1	-	1	-	1	1	1	-	-
012 Acute poliomyelitis	-	-	-	-	-	-	-	-	-	-
013 Arthropod-borne viral encephalitis	-	-	-	-	-	-	-	-	-	-
014 Measles	1	-	-	-	-	-	-	-	-	-
015 Viral hepatitis	12	6	16	14	18	15	19	30	28	27
016 HIV/AIDS ²	-	-	-	-	-	-	-	-	27	40
017 Malaria	-	-	-	-	-	-	-	-	-	-
018 Other & unspecified infectious/parasitic diseases & sequelae	57	57	50	53	54	54	62	69	78	84
019 Malignant Neoplasms	5,018	5,126	5,006	5,154	5,331	5,286	5,328	5,197	5,109	5,315
020 Malignant neoplasm of lip oral cavity & pharynx.....	74	81	74	68	67	70	80	70	73	63
021 Malignant neoplasm of esophagus	89	80	84	86	78	90	97	90	101	127
022 Malignant neoplasm of stomach	116	107	111	130	113	105	118	85	92	100
023 Malignant neoplasm of colon rectum and anus	625	593	538	607	577	570	568	574	530	584
024 Malignant neoplasm of liver & intrahepatic bile ducts	69	70	75	74	65	74	101	85	81	104
025 Malignant neoplasm of pancreas	244	281	255	277	287	306	261	270	277	305
026 Malignant neoplasm of larynx	32	33	36	30	29	20	41	28	32	28
027 Malignant neoplasm of trachea bronchus and lung	1,369	1,398	1,377	1,354	1,473	1,439	1,481	1,537	1,475	1,476
028 Malignant melanoma of skin	81	72	77	80	69	75	71	65	87	84
029 Malignant neoplasm of breast	451	423	423	387	461	439	397	398	401	392
030 Malignant neoplasm of cervix uteri	39	47	41	49	42	33	33	43	32	27
031 Malignant neoplasm of corpus uteri & uterus part unspecified	67	74	69	69	69	70	63	56	61	71
032 Malignant neoplasm of ovary	145	144	132	140	184	150	137	113	142	137
033 Malignant neoplasm of prostate	359	351	354	363	368	358	381	296	332	313
034 Malignant neoplasm of kidney and renal pelvis	113	113	119	128	119	131	106	118	112	111
035 Malignant neoplasm of bladder	88	91	96	113	109	105	115	121	122	105
036 Malignant neoplasm of meninges, brain and other CNS	119	152	144	153	142	151	157	128	142	139
037 Malignant neoplasms of lymphoid/related tissue	502	594	557	577	592	584	583	594	546	570
038 Hodgkin's disease	12	13	14	20	19	18	8	10	10	20
039 non-Hodgkin's lymphoma	202	246	205	233	233	237	221	256	237	228
040 Leukemia	200	228	224	215	211	204	224	214	217	217
041 Multiple myeloma and immunoproliferative neoplasms	88	107	114	109	129	125	130	114	82	103
042 Oth/unspec malig neo lymphoid hematopoietic/relat tissue	-	-	-	-	-	-	-	-	-	2
043 Other and unspecified malignant neoplasms	436	422	444	469	487	516	538	526	471	579
044 Benign/in situ/uncertain/unknown neoplasms	52	64	69	67	79	60	69	66	66	134
045 Anemias	40	40	56	52	41	56	53	53	69	81
046 Diabetes	454	527	517	513	509	580	604	584	643	645
047 Nutritional deficiencies	43	60	45	67	58	60	67	76	66	76
048 Malnutrition	41	58	43	65	57	59	64	73	66	71

Table 6
113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
049 Other nutritional deficiencies	2	2	2	2	1	1	3	3	-	5
050 Meningitis	5	7	5	6	8	9	4	4	3	6
051 Parkinsons disease	92	101	105	115	116	132	150	139	169	171
052 Alzheimer's disease	162	170	184	220	217	237	254	262	247	509
053 Major cardiovascular diseases	9,958	9,675	9,673	10,215	9,843	10,146	9,855	9,588	9,675	9,606
054 Diseases of heart	7,634	7,467	7,363	7,809	7,395	7,632	7,229	7,225	7,164	6,956
055 Rheumatic heart diseases: acute and chronic	59	59	53	49	35	42	50	43	39	23
056 Hypertensive heart disease	124	129	133	161	173	164	161	128	121	119
057 Hypertensive heart and renal disease	22	17	19	31	22	20	28	16	13	23
058 Ischemic heart diseases	5,434	5,308	5,197	5,454	5,072	5,198	4,887	4,895	4,797	4,605
059 Acute myocardial infarction	2,660	2,573	2,500	2,431	2,245	2,287	2,147	2,092	2,022	1,881
060 Other acute ischemic heart diseases	9	4	7	4	2	5	8	6	9	14
061 Other forms of chronic ischemic heart disease.....	2,765	2,731	2,690	3,019	2,825	2,906	2,732	2,797	2,766	2,710
062 Atherosclerotic cardiovascular dis (so described)	333	360	299	314	360	374	349	366	379	388
063 All other forms of chronic ischemic heart disease	2,432	2,371	2,391	2,705	2,465	2,532	2,383	2,431	2,387	2,322
064 Other heart diseases	1,995	1,954	1,961	2,114	2,093	2,208	2,103	2,143	2,194	2,186
065 Acute and subacute endocarditis	10	7	6	7	6	16	6	6	7	13
066 Diseases of pericardium and acute myocarditis	8	9	9	5	7	2	6	8	3	8
067 Heart failure	663	664	690	792	752	812	755	786	812	853
068 All other forms of heart disease	1,314	1,274	1,256	1,310	1,328	1,378	1,336	1,343	1,372	1,312
069 Essential (primary) hypertension/hypert renal disease.....	81	87	94	118	123	109	124	125	144	164
070 Cerebrovascular diseases (Stroke).....	1,697	1,578	1,617	1,730	1,746	1,808	1,866	1,709	1,814	1,837
071 Atherosclerosis	245	252	306	282	296	289	312	232	272	345
072 Other diseases of circulatory system	301	291	293	276	283	308	324	297	281	304
073 Aortic aneurysm and dissection	189	203	190	177	162	203	183	191	167	186
074 Other diseases of arteries/arterioles/capillaries	112	88	103	99	121	105	141	106	114	118
075 Other disorders of circulatory system	28	36	58	40	49	47	40	39	42	39
076 Influenza & pneumonia	943	884	848	941	946	881	907	976	984	670
077 Influenza	56	29	14	18	29	8	4	26	11	13
078 Pneumonia	887	855	834	923	917	873	903	950	973	657
079 Other acute lower respiratory infections	10	7	10	6	13	8	7	8	6	15
080 Acute bronchitis and bronchiolitis	10	7	10	6	13	8	7	8	6	5
081 Unspecified acute lower respiratory infections.....	-	-	-	-	-	-	-	-	-	10
082 Chronic lower respiratory diseases	961	977	946	1,145	1,104	1,148	1,129	1,269	1,194	1,387
083 Bronchitis: chronic and unspecified	49	43	53	39	50	46	35	43	38	18
084 Emphysema	141	138	133	152	160	154	145	181	150	165
085 Asthma	40	48	40	54	47	47	52	48	41	49
086 Other chronic lower respiratory diseases	731	748	720	900	847	901	897	997	965	1,155
087 Pneumoconioses and chemical effects	2	7	4	6	8	8	4	3	3	2
088 Pneumonitis due to solids and liquids	84	84	78	107	107	105	103	121	103	169
089 Other diseases of respiratory system	188	196	186	191	208	207	198	246	256	283
090 Peptic ulcer	76	66	79	59	61	53	45	43	58	53
091 Diseases of appendix	5	6	4	3	6	4	2	4	5	6
092 Hernia	20	21	19	14	13	13	13	14	22	20
093 Chronic liver disease & cirrhosis	170	150	155	164	181	165	165	172	187	188
094 Alcoholic liver disease	70	67	58	63	83	68	73	62	88	80
095 Other chronic liver disease and cirrhosis	100	83	97	101	98	97	92	110	99	108

Table 6
113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
096 Cholelithiasis & other gallbladder disorders.....	27	28	17	25	32	34	29	27	28	23
097 Nephritis, nephrotic syndrome & nephrosis	219	259	260	320	285	282	329	324	348	386
098 Acute nephrotic syndrome	1	5	1	2	2	3	3	2	6	1
099 Chronic glomerulonephritis, nephritis not acute/chronic	12	17	9	12	19	26	17	14	18	2
100 Renal failure	204	237	250	305	264	253	309	308	323	383
101 Other disorders of kidney	2	-	-	1	-	-	-	-	1	-
102 Infections of kidney	10	11	11	20	12	10	12	6	6	11
103 Hyperplasia of prostate	4	7	9	3	3	3	4	7	3	2
104 Inflammatory diseases of female pelvic organs.....	3	1	-	1	1	2	2	1	1	1
105 Pregnancy childbirth & puerperium	5	1	2	3	2	2	2	5	3	4
106 Pregnancy with abortive outcome	-	-	1	-	-	-	-	1	-	-
107 Other complications of pregnancy	5	1	1	3	2	2	2	4	3	4
108 Certain conditions originating in perinatal period	133	131	139	120	104	107	124	114	118	127
109 Congenital malformations/chromosomal anomalies	118	136	120	119	111	112	136	121	129	116
110 Symptoms and signs, not elsewhere classified.....	399	456	469	467	478	554	497	435	403	452
111 All other diseases (Residual)	1,350	1,449	1,377	1,579	1,600	1,768	1,800	1,912	2,021	1,917
112 Accidents (unintentional injuries)	889	927	835	933	934	955	1,018	961	1,092	1,093
113 Transport accidents	497	460	445	481	502	479	540	524	565	590
114 Motor vehicle crashes	472	427	416	457	467	454	513	505	533	541
115 Other land transport accidents	4	6	10	1	8	6	7	3	8	25
116 Water, air, space, other & unspecified transport accidents	21	27	19	23	27	19	20	16	24	24
117 Nontransport accidents	392	467	390	452	432	476	478	437	527	503
118 Falls	147	139	126	178	160	226	199	181	213	186
119 Accidental discharge of firearms	13	24	18	14	15	11	14	11	11	7
120 Accidental drowning and submersion	27	33	33	32	30	23	31	22	47	26
121 Accidental exposure to smoke fire and/or flames	37	45	46	37	44	36	36	37	28	27
122 Accidental poisoning & exposure to noxious substances .	28	43	32	43	41	34	43	47	60	64
123 Other & unspecified nontransport accidents	140	183	135	148	142	146	155	139	168	193
124 Intentional self-harm (suicide)	296	304	310	332	288	308	339	321	328	298
125 Intentional self-harm (suicide) discharge of firearms	202	211	207	217	188	191	206	181	203	165
126 Intentional self-harm (suicide) by other & unspecified mean	94	93	103	115	100	117	133	140	125	133
127 Assault (homicide)	108	155	154	194	181	169	141	151	158	138
128 Assault (homicide) by discharge of firearms	66	99	103	134	125	117	99	101	110	97
129 Assault (homicide) by other & unspecified means	42	56	51	60	56	52	42	50	48	41
130 Legal intervention	4	4	3	3	3	3	3	6	2	1
131 Events of undetermined origin	13	18	15	26	18	20	25	19	12	16
132 Discharge of firearms of undetermined intent	1	4	2	7	6	4	4	2	1	4
133 Other & unspecified events of undetermined intent	12	14	13	19	12	16	21	17	11	12
134 War/sequelae	-	-	1	-	1	-	-	-	-	-
135 Complications of medical & surgical care	30	24	19	15	12	16	28	24	37	31

¹ Count unmodified by NCHS Comparability Ratio

² AIDS/HIV deaths coded to unknown for confidentiality

Table 7
 113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹
 1990 to 1998 Counts Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
001 Salmonella infections	-	-	1	-	-	1	2	-	1	-
002 Shigellosis and amebiasis	-	-	-	-	-	-	-	-	-	-
003 Certain other intestinal infections	-	-	-	-	-	-	-	-	-	8
004 Tuberculosis	6	7	4	9	5	6	6	4	4	4
005 Respiratory tuberculosis	5	6	4	8	3	5	5	4	2	4
006 Other tuberculosis	1	1	1	1	2	1	1	1	2	-
007 Whooping cough	-	-	-	-	-	-	-	-	-	-
008 Scarlet fever and erysipelas	-	-	-	-	-	-	-	-	-	-
009 Meningococcal infection	1	3	4	1	1	2	2	1	5	3
010 Septicemia	206	200	220	204	207	201	241	226	246	263
011 Syphilis	-	1	-	1	-	1	1	1	-	-
012 Acute poliomyelitis	-	-	-	-	-	-	-	-	-	-
013 Arthropod-borne viral encephalitis	-	-	-	-	-	-	-	-	-	-
014 Measles	-	-	-	-	-	-	-	-	-	-
015 Viral hepatitis	10	5	13	12	15	13	16	25	23	27
016 HIV/AIDS ²	-	-	-	-	-	-	-	-	31	40
017 Malaria	-	-	-	-	-	-	-	-	-	-
018 Other & unspecified infectious/parasitic diseases & sequelae	63	63	55	58	59	59	68	76	86	84
019 Malignant Neoplasms	5,052	5,161	5,040	5,189	5,367	5,322	5,364	5,232	5,144	5,315
020 Malignant neoplasm of lip oral cavity & pharynx.....	71	78	71	65	64	67	77	67	70	63
021 Malignant neoplasm of esophagus	89	80	84	86	78	90	97	90	101	127
022 Malignant neoplasm of stomach	117	108	112	131	114	106	119	86	93	100
023 Malignant neoplasm of colon rectum and anus	625	593	538	607	577	570	568	574	530	584
024 Malignant neoplasm of liver & intrahepatic bile ducts	66	67	72	71	63	71	97	82	78	104
025 Malignant neoplasm of pancreas	244	280	254	276	286	305	260	269	276	305
026 Malignant neoplasm of larynx	32	33	36	30	29	20	41	28	32	28
027 Malignant neoplasm of trachea bronchus and lung	1,347	1,375	1,355	1,332	1,449	1,416	1,457	1,512	1,451	1,476
028 Malignant melanoma of skin	78	70	75	77	67	73	69	63	84	84
029 Malignant neoplasm of breast	454	425	425	389	464	441	399	400	403	392
030 Malignant neoplasm of cervix uteri	38	46	40	48	41	33	33	42	32	27
031 Malignant neoplasm of corpus uteri & uterus part unspecified	69	76	71	71	71	72	65	57	63	71
032 Malignant neoplasm of ovary	144	143	131	139	183	149	136	112	141	137
033 Malignant neoplasm of prostate	364	356	359	368	373	363	386	300	336	313
034 Malignant neoplasm of kidney and renal pelvis	113	113	119	128	119	131	106	118	112	111
035 Malignant neoplasm of bladder	88	91	96	113	109	105	115	121	122	105
036 Malignant neoplasm of meninges, brain and other CNS	115	147	140	148	138	146	152	124	138	139
037 Malignant neoplasms of lymphoid/related tissue	504	596	559	579	594	586	585	596	548	570
038 Hodgkin's disease	12	13	14	20	19	18	8	10	10	20
039 non-Hodgkin's lymphoma	198	241	201	228	228	232	216	250	232	228
040 Leukemia	202	231	227	218	214	206	227	217	220	217
041 Multiple myeloma and immunoproliferative neoplasms	91	111	118	113	134	130	135	118	85	103
042 Oth/unspec malig neo lymphoid hematopoietic/relat tissue	-	-	-	-	-	-	-	-	-	2
043 Other and unspecified malignant neoplasms	491	475	500	528	548	581	605	592	530	579
044 Benign/in situ/uncertain/unknown neoplasms	87	107	116	112	132	100	116	111	111	134
045 Anemias	38	38	54	50	39	54	51	51	66	81
046 Diabetes	458	531	521	517	513	585	609	589	648	645
047 Nutritional deficiencies	50	70	52	78	67	70	78	88	77	76
048 Malnutrition	40	57	42	64	56	58	63	71	65	71

Table 7
113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹
1990 to 1998 Counts Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
049 Other nutritional deficiencies	12	12	12	12	6	6	19	19	-	5
050 Meningitis	5	7	5	6	8	9	4	4	3	6
051 Parkinsons disease	92	101	105	115	116	132	150	139	169	171
052 Alzheimer's disease	252	264	286	342	337	368	395	407	384	509
053 Major cardiovascular diseases	9,939	9,657	9,655	10,196	9,824	10,127	9,836	9,570	9,657	9,606
054 Diseases of heart	7,526	7,361	7,258	7,698	7,290	7,524	7,126	7,122	7,062	6,956
055 Rheumatic heart diseases: acute and chronic	48	48	44	40	29	34	41	35	32	23
056 Hypertensive heart disease	100	104	107	129	139	132	129	103	97	119
057 Hypertensive heart and renal disease	24	18	20	33	24	21	30	17	14	23
058 Ischemic heart diseases	5,429	5,303	5,192	5,449	5,067	5,193	4,882	4,890	4,792	4,605
059 Acute myocardial infarction	2,630	2,544	2,472	2,404	2,220	2,261	2,123	2,068	1,999	1,881
060 Other acute ischemic heart diseases	9	4	7	4	2	5	8	6	9	14
061 Other forms of chronic ischemic heart disease.....	2,780	2,746	2,705	3,035	2,840	2,922	2,747	2,812	2,781	2,710
062 Atherosclerotic cardiovascular dis (so described)	349	378	314	329	378	392	366	384	397	388
063 All other forms of chronic ischemic heart disease	2,416	2,356	2,375	2,687	2,449	2,516	2,368	2,415	2,371	2,322
064 Other heart diseases	1,938	1,899	1,905	2,054	2,034	2,145	2,043	2,082	2,132	2,186
065 Acute and subacute endocarditis	10	7	6	7	6	16	6	6	7	13
066 Diseases of pericardium and acute myocarditis	8	9	9	5	7	2	6	8	3	8
067 Heart failure	690	691	718	824	783	845	786	818	845	853
068 All other forms of heart disease	1,232	1,194	1,177	1,228	1,245	1,292	1,252	1,259	1,286	1,312
069 Essential (primary) hypertension/hypert renal disease.....	91	97	105	132	138	122	139	140	161	164
070 Cerebrovascular diseases (Stroke).....	1,797	1,671	1,712	1,832	1,849	1,914	1,976	1,809	1,921	1,837
071 Atherosclerosis	236	243	295	272	285	279	301	224	262	345
072 Other diseases of circulatory system	285	275	277	261	268	291	306	281	266	304
073 Aortic aneurysm and dissection	189	203	190	177	162	203	183	191	167	186
074 Other diseases of arteries/arterioles/capillaries	95	75	88	84	103	89	120	90	97	118
075 Other disorders of circulatory system	29	37	60	41	50	48	41	40	43	39
076 Influenza & pneumonia	658	617	592	657	660	615	633	681	687	670
077 Influenza	56	29	14	18	29	8	4	26	11	13
078 Pneumonia	617	595	580	642	638	607	628	661	677	657
079 Other acute lower respiratory infections	10	7	10	6	13	8	7	8	6	15
080 Acute bronchitis and bronchiolitis	7	5	7	4	10	6	5	6	4	5
081 Unspecified acute lower respiratory infections.....	-	-	-	-	-	-	-	-	-	10
082 Chronic lower respiratory diseases	1,007	1,024	991	1,200	1,157	1,203	1,183	1,330	1,251	1,387
083 Bronchitis: chronic and unspecified	19	17	21	15	20	18	14	17	15	18
084 Emphysema	137	134	129	148	156	150	141	176	146	165
085 Asthma	36	43	36	48	42	42	46	43	37	49
086 Other chronic lower respiratory diseases	802	821	790	987	929	988	984	1,094	1,059	1,155
087 Pneumoconioses and chemical effects	2	7	4	6	8	8	4	3	3	2
088 Pneumonitis due to solids and liquids	94	94	87	120	120	117	115	135	115	169
089 Other diseases of respiratory system	219	229	217	223	243	242	231	287	299	283
090 Peptic ulcer	74	64	77	57	59	51	44	42	56	53
091 Diseases of appendix	5	6	4	3	6	4	2	4	5	6
092 Hernia	21	22	20	15	14	14	14	15	23	20
093 Chronic liver disease & cirrhosis	176	156	161	170	188	171	171	178	194	188
094 Alcoholic liver disease	71	68	59	64	85	69	74	63	90	80
095 Other chronic liver disease and cirrhosis	105	87	102	106	103	102	97	116	104	108

Table 7
113 Selected Causes of Death by Year, Kansas, 1990-1999 ¹
1990 to 1998 Counts Modified by NCHS Preliminary Comparability Ratio

List Number	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
096 Cholelithiasis & other gallbladder disorders.....	26	27	16	24	31	33	28	26	27	23
097 Nephritis, nephrotic syndrome & nephrosis	270	319	320	394	351	347	405	399	429	386
098 Acute nephrotic syndrome	1	3	1	1	1	2	2	1	4	1
099 Chronic glomerulonephritis, nephritis not acute/chronic	5	7	3	5	7	10	7	5	7	2
100 Renal failure	264	307	324	395	342	328	400	399	418	383
101 Other disorders of kidney	2	-	-	1	-	-	-	-	1	-
102 Infections of kidney	10	11	11	20	12	10	12	6	6	11
103 Hyperplasia of prostate	4	7	9	3	3	3	4	7	3	2
104 Inflammatory diseases of female pelvic organs.....	3	1	-	1	1	2	2	1	1	1
105 Pregnancy childbirth & puerperium	-	-	-	-	-	-	-	-	-	4
106 Pregnancy with abortive outcome	-	-	-	-	-	-	-	-	-	-
107 Other complications of pregnancy	-	-	-	-	-	-	-	-	-	4
108 Certain conditions originating in perinatal period	142	140	148	128	111	114	132	122	126	127
109 Congenital malformations/chromosomal anomalies	100	115	102	101	94	95	115	102	109	116
110 Symptoms and signs, not elsewhere classified.....	381	436	448	446	457	529	475	416	385	452
111 All other diseases (Residual)	1,214	1,304	1,239	1,420	1,439	1,590	1,619	1,720	1,818	1,917
112 Accidents (unintentional injuries)	916	955	860	961	962	984	1,049	990	1,125	1,093
113 Transport accidents	496	459	444	480	501	478	539	523	564	590
114 Motor vehicle crashes	460	416	406	446	456	443	500	493	519	541
115 Other land transport accidents	-	-	-	-	-	-	-	-	-	25
116 Water, air, space, other & unspecified transport accidents	21	27	19	23	27	19	20	16	24	24
117 Nontransport accidents	422	503	420	486	465	512	514	470	567	503
118 Falls	124	117	106	150	135	190	167	152	179	186
119 Accidental discharge of firearms	14	25	19	15	16	12	15	12	12	7
120 Accidental drowning and submersion	27	33	33	32	30	23	31	22	47	26
121 Accidental exposure to smoke fire and/or flames	36	44	45	36	43	35	35	36	27	27
122 Accidental poisoning & exposure to noxious substances .	-	-	-	-	-	-	-	-	-	64
123 Other & unspecified nontransport accidents	199	260	192	210	201	207	220	197	238	193
124 Intentional self-harm (suicide)	295	303	309	331	287	307	338	320	327	298
125 Intentional self-harm (suicide) discharge of firearms	202	211	207	217	188	191	206	181	203	165
126 Intentional self-harm (suicide) by other & unspecified mear	93	92	102	114	99	116	132	139	124	133
127 Assault (homicide)	108	155	154	194	181	169	141	151	158	138
128 Assault (homicide) by discharge of firearms	66	99	103	134	125	117	99	101	110	97
129 Assault (homicide) by other & unspecified means	42	56	51	60	56	52	42	50	48	41
130 Legal intervention	-	-	-	-	-	-	-	-	-	1
131 Events of undetermined origin	-	-	-	-	-	-	-	-	-	16
132 Discharge of firearms of undetermined intent	-	-	-	-	-	-	-	-	-	4
133 Other & unspecified events of undetermined intent	-	-	-	-	-	-	-	-	-	12
134 War/sequelae	-	-	-	-	-	-	-	-	-	-
135 Complications of medical & surgical care	-	-	-	-	-	-	-	-	-	31

Source: KDHE Center for Health & Environmental Statistics

¹ Hyphen indicates either no events or absence of NCHS Comparability Ratio

² AIDS/HIV deaths coded to unknown for confidentiality

Table 8
Kansas Population by Selected Age Groups

Year	< 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	> 84	Total
1999	37,382	146,631	387,725	398,281	340,484	427,182	342,695	219,593	175,171	127,266	51,642	2,654,052
1998	36,485	145,620	388,661	388,563	347,009	426,432	328,727	213,457	177,971	125,597	50,545	2,629,067
1997	35,704	143,575	384,945	375,831	355,949	423,075	317,392	206,774	178,553	124,339	48,703	2,594,840
1996	36,113	144,309	387,061	366,066	363,793	417,370	302,185	203,418	181,965	121,900	47,970	2,572,150
1995	36,477	145,181	389,507	363,906	371,913	412,105	289,901	203,124	183,836	120,309	47,359	2,563,618
1994	36,316	147,928	391,275	360,567	378,217	404,126	277,935	202,994	184,554	119,329	46,731	2,549,972
1993	36,469	149,599	388,868	356,996	385,020	395,448	266,288	203,064	185,629	118,398	45,858	2,531,637
1992	37,133	150,232	385,325	354,114	393,748	386,567	254,470	204,196	184,960	117,970	44,894	2,513,609
1991	37,044	151,521	381,142	351,539	402,445	378,781	238,382	205,461	184,565	117,198	43,540	2,491,618
1990	38,789	152,283	374,404	353,759	412,736	360,743	234,315	208,568	184,550	115,595	41,832	2,477,574
Change	-3.6%	-3.7%	3.6%	12.6%	-17.5%	18.4%	46.3%	5.3%	-5.1%	10.1%	23.5%	7.1%

Source: Population Estimates for the U.S. and States by Single Year of Age and Sex:

March 9, 2000 - <http://www.census.gov/population/www/estimates/statepop.html>

Population Estimates Program, Population Division, U.S. Census Bureau, Washington, DC 20233

Technical Notes

Confidence Intervals and Significance Tests

Since more than 99 percent of all births and deaths are registered, the number of vital events reported for Kansas is essentially a complete count. Although these numbers are not subject to sampling errors, they may be affected by non-sampling errors such as mistakes in recording the mother's residence or age during the registration process.

The potential impact of variation increases as the number of events decreases. This makes resulting rates subject to volatility, and requires caution when comparing to rates from other populations, geographic areas, and time periods.

The 95 percent confidence interval is the range of values for the number of events, rates or percent of events that you could expect in 95 out of 100 cases (95 out of 100 rule). The confidence limits are the end points of this range of values (the highest and lowest values). Confidence limits for numbers, rates and percents can be estimated from the actual number of events. Procedures differ for rates and percent calculations and also differ depending on the number of events on which the statistics are based.

Confidence limits are important in determining whether one rate is "significantly" different from another. The term "significantly" refers to whether or not the difference between two rates indicates a small probability (< 5%) the difference might have occurred by chance.

Confidence limits specify the degree of certainty that can be placed on a given number or rate. Similarly statistical significance tests try to specify how often a difference between two rates could be expected.

If the difference between two rates would occur due to variability less than 5 times out of 100, the difference is statistically significant at the 95% level. In essence, there is a 95 percent level of confidence that the difference is not due to the chance variability in the rates or the number of events on which the rates are based.

On the other hand, if the difference would occur more than 5 times out of 100, then the difference is not statistically significant. If the level of certainty is only 50 percent, or even 94 percent, the difference could not occur by chance, then the difference is not statistically significant. There must be a 95 percent level of confidence when the 95 percent significance test is used.

Computing confidence limits, and ultimately statistical significance, for pairs of rates varies depending on the number of events on which each rate was created. The procedures are listed below.

Confidence limits for rates based on less than 100 events

When the numerator's number of events is less than 100, the confidence interval for a rate can be estimated using the two formulas which follow and the values in Appendix 2 .

$$\text{Lower limit} = R \times L$$

$$\text{Upper limit} = R \times U$$

where:

R	=	the rate (birth rate, mortality rate, etc.)
L	=	the value in Appendix 2 that corresponds to the number N in the numerator of the rate
U	=	the value in Appendix 2 that corresponds to the number N in the numerator of the rate

Confidence limits for rates when the numerator is 100 or more

In this case, use the following formula for the rate R based on the number of events N :

$$\begin{aligned} \text{Lower limit} &= R - [1.96 \times (R \sqrt{N})] \\ \text{Upper limit} &= R + [1.96 \times (R \sqrt{N})] \end{aligned}$$

where:

R	=	the rate (birth rate, mortality rate, etc.)
N	=	the number of events (births, deaths, etc.)

Significance test when at least one of the rates is based on fewer than 100 events

To compare two rates, when one or both of those rates are based on less than 100 events, first compute the confidence intervals for both rates. Then check to see if those intervals overlap. If they do overlap, the difference is not statistically significant at the 95-percent level. If they do not overlap, the difference is indeed “statistically significant.”

Significance test when both rates are based on 100 or more events

To compare two rates when both are based on 100 or more events, first calculate the difference between the two rates by subtracting the lower rate from the higher rate. This difference is considered statistically significant if it exceeds the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two rates.

$$1.96 \sqrt{\frac{R_1^2}{N_1^2} + \frac{R_2^2}{N_2^2}}$$

where:

R_1	=	the first rate
R_2	=	the second rate
N_1	=	the first number of events
N_2	=	the second number of events

- If the difference is greater than this statistic, then the difference would occur by chance less than 5 times out of 100. The difference is statistically significant at the 95 percent confidence level.
- If the difference is less than this statistic, the difference might occur by chance more than 5 times out of 100. The difference is not statistically significant at the 95 percent confidence level.

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Appendix 1

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
	All causes.....	
1#	Salmonella infections.....	A01-A02 (002-003)
2#	Shigellosis and amebiasis.....	A03,A06 (004,006)
3	Certain other intestinal infections.....	A04,A07-A09 (007-009)
#	Tuberculosis.....	A16-A19 (010-018)
4	Respiratory tuberculosis.....	A16 (010-012)
5	Other tuberculosis.....	A17-A19 (013-018)
6#	Whooping cough.....	A37 (033)
7#	Scarlet fever and erysipelas.....	A38,A46 (034.1-035)
8#	Meningococcal infection.....	A39 (036)
9#	Septicemia.....	A40-A41 (038)
10#	Syphilis.....	A50-A53 (090-097)
11#	Acute poliomyelitis.....	A80 (045)
12#	Arthropod-borne viral encephalitis.....	A83-A84,A85.2 (062-064)
13#	Measles.....	B05 (055)
14#	Viral hepatitis.....	B15-B19 (070)
15#	Human immunodeficiency virus (HIV) disease.....	B20-B24 (042-044)
16#	Malaria.....	B50-B54 (084)
17	Other and unspecified infectious and parasitic diseases and their sequelae A00,A05,A20-A36,A42-A44,A48-A49,A54-A79, A81-A82,A85.0-A85.1,A85.8,A86-B04,B06-B09,B25-B49,B55-B99 (001,005,020-032,037,039-041,046-054,056-061,065-066,071-083,085-088,098-134,136-139,771.3)	

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
#	Malignant neoplasms.....	C00-C97 (140-208)
18	Malignant neoplasms of lip, oral cavity and pharynx.....	C00-C14 (140-149)
19	Malignant neoplasm of esophagus.....	C15 (150)
20	Malignant neoplasm of stomach.....	C16 (151)
21	Malignant neoplasms of colon, rectum and anus.....	C18-C21 (153-154)
22	Malignant neoplasms of liver and intrahepatic bile ducts.....	C22 (155)
23	Malignant neoplasm of pancreas.....	C25 (157)
24	Malignant neoplasm of larynx.....	C32 (161)
25	Malignant neoplasms of trachea, bronchus and lung.....	C33-C34 (162)
26	Malignant melanoma of skin.....	C43 (172)
27	Malignant neoplasm of breast.....	C50 (174-175)
28	Malignant neoplasm of cervix uteri.....	C53 (180)
29	Malignant neoplasms of corpus uteri and uterus, part unspecified.....	C54-C55 (179,182)
30	Malignant neoplasm of ovary.....	C56 (183.0)
31	Malignant neoplasm of prostate.....	C61 (185)
32	Malignant neoplasms of kidney and renal pelvis.....	C64-C65 (189.0-189.1)
33	Malignant neoplasm of bladder.....	C67 (188)
34	Malignant neoplasms of meninges, brain and other parts of central nervous system.....	C70-C72 (191-192)
	Malignant neoplasms of lymphoid, hematopoietic and related tissue.....	C81-C96 (200-208)
35	Hodgkin's disease.....	C81 (201)
36	Non-Hodgkin's lymphoma.....	C82-C85 (200,202)
37	Leukemia.....	C91-C95 (204-208)
38	Multiple myeloma and immunoproliferative neoplasms.....	C88, C90 (203)
39	Other and unspecified malignant neoplasms of lymphoid, hematopoietic and related tissue.....	C96 ???
40	All other and unspecified malignant neoplasms.....	C17, C23-C24, C26-C31, C37-C41, C44-C49, C51-C52, C57-C60, C62-C63, C66, C68-C69, C73-C80, C97

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
		(152,156,158-160,163-171,173,181,183.2-184,186-187,189.2-190,193-199)
41#	In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior.....	D00-D48 (210-239)
42#	Anemias.....	D50-D64 (280-285)
43#	Diabetes mellitus.....	E10-E14 (250)
#	Nutritional deficiencies.....	E40-E64 (260-269)
44	Malnutrition.....	E40-E46 (260-263)
45	Other nutritional deficiencies.....	E50-E64 (264-269)
46#	Meningitis.....	G00,G03 (320-322)
47#	Parkinson's disease.....	G20-G21 (332)
48#	Alzheimer's disease.....	G30 (331.0)
	Major cardiovascular diseases.....	I00-I78 (390-434,436-448)
#	Diseases of heart.....	I00-I09, I11, I13, I20-I51 (390-398,402,404,410-429)
49	Acute rheumatic fever and chronic rheumatic heart diseases.....	I00-I09 (390-398)
50	Hypertensive heart disease.....	I11 (402)
51	Hypertensive heart and renal disease.....	I13 (404)
	Ischemic heart diseases.....	I20-I25 (410-414,429.2)
52	Acute myocardial infarction.....	I21-I22 (410)
53	Other acute ischemic heart diseases.....	I24 (411)
	Other forms of chronic ischemic heart disease.....	I20, I25 (412-414,429.2)
54	Atherosclerotic cardiovascular disease, so described.....	I25.0 (429.2)
55	All other forms of chronic ischemic heart disease.....	I20, I25.1-I25.9 (412-414)
	Other heart diseases.....	I26-I51 (415-429.1,429.3-429.9)
56	Acute and subacute endocarditis.....	I33 (421)
57	Diseases of pericardium and acute myocarditis.....	I30-I31, I40 (420,422-423)
58	Heart failure.....	I50 (428)

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
59	All other forms of heart disease.....	I26-I28, I34-I38, I42-I49, I51 (415-417, 424-427, 429.0-429.1, 429.3-429.9)
60#	Essential (primary) hypertension and hypertensive renal disease.....	I10, I12 (401, 403)
61#	Cerebrovascular diseases.....	I60-I69 (430-434, 436-438)
62#	Atherosclerosis.....	I70 (440)
	Other diseases of circulatory system.....	I71-I78 (441-448)
63#	Aortic aneurysm and dissection.....	I71 (441)
64	Other diseases of arteries, arterioles and capillaries.....	I72-I78 (442-448)
65	Other disorders of circulatory system.....	I80-I99 (451-459)
#	Influenza and pneumonia.....	J10-J18 (480-487)
66	Influenza.....	J10-J11 (487)
67	Pneumonia.....	J12-J18 (480-486)
	Other acute lower respiratory infections.....	J20-J22 (466)
68#	Acute bronchitis and bronchiolitis.....	J20-J21 (466)
69	Unspecified acute lower respiratory infection.....	J22 (?)
#	Chronic lower respiratory diseases.....	J40-J47 (490-494, 496)
70	Bronchitis, chronic and unspecified.....	J40-J42 (490-491)
71	Emphysema.....	J43 (492)
72	Asthma.....	J45-J46 (493)
73	Other chronic lower respiratory diseases.....	J44, J47 (494, 496)
74#	Pneumoconioses and chemical effects.....	J60-J66, J68 (500-506)
75#	Pneumonitis due to solids and liquids.....	J69 (507)
76	Other diseases of respiratory system.....	J00-J06, J30-J39, J67, J70-J98 (034.0, 460-465, 470-478, 495, 508-519)
77#	Peptic ulcer.....	K25-K28 (531-534)
78#	Diseases of appendix.....	K35-K38 (540-543)
79#	Hernia.....	K40-K46 (550-553)

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
#	Chronic liver disease and cirrhosis.....	K70, K73-K74 (571)
80	Alcoholic liver disease.....	K70 (571.0-571.3)
81	Other chronic liver disease and cirrhosis.....	K73-K74 (571.4-571.9)
82#	Cholelithiasis and other disorders of gallbladder.....	K80-K82 (574-575)
#	Nephritis, nephrotic syndrome and nephrosis.....	N00-N07, N17-N19, N25-N27 (580-589)
83	Acute and rapidly progressive nephritic and nephrotic syndrome.....	N00-N01, N04 (580-581)
84	Chronic glomerulonephritis, nephritis and nephritis not specified as acute or chronic, and renal sclerosis unspecified.....	N02-N03, N05-N07, N26 (582-583, 587)
85	Renal failure.....	N17-N19 (584-586)
86	Other disorders of kidney.....	N25, N27 (588-589)
87#	Infections of kidney.....	N10-N12, N13.6, N15.1 (590)
88#	Hyperplasia of prostate.....	N40 (600)
89#	Inflammatory diseases of female pelvic organs.....	N70-N76 (614-616)
#	Pregnancy, childbirth and the puerperium.....	O00-O99 (630-676)
90	Pregnancy with abortive outcome.....	O00-O07 (630-639)
91	Other complications of pregnancy, childbirth and the puerperium.....	O10-O99 (640-676)
92#	Certain conditions originating in the perinatal period.....	P00-P96 (760-771.2, 771.4-779)
93#	Congenital malformations, deformations and chromosomal abnormalities.....	Q00-Q99 (740-759)
94	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified..	R00-R99 (780-799)
95	All other diseases (Residual).....	D65-E07, E15-E34, E65-F99, G04-G12, G23-G25, G31-H93, K00-K22, K29-K31, K50-K66, K71-K72, K75-K76, K83-M99, N13.0-N13.5, N13.7-N13.9, N14, N15.0, N15.8-N15.9, N20-N23, N28-N39, N41-N64, N80-N98 (135, 240-246, 251-259, 270-279, 286-319, 323-330, 331.1-331.9, 333-389, 435, 520-530, 535-537, 555-570, 572-573, 576-579, 591-599, 601-611, 617-629, 680-739)
#	Accidents.....	V01-X59, Y85-Y86 (E800-E869, E880-E929)
	Transport accidents.....	V01-V99, Y85 (E800-E848, E929.0-E929.1)
96	Motor vehicle accidents.....	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2 (E810-E825)
97	Other land transport accidents.....	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9 (E800-E807, E826-E829)

LIST OF 113 SELECTED CAUSES OF DEATH

Number	Cause of death	ICD-10 (ICD-9)
98	Water, air and space, and other and unspecified transport accidents and their sequelae	V90-V99, Y85 (E830-E848, E929.0-E929.1)
	Nontransport accidents.....	W00-X59, Y86 (E850-E869, E880-E928, E929.2-E929.9)
99	Falls.....	W00-W19 (E880-E888)
100	Accidental discharge of firearms.....	W32-W34 (E922)
101	Accidental drowning and submersion.....	W65-W74 (E910)
102	Accidental exposure to smoke, fire and flames.....	X00-X09 (E890-E899)
103	Accidental poisoning and exposure to noxious substances.....	X40-X49 (E850-E869, E924.1)
104	Other and unspecified nontransport accidents and their sequelae	W20-W31, W35-W64, W75-W99, X10-X39, X50-X59, Y86 (E900-E909, E911-E921, E923-E924.0, E924.8-E928, E929.2-E929.9)
#	Intentional self-harm (suicide).....	X60-X84, Y87.0 (E950-E959)
105	Intentional self-harm (suicide) by discharge of firearms.....	X72-X74 (E955.0-E955.4)
106	Intentional self-harm (suicide) by other and unspecified means and their sequelae	X60-X71, X75-X84, Y87.0 (E950-E954, E955.5-E959)
#	Assault (homicide).....	X85-Y09, Y87.1 (E960-E969)
107	Assault (homicide) by discharge of firearms.....	X93-X95 (E965.0-E965.4)
108	Assault (homicide) by other and unspecified means and their sequelae....	X85-X92, X96-Y09, Y87.1 (E960-E964, E965.5-E969)
109#	Legal intervention.....	Y35, Y89.0 (E970-E978)
	Events of undetermined intent.....	Y10-Y34, Y87.2, Y89.9 (E980-E989)
110	Discharge of firearms, undetermined intent.....	Y22-Y24 (E985.0-E985.4)
111	Other and unspecified events of undetermined intent and their sequelae	Y10-Y21, Y25-Y34, Y87.2, Y89.9 (E980-E984, E985.5-E989)
112#	Operations of war and their sequelae.....	Y36, Y89.1 (E990-E999)
113#	Complications of medical and surgical care.....	Y40-Y84, Y88 (E870-E879, E930-E949)

Appendix 2. Values of Lower (L) and Upper (U) Limits for Calculating 95 % Confidence Limits
For Numbers of Events and Rates When the Number of Events Is Less Than 100

N	L	U	N	L	U
1	0.02532	5.57164	50	0.74222	1.31838
2	0.12110	3.61234	51	0.74457	1.31482
3	0.20622	2.92242	52	0.74685	1.31137
4	0.27247	2.56040	53	0.74907	1.30802
5	0.32470	2.33367	54	0.75123	1.30478
6	0.36698	2.17658	55	0.75334	1.30164
7	0.40205	2.06038	56	0.75539	1.29858
8	0.43173	1.97040	57	0.75739	1.29562
9	0.45726	1.89831	58	0.75934	1.29273
10	0.47954	1.83904	59	0.76125	1.28993
11	0.49920	1.78928	60	0.76311	1.28720
12	0.51671	1.74680	61	0.76492	1.28454
13	0.53246	1.71003	62	0.76669	1.28195
14	0.54671	1.67783	63	0.76843	1.27943
15	0.55969	1.64935	64	0.77012	1.27698
16	0.57159	1.62394	65	0.77178	1.27458
17	0.58254	1.60110	66	0.77340	1.27225
18	0.59266	1.58043	67	0.77499	1.26996
19	0.60207	1.56162	68	0.77654	1.26774
20	0.61083	1.54442	69	0.77806	1.26556
21	0.61902	1.52861	70	0.77955	1.26344
22	0.62669	1.51401	71	0.78101	1.26136
23	0.63391	1.50049	72	0.78244	1.25933
24	0.64072	1.48792	73	0.78384	1.25735
25	0.64715	1.47620	74	0.78522	1.25541
26	0.65323	1.46523	75	0.78656	1.25351
27	0.65901	1.45495	76	0.78789	1.25165
28	0.66449	1.44528	77	0.78918	1.24983
29	0.66972	1.43617	78	0.79046	1.24805
30	0.67470	1.42756	79	0.79171	1.24630
31	0.67945	1.41942	80	0.79294	1.24459
32	0.68400	1.41170	81	0.79414	1.24291
33	0.68835	1.40437	82	0.79533	1.24126
34	0.69253	1.39740	83	0.79649	1.23965
35	0.69654	1.39076	84	0.79764	1.23807
36	0.70039	1.38442	85	0.79876	1.23652
37	0.70409	1.37837	86	0.79987	1.23499
38	0.70766	1.37258	87	0.80096	1.23350
39	0.71110	1.36703	88	0.80203	1.23203
40	0.71441	1.36172	89	0.80308	1.23059
41	0.71762	1.35661	90	0.80412	1.22917
42	0.72071	1.35171	91	0.80514	1.22778
43	0.72370	1.34699	92	0.80614	1.22641
44	0.72660	1.34245	93	0.80713	1.22507
45	0.72941	1.33808	94	0.80810	1.22375
46	0.73213	1.33386	95	0.80906	1.22245
47	0.73476	1.32979	96	0.81000	1.22117
48	0.73732	1.32585	97	0.81093	1.21992
49	0.73981	1.32205	98	0.81185	1.21868
			99	0.81275	1.21746