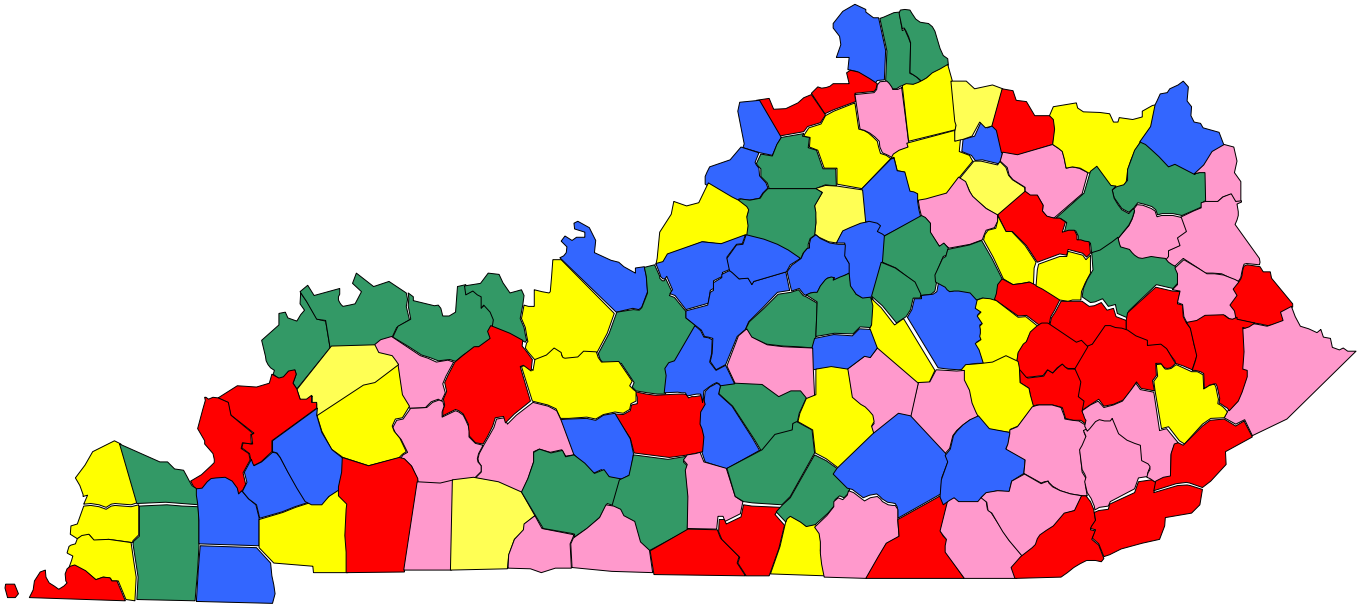
Health Status of Kentuckians
1999



Cabinet for Health Services
Department for Public Health
Rice C. Leach, M.D., Commissioner
Sharon Stumbo, Deputy Commissioner

INTRODUCTION

Dr. Jean Mayer, who was a professor of nutrition at the Harvard School of Public Health and then president of Tufts University, once said that Americans sometimes act as if they think the Great Shield of the United States should read "We need more data" instead of *E pluribus unum*. He said that because we seem to have a hard time making decisions without all the data even when we have enough information for a rational person to decide. With due respect to his admonishment, the Department for Public Health is pleased to present just a bit more data for your consideration.

The *Health Status of Kentuckians 1999* reports the frequency and distribution of several clinical conditions that cause our demise. Pages 2 through 29 show death rates from everything from heart disease to cancer to homicide to injury. The narrative page tells what the information means and how things have changed. The multi-colored diagrams of the state show who has the most (red counties) and who has the least of each condition, and the graphs add some statewide numbers.

Pages 30 through 57 describe the life circumstances and behaviors that cause the risks that lead to the deaths. Low birth weight, obesity, sedentary lifestyle, and tobacco use along with poverty are the greatest contributors to our collective health risk. Reducing those risks requires people to make life changes and requires the health care system to help them in that regard. Some of that help comes in the form of clinical medicine, but the overwhelming majority of it comes in the form of public health education and group support.

The state and local health departments are working toward a strengthened presence in the community so we can all be better off. We hope the reader will find ways to contribute to this effort after getting a sense of who has what and where it is.

Rice C. Leach, M.D.

January 24, 2000

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SUMMARY

Both the Institute of Medicine report, *The Future of Public Health,*[1] and the *Kentucky Public Health Improvement Plan*[2] have identified assessment, the collection, analysis, and dissemination of information on the health and health-related factors of a community, as one of the three core functions of public health. This report utilizes the latest, most complete data available, current through 1997 in most cases, to provide an assessment of the current health status of Kentuckians. Among the areas assessed are mortality, maternal and infant health, selected disease incidence and prevalence, behavioral risk factors, and other factors related to health. Highlights of the report follow:

Mortality

- **Kentucky's age-adjusted death rate for *all causes of death* is the 10th highest in the nation. The death rate for all causes among blacks exceeds the rate for whites by 38.3%.**
- **Five *leading causes*, heart disease, malignant neoplasms (cancer), cerebrovascular disease (stroke), chronic obstructive pulmonary disease (COPD), and unintentional injuries, account for almost three of every four deaths.**
- ***Cardiovascular disease*, which includes heart disease and stroke, is responsible for four of every ten deaths.**
- **Kentucky's age-adjusted rate for *heart disease* is the 3rd highest in the nation, and the rate for *cerebrovascular disease* ranks 15th.**
- **Kentucky's age-adjusted rate for cancer (malignant neoplasms) is the 3rd highest in the nation. One-third of cancer deaths are to persons under age 65. The death rate for males exceeds the rate for females by 55%. The death rate for blacks is 36% greater than the rate for whites.**
- **Kentucky's *lung cancer* death rate is the highest in the nation.**
- **Four of every ten deaths due to *female breast cancer* are to women under age 65.**
- **Kentucky's age-adjusted rate for *chronic obstructive pulmonary disease* is the 5th highest in the nation. The rate for whites is 16% greater than the rate for blacks.**
- **Kentucky's age-adjusted rate for *unintentional injuries* ranks 14th in the nation. Unintentional injuries are the leading cause of death for ages 1 through 34.**
- ***Motor vehicle crashes* account for almost one-half of all unintentional injury deaths.**
- **Kentucky's rate of 9 *occupational deaths* per 100,000 workers is nearly double the U.S. rate of 5 per 100,000.**

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[1]Institute of Medicine, Committee for the Study of the Future of Public Health. *The Future of Public Health*. Division of Health Care Services, Institute of Medicine. Washington, D.C. 1988.

[2]Kentucky Cabinet for Health Services. *Kentucky Public Health Improvement Plan*. Frankfort, Kentucky. March 1998.

SUMMARY

- ***Agriculture*** **continues to be the most dangerous occupation in Kentucky, the death rate for which is over three times the national rate.**

- ***Tractor-related injuries*** **account for more agricultural deaths than all other causes combined.**

- **The age-adjusted rate for *homicides* among blacks is almost six times the rate for whites, and homicide is the leading cause of death for black males aged 15-24.**

- **Each year in Kentucky, there are about twice as many *suicides* as there are homicides. Suicide is the second leading cause of death for 15-34 year olds. The suicide rate for whites is more than double the rate for blacks.**

Maternal and infant health

- **Kentucky's *infant mortality rate* in 1997 (7.2 deaths per 1,000 live births) was the lowest ever recorded in the state. The infant mortality rate for the period 1995-1997 was identical to the national rate. However, the rate for black infants exceeds the rate for whites by 68%.**

- **Kentucky's *low birthweight* percentage (% of births under 2500 grams) is the 17th highest in the nation. The percentage has increased by over 11% since 1990. The percentage for blacks is 71% greater than the percentage for whites.**

- ***Adolescent births*** **(births to mothers under 18) as a percentage of all births exceeds the national percentage by over 22%. However, the adolescent birth rate (births per 1,000 females 10-17) has declined by over 14% since 1994.**

- **The percentage of mothers not receiving prenatal care (PNC) in the first trimester of pregnancy in 1997 (15%) was the lowest ever recorded in the state. The percentage has improved, down from 22.8% in 1990. However, almost one-half of mothers under age 15 and one-fourth aged 15-19 do not receive first trimester PNC. One-fourth of black mothers do not receive first trimester PNC.**

Disease incidence and prevalence

- **Kentucky's age-adjusted *cancer incidence* rate for all causes is 5.9% higher than the national rate. The most commonly diagnosed cancer in Kentucky is cancer of the trachea, bronchus, and lung, accounting for 15% of all cases.**

- **Kentucky's *AIDS incidence* rate is about one-half the national rate, and Kentucky ranks 34th in this measure. The rate for blacks is about eight times the rate for whites.**

- **Over 5% of adults report that they have been diagnosed with *diabetes*. Kentucky's diabetes prevalence rate ranks 14th in the nation.**

- **Kentucky's *tuberculosis incidence* rate is 31% lower than the national rate. The rate for blacks is 45% higher than the rate for whites.**

SUMMARY

- **The mean number of days of the past 30 that Kentucky adults report that their *mental health* was not good (4.9) is the highest in the nation.**

Behavioral risk factors

- **The percentage of adult Kentuckians who report that they are *current smokers* is 30.7%, the highest percentage in the nation.**
- **In 1996, 23% of all deaths in Kentucky were attributable to *smoking*.**
- **Lung cancer accounted for 31% of *smoking-attributable mortality*, and ischemic heart disease for another 20%.**
- **The average number of *years of potential life lost* per smoking-attributable death was 14 years.**
- **The percentage of Kentucky *youth reporting that they are current smokers* is 47%, the highest prevalence of the states surveyed. Kentucky exceeds the nation in the percentage of youth reporting frequent cigarette use, and in the percentage who have ever tried cigarette smoking. The prevalence of smoking behavior among Kentucky youth has increased since 1993.**
- **Almost two-thirds of Kentucky adults report a *sedentary lifestyle* (i.e., they have little or no leisure time physical activity).**
- **Over one-third of Kentucky adults are considered to be *overweight*, the second highest prevalence in the nation. The prevalence of overweight among blacks is 38% greater than that among whites.**
- **The percentage of Kentucky *youth reporting that they have carried a weapon* exceeds the national percentage.**
- **The percentages of Kentucky *youth reporting that they have considered suicide or have attempted suicide* exceed the national percentages. However, the percentages of both these measures decreased from 1993 to 1997.**
- **The percentage of Kentucky *youth reporting that they are currently sexually active*, and the percentage reporting that they have had sex with four or more sex partners exceed the national percentages. Over 15% report that they had their first sexual intercourse before age 14.**
- **Almost one in ten (9.7%) 12th grade girls report having been *pregnant* at least once.**

Health-related factors

- **In Kentucky in 1996, the percentage of *children under 18 living in families below the federal poverty level* was 25.5%, a rate that was the eighth highest in the nation.**
- **Kentucky's *median household income* ranked 42nd in the nation in 1996, and was 85.7% of the U.S. median.**

Health Status of Kentuckians
1999

ALL CAUSES OF DEATH

Cause of death statistics have long been among the most ascertainable, readily available, and comparable of all health status indicators for a population. Mortality data can be used to monitor and evaluate health status in terms of current mortality levels and long-term mortality trends, as well as to identify segments of the population at greatest risk of death from specific diseases and injuries. Differences in death rates among demographic groups may reflect group differences in factors such as socioeconomic status, access to medical care, and the prevalence of risks specific to a particular group.[1]

There was an average of 37,351 deaths per year to residents of Kentucky in the period 1995-1997, for a crude death rate of 961.7 deaths per 100,000 population. The age-adjusted rate, which shows what the level of mortality would be if no changes occurred in the age composition of the population from year to year, and thus can be used to compare populations across time and geographic boundaries, was 532.7 deaths per 100,000 population. This rate exceeded the corresponding U.S. rate of 491.4 per 100,000[2] by 8.4 percent.

In 1997, Kentucky's age-adjusted death rate for all causes combined, which rose slightly (1.7 percent) after several years of steady decline (Fig. B), was the 10th highest in the nation.[3]

Between 1995 and 1997, the five leading causes of death in Kentucky, heart disease, malignant neoplasms (cancer), cerebrovascular disease (stroke), chronic obstructive pulmonary diseases, and unintentional injuries, accounted for almost three of every four deaths (72.9%).

As shown in Figure A, male deaths (50.9% of the total) slightly outnumbered female deaths, but the male age-adjusted rate (700.0 per 100,000) exceeded the female rate (412.0 per 100,000) by 70 percent due to the fact that males tend to die at younger ages than females.

Slightly over one-half (51.6%) of total deaths between 1995 and 1997 were to persons aged 75 and over, but one in four deaths (26.5%) were to persons under age 65 (Fig. D).

Mortality levels also varied by race. The age-adjusted death rate for the black population (731.4 per 100,000) exceeded the rate for whites (528.7 per 100,000) by 38.3 percent in 1997.

Figure C shows the distribution by county of 1995-1997 average annual age-adjusted death rates from all causes of death.

[1]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:3. Hyattsville, Maryland: National Center for Health Statistics. 1999.
[2]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook.* Hyattsville, Maryland: 1999:160.
[3]Hoyert et al., op. cit.,82.

Figure A. Percent of Deaths from All Causes by Sex, 1995-1997

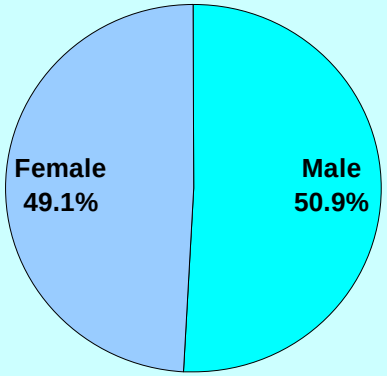


Figure B. Deaths from All Causes per 100,000 Population, 1993-1997

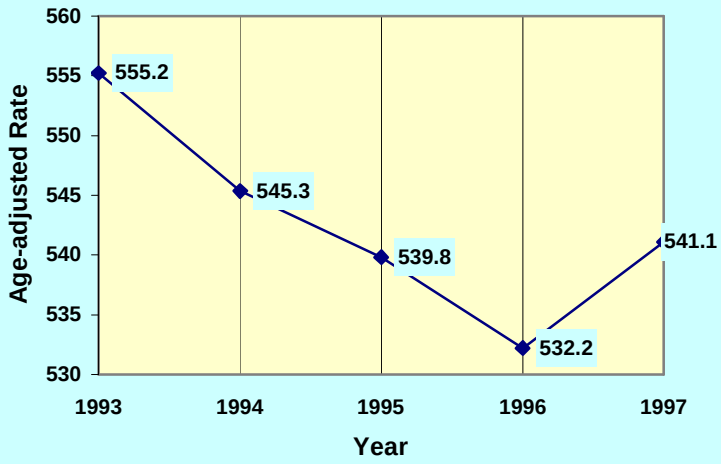


Figure C. Deaths from All Causes, 1995-1997

Age-adjusted Rate Per 100,000 Population

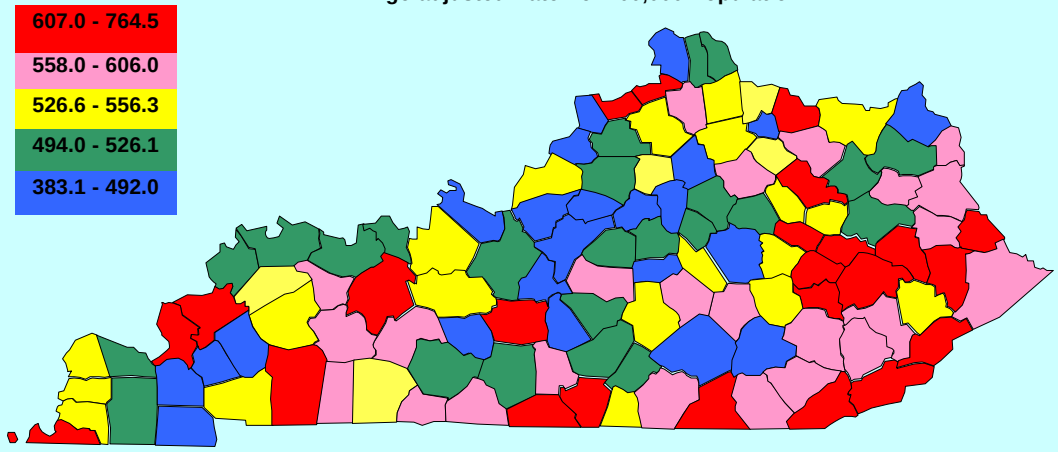
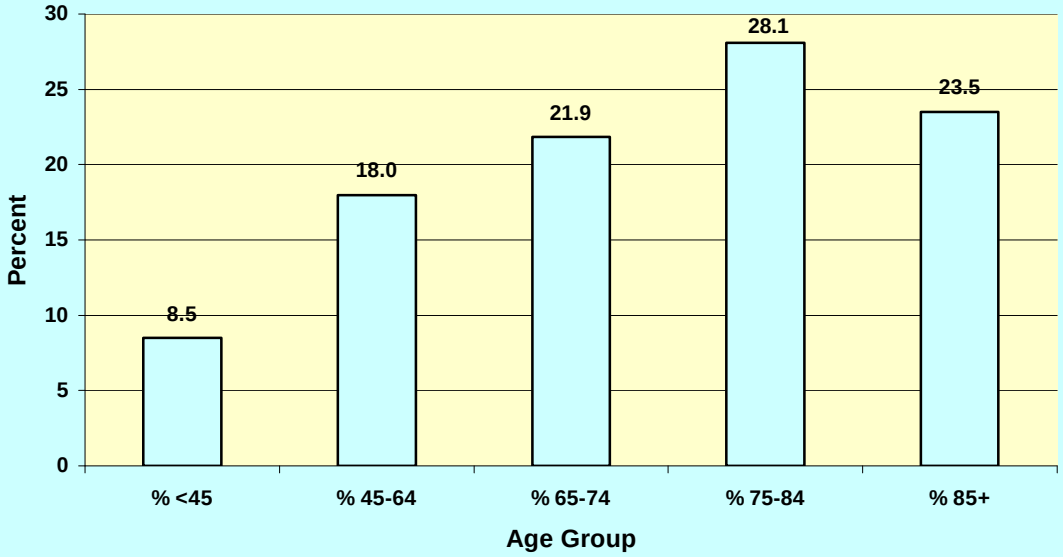


Figure D. Percent of Deaths from All Causes by Age Group, 1995-1997



*Deaths rates per 100,000 population, age-adjusted to the 1940 US standard population

CARDIOVASCULAR DISEASE MORTALITY

Cardiovascular diseases, which include heart disease, stroke, diseases of the arteries, arterioles, and capillaries, and diseases of the veins and lymphatics, are the most common cause of death among both men and women of all racial and ethnic groups in the nation[1] as well as in Kentucky.

Three health-related behaviors, tobacco use, insufficient physical activity, and poor nutrition, are the major risk factors for these diseases.[1] Increased blood pressure or cholesterol act together with smoking, obesity, or a sedentary lifestyle to increase the risk.[2]

The 1993 Behavioral Risk Factor Survey System (BRFSS), an on-going survey which monitors the prevalence of health risk factors, indicated that over 88% of Kentuckians 18 years of age and older had at least one risk factor (smoking, hypertension, obesity, or sedentary lifestyle) for cardiovascular disease.[3] Subsequent surveys have noted little or no improvement in these factors.

During the period 1995-1997, the state experienced an average annual crude rate of 397.1 deaths per 100,000 population and an age-adjusted rate of 190.7 per 100,000. Cardiovascular diseases accounted for an average of 15,424 deaths per year during the period, responsible for four of every ten deaths (41.3%).

Although the age-adjusted rate increased slightly in 1997, it had been declining steadily for the last several years (Fig. B).

Although there were more deaths to females (52.1% of the total) than to males during the 1995-1997 period (Fig. A), the male age-adjusted rate was 71% higher than the female rate.

Cardiovascular diseases are chronic in nature. In the period 1995-1997, almost 62% of cardiovascular disease deaths were to persons aged 75 and older, and half of these were to persons 85 and older (Fig. D).

In 1997, the age-adjusted rate for blacks (256.0 per 100,000) exceeded the corresponding rate for whites (190.7 per 100,000) by over 34 percent. The age-specific death rate (the number of deaths in an age group compared to the population in that group) was higher for blacks in every age category 15 years of age and older except for the oldest group, those 85 and over.

Figure C shows the distribution of average annual cardiovascular disease age-adjusted death rates by county for 1995 through 1997.

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[1]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death*. Atlanta, Georgia: 1998:9.
[2]Kentucky Cabinet for Human Resources. *Healthy Kentuckians 2000: Kentucky's Public Health Objectives for the Year 2000*. Frankfort, Kentucky: 1991:95.
[3]Kentucky Cabinet for Health Services. *Healthy Kentuckians 2000: Mid-Decade Review*. Frankfort, Kentucky

Figure A. Percent of Deaths from Cardiovascular Diseases by Sex, 1995-1997

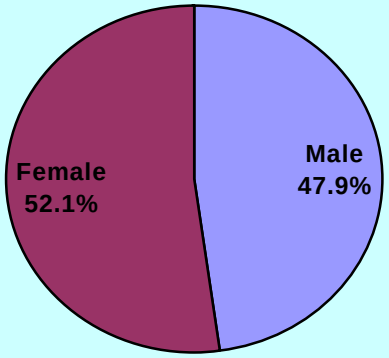


Figure B. Deaths from Cardiovascular Diseases per 100,000 Population, 1993-1997

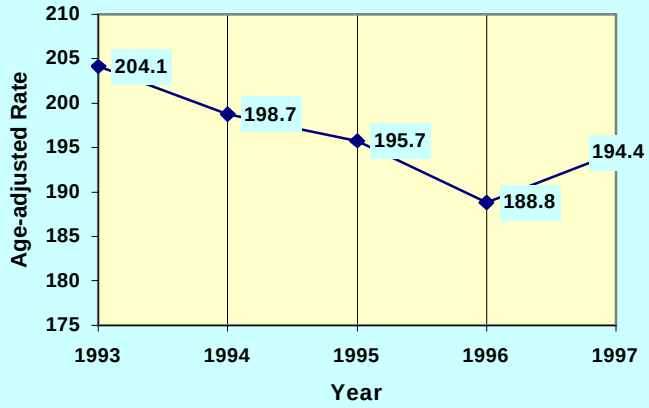


Figure C. Deaths from Cardiovascular Diseases, 1995-1997

Age-adjusted Rate per 100,000 Population

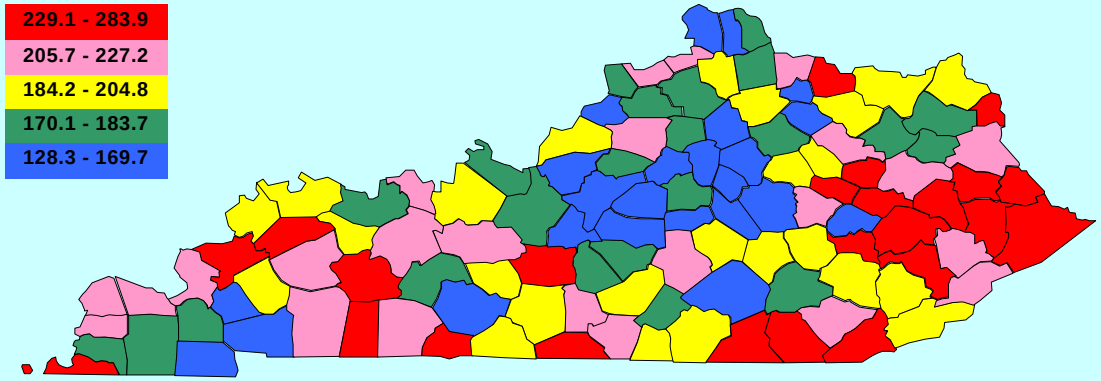
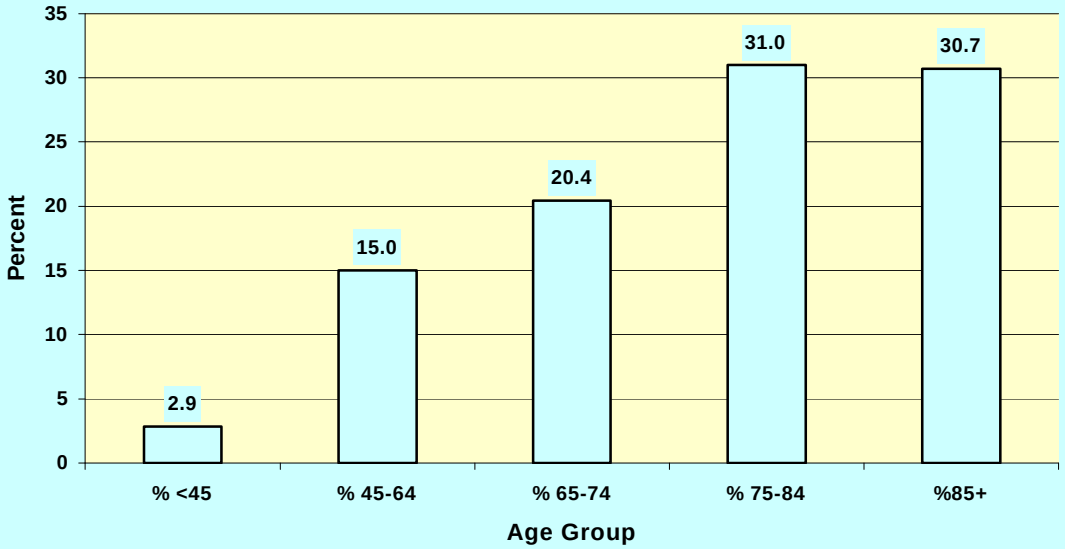


Figure D. Percent of Deaths from Cardiovascular Diseases by Age Group, 1995-1997



*Death rates per 100,000 female population, age-adjusted to the 1970 US standard population

HEART DISEASE MORTALITY

As the leading causes of death have shifted from infectious to noninfectious diseases, chronic diseases like heart disease have accounted for an increasing proportion of overall mortality. Heart disease ranked fourth among leading causes of death in the United States in 1900. Since 1985, diseases of the heart have ranked first for both Kentucky and the nation.[1]

Modifiable risk factors for heart disease include high blood pressure, elevated blood cholesterol, tobacco use, insufficient physical activity, poor nutrition, and environmental tobacco smoke. Modest changes in one or more of these risk factors can have a large impact on the public's health.[2]

During the period 1995-1997, the state experienced an average annual crude rate of 310.6 deaths per 100,000 population and an age-adjusted rate of 153.1 per 100,000. The corresponding U.S. age-adjusted rate was 134.4 deaths per 100,000.[3] In 1997, Kentucky had the third highest age-adjusted rate in the country, exceeded only by Mississippi and West Virginia.[4]

Heart disease accounted for an average of 12,063 deaths per year from 1995-1997, virtually a third (32.3%) of total deaths.

The age-adjusted rate has been slightly but steadily declining for several years, but increased by 4.9 percent in 1997 (Fig. B).

From 1995 through 1997, there were slightly more deaths to females (50.2% of the total) than to males (Fig. A). However, the male age-adjusted rate was 85 percent higher than the female rate, due to the fact that heart disease, in particular, kills more males than females at younger ages.

During the same period, six of every ten heart disease deaths were to persons 75 and older. Another 21% were to persons aged 65-74 (Fig. D). Heart disease accounted for one-fifth of total years of potential life lost prior to age 75.

The age-adjusted rate for blacks (201.7 per 100,000 in 1997) exceeded the corresponding rate for whites by 30.6 percent.

Figure C shows the distribution of 1995-1997 average annual age-adjusted death rates from heart disease by county.

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[1]Kentucky Cabinet for Human Resources. *Healthy Kentuckians 2000: Kentucky's Public Health Objectives for the Year 2000*. Frankfort, Kentucky: 1991:95.
[2]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death*. Atlanta, Georgia: 1998:11.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: 1999:164.
[4]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:83. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Heart Disease by Sex, 1995-1997

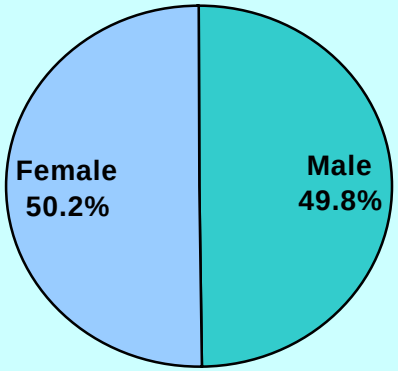


Figure B. Deaths from Heart Disease per 100,000 Population, 1993-1997

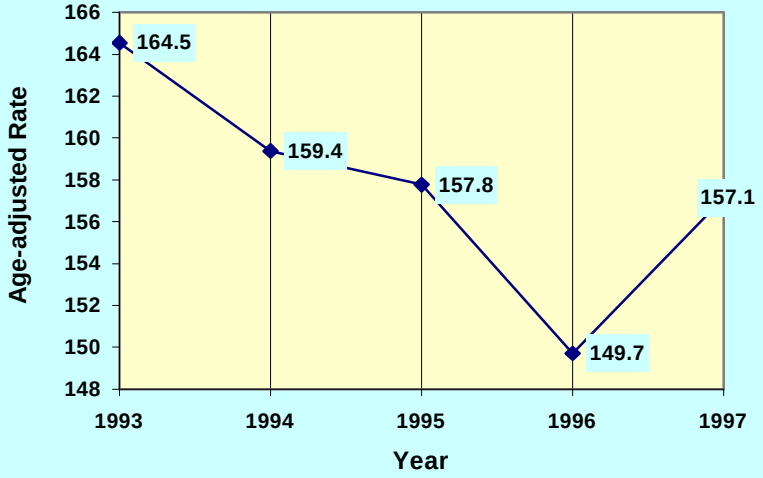


Figure C. Deaths from Heart Disease, 1995-1997

Age-adjusted Rate per 100,000 Population

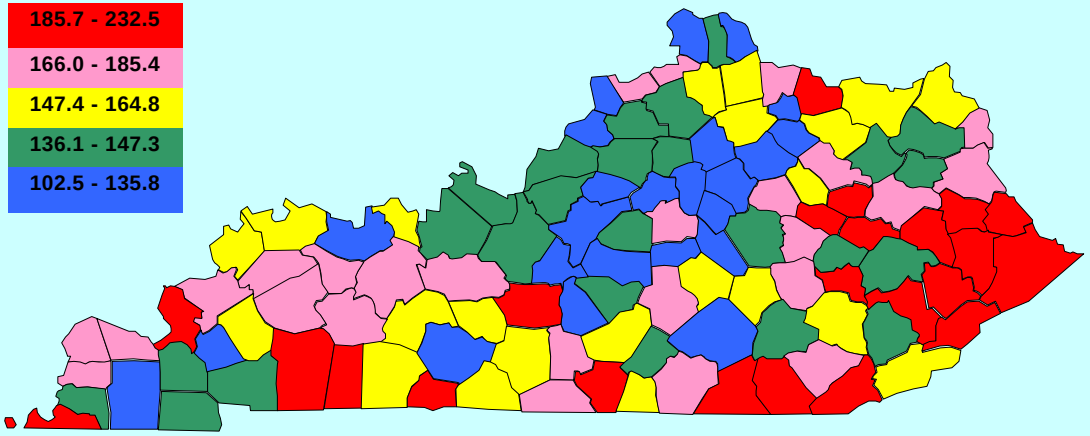
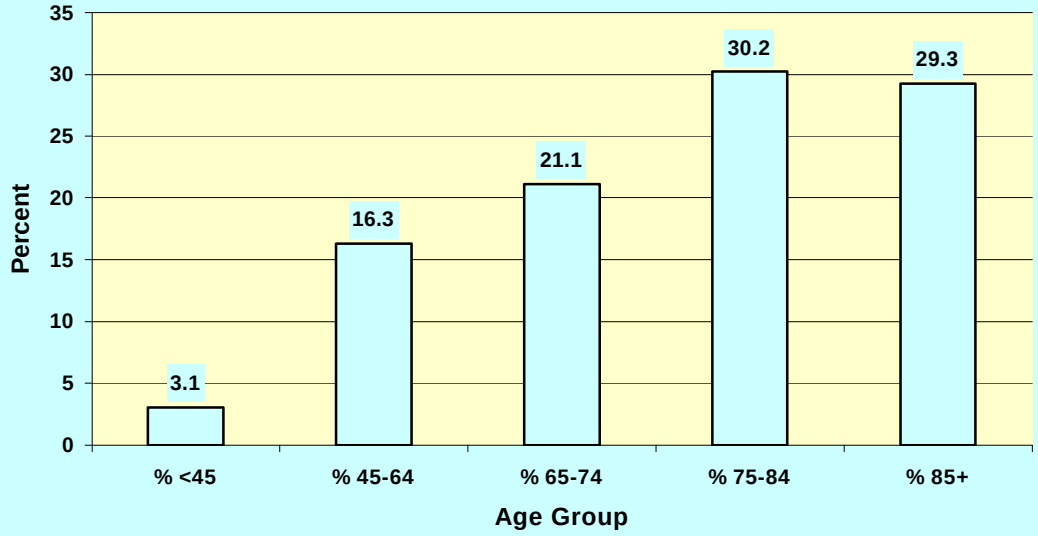


Figure D. Percent of Deaths from Heart Disease by Age Group, 1995-1997



CEREBROVASCULAR DISEASE MORTALITY

Cerebrovascular disease, or stroke, is a major cause of death and disability in the United States.[1] Kentucky is no exception: cerebrovascular disease has ranked as the third leading cause of death for Kentucky as well as for the nation as a whole since 1985.

"The major risk factors for cerebrovascular disease are tobacco use and uncontrolled hypertension. Primary prevention of stroke and its risk factors is key to reducing health care costs and improving the quality of life among older adults."[2]

During the period 1995-1997, the state experienced an average annual crude rate of 65.9 deaths per 100,000 population and an age-adjusted rate of 27.8 per 100,000. The corresponding U.S. age-adjusted rate was 26.3 deaths per 100,000.[3] In 1997, Kentucky's age-adjusted rate ranked 15th in the nation.[4]

Cerebrovascular disease was responsible for an average of 2,558 deaths per year from 1995-1997, accounting for 6.8% of total deaths and 16.6% of total cardiovascular disease deaths.

The age-adjusted rate has fluctuated within a relatively narrow range over the last several years, and in 1997 it dropped near the all time low set in 1995 (Fig. B).

Cerebrovascular disease is a major cause of death primarily for the very old. Slightly more than seven in ten such deaths occurred to persons aged 75 and over from 1995 through 1997, and over a third (37.4%) were to persons 85 and over (Fig. D).

Although the male age-adjusted rate (30.0 per 100,000) was slightly higher than the female rate, over six in ten deaths attributable to cerebrovascular disease between 1995-1997 were to females (Fig. A). This seeming discrepancy can be explained by the fact that cerebrovascular disease is primarily a killer of the very old, and more women than men survive to that age.

The age-adjusted rate for blacks (39.8 per 100,000 in 1997) exceeded the corresponding rate for whites by over 46 percent. Blacks in the 45-54 age group were three and one-half times as likely as whites to die of stroke.

Figure C shows the distribution of 1995-1997 average annual cerebrovascular age-adjusted death rates by county.

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[1]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors*: *The Nation's Leading Causes of Death*. Atlanta, Georgia: 1998:13.
[2]Ibid.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: 1999:167.
[4]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997.* National vital statistics reports: vol. 47 no. 19:83. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Cerebrovascular Disease by Sex, 1995-1997

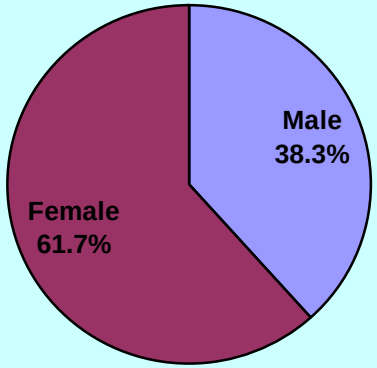


Figure B. Deaths from Cerebrovascular Disease per 100,000 Population, 1993-1997

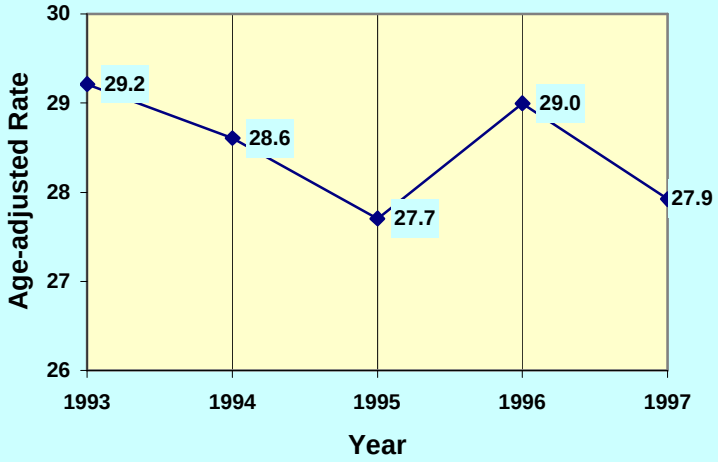


Figure C. Deaths from Cerebrovascular Disease, 1995-1997

Age-adjusted Rate per 100,000 Population

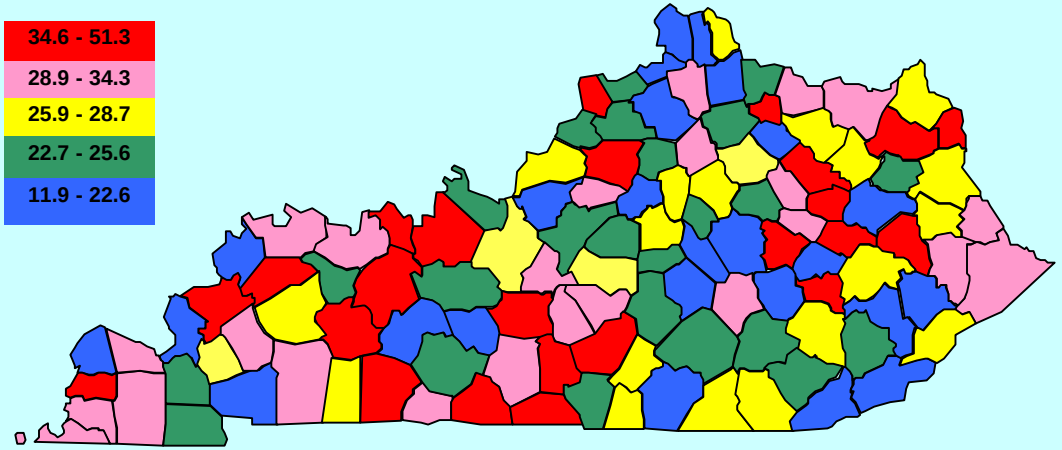
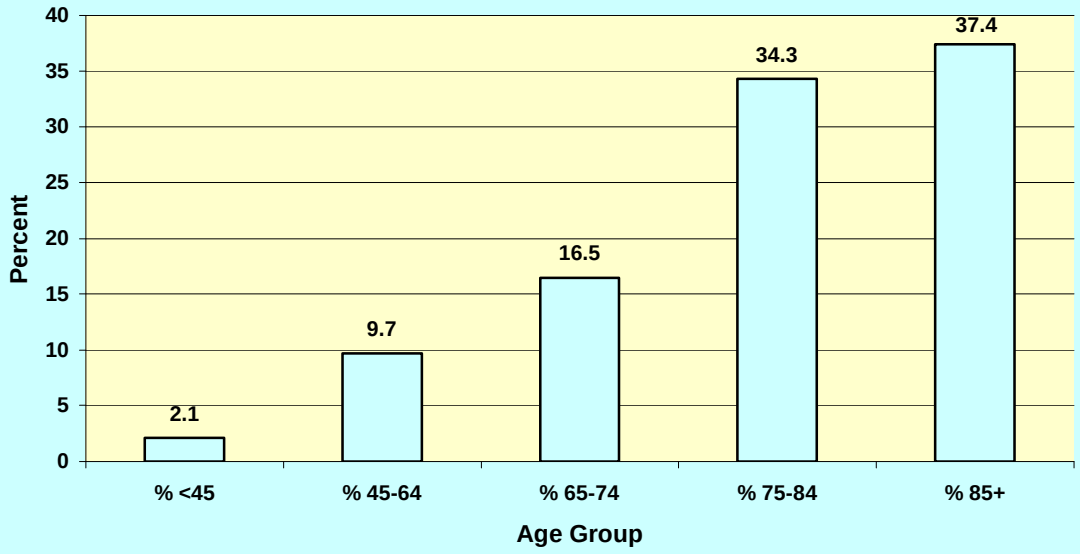


Figure D. Percent of Deaths from Cerebrovascular Disease by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

MALIGNANT NEOPLASM MORTALITY

Malignant neoplasms, or cancer, are second only to heart disease as the leading cause of death among Kentuckians. Between 1995 and 1997, cancer was responsible for an annual average of 8,966 deaths, almost one-fourth (24.0%) of the total. Cancer and heart disease combined accounted for over one-half (56.3%) of all deaths in the period.

Cancer mortality could be reduced by reducing "the prevalence of modifiable risk behaviors (e.g., tobacco use, poor nutrition, and sun exposure) and ensuring that screening services are available for the early detection of cancers for which effective follow-up exists."[1]

Between 1995 and 1997, the state's average annual crude cancer death rate was 230.9 deaths per 100,000 population, and the age-adjusted rate was 144.5 per 100,000. The corresponding U.S. age-adjusted rate was 127.8 deaths per 100,000.[2] Although the state's age-adjusted rate has declined every year except 1996 since its peak in 1990 (Fig. B), its 1997 age-adjusted rate was the third highest in the nation, exceeded only by the District of Columbia and Louisiana.[3]

In Kentucky in 1997, the five most common fatal cancers in men were lung (1,956 deaths), prostate (497), colon (401), pancreatic (194), and Non-Hodgkin's lymphoma (177). These five accounted for 66.5% of all fatal cancer deaths in men.

For Kentucky women in 1997, the five most common fatal cancers were lung (1,190 deaths), breast (615), colon (387), ovarian (210), and pancreatic (205) cancers. These five were responsible for 63.1% of all fatal cancer deaths in women.

Unlike cardiovascular diseases, which are the major cause of death among the most elderly segment of the population, cancer tends to strike at younger ages (Fig. D). Over six in ten (62.8%) cancer deaths between 1995 and 1997 occurred among persons under age 75, and almost a third (32.2%) were to persons under age 65. In terms of years of potential life lost prior to age 75, the impact of cancer was as great as all cardiovascular diseases combined (23.7% to 23.9%, respectively).

From 1995 through 1997, considerably more males (54.1% of the total) died as a result of cancer than females (Fig. A), and the male age-adjusted rate (182.8 per 100,000) was 55 percent higher than the female rate.

The age-adjusted rate for blacks (194.0 per 100,000 in 1997) exceeded the corresponding rate for whites by almost 36 percent.

Figure C shows the distribution by county of 1995-1997 average annual age-adjusted death rates from malignant neoplasms.

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[1]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death*. Atlanta, Georgia: 1998:15.
[2]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: 1999:170.
[3]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:82. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Malignant Neoplasms by Sex, 1995-1997

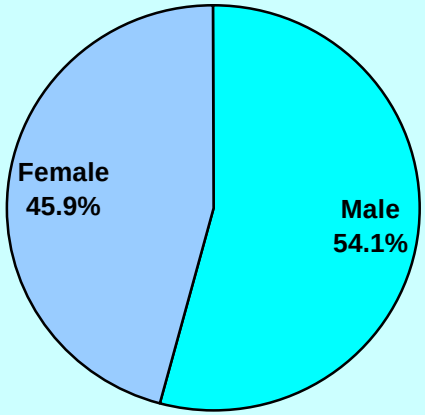


Figure C. Deaths from Malignant Neoplasms, 1995-1997

Age-adjusted Rate per 100,000 Population

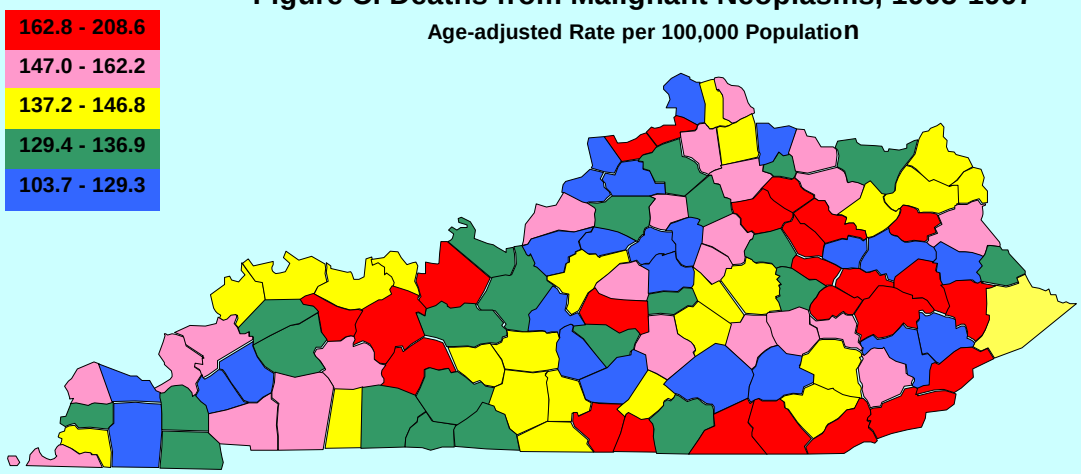


Figure B. Deaths from Malignant Neoplasms per 100,000 Population, 1993-1997

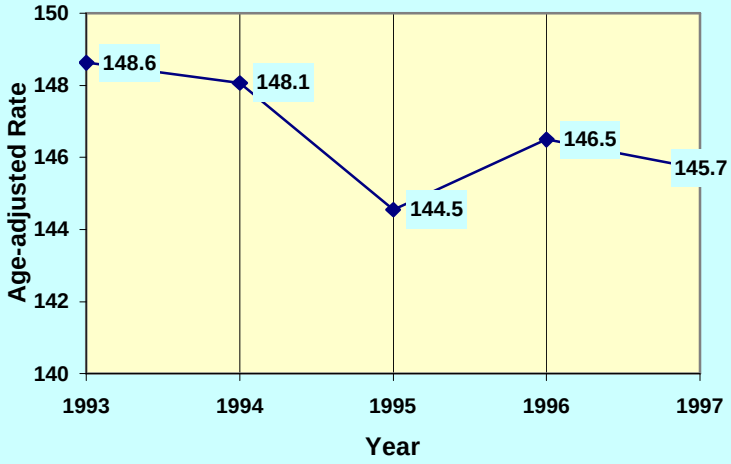
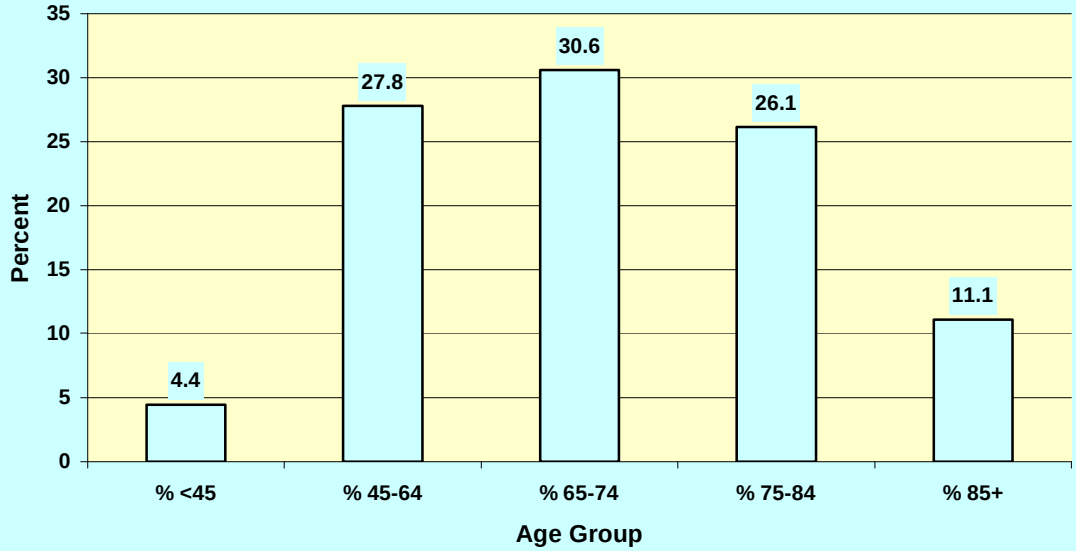


Figure D. Percent of Deaths from Malignant Neoplasms by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

LUNG CANCER MORTALITY

Lung cancer is the leading cause of cancer deaths in Kentucky. Between 1995 and 1997, an annual average of 3,109 Kentuckians died as a result of lung cancer. Over one-third (34.7%) of all cancer deaths were attributable to lung cancer.

According to the National Center for Chronic Disease Prevention and Health Promotion, "A single behavior – cigarette smoking – is responsible for more than 85% of lung cancer cases. Preventing and reducing cigarette smoking are key to reducing illness and death from lung cancer."[1]

Between 1995 and 1997, the state's average annual crude lung cancer death rate was 80.1 deaths per 100,000 population, and the age-adjusted rate (adjusted to the 1970 U.S. standard population) was 67.0 per 100,000. In 1995, the most recent year for which comparable state rankings were available, Kentucky's rate of 67.7 deaths per 100,000 was the highest in the nation.[2]

After gradually declining in the early 1990s, the age-adjusted lung cancer death rate has shown little change since 1995 (Fig. B).

As shown in Figure D, lung cancer is a major cause of death for persons aged 45-75 years. Seven of every ten (69.6%) lung cancer deaths between 1995 and 1997 occurred among persons aged 45 to 75, and over a third (34.3%) were to persons under age 65. Lung cancer also accounted for a third (34.4%) of total years of potential life lost prior to age 75 attributable to cancer.

Lung cancer is the primary cause of cancer mortality for men. In 1997, over six of every ten lung cancer deaths were to men (Fig. A), and the male age-adjusted rate (99.1 per 100,000) was more than twice the female rate.

Nevertheless, lung cancer has surpassed breast cancer as the leading cause of cancer death in women. In 1997, 28.8% of all female cancer deaths resulted from lung cancer.

The age-adjusted rate for blacks (77.3 deaths per 100,000 persons in 1997) exceeded the corresponding rate for whites by 13.3 percent.

Figure C shows the distribution of 1995-1997 average annual age-adjusted lung cancer death rates by county.

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[1]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death.* Atlanta, Georgia: 1998:17.
[2]Ibid., 18.

Figure A. Percent of Deaths from Lung Cancer by Sex, 1995-1997

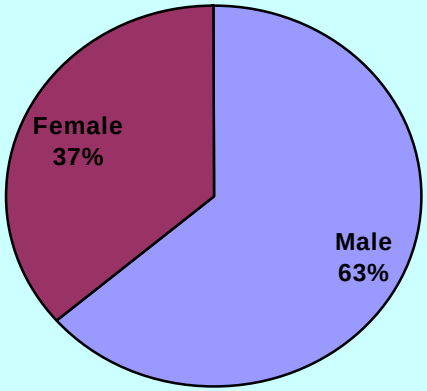


Figure B. Deaths from Lung Cancer per 100,000 Population, 1993-1997

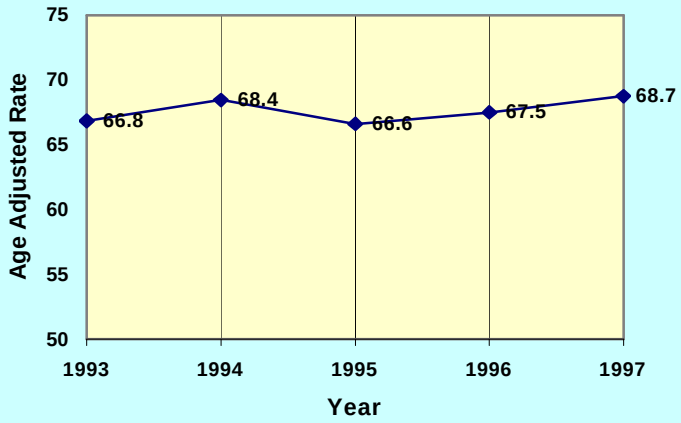


Figure C. Deaths from Lung Cancer, 1995-1997

Age-adjusted Rate per 100,000 Population

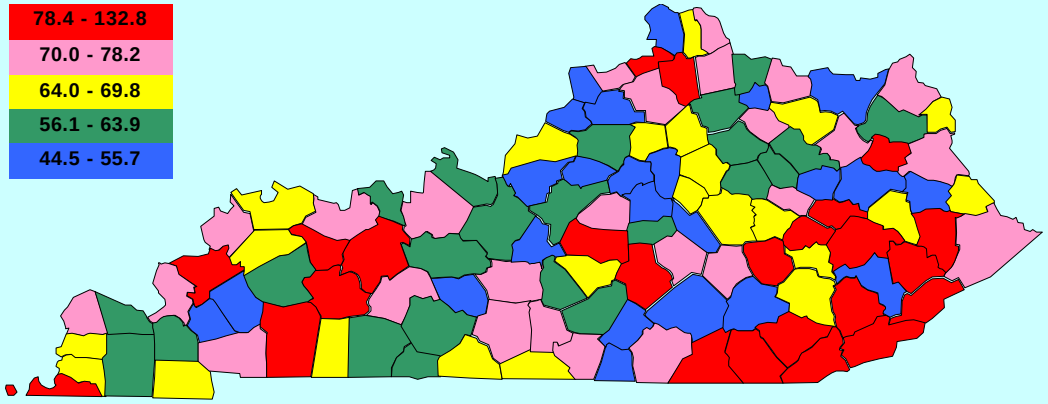
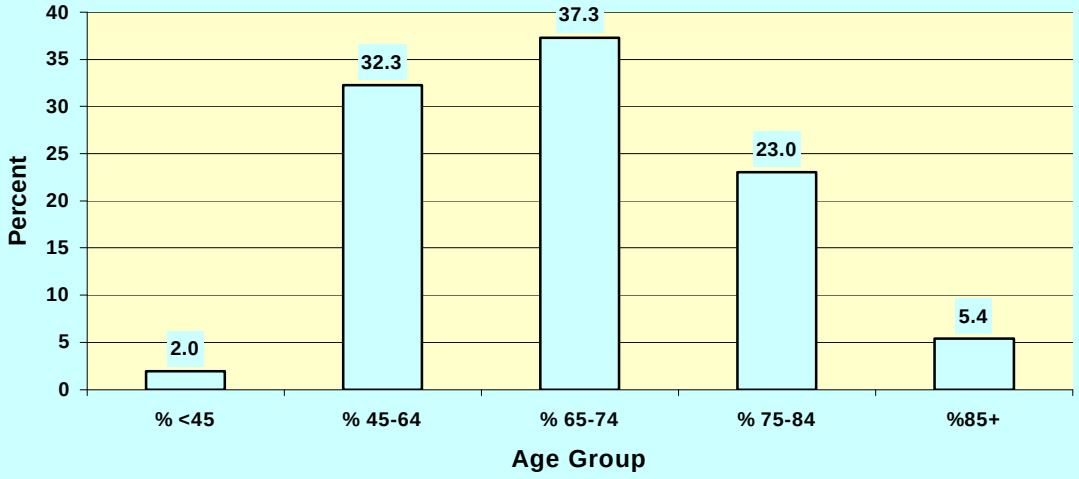


Figure D. Percent of Deaths from Lung Cancer by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1970 US standard population

FEMALE BREAST CANCER MORTALITY

Breast cancer is the second most common cause of cancer-related deaths among women in the United States[1] as well as in Kentucky. Between 1995 and 1997, there was an annual average of 619 deaths due to breast cancer in Kentucky, accounting for 15% of total female cancer deaths.

"Survival rates for women with breast cancer have improved due to earlier diagnosis and treatment advances. With increasing survival rates, a decline in mortality would be expected. However, because of the concomitant rise in incidence, mortality from breast cancer has shown little change since 1940."[2]

"Among the risk factors for female breast cancer are older age, later age at birth of first child, and family history of breast cancer. Mammography is the most effective method for early detection of breast cancer."[1]

Between 1995 and 1997, the state's average annual crude female breast cancer death rate was 31.0 deaths per 100,000 population, and the age-adjusted rate (adjusted to the 1970 U.S. standard population) was 23.0 per 100,000. In 1995, the most recent year for which comparable age-adjusted rates were available by state, Kentucky ranked 30th in the nation.[3]

Over the last several years, there has been little change in the age-adjusted rate for breast cancer (Fig. B).

Although advanced age is a risk factor for breast cancer among women, breast cancer is a major cause of death among younger women as well. Between 1995 and 1997, four of every ten (42.7%) breast cancer deaths were to women under age 65 (Fig. D). In 1997, breast cancer was the leading cause of death from cancer among women aged 35-54.

Breast cancer accounted for 20.2% of years of potential life lost prior to age 75 due to cancer in women in 1997, second only to lung cancer.

As shown in Figure A, the age-adjusted rate for black women (31.3 per 100,000 in 1997) exceeded the corresponding rate for white women by 37.3 percent.

Figure C shows the distribution by county of 1995-1997 average annual age-adjusted death rates from female breast cancer.

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[1]Centers for Disease Control and Prevention. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death*. Atlanta, Georgia: 1998:21.
[2]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]Centers for Disease Control and Prevention, op. cit., 22.

Figure A. Deaths from Female Breast Cancer by Race 1995-1997

Age-adjusted Rate per 100,000 Female Population

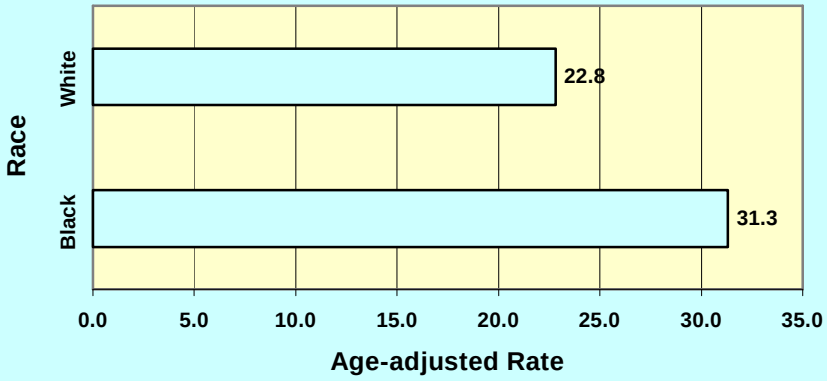


Figure B. Deaths from Female Breast Cancer per 100,000 Female Population, 1993-1997

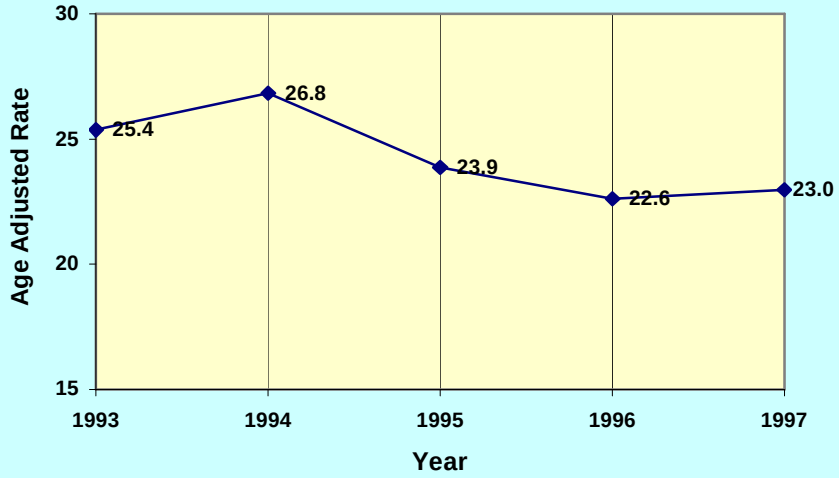


Figure C. Deaths from Female Breast Cancer, 1995-1997

Age-adjusted Rate per 100,000 Female Population

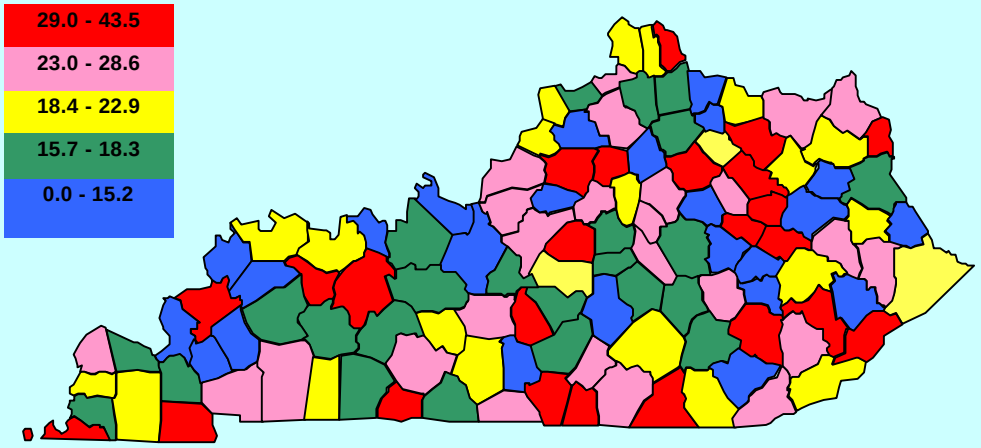
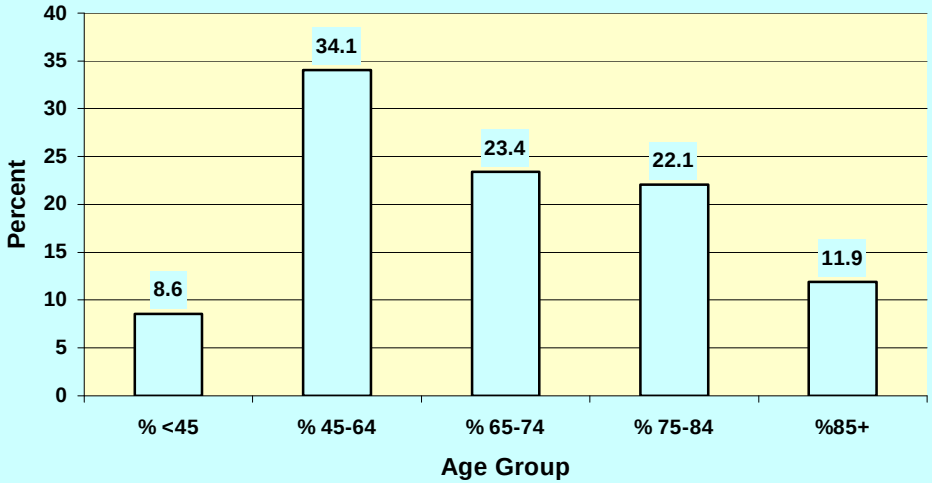


Figure D. Percent of Deaths from Female Breast Cancer by Age Group, 1995-1997



*Death rates per 100,000 per female population, age-adjusted to the 1970 US standard population

CHRONIC OBSTRUCTIVE PULMONARY DISEASE MORTALITY

Chronic obstructive pulmonary disease (COPD), which includes bronchitis, emphysema, asthma, and other allied conditions, is the fourth leading cause of death in Kentucky. Between 1995 and 1997, an annual average of 1,944 Kentuckians died as a result of COPD.

In addition, COPD significantly contributes to mortality from other causes. Among persons with COPD as a contributing cause of death, the most common underlying causes were heart disease and lung cancer.[1]

"Smoking is the strongest avoidable risk factor for COPD."[1]

Between 1995 and 1997, the state's average annual crude COPD death rate was 50.1 deaths per 100,000 population, and the age-adjusted rate was 26.7 per 100,000. The corresponding U.S. rate was 21.0 per 100,000.[2]

In 1997, Kentucky's age-adjusted COPD death rate was the fifth highest in the nation.[3]

The age-adjusted death rate for COPD has fluctuated within a relatively narrow range during the current decade (Fig. B).

As shown in Figure D, COPD is primarily a major cause of death among the elderly. Eight of every ten (83.5%) COPD deaths between 1995 and 1997 occurred among persons aged 65 and over.

Almost 55% of COPD deaths between 1995 and 1997 were to men (Fig. A). In 1997, the male age-adjusted rate (35.4 per 100,000) was 58 percent greater than the female rate.

In contrast to most leading causes of death, the age-adjusted rate for whites was greater than the rate for blacks. The white rate (27.7 per 100,000 in 1997) exceeded the black rate by almost 16%.

Figure C shows the distribution of 1995-1997 average annual age-adjusted death rates for COPD by county.

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[1]National Center for Health Statistics. *Health, United States, 1995*. Hyattsville, Maryland: Public Health Service. 1996:23.
[2]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: Public Health Service. 1999:179.
[3]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:84. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Chronic Obstructive Pulmonary Diseases by Sex, 1995-1997

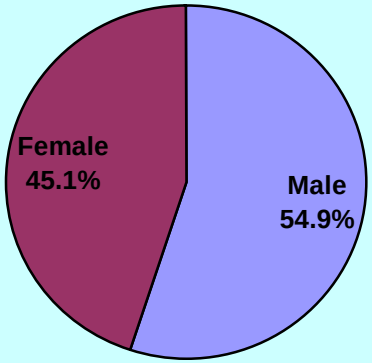


Figure B. Deaths from Chronic Obstructive Pulmonary Diseases per 100,000 Population, 1993-1997

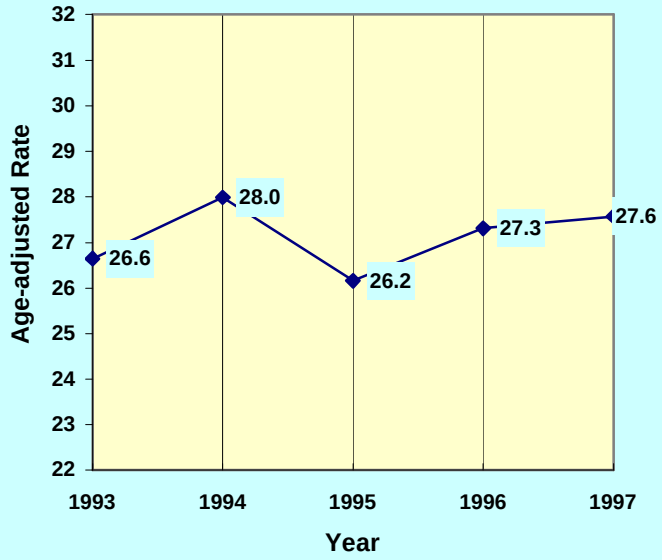


Figure C. Deaths from Chronic Obstructive Pulmonary Diseases, 1995-1997

Age-adjusted Rate per 100,000 Population

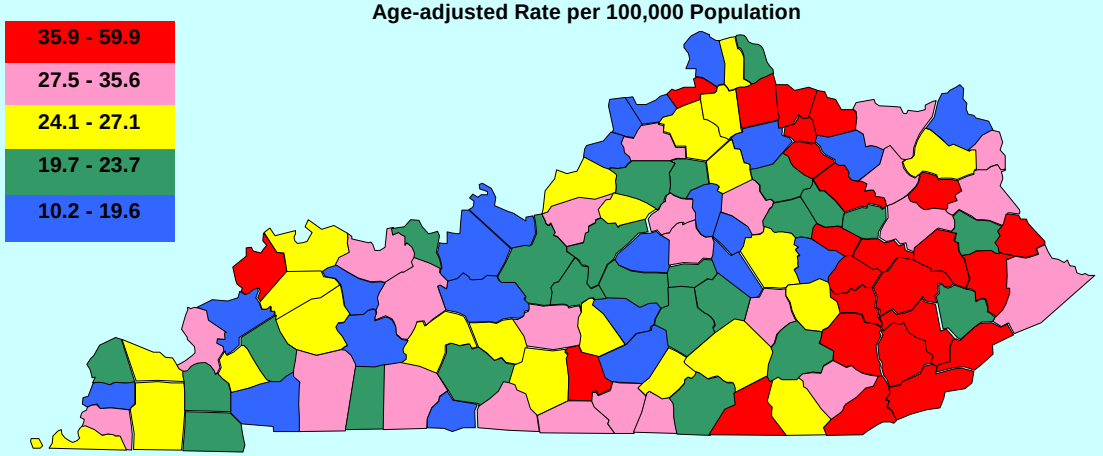
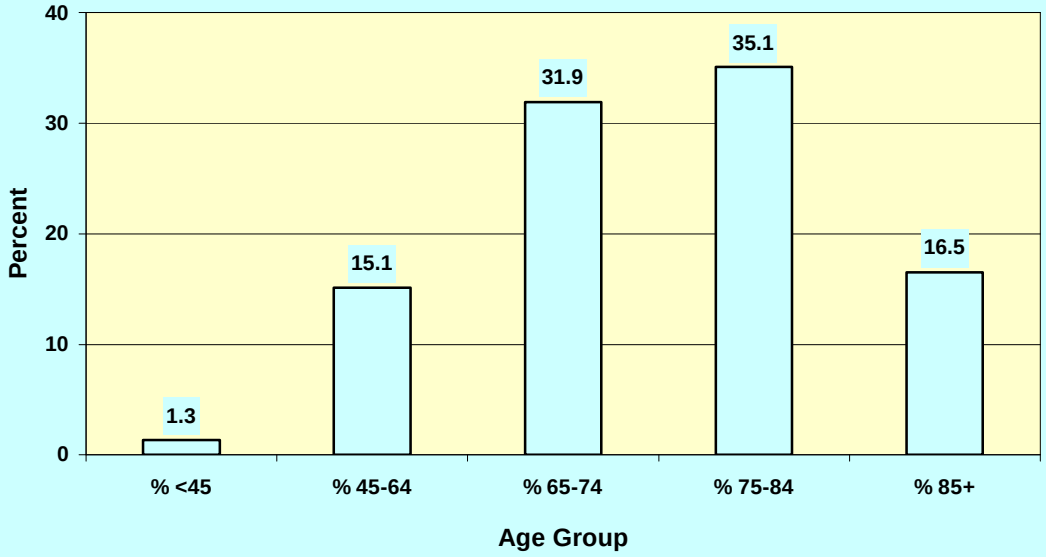


Figure D. Percent of Deaths from Chronic Obstructive Pulmonary Diseases by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

UNINTENTIONAL INJURY MORTALITY

Unintentional injuries are the fifth leading cause of death in Kentucky, accounting for an annual average of 1,682 deaths between 1995 and 1997. The major causes of unintentional injury death are motor vehicle crashes, falls, poisoning, suffocation, drowning, and fire.

"Injuries … are preventable. Multifaceted prevention strategies that are most effective focus on environmental design, product design, human behavior, education, and legislative and regulatory requirements that support environmental and behavioral change."[1]

During the period 1995-1997, the state experienced an average annual crude rate of 43.3 deaths per 100,000 population and an age-adjusted rate of 37.3 per 100,000. In 1997, the U.S. age-adjusted rate was 30.1 deaths per 100,000, and Kentucky ranked 14th in the nation in this measure.[2]

As shown in Figure B, the age-adjusted unintentional injury death rate has shown little change during the 1990s.

Unintentional injuries were the major cause of death for persons under age 45, and deaths among this age group accounted for over one-half (52.9%) of all unintentional injury deaths between 1995 and 1997 (Fig. D). They were responsible for almost 16 percent of total years of potential life lost prior to age 75 during the period.

In 1997, unintentional injuries were the leading cause of death for Kentuckians aged 1 through 34, and they accounted for over one-half (54.5%) of total deaths in the 15-24 age group.

Almost two-thirds (66.5%) of unintentional injury deaths were to males (Fig. A), and the male age-adjusted death rate (55.7 deaths per 100,000) was over two and one-half times the female rate.

In contrast to most leading causes of death, there was little difference in the age-adjusted unintentional injury death rate between the races. The rate among blacks exceeded the corresponding rate for whites by only 2.7 percent.

Figure C shows the distribution by county of 1995-1997 average annual age-adjusted death rates due to unintentional injuries.

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[1]National Center for Health Statistics. *Health, United States, 1996-97 and Injury Chartbook*. Hyattsville, Maryland: 1997:15.
[2]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports: vol. 47 no. 19:84. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Deaths from Unintentional Injuries by Sex, 1995-1997

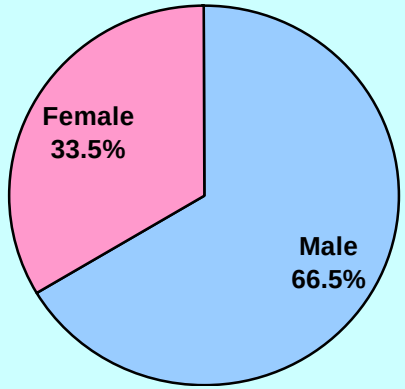


Figure B. Deaths from Unintentional Injuries per 100,000 Population, 1993-1997

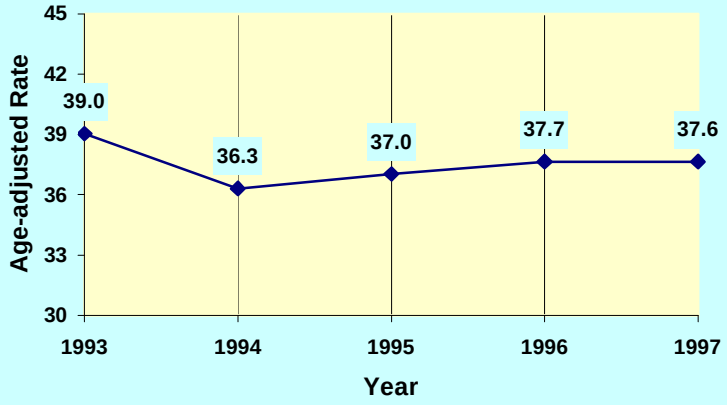


Figure C. Deaths from Unintentional Injuries, 1995-1997

Age-adjusted Rate per 100,000 Population

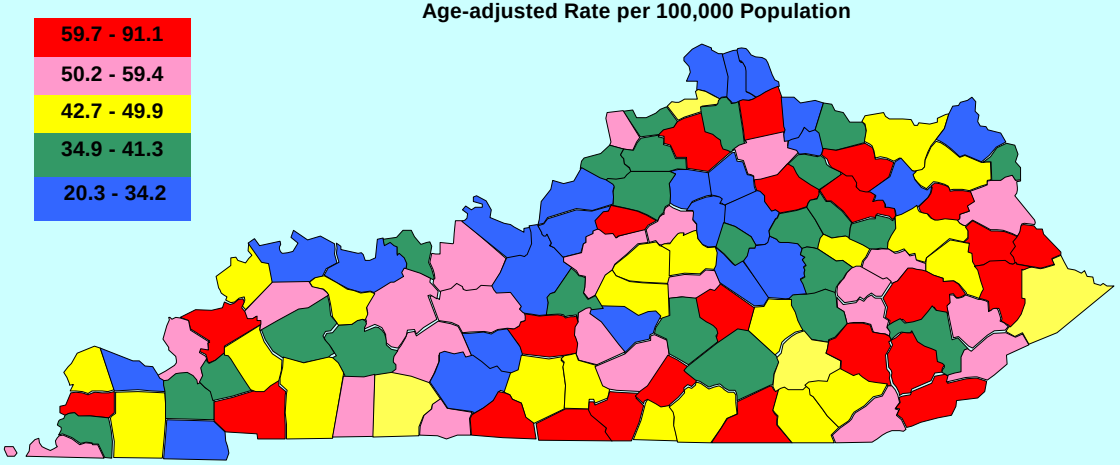
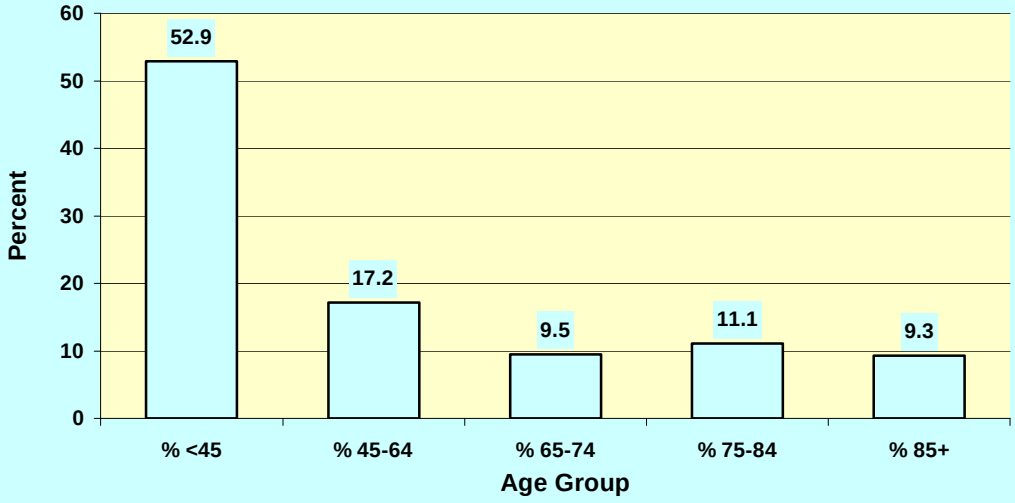


Figure D. Percent of Deaths from Unintentional Injuries by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

MOTOR VEHICLE CRASH MORTALITY

"Motor vehicle injuries remain the most costly and fatal of unintentional injuries."[1] However, there are effective preventive measures, for example, protective restraints, environmental or engineering changes, education, and traffic law enforcement.[2]

During the period 1995-1997, an average of 829 Kentuckians died annually as a result of motor vehicle crashes, resulting in a crude rate of 21.4 deaths per 100,000 population and an age-adjusted rate of 20.8 per 100,000. The corresponding U.S. age-adjusted rate was 16.1 deaths per 100,000[3]. In 1997, Kentucky ranked 11th in the nation in this measure.[4]

As shown in Figure B, the age-adjusted motor vehicle crash death rate has shown little change during the 1990s.

Motor vehicle crashes were responsible for almost one-half (49.3%) of all unintentional injury deaths between 1995 and 1997.

Almost two-thirds (66.4%) of motor vehicle crash deaths were to persons under age 45 (Fig. D), and they were responsible for over 60 percent of total years of potential life lost prior to age 75 due to unintentional injuries. Young people are overrepresented among motor vehicle deaths. While constituting slightly under 15 percent of the state population in 1997, persons aged 15 to 24 accounted for over one-fourth (25.9%) of motor vehicle deaths.

As shown in Figure A, almost two-thirds (66.8%) of motor vehicle crash deaths were to males, and the male age-adjusted death rate (29.8 deaths per 100,000) was more than twice the female rate.

The age-adjusted motor vehicle crash death rate for whites (21.3 per 100,000) exceeded the rate among blacks by 8.7 percent.

Figure C shows the distribution of 1995-1997 average annual age-adjusted death rates due to motor vehicle injuries by county.

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[1]National Center for Health Statistics. *Healthy People 2000 Review, 1998-99.* Hyattsville, Maryland: Public Health Service. 1999:100.
[2]Freedman MA. *Health status indicators for the year 2000.* Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: 1999:185.

Figure A. Percent of Deaths from Motor Vehicle Crashes by Sex, 1995-1997

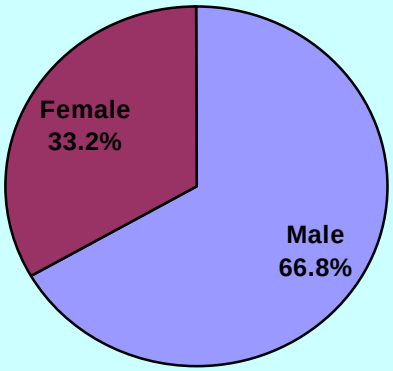


Figure B. Deaths from Motor Vehicle Crashes per 100,000 Population, 1993-1997

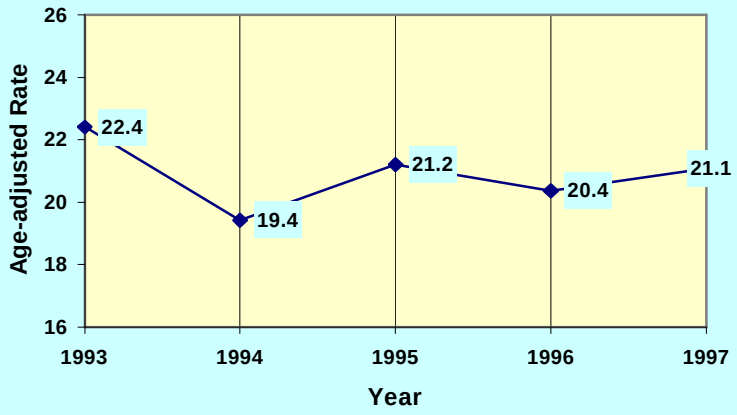


Figure C. Deaths from Motor Vehicle Crashes, 1995-1997

Age-adjusted Rate per 100,000 Population

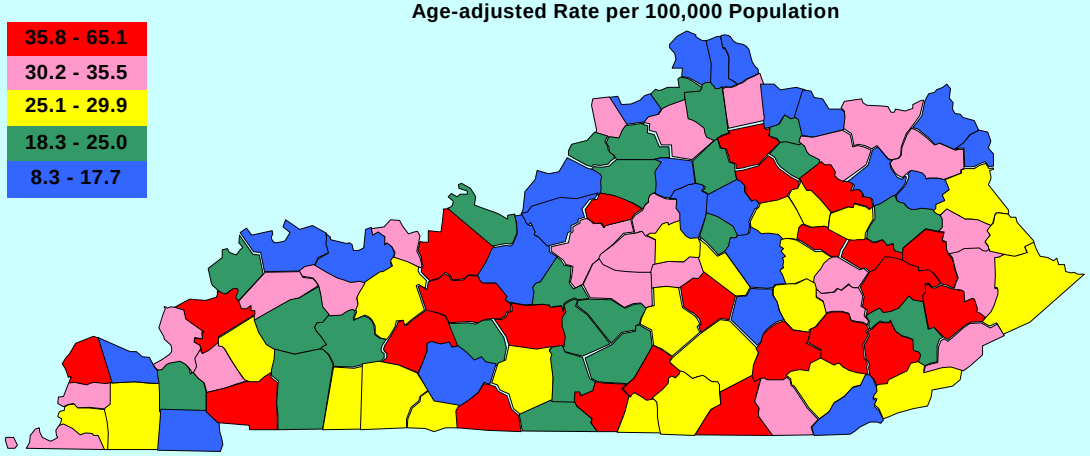
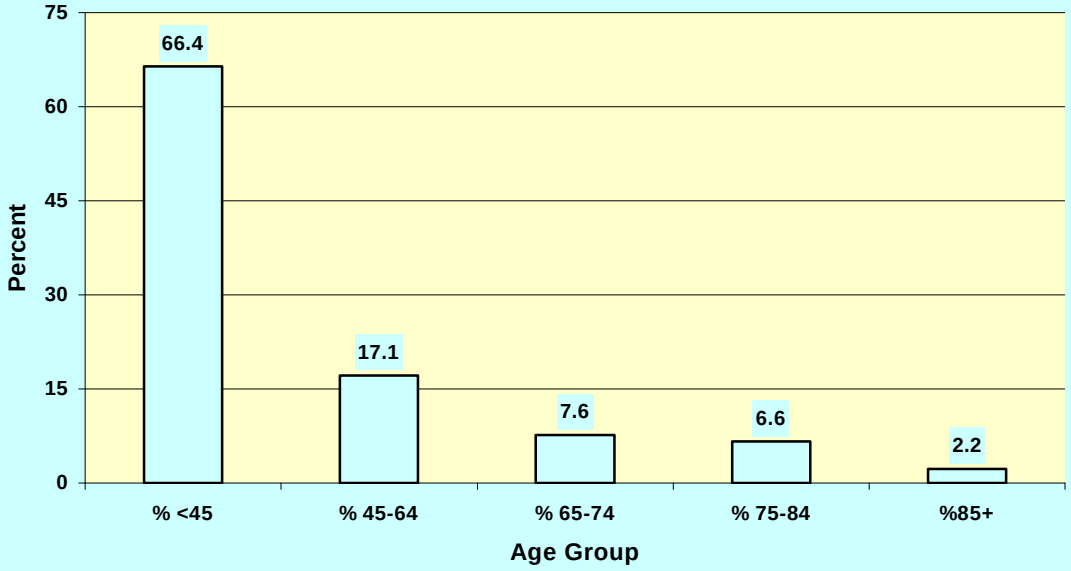


Figure D. Percent of Deaths from Motor Vehicle Crashes by Age Group, 1995-1997



OCCUPATIONAL INJURY DEATHS

"The demographics of the workplace encompass all segments of the population, including minorities and females. Like other injury deaths, these occupational injury deaths are preventable."[1]

"According to 1992 data, the cost of an occupational fatality, including lifetime lost wages, lifetime lost benefits, workplace costs, lifetime lost household production, medical services, legal and administrative costs, and motor vehicle traffic incidents including property damage, was estimated at $1,073,868. . . These estimates, however, are monetary costs only, and therefore do not reflect the immense intangible costs such as pain and suffering."[2]

In federal fiscal year (FFY) 1997, Kentucky recorded a rate of 9 occupational deaths per 100,000 workers, compared to the U.S. rate of 5 per 100,000 workers.[3]

From 1994 through 1998, there were 707 occupational deaths in Kentucky. The three leading causes were motor vehicle crashes (over one in four), agricultural machinery (almost one in five), and being struck by a falling object (almost 13%) (Fig. C).

Homicide in the workplace, the fourth leading cause, is a growing concern, but Kentucky's rate of 8.3% of all occupational deaths is still only about one-half the national rate of 16% (1994-95).[4]

Those killed on the job were primarily white (92%) and male (92%) in FFY1997.[5] Between 1994 and 1998, there were equal numbers of deaths (151) in the 35-44 and 45-54 year age groups, each accounting for about one-fifth of the total (Fig. A).

Agriculture continues to be the most dangerous industry in Kentucky, resulting in a fatality rate of 72 per 100,000 workers in FFY1997, more than three times greater than the national agricultural rate of 22 per 100,000 workers.[6] Kentucky's rate of agricultural deaths has typically been 11 to 15 times its rate of nonagricultural deaths during the 1994-1998 period (Fig. D).

Tractor-related injury deaths are of particular concern in Kentucky, annually accounting for more agricultural deaths than all other causes combined. From 1994 to 1998, the rate of tractor-related deaths per 100,000 workers has annually exceeded the rate for all other agricultural deaths, sometimes by nearly 100% (Fig. B). "Retrofitting ROPS (rollover protective structures) and seatbelts on older tractors has repeatedly been proven effective in saving lives; therefore, prevention resources targeted toward this area will likely reduce the tremendous costs of occupational fatalities in Kentucky."[2]

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[1]Freedman MA. *Health Status Indicators for the Year 2000.* Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[2]Kentucky Injury Prevention and Research Center. *Kentucky FACE Project Annual Report: Federal Fiscal Year 1997.* University of Kentucky. 1998:30.
[3]Ibid., 20.
[4]National Center for Health Statistics. *Health, United States, 1996-97 and Injury Chartbook.* Hyattsville, Maryland: 1997:33.
[5]Kentucky Injury Prevention and Research Center, op. cit., 18.
[6]Ibid., 19.

Figure A. Occupational Deaths by Age Group, 1994-1998

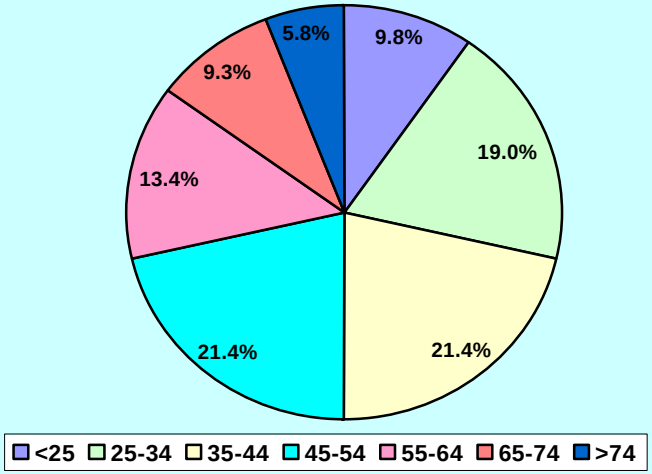


Figure C. Occupational Deaths by Cause, 1994-1998

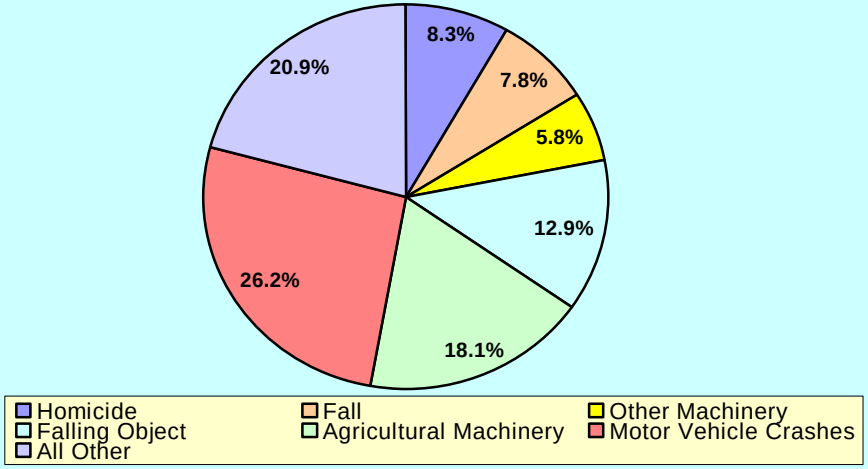


Figure B. Agricultural* & Nonagricultural Death Rates, 1994-1998

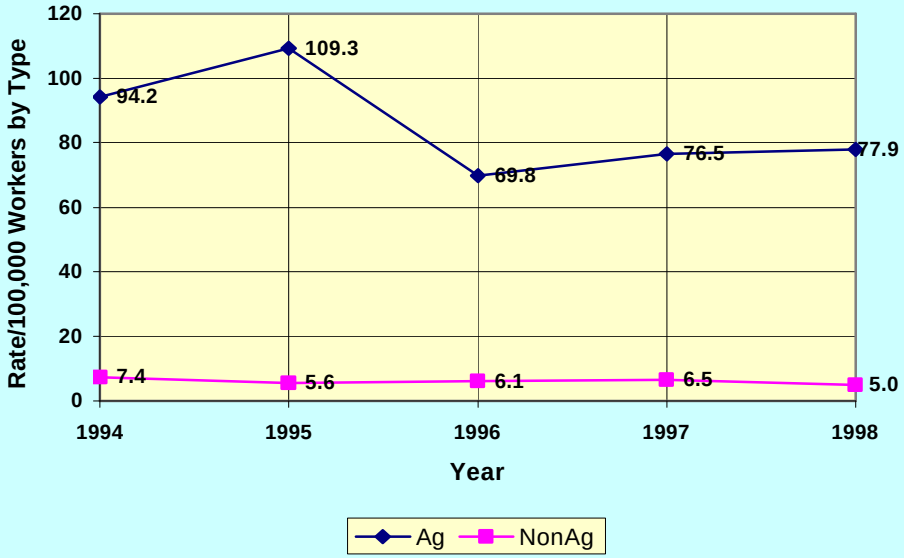
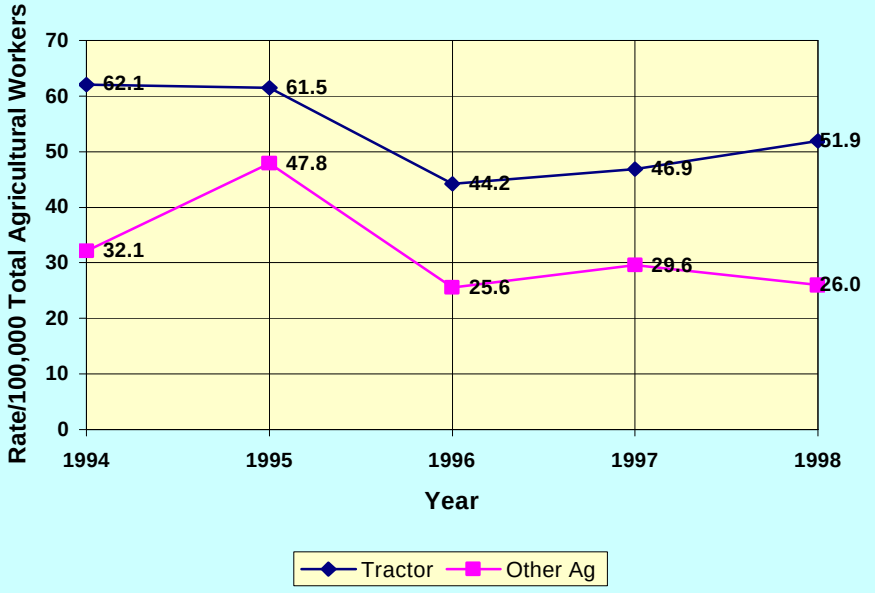


Figure D. Tractor & Other Agricultural* Death Rates, 1994-1998



*Excluding forestery and fishing

Data Sources: Deaths: Ky. Injury Prevention and Research Center: Workers: Cabinet for Economic Development, 1998 Kentucky Deskbook of Economic Statistics

HOMICIDE

"Homicide is a measure of intentional violence in a community. It may reflect substance abuse and other social correlates of poor health behavior and risk exposures."[1] Between 1995 and 1997, an annual average of 254 Kentuckians died as a result of homicide.

The state's average annual crude homicide rate was 6.5 deaths per 100,000 population between 1995 and 1997, and the age-adjusted rate was 6.6 per 100,000. The corresponding U.S. rate of 8.6 per 100,000 exceeded the Kentucky rate by 30.3 percent.[2]

In 1997, Kentucky's age-adjusted homicide rate ranked 26th in the nation.[3]

As shown in Figure B, the age-adjusted death rate for homicide has remained essentially unchanged during the current decade.

Persons in the younger age groups are overwhelmingly the victims of homicide (Fig. D). Three of every four homicides between 1995 and 1997 occurred among persons under age 45. In 1997, it was the second leading cause of death, behind unintentional injuries, for persons aged 15 to 24.

Almost three-quarters (72.5%) of all homicides were to males (Fig. A). In 1997, the male age-adjusted rate (10.7 per 100,000) more than tripled the female rate.

There is a great disparity in homicide rates between the races. In 1997, the age-adjusted rate for blacks was 29.2 per 100,000, almost six times the rate for whites. While comprising just 7.2 percent of the state's population, blacks were the victims of 30.8 percent of total homicides.

Young black males are disproportionately the victims of homicide. In 1997, 40 percent of all homicides between the ages of 15 and 34 were to black males, and homicide was the leading cause of death for black males between the ages of 15 and 24.

Figure C shows the distribution of average annual age-adjusted homicide rates between 1995 and 1997 by county.

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[1]Freedman MA. *Health Status Indicators for the Year 2000.* Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[2]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: Public Health Service. 1999:189.
[3]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:85. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Homicide by Sex, 1995-1997

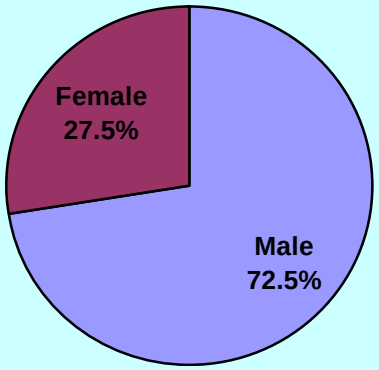


Figure C. Deaths from Homicide, 1995-1997

Age-adjusted Rate per 100,000 Population

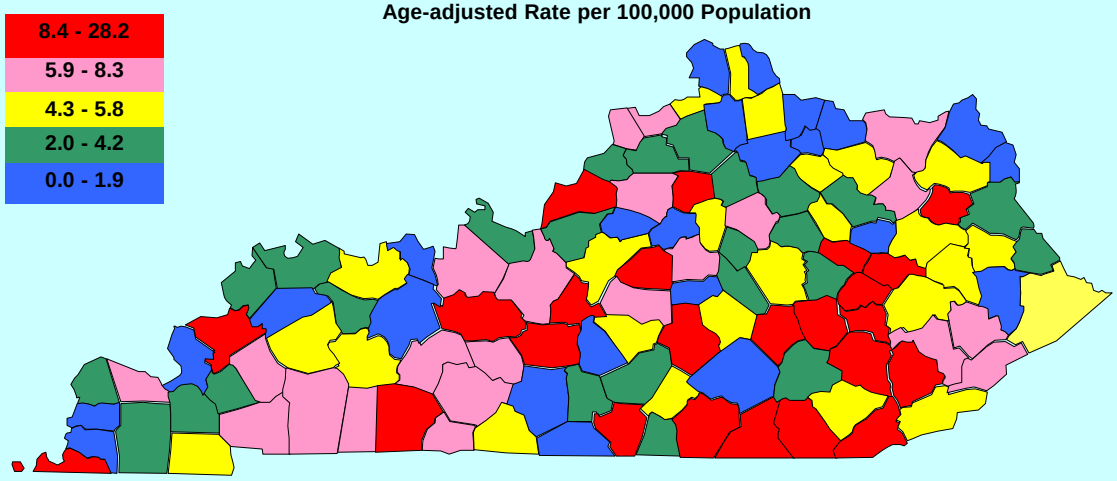


Figure B. Deaths from Homicide per 100,000 Population, 1993-1997

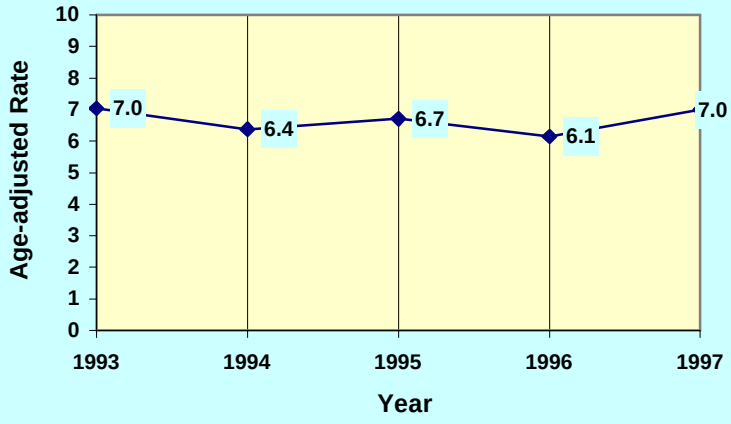
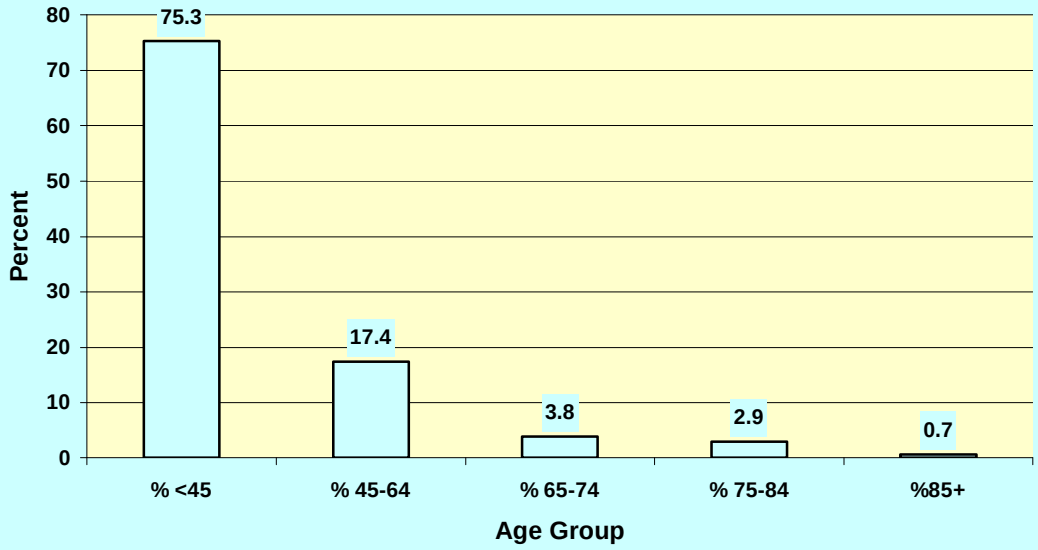


Figure D. Percent of Deaths from Homicide by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

SUICIDE

Suicide is an indirect measure of the mental health of a population, and it is preventable.[1] Between 1995 and 1997, an average of 497 Kentuckians died each year as a result of suicide. This number was nearly twice the number who died due to homicide.

The state's average annual crude suicide rate was 12.8 deaths per 100,000 population between 1995 and 1997, and the age-adjusted rate was 11.7 per 100,000. The corresponding U.S. rate was 10.8 per 100,000.[2]

In 1997, Kentucky's age-adjusted suicide rate ranked 26th in the nation.[3]

As shown in Figure B, the age-adjusted death rate for suicide declined early in the current decade, but has remained unchanged since 1995.

Over one-half of suicides between 1995 and 1997 occurred among persons under age 45 (Fig. D). In 1997, suicide was the second leading cause of death, behind unintentional injuries, for the 15-34 age group. One in seven (14.7%) deaths to persons aged 25-34 were suicides.

As shown in Figure A, eight of every ten (83.6%) suicides between 1995 and 1997 were of males. In 1997, the male age-adjusted rate (20.4 per 100,000) was five and one-half times the female rate.

Proportionately, as well as in absolute numbers, suicide was much more common among whites than among blacks. In 1997, the age-adjusted rate for whites was 12.2 per 100,000 persons, more than double the rate for blacks (5.3 per 100,000).

Figure C shows the distribution of average annual age-adjusted suicide rates by county from 1995 through 1997.

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[1]Freedman MA. *Health Status Indicators for the Year 2000.* Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[2]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: Public Health Service. 1999:192.
[3]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:85. Hyattsville, Maryland: National Center for Health Statistics. 1999.

Figure A. Percent of Deaths from Suicide by Sex, 1995-1997

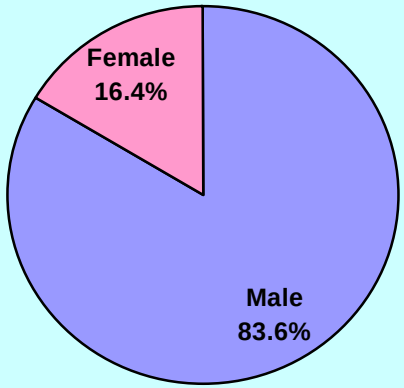


Figure B. Deaths from Suicide per 100,000 Population, 1993-1997

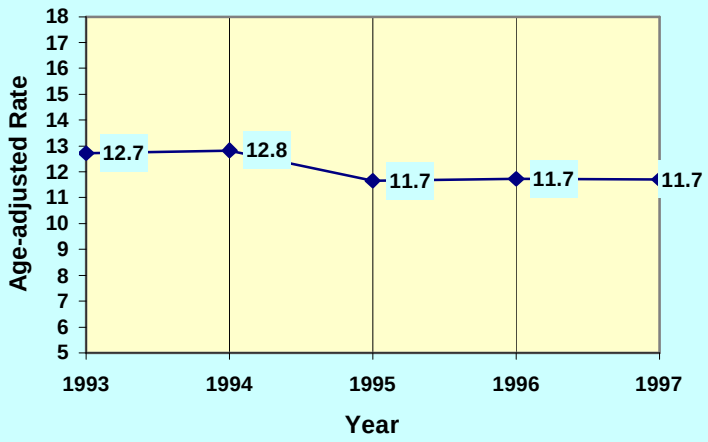


Figure C. Deaths from Suicide, 1995-1997

Age-adjusted Rate per 100,000 Population

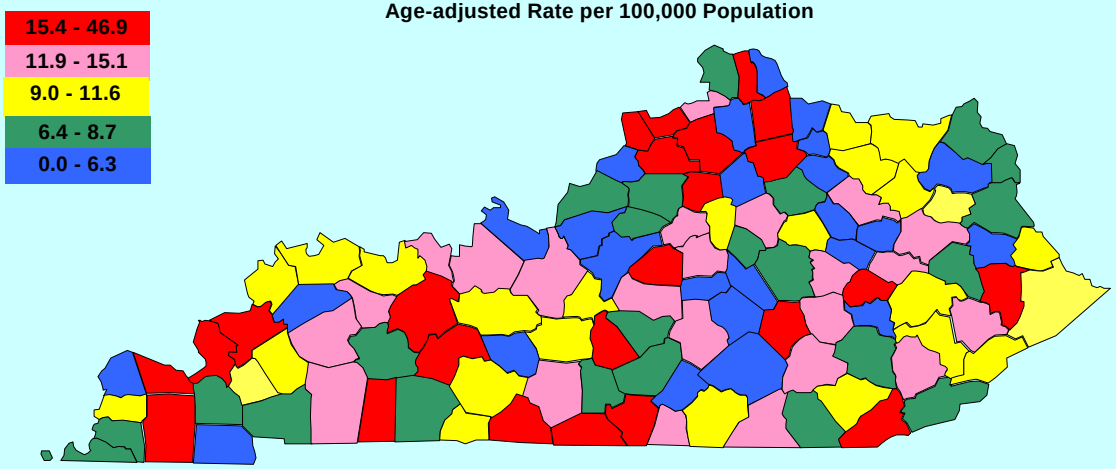
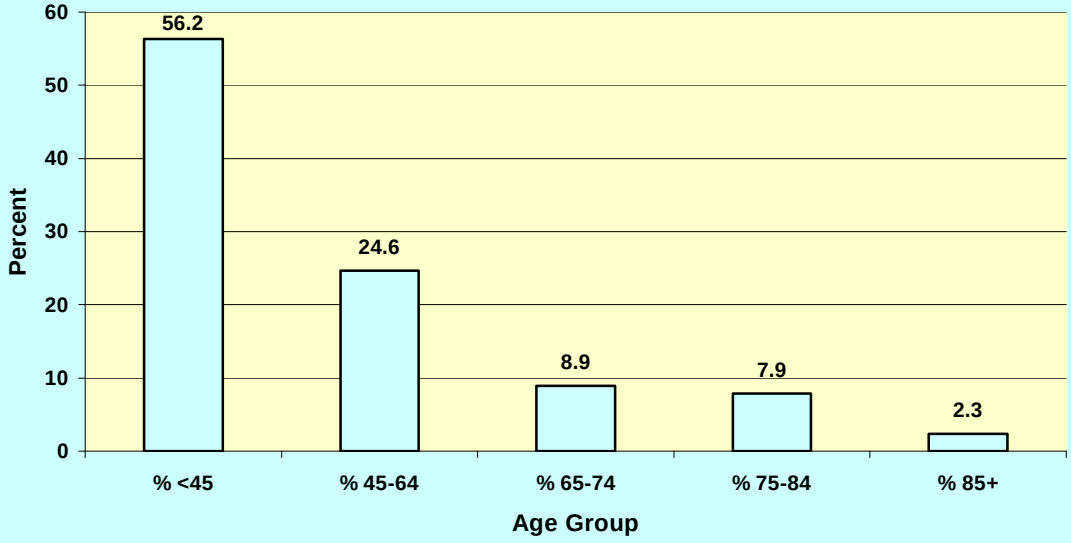


Figure D. Percent of Deaths from Suicide by Age Group, 1995-1997



*Death rates per 100,000 population, age-adjusted to the 1940 US standard population

INFANT MORTALITY

The infant mortality rate (the number of deaths under one year of age per 1,000 total live births) is a universally acceptable and understandable measure of the overall health status of a community.[1]

"Infant mortality is an important indicator of the health of infants and pregnant women because it is closely related to factors such as maternal health, quality of and access to medical care, socioeconomic conditions, and public health practices. About two-thirds of infant deaths are associated with problems of the infant or the pregnancy, while one-third result from conditions arising after the delivery, often reflecting social or environmental factors."[2]

Previous studies in Kentucky have found that births to adolescents, births to less educated mothers, absence of prenatal care in the first trimester of pregnancy, low birthweight, and congenital anomalies are associated with higher levels of infant mortality.[3]

For the period 1995–1997, Kentucky's average annual infant mortality rate was 7.4 infant deaths per 1,000 live births, the same as the U.S. rate for the period. Kentucky's rate ranked 23rd in the nation, and with the exception of Florida, was the lowest in the southeastern U.S.[4]

As shown in Figure B, the 1997 rate of 7.2 infant deaths per 1,000 live births was the lowest ever recorded in the state. Since 1990, the rate has dropped by almost 17 percent.

The infant death rate varied by mother's age (Fig. D). Both the youngest mothers, those under 20, and the oldest mothers, those 40 and older, had rates exceeding 9.0 per 1,000 births during the 1995-1997 period. Mothers from ages 25 through 34 had rates under 6.0 per 1,000.

As shown in Figure A, the infant death rate also varied by race. For the 1995-1997 period, the rate for black mothers (11.6 per 1,000) exceeded the rate for whites by 68 percent, reflecting a disparity evident in other indicators of maternal and infant health.

Figure C shows the distribution of infant mortality rates by county. These rates should be used with caution as they are based on very small numbers in many counties.

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[1]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol.1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[2]National Center for Health Statistics. *Health, United States, 1998 with Socioeconomic Status and Health Chartbook.* Hyattsville, Maryland: 1998:50.
[3]Kentucky Cabinet for Health Services. *Infant Mortality in Kentucky 1989-1995*. Frankfort, Kentucky. 1997:20.
[4]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook.* Hyattsville, Maryland: 1999:133.

Figure A. Infant Mortality Rate by Race 1995-1997

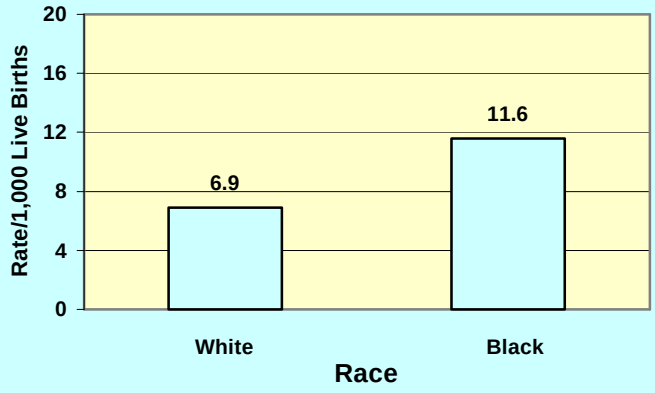


Figure B. Infant Mortality Rate 1993-1997

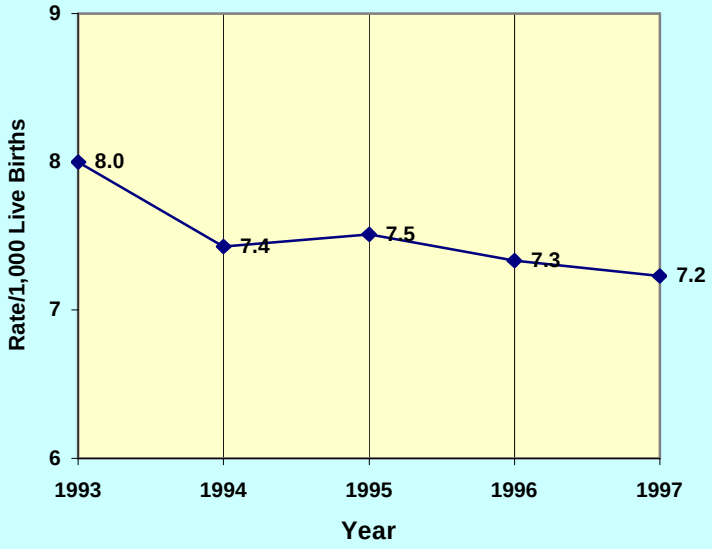


Figure C. Infant Mortality Rate, 1995-1997

Infant Deaths per 1,000 Live Births

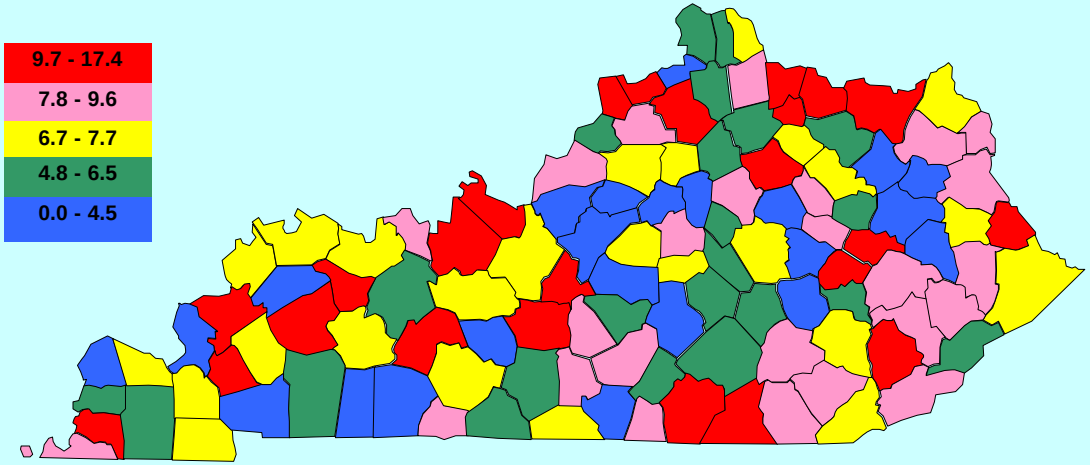
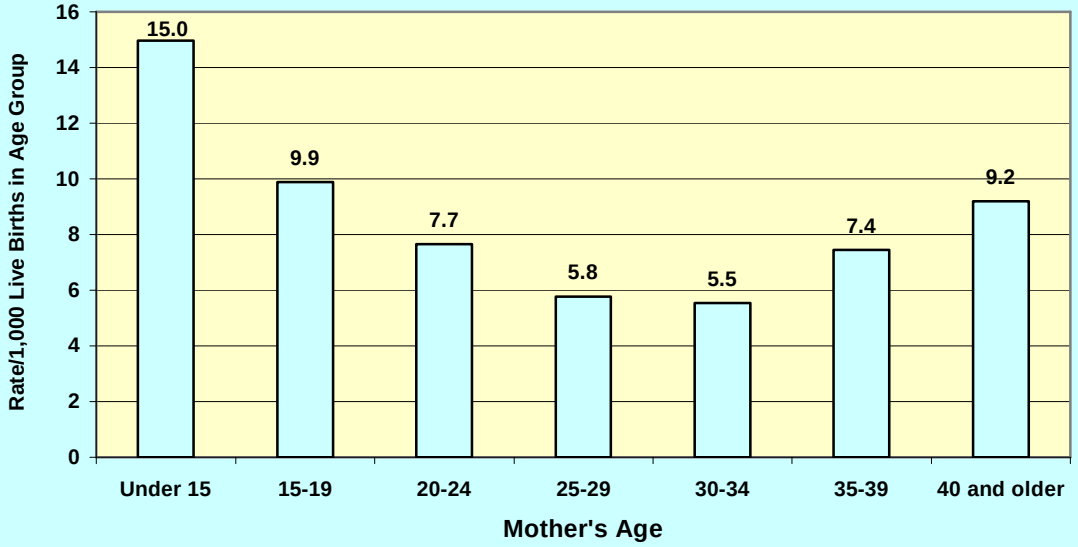


Figure D. Infant Mortality Rate by Mother's Age 1995-1997



LOW BIRTHWEIGHT

Low birthweight infants are infants born weighing less than 2,500 grams, or about 5.5 pounds. Infants of low birthweight are less likely to survive and have a higher risk of disability if they live. Low birthweight may result from premature birth or from insufficient growth for the gestational age.[1]

The incidence of low birthweight, as measured by the percentage of the total number of live-born infants weighing less than 2,500 grams at birth, "is directly associated with birth outcomes and is an indicator of access problems and/or need for prenatal care services."[2]

For the period 1995-1997, Kentucky's percentage of live births weighing less than 2,500 grams was 7.76%. This figure was 4.7 percent greater than the corresponding U.S. figure of 7.41%.[3]

Kentucky's percentage was the 17th highest in the nation; however, of all the southeastern states, only Virginia had a lower percentage.[3]

In 1997, Kentucky's percentage of low birthweight infants declined slightly from the 1996 mark, but the general trend has not been favorable. Since 1990, this measure has increased by 11.4 percent (Fig. B).

As shown in Figure D, the percentage of low birthweight infants varied by mother's age. Both the youngest mothers, those under 20, and the oldest mothers, those over 34, had higher percentages of low weight births than did mothers in the middle ranges (ages 20-34). Mothers in the 25-29 age group had the lowest percentage.

Low birthweight percentage also varied by race (Fig. A). For the 1995-1997 period, the percentage for black mothers (12.5%) exceeded the percentage for whites by 71.2 percent, continuing a disparity which has existed throughout the decade.

Figure C shows the distribution of 1995-1997 average annual percentages of low birthweight infants by county.

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[1]National Center for Health Statistics. *Health, United States, 1998 with Socioeconomic Status and Health Chartbook.* Hyattsville, Maryland: 1998:54.
[2]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol.1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*:160. Hyattsville, Maryland: 1999:121.

Figure A. Percent of Live Births less than 2,500 Grams by Race, 1995-1997

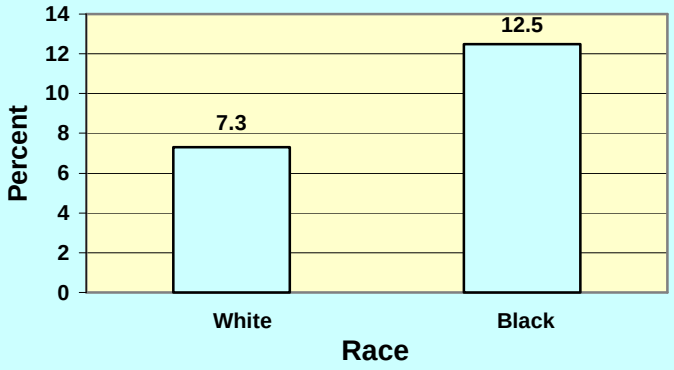


Figure B. Percent of Total Live Births less than 2,500 Grams, 1993-1997

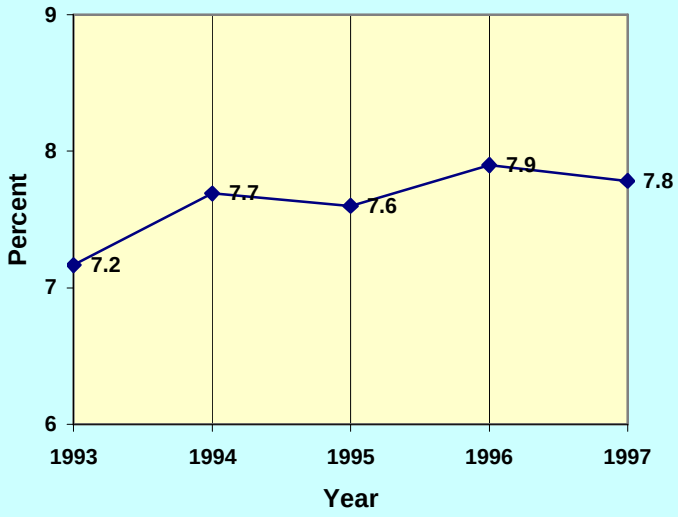


Figure C. Percent of Live Births less than 2,500 Grams 1995-1997

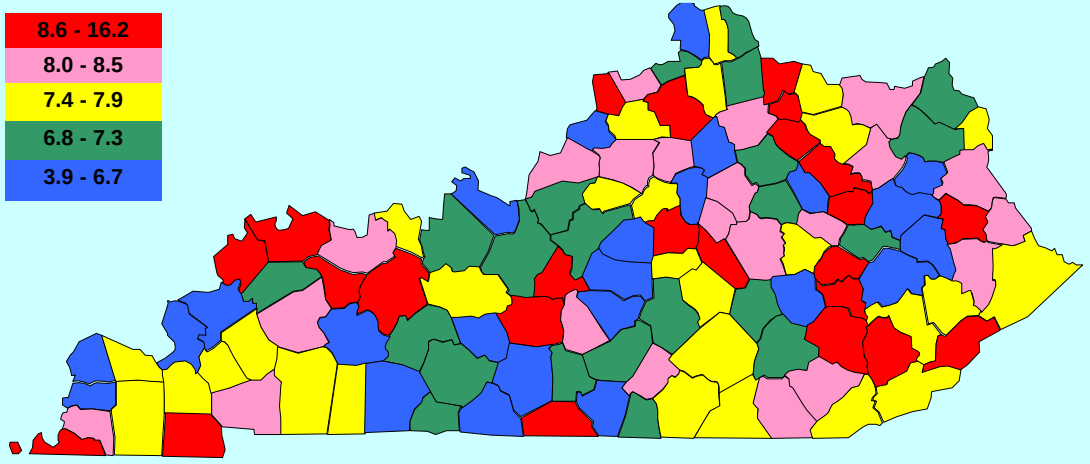
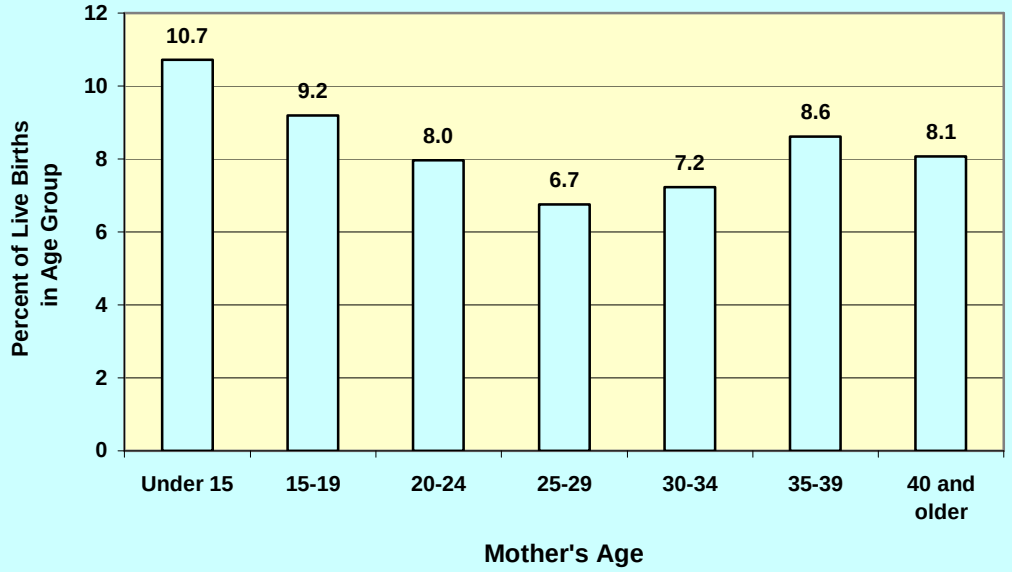


Figure D. Percent of Live Births less than 2,500 Grams by Mother's Age, 1995-1997



BIRTHS TO ADOLESCENT MOTHERS

Infants born to adolescent mothers are generally at much greater risk of serious health consequences than are infants born to older mothers. "Teenage mothers are much less likely than older women to receive timely prenatal care and more likely to have no care at all. Teenage mothers are also more likely to smoke and less likely to gain adequate weight during pregnancy. As a consequence of these and other factors, babies born to teenagers are at greatly elevated risk of low birthweight, of serious and long-term disability, and of dying during the first year of life."[1]

Births to adolescents (females under the age of 18) as a percentage of total live births is an indicator frequently used to monitor teenage births.[2] The percentage of total live births to mothers under age 18 in Kentucky in 1997 was 6.0%. This figure exceeded the U.S. figure of 4.9%[3] by 22.4 percent.

However, as shown in Figure A, the percentage of births to mothers under 18 in Kentucky has dropped by almost 12 percent since 1995.

The age-specific birth rate, that is, the number of live births to mothers of a specific age group per 1,000 females in that age group, can be used as another indicator of births to adolescents. Since 1994, the birth rate for mothers under 18 has declined in Kentucky by over 14 percent (Fig. B).

In 1996, Kentucky ranked 17th in the nation in the birth rate to women aged 15-17. From 1991 through 1996, the Kentucky rate declined by 10.7 percent in this measure, consistent with declines in all other states and the District of Columbia.[4]

As shown in Figure D, the percentage of total births to mothers under 18 varied by race. For the 1995-1997 period, the percentage for black mothers (12.3%) was more than twice the percentage for whites. The percentage among black mothers under 18 has declined since 1995, but a disparity between the races continues to exist.

Figure C shows the distribution by county of the 1995-1997 average annual percentages of live births born to mothers under the age of 18.

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[1]Ventura SJ, Curtin SC, Mathews TJ. *Teenage Births in the United States: National and State Trends, 1990-1996*. National Vital Statistics System. Hyattsville, Maryland: National Center for Health Statistics 1998:3.
[2]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol.1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: 1999:115.
[4]Ventura SJ, Mathews TJ, Curtin SC. *Teenage Births in the United States: State Trends, 1991-96, an Update*. Monthly Vital Statistics Report; vol. 46 no. 11, supp2. Hyattsville, Maryland: National Center for Health Statistics 1998:3.

Figure A. Percent of Total Live Births to Mothers under 18, 1993-1997

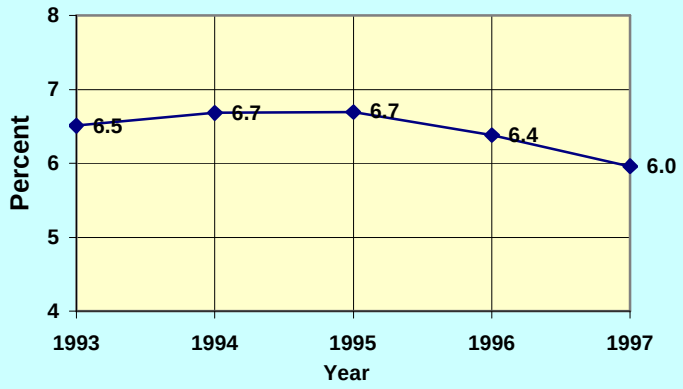


Figure B. Live Births to Mothers under 18 per 1,000 Females 10-17, 1993-1997

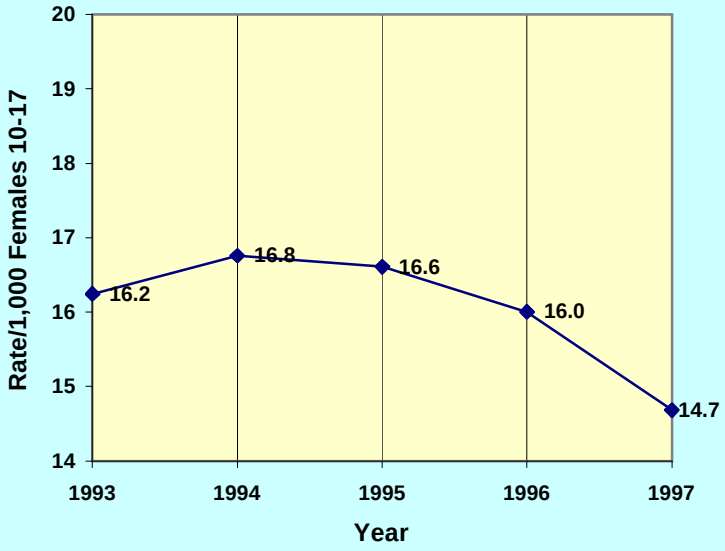


Figure C. Percent of Total Live Births to Mothers under 18, 1995-1997

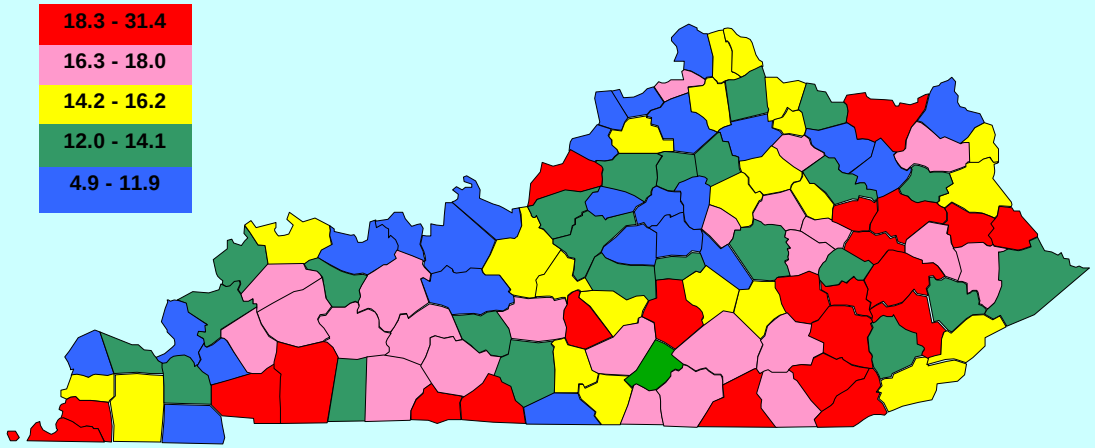
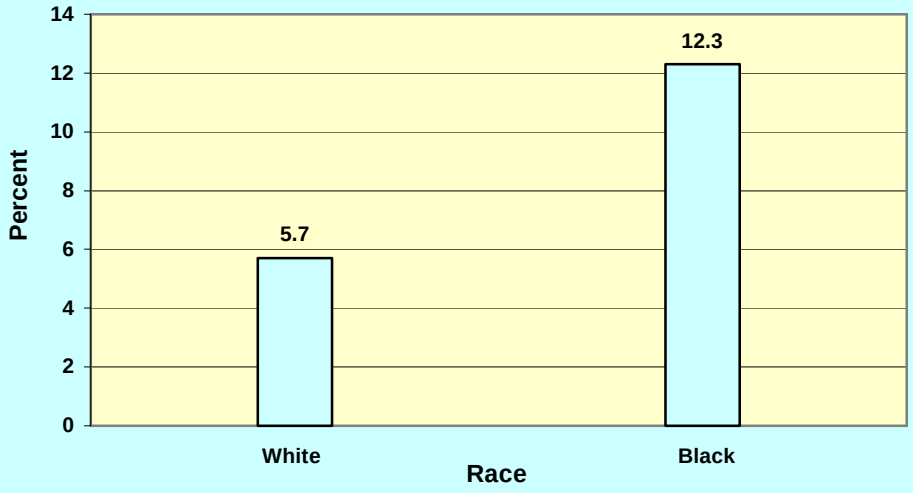


Figure D. Percent of Live Births to Mothers under 18 by Race, 1995-1997



PRENATAL CARE

"Early, comprehensive care can promote healthier pregnancies by detecting and managing preexisting conditions, providing health behavior advice, and assessing the risk of pregnancy outcomes such as low birthweight and preterm birth. Prenatal care can also be vital to maternal health and can serve as a gateway into the health care system, especially for socially disadvantaged women."[1]

Prenatal care, as measured by the percentage of mothers, delivering live infants, who did not receive care during the first trimester of pregnancy, "is also an indicator of problems with access to care."[2]

In 1997, Kentucky fared better than the nation as a whole in this measure. The percentage of Kentucky mothers who did not receive first trimester prenatal care was 15.0%. The U.S. percentage was 17.5%.[3]

The state has made considerable progress in the effort to ensure that more women receive prenatal care in the first trimester of pregnancy (Fig. B). The percentage of women not receiving first trimester care has declined every year since 1990, when over one in five women (22.8%) did not receive such care.

As shown in Figure D, the percentage of women not receiving first trimester prenatal care varied by mother's age. During the period 1995-1997, mothers under age 25 and those 40 and over were much less likely than mothers in other groups (ages 25-39) to receive care in the first trimester. Almost half of mothers under 15 (44.4%) and over one-fourth of mothers 15-19 (25.7%) did not receive such care.

The percentage of women not receiving first trimester prenatal care also varied by race (Fig. A). For the 1995-1997 period, over one in four (26.9%) black mothers did not receive care in the first trimester, and the percentage for black mothers exceeded the percentage for whites by almost 82 percent. This disparity is related to the fact that a higher percentage of black births than white births are to mothers in their teens, the age group least likely to receive early prenatal care. In 1997 for example, over one-fourth (26.1%) of births to black mothers were to women under age 19, compared to 15.5% for white mothers.

Figure C shows the distribution by county of the percentage of mothers who did not receive prenatal care in the first trimester of pregnancy.

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[1]Ventura SJ, Martin JA, Curtin SC, Mathews TJ. *Report of Final Natality Statistics, 1996*. Monthly vital statistics report; vol. 46 no. 11, supp. Hyattsville, Maryland: National Center for Health Statistics. 1998:15.
[2]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol.1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*: Hyattsville, Maryland: 1999:114.

Figure A. Percent of Mothers* Not Receiving Prenatal Care in First Trimester by Race, 1995-1997

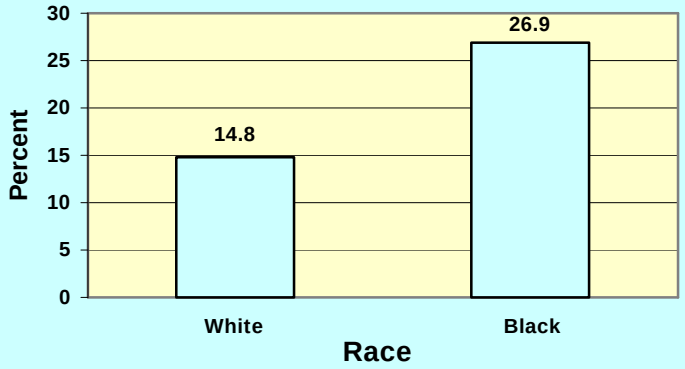


Figure B. Percent of Mothers* Not Receiving Prenatal Care in First Trimester, 1993-1997

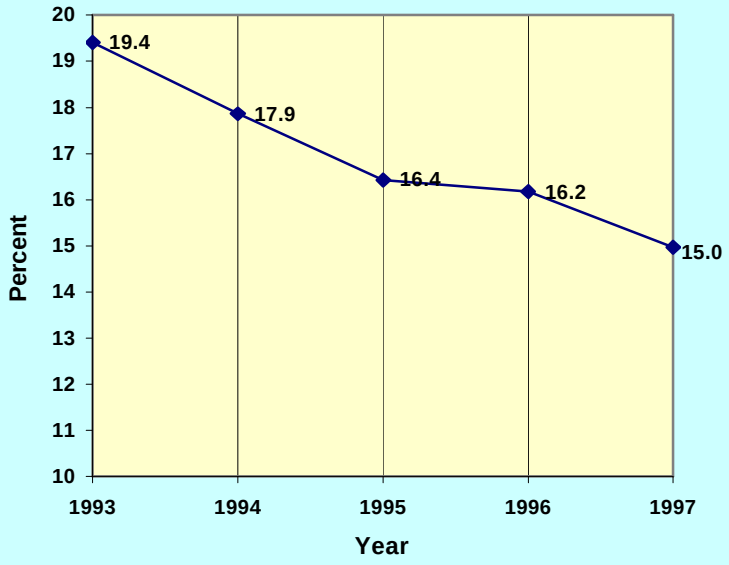


Figure C. Percent of Mothers* Not Receiving Prenatal Care in First Trimester, 1995-1997

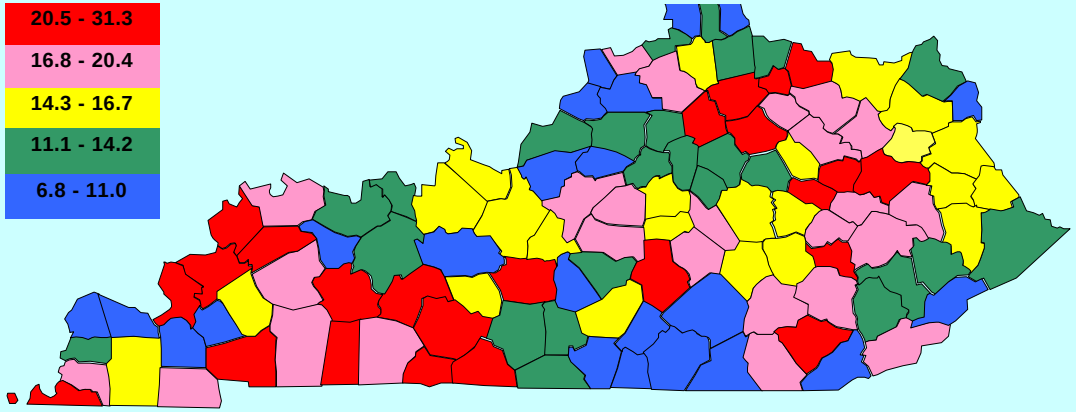
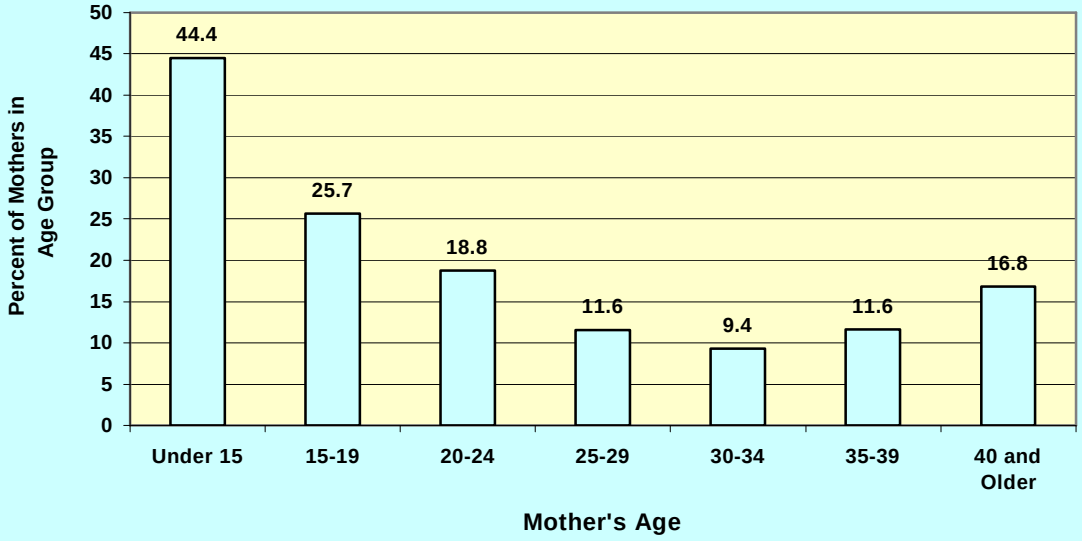


Figure D. Percent of Mothers* Not Receiving Prenatal Care in First Trimester by Mother's Age, 1995-1997



*Percents are actually of live births

CANCER INCIDENCE

"Although cancer remains a major health problem in the United States, there is evidence that the prospects of preventing and surviving cancer continue to improve. Specifically perhaps as much as 50 percent or more of cancer incidence can be prevented through smoking cessation and changed dietary habits. The scientific evidence for smoking as a cause of cancer has been recognized for over 40 years. The evidence for diet has emerged over the past decade and has progressed to the extent that recommendations for prudent dietary changes, such as less fat and more fruits and vegetables, can now be made."[1]

According to the Kentucky Cancer Registry, there were 20,008 Kentucky residents first diagnosed with cancer in Kentucky hospitals or their associated outpatient facilities during 1996, and 19,181 first diagnosed in 1997.[2] In both 1996 and 1997, more of the patients were female: 52.0% were female in 1996, and 52.2% were female in 1997. In 1996, 90.2% of the newly diagnosed patients were white, 5.6% were black, and 4.1% were either classified in other racial categories or were of unknown racial origin. In 1997, 89.8% were white, 5.6% were black, and 4.6% were of other or unknown racial origin.

The incidence of cancer is based on the number of cases, recognizing that one person may have multiple separate and different cancers. Therefore, there were 19,716 new cases of cancer in Kentucky in 1997, resulting in a crude incidence rate of 504.49 per 100,000 population and an age-adjusted incidence rate (adjusted to the 1970 U.S. standard population) of 428.76 cases per 100,000.[3] Figure A indicates that the 2-year age-adjusted rate had been gradually increasing prior to 1996-97.[4]

The Kentucky rates can be compared to national data gathered through the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program, which is made up of nine population-based cancer registries in the U.S. Kentucky's 1996-97 age-adjusted rate of 415.1 per 100,000 is 5.9 percent higher than the SEER rate of 392.0 per 100,000 for 1995 (the latest available).[2]

The most frequently diagnosed cancer in Kentucky in 1997 was cancer of the trachea, bronchus, and lung, accounting for 15.2% of all cases.[5] The five most commonly diagnosed cancers in 1997 were responsible for over one-half (55.1%) of the total (Fig. B).

The five most commonly diagnosed cancers in males in Kentucky in 1997 were prostate, lung, colon, bladder, and malignant melanoma; the five most common in females were breast, lung, cervix, colon, and endometrium (corpus uteri).[6]

Figure C shows the distribution of male age-adjusted cancer incidence rates for all cases in 1996-1997 by county, and Figure D shows the same for females.[7]

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[1]National Center for Health Statistics. *Healthy People 2000 Review, 1998-99*. Hyattsville, Maryland: Public Health Service. 1999:155.
[2]Kentucky Cancer Registry. *1997 Cancer Incidence Report*. University of Kentucky, Lexington, Kentucky. 1998:8.
[3]Ibid., 15.
[4]Kentucky Cancer Registry 1992-1997. Cancer Incidence Reports.
[5]Kentucky Cancer Registry. 1997 Cancer Incidence Report, 13.
[6]Wyatt S, Tucker T. *The Cancer Burden in Kentucky: 1997 Incidence*. Kentucky Epidemiologic Notes & Reports; vol. 34, no. 4. Kentucky Cabinet for Health Services. April 1999.
[7]Kentucky Cancer Registry, 1997 Cancer Incidence Report, 18,22.

Figure A. Kentucky Age-Adjusted Cancer Incidence Rates, 1991-1997

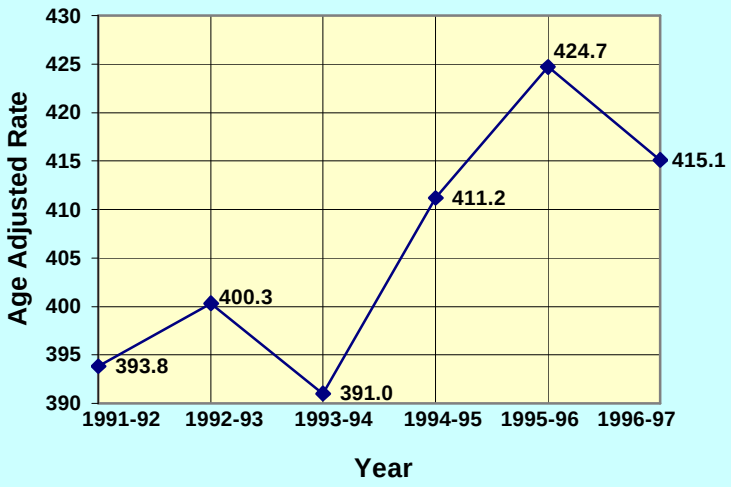
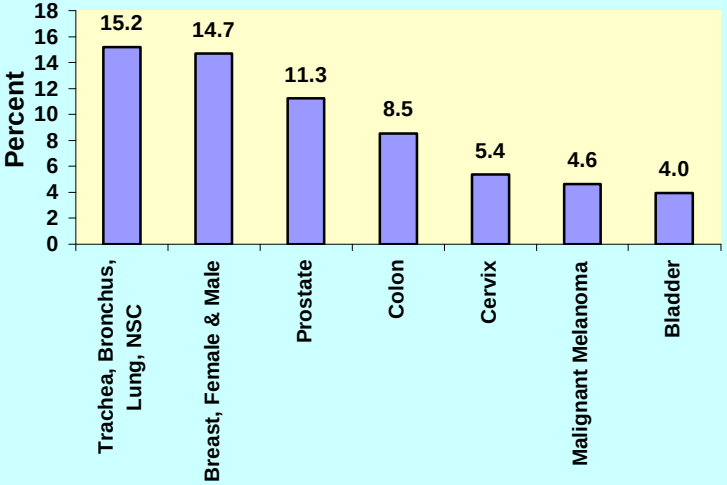


Figure B. Most Commonly Diagnosed Cancers, 1997



Incidence rates per 100,000 population, age-adjusted to the 1970 US standard population

Figure C. Age-Adjusted Cancer Incident Rates by County Male Cases, 1996-1997

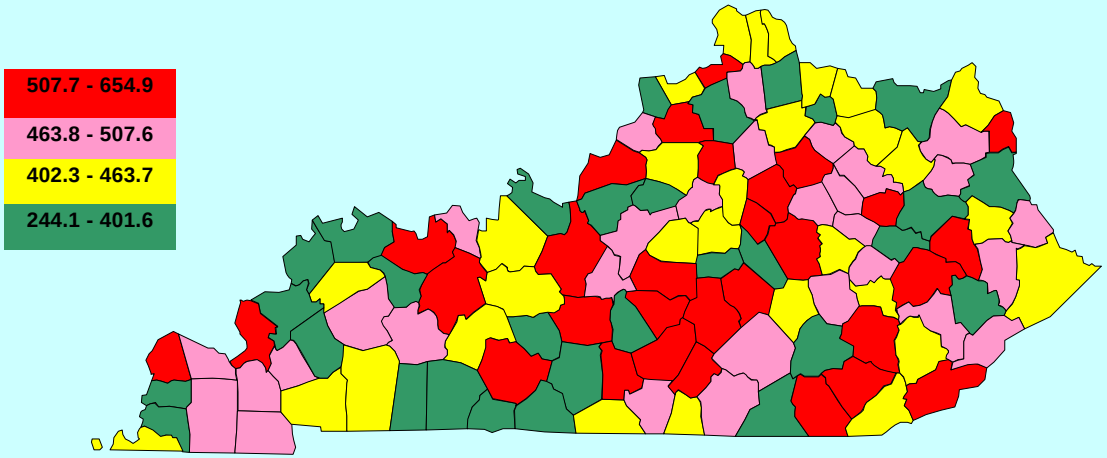
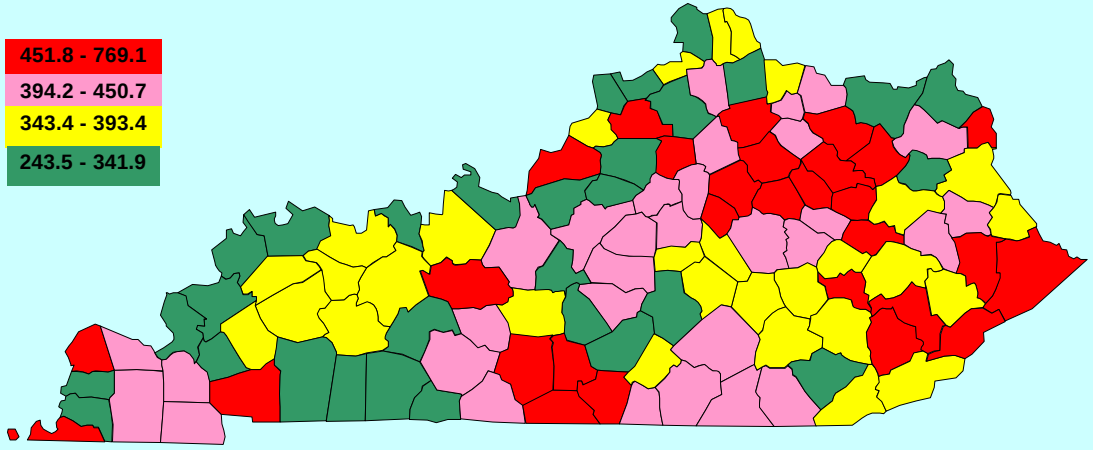


Figure D. Age-Adjusted Cancer Incidence Rates by County Female Cases, 1996-1997



ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) INCIDENCE

Acquired immunodeficiency syndrome (AIDS) is the most severe phase of infection with the human immunodeficiency virus (HIV). People infected with HIV are said to have AIDS when they get certain opportunistic infections or when their CD4+ cell count (a type of cell involved in the immune response) drops below 200.[1]

No treatment is available to cure AIDS, although retro-viral therapies now available can extend survival among those infected with HIV. With current knowledge, the HIV epidemic can only be controlled through primary preventive strategies, particularly through modifying personal behavioral risk factors. These include promoting sexual abstinence among adolescents, condom use, treatment for injecting drug users, HIV testing and counseling, and educational programs.[2]

Since the first AIDS case was reported in 1982, there have been 2,970 Kentuckians reported with AIDS, of which 1,385 are still living (as of June 30, 1999). As shown in Figure D, the incidence (the number of new cases reported in a given period of time) of AIDS increased through 1996, but then dropped 10% from 1996 to 1997.

The incidence rate of AIDS is the number of new cases reported in a given period of time per 100,000 population. According to the Centers for Disease Control and Prevention (CDC), for the 12-month period ending June 30, 1998, Kentucky had 8.0 cases per 100,000 population compared to a rate of 19.6 per 100,000 for the nation as a whole.[3] Kentucky's rate ranked 34th nationally. [3]

Of AIDS cases diagnosed in 1998, almost half (48%) were in their thirties, and 13% were in their twenties (Fig. A).

The percentage of female AIDS cases diagnosed has increased from 11% in 1992 to 18% in 1998. The incidence rate of AIDS among males, however (16.5 per 100,000), is still approximately eight times higher than the rate for females.

Whites comprise 71% of cumulative AIDS cases, but blacks are disproportionately affected. In 1998, blacks comprised 7% of the total population, but 35% of AIDS cases. The AIDS incidence rate among blacks in 1998 (46.5 per 100,000), was approximately eight times higher than the rate for whites. The high percentage of AIDS cases among blacks possibly relates to poor access to health care and other economic disadvantages.

Persons are primarily infected by HIV through sexual exposure or by contact with blood contaminated with HIV. Men who have sex with men (MSM) comprise the majority of Kentucky's AIDS cases (Fig. B). Other known modes of exposure are injecting drug use (IDU) and heterosexual contact.

Figure C shows the distribution of AIDS incidence rates by county for the period 1995-1997, and highlights the counties with the highest rates.

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[1] Background and data for Kentucky were provided by the HIV/AIDS Branch, Kentucky Department for Public Health, Frankfort, Kentucky, 1999.
[2]National Center for Health Statistics. *Healthy People 2000 Review, 1998-99*. Hyattsville, Maryland: Public Health Service. 1999:176.
[3]National Center for Health Statistics. *Health, United States, 1999 with Health and Aging Chartbook*. Hyattsville, Maryland: National Center for Health Statistics.

Figure A. Kentucky 1998 AIDS Cases by Age at Time of Diagnosis

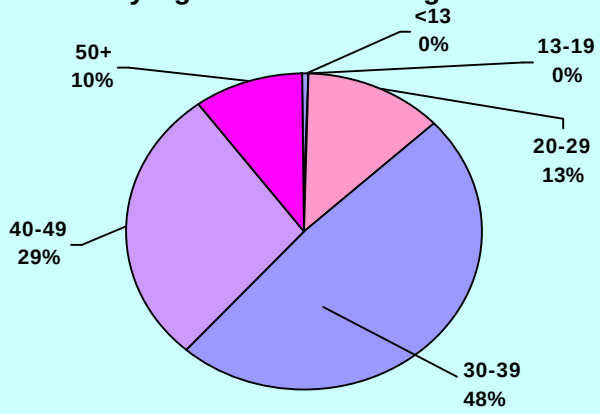


Figure B. 1998 Adult/Adolescent Kentucky AIDS Cases by Mode of Exposure

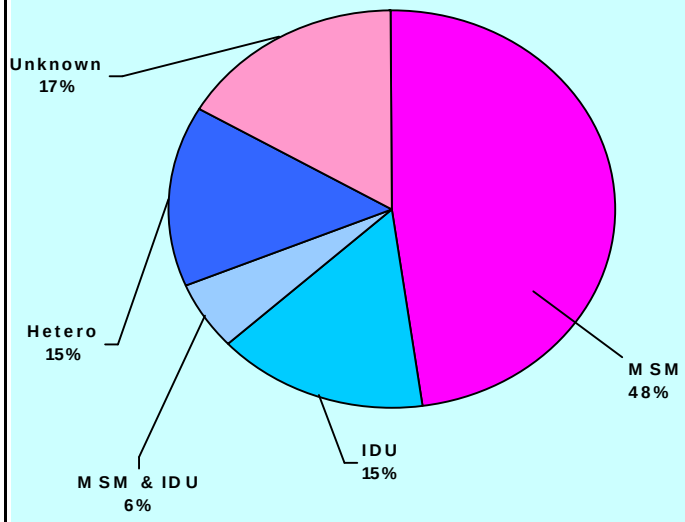


Figure C. Combined AIDS Incidence Rate Per 100,000 Population Years of Diagnosis 1995-1997

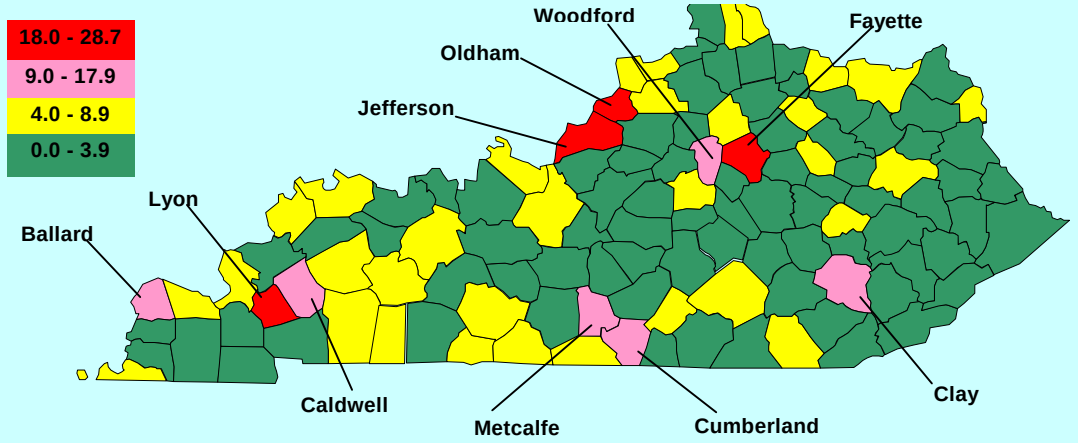
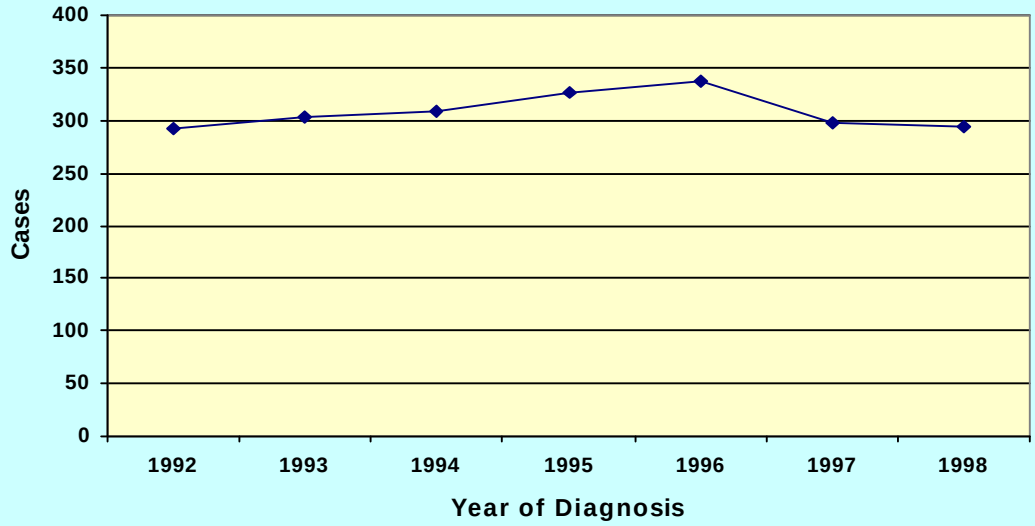


Figure D. Kentucky AIDS Incidence Adjusted for Reporting Delay, 1992-1998



TUBERCULOSIS INCIDENCE

"Tuberculosis incidence is changing rapidly as a result of changes in HIV infection rates, demographics, and immigration patterns. It is a high priority condition for public health intervention."[1]

The incidence rate of tuberculosis (TB) is measured by the case rate, the number of new cases reported in a given period of time per 100,000 population. In 1998, Kentucky had 179 TB cases (20 fewer than the year before) for a case rate of 4.6 cases per 100,000 persons.[2]

Both the number of cases in the state and the case rate have dropped each year since 1993. In 1997, Kentucky's rate of 5.1 cases per 100,000 was 31 percent lower than the corresponding U.S. figure of 7.4 per 100,000 (Fig. B).

Almost two-thirds of TB cases in Kentucky were male (Fig. A). The state had a 65/35 male to female case ratio in 1998, very close to the case ratio for 1997 (66/34).[2]

Analysis of the 1998 data revealed a continued disproportionate impact by race, with the black, non-Hispanic tuberculosis case rate (7.8 per 100,000) being 45 percent higher than the case rate of the white population.[2]

In 1998, the highest age-specific case rate in Kentucky (17.2 per 100,000 population) occurred in the 65 and older age group (Fig. D). While this rate was higher than the 1997 national rate of 13.8 per 100,000, it reflects a significant decline in the case rate for the 65+ population.

The 25-34 year old age group reported a rate of 3.9 per 100,000 in 1998 and a rate of 2.5 per 100,000 in 1997. "Kentucky's morbidity increase of 18.2% may be the result of risk factors prevalent in this age group, such as homelessness, alcohol or other drug abuse, as well as an increase of migrant workers and other immigrants."[2]

The 1998 data indicate that 14 (7.8%) of the infected persons were identified as homeless. To successfully treat these cases, every effort is made to assist the patient to obtain housing and food assistance.

Since 1996, about 7% of TB cases in Kentucky have been foreign born. The migrant population presents a variety of health issues. Language and cultural barriers create difficulties in communication, and many migrant workers are unaware of services available from local health departments or other providers.

One of the most serious aspects of the TB problem has been the emergence of multi-drug resistant TB (MDR-TB). In response, the state Tuberculosis Control Program monitors all TB drug susceptibility reports submitted by the local health departments. In 1998, of the initial isolates tested, 9.7% were resistant to at least one first-line anti-TB drug.[2]

Figure C shows the distribution of tuberculosis case rates by county for the period 1995-1997.

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[1]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[2]Kentucky Cabinet for Health Services. *Tuberculosis in Kentucky: 1998*. Kentucky Epidemiologic Notes and Reports; vol. 34 no. 7. Frankfort, Kentucky. July 1999.

Figure A. Tuberculosis Case Rate by Sex, 1998

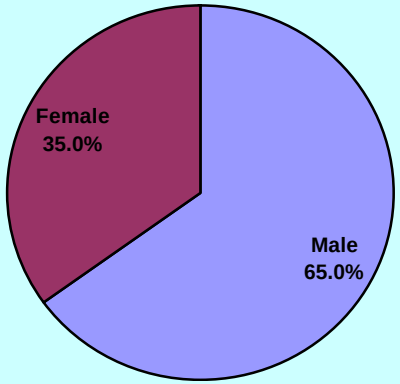


Figure B. Tuberculosis Case Rate Kentucky and United States, 1994-1997

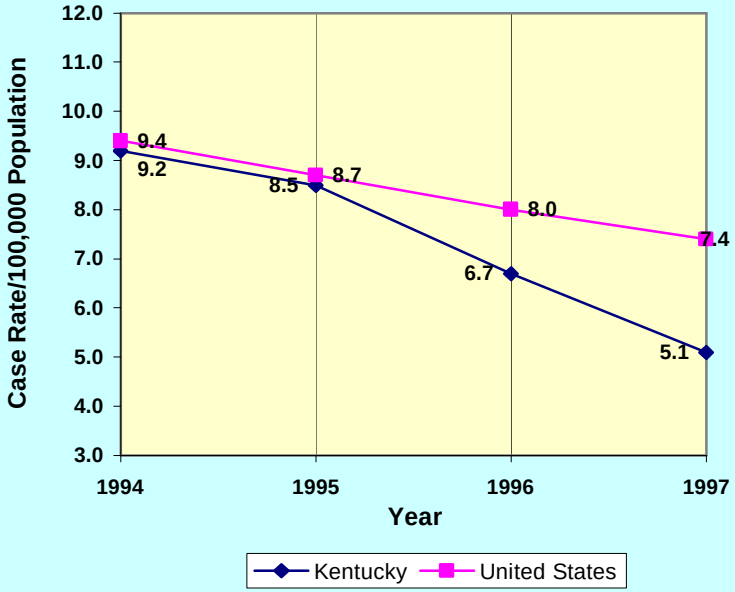


Figure C. Tuberculosis Case Rate Per 100,000 Population, 1995-1997

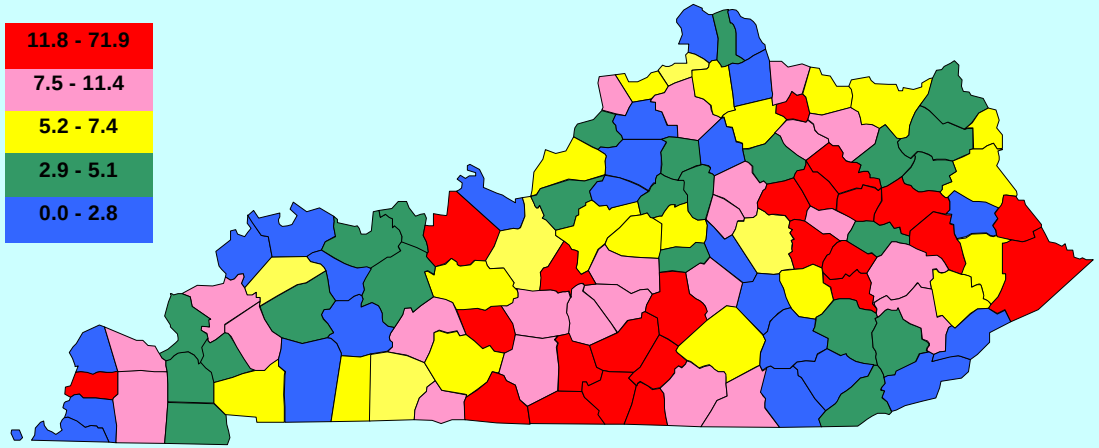
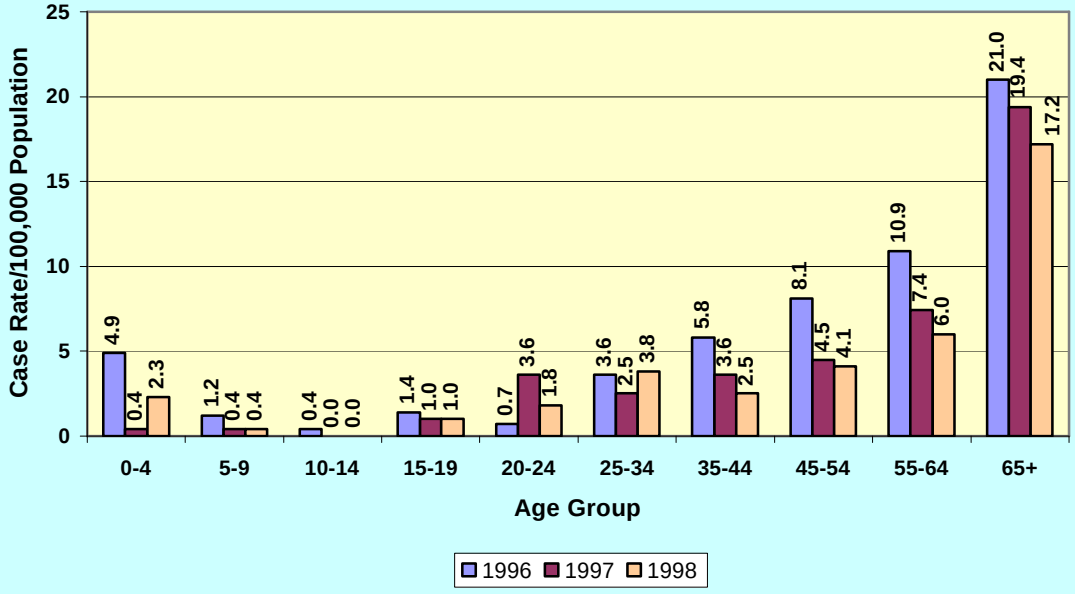


Figure D. Tuberculosis Case Rate by Age Group, 1996-1998



DIABETES PREVALENCE

Diabetes is a chronic, metabolic disease in which the body does not adequately produce or properly use insulin. Diabetes is characterized by high levels of blood glucose (sugar). Unless properly treated, individuals with diabetes face the probability of organ complications including blindness, renal failure, cardiovascular disease, lower extremity amputations, and problems with pregnancy.[1]

Most cases of diabetes fall into one of two types: Type 1, also know as insulin-dependent diabetes, and Type 2, also known as noninsulin-dependent diabetes. Type 1 usually develops in childhood and is characterized by the complete inability to produce insulin. However, about 90 to 95 percent of people with diabetes have Type 2, in which the body continues to produce insulin, but cannot use it effectively. This type usually develops in adults over age 40, and is often associated with obesity.[2]

Diabetes is a leading cause of death and disability in Kentucky. In 1997, 5.3% of Kentuckians surveyed by the Behavioral Risk Factor Surveillance System (BRFSS) reported that they had been diagnosed with diabetes by a physician. The national median prevalence was 4.8%, and Kentucky's rate ranked 14th in the nation (with Indiana and New Jersey).[3] The prevalence of diabetes in Kentucky has shown no lasting improvement since 1992 (Fig. A).

The BRFSS indicates that the prevalence of diabetes increased with age. In 1997, 10.1% of women and 13.5% of men over age 65 had been diagnosed with diabetes (Fig. B).

In 1997, diabetes mellitus was the seventh leading cause of death in Kentucky, with a crude rate of 24.8 deaths per 100,000 population and an age-adjusted rate of 14.1 per 100,000. Kentucky's age-adjusted rate ranked 15th nationally.[4] As shown in Figure D, the diabetes death rate has been increasing in Kentucky. Moreover, it is believed that diabetes is underreported on death certificates in all states because it is so often an unreported contributing factor in deaths attributed to other causes.[5]

Blacks tended to be at higher risk for diabetes than whites. In 1997, the prevalence of diabetes among blacks (6.1%) was over 17 percent higher than that among whites (Fig. C). Diabetes mellitus was the fifth leading cause of death among blacks in Kentucky in 1997, with an age-adjusted rate of 28.6 per 100,000, over twice the rate for whites.

The control of diabetes demands a collaborative approach by health care providers and public health officials. Current evidence indicates that many of the complications of diabetes can be eliminated by early detection and intervention, intensive glucose control, and better education for diabetes self-management.[1]

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[1]Kentucky Cabinet for Human Resources. *Healthy Kentuckians 2000: Kentucky's Public Health Objectives for the Year 2000*. Frankfort, Kentucky: 1991:107-109.
[2]Ibid., with additional information provided by the Community Health Branch, Kentucky Department for Public Health.
[3]CDC. *1997 BRFSS Summary Prevalence Report*. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service. 1998.
[4]Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National vital statistics reports; vol. 47 no. 19:82. Hyattsville, Maryland: National Center for Health Statistics. 1999.
[5]CDC. *Chronic Diseases and their Risk Factors: The Nation's Leading Causes of Death*. Atlanta, Georgia. 1998:23.

Figure A. Diabetes Prevalence 1991-1997

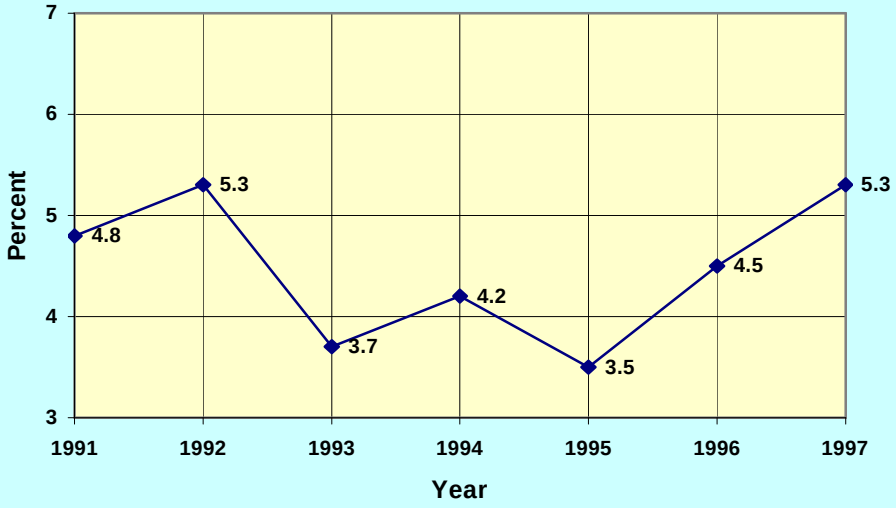


Figure C. Prevalence of Diabetes by Race 1997

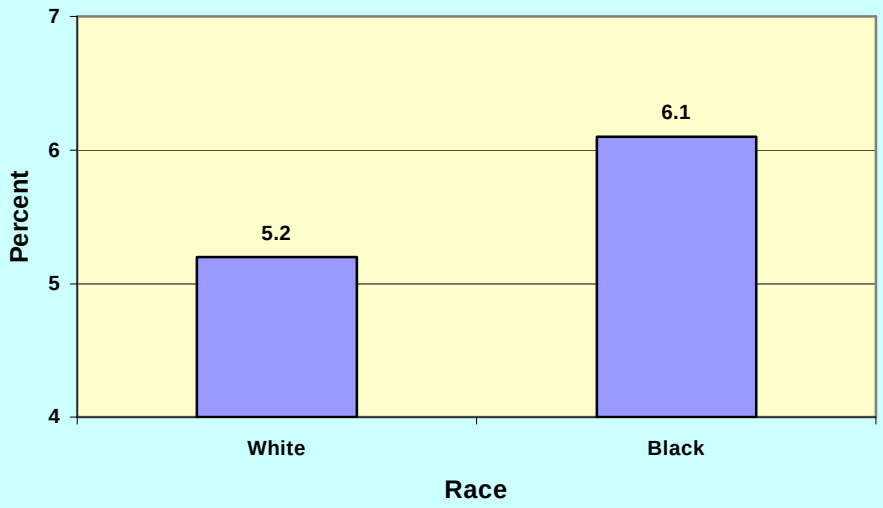


Figure B. Prevalence of Diabetes by Age Group and Sex, 1997

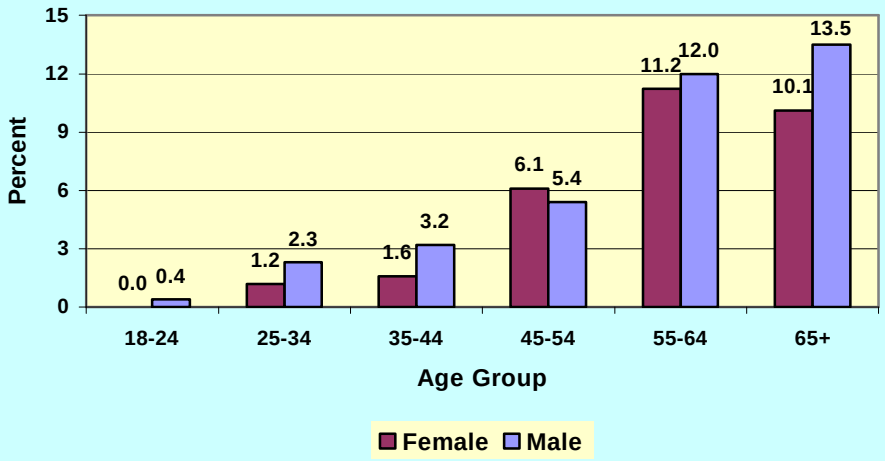
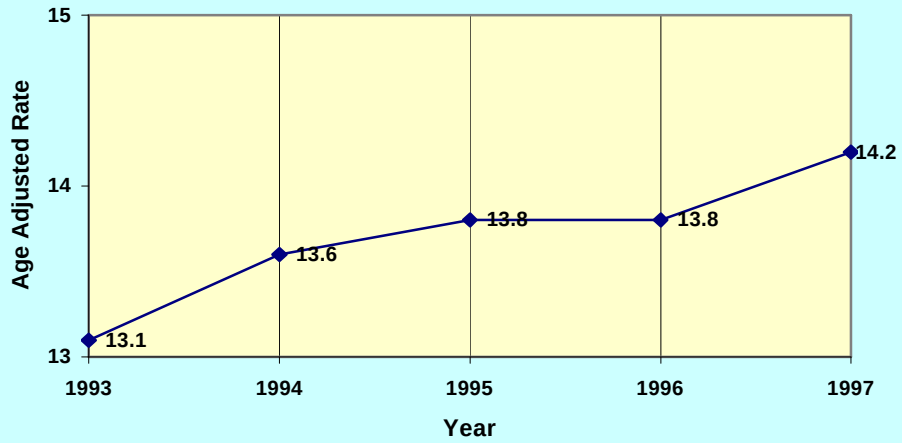


Figure D. Deaths from Diabetes per 100,000 Population, 1993-1997



MENTAL HEALTH AND MENTAL DISORDERS

Mental health refers to an individual's ability to negotiate the daily challenges and social interactions of life without experiencing undue emotional or behavioral incapacity. Mental health and mental disorders can be affected by numerous conditions ranging from biologic and genetic vulnerabilities to acute or chronic physical dysfunction to environmental conditions and stresses. Addressing the range of these contingencies requires a balance of minimizing risk factors and maximizing protective factors and combining prevention with treatment.[1]

It is estimated that over 400,000 Kentuckians (approximately 15% of the adult population)[2] have some form of mental disorder. Although two-thirds of these individuals are in need of treatment, less than one-third actually seek mental health services. In fiscal year 1996, Kentucky community mental health centers served over 58,000 adults and over 28,000 children with mental health problems of varying degree.[3]

According to data obtained from the 1997 Behavioral Risk Factor Surveillance System (BRFSS), Kentuckians' self perception of their mental health is generally not good. When asked the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" 25.7% reported that their mental health was not good two or more days.[4] The mean number of days reported by Kentucky adults (4.9) was the highest of the 50 states and the District of Columbia.

In FY 1997 there were 2,655 inpatient admissions to state-operated mental health facilities, and in FY 1998 there were 3,858.[5] In both years, about 59% of the admissions were males. Figure A shows the five leading diagnoses for female admissions. Schizophrenia/related disorders and affective disorders accounted for over 65% of female admissions in both years.

Schizophrenia/related disorders and affective disorders were also responsible for over 65% of male admissions, but males were more likely to be admitted for substance abuse than were females (Fig. C).

Figure B shows the leading diagnoses for females receiving community mental health center (CMHC) services in FY 1997 and FY 1998. The most frequent diagnosis in both years was affective disorders, accounting for about one-third of the total, followed by mental retardation in FY 1997 and schizophrenia/ related disorders in FY 1998.

The most frequent diagnosis in both years for males receiving CMHC services was schizophrenia/related disorders, and a greater percentage of males than females had the diagnosis of mental retardation (Fig. D).

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[1]National Center for Health Statistics. *Healthy People 2000 Review, 1998-99*. Hyattsville, Maryland: Public Health Service. 1999:78.
[2]Kentucky Cabinet for Health Services. *Healthy Kentuckians 2000, Mid-Decade Review.* Frankfort, Kentucky. June 1996:37.
[3]Kentucky Cabinet for Health Services. *Kentucky County Health Profiles 1995*. Frankfort, Kentucky. March 1997.
[4]CDC. *1997 BRFSS Summary Prevalence Report*. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service. 1998.
[5]This and the following information provided by the Kentucky Department for Mental Health and Mental Retardation Services.

Figure A. Female Admissions to State Mental Health Hospitals by Leading Diagnosis FYs 1997 & 1998

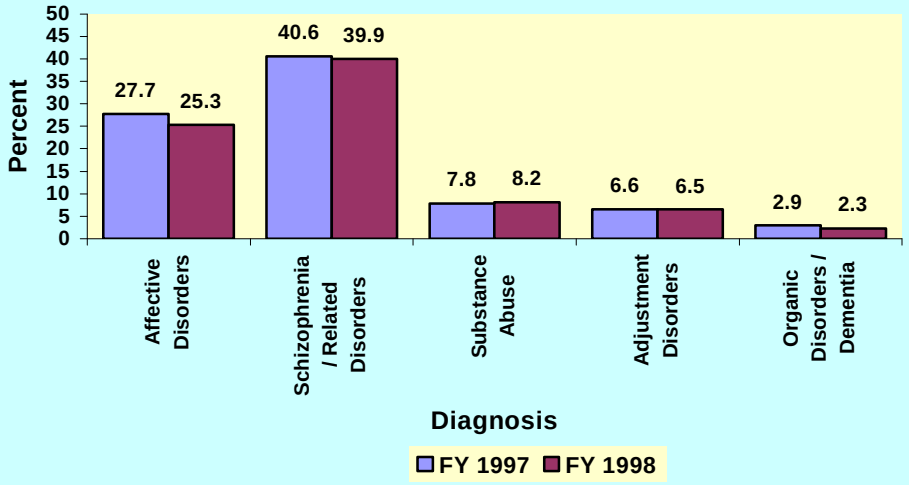


Figure C. Male Admissions to State Mental Health Hospitals by Leading Diagnosis FYs 1997 & 1998

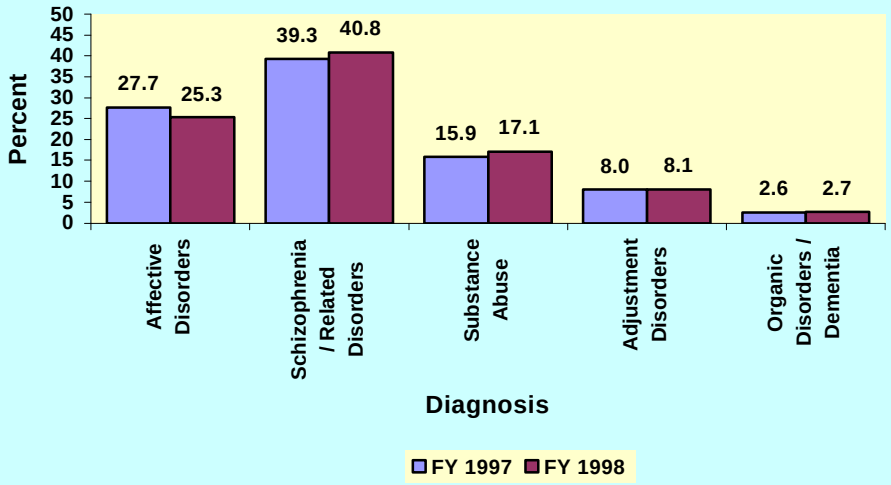


Figure B. Leading Female CMHC Service Diagnoses, FYs 1997 & 1998

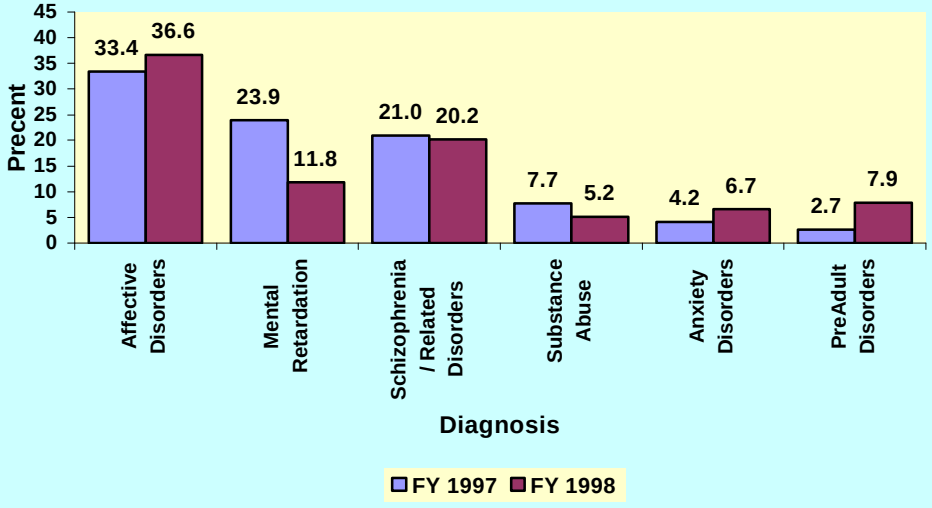
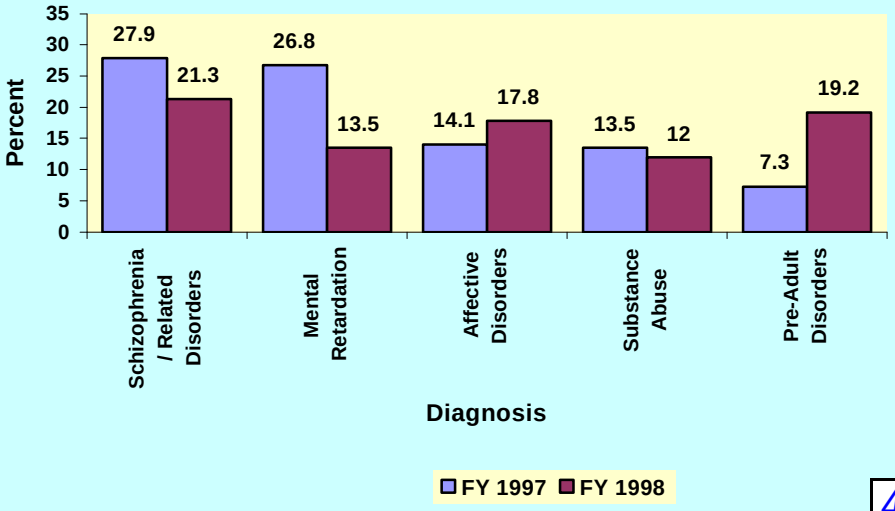


Figure D. Leading Male CMHC Service Diagnoses, FYs 1997 & 1998



BEHAVIORAL RISK FACTORS: SMOKING

Smoking is the leading cause of preventable death and disease in the United States. Smoking leads to an increased risk for heart disease, lung cancer, emphysema, and other respiratory diseases.[1]

Since the national Behavioral Risk Factor Surveillance System (BRFSS) was begun in 1985, Kentucky's prevalence of current smokers has ranked at or near the top of states surveyed.[2] Results from the 1997 BRFSS indicated that 30.7% of Kentuckians over 18 years of age were current smokers, the highest prevalence of all the states. Kentucky's rate compared with a median prevalence of 23.2% for the 50 states and the District of Columbia.[3]

Kentucky's smoking prevalence has shown little change over time (Fig. A). Although the percentage dropped slightly in 1997, Kentucky's rate was still the highest in the nation.[3] By age and sex, the highest prevalence (42%) was seen in the male 35-44 year age group (Fig. B).

The BRFSS sample is too small to make meaningful comparisons by county. Figure C, however, compares composite data for 1995-1997 by Area Development District.

In 1996, 23% of all deaths in Kentucky were attributable to smoking.[4] Of these deaths, 31% were younger than 65 years of age. Smoking-attributable mortality (SAM) was higher for men (29%) than for women (17%).

Lung cancer accounted for 31% of overall SAM. Ischemic heart disease was responsible for another 20%, and chronic airways obstruction for 15%.[4]

These data also showed that 124,150 years of potential life lost (YPLL) were attributable to smoking in 1996. Persons younger than 65 years of age accounted for 54% of YPLL. The average YPLL per smoking-attributable death in 1996 was 14 years.

Lung cancer was responsible for 33% of smoking-attributable YPLL. Ischemic heart disease accounted for almost 22% (Fig. D).

Smoking during pregnancy is another major public health concern. Infants whose mothers smoke cigarettes during pregnancy are more likely to be born with low birthweight. Other health outcomes associated with maternal smoking include Sudden Infant Death Syndrome, pregnancy complications, and asthma in childhood.[5] The 1997 BRFSS found that 31% of females 18-24 and 35% of females 25-34, age groups responsible for about 85% of resident births in Kentucky, reported that they were current smokers. [3]

Because most smoking-related illnesses develop over a long time, these data support the need to focus smoking cessation efforts among younger persons before the onset of chronic disease associated with smoking.

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[1]Centers for Disease Control. *Cigarette smoking-attributable mortality and years of potential life lost – United States, 1990*. MMWR 42:654-9. 1993.
[2]CDC. *1985-1996 BRFSS Summary Prevalence Reports*. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service.
[3]CDC. *1997 BRFSS Summary Prevalence Report*. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service. 1998.
[4]Stapleton MP, Palmer CT. *Cigarette Smoking in Kentucky: Smoking-Attributable Mortality and Years of Potential Life Lost*. Kentucky Epidemiologic Notes and Reports, vol. 33 no. 12. Cabinet for Health Services. December 1998.
[5]National Center for Health Statistics. *Health, United States, 1998 with Socioeconomic Status and Health Chartbook*. Hyattsville, Maryland: 1998:60.

Figure A. Prevalence of Current Smoking Ages 18 and Older, 1991-1997

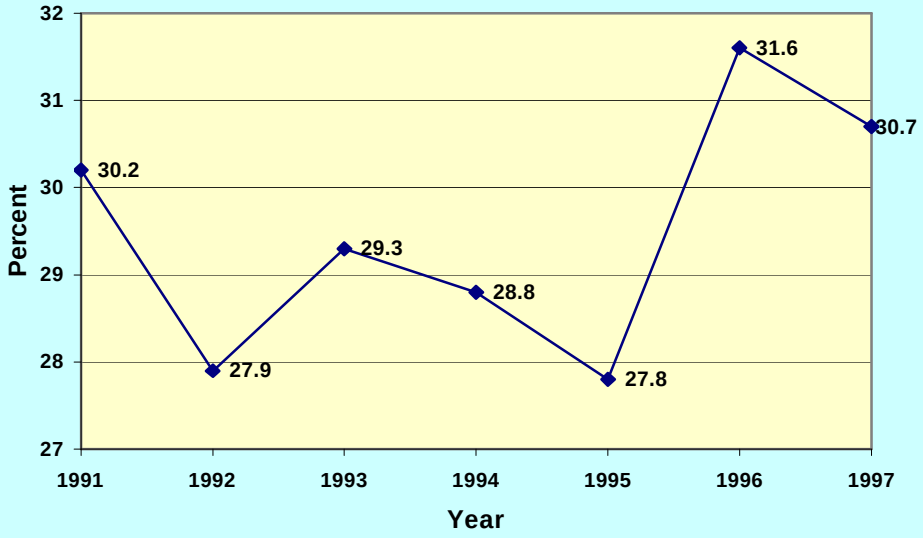


Figure B. Prevalence of Current Smoking by Age Group and Sex, 1997

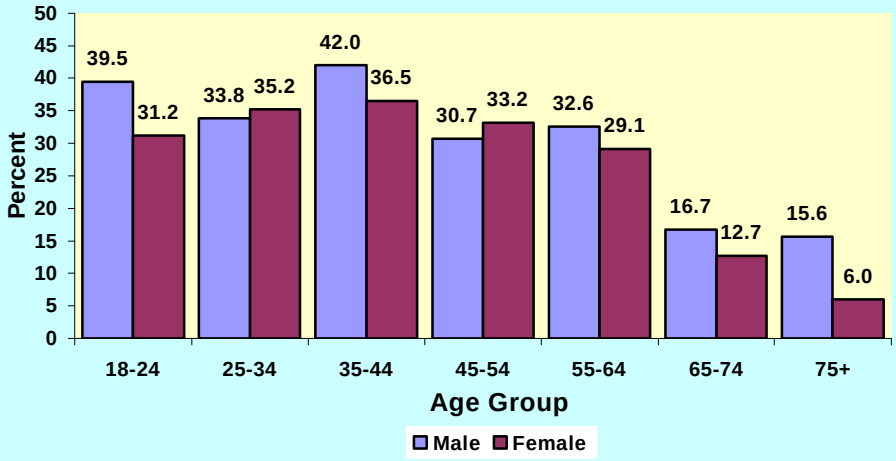


Figure C. Prevalence of Current Smoking State and District Averages, 1995-1997

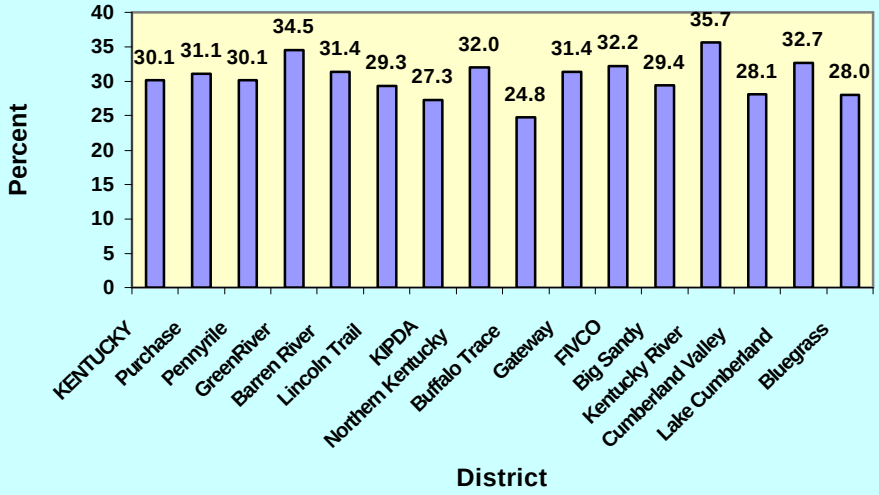
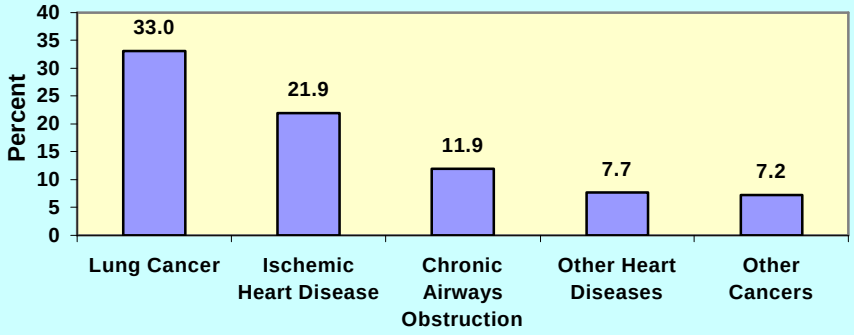


Figure D. Percentage of Total Smoking-Attributable Years of Potential Life Lost by Leading Causes of Death, 1996



BEHAVIORAL RISK FACTORS: SEDENTARY LIFESTYLE AND OVERWEIGHT

Sedentary lifestyle

"The adoption and maintenance of a physically active lifestyle is essential for a healthy life. Physical activity has been known for decades to have protective effects for several chronic diseases, including coronary heart disease, hypertension, noninsulin-dependent [Type 2] diabetes mellitus, osteoporosis, colon cancer, and depression and anxiety. On average, physically active people outlive those who are inactive. Regular physical activity can also help to maintain the functional independence of older adults and enhance the quality of life for people of all ages."[1]

According to data obtained from the Behavioral Risk Factor Surveillance System (BRFSS), 64.5% of Kentuckians reported either no leisure-time activity or activity less than three times per week or less than 20 minutes per session in 1997.[2] Although the prevalence of sedentary lifestyle, or lack of activity, dropped by almost 7 percent between 1996 and 1997, there had been little improvement in this risk factor prior to that time (Fig. A).

The 1997 data show that the prevalence of sedentary lifestyle generally increased with age for both males and females (Fig. B). This is an especially discouraging finding since well over one-half of persons (58.2% of males and 62.8% of females) in the youngest age group, 18-24, reported a sedentary lifestyle.

Overweight

One becomes overweight when too few calories are used and too many consumed for individual metabolic requirements. Being overweight is associated with elevated serum cholesterol levels, elevated blood pressure, and Type 2 diabetes. Also, the condition is an independent risk factor for coronary heart disease.[3]

Overweight is defined by body mass index (BMI), a ratio of height divided by weight squared. Females with a BMI greater than or equal to 27.3, and males with a BMI greater than or equal to 27.8 are considered overweight.

In 1997, the BRFSS found that 34.7% of adult Kentuckians were considered overweight. Over 35 percent (35.6%) of adults 18-64 were considered overweight, compared to the US median prevalence of 31.1%. Compared to other states, Kentucky's prevalence was second only to West Virginia's.[2]

The prevalence of overweight in Kentucky has been steadily increasing (Fig. C). Just since 1991, the proportion of overweight adults has increased from one in four to over one in three, an increase of 35 percent.

In 1997, the prevalence for blacks was 46.5%, 38 percent greater than the prevalence for whites.

Males tended to be more overweight than females through age 54, but females 55-74 had a higher prevalence than males. By age and sex, the highest prevalence (43.7%) was found among females aged 55-64 (Fig. D).

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[1]National Center for Health Statistics. *Healthy People 2000 Review, 1998-99*. Hyattsville, Maryland: Public Health Service. 1999:29.
[2]CDC. *1997 BRFSS Summary Prevalence Report*. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service. 1998.
[3]Kentucky Department for Public Health. Health Behavior Trends, Kentucky Lifestyles 1994-1996. Frankfort, Kentucky. November 1997:10.

Figure A. Prevalence of Sedentary Lifestyle 1991-1997

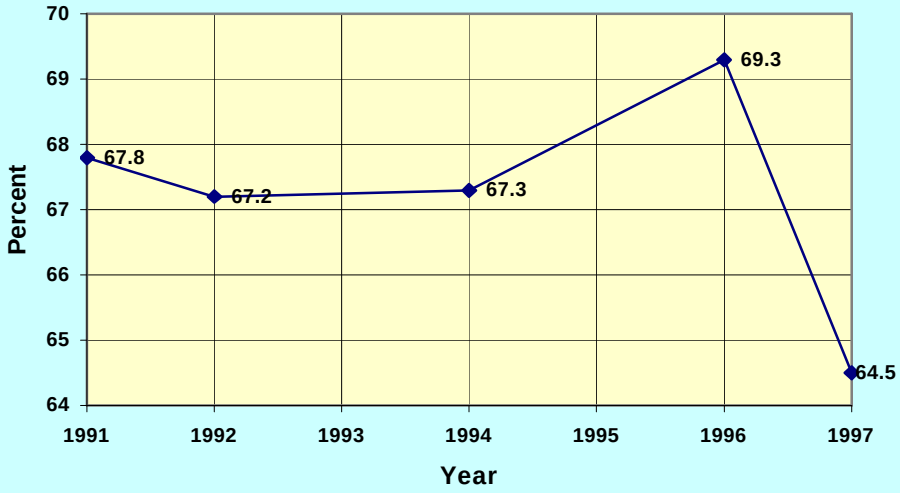


Figure C. Prevalence of Overweight 1991-1997

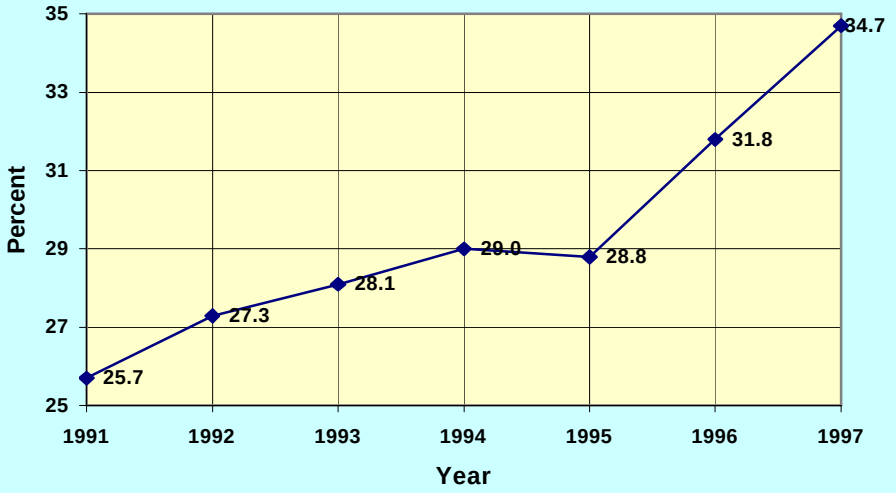


Figure B. Prevalence of Sedentary Lifestyle by Age Group and Sex, 1997

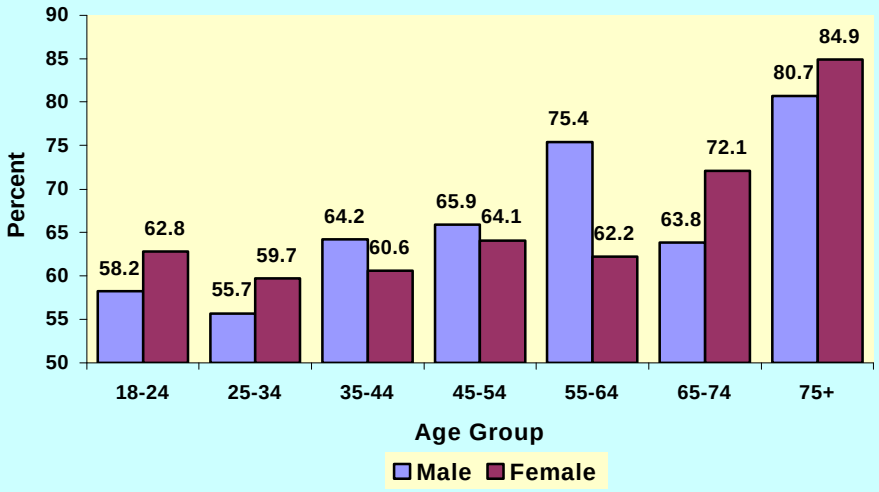
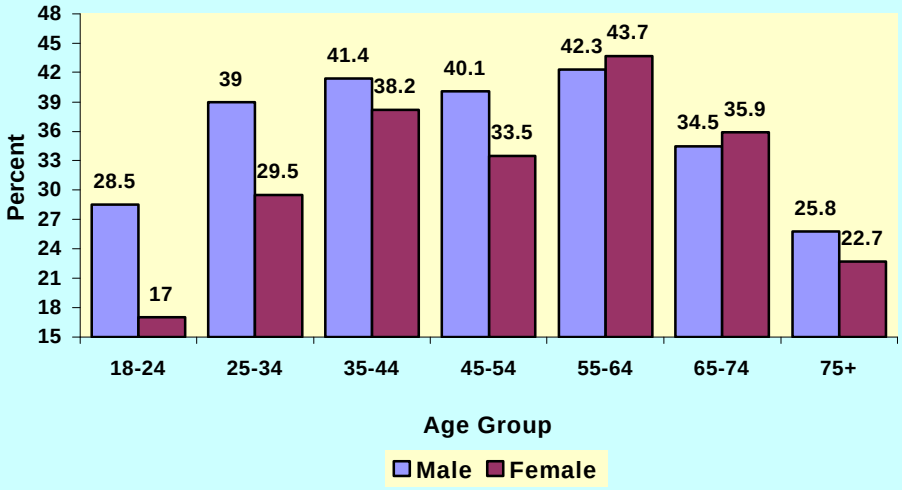


Figure D. Prevalence of Overweight by Age Group and Sex, 1997



YOUTH RISK BEHAVIOR: TOBACCO USE

Priority health-risk behaviors, which contribute to the leading causes of mortality and morbidity among youth and adults, often are established during youth and extend into adulthood.[1] To monitor these behaviors among youth and young adults, CDC developed the Youth Risk Behavior Surveillance System (YRBSS), a series of school-based surveys of high school students. One of the priority behaviors monitored is youth tobacco use.

Smoking has been identified as a cause of heart disease, cancer, stroke, and chronic obstructive pulmonary disease, and has been related to poor academic performance and the use of alcohol and other drugs.[2]

Figure A compares cigarette use among U.S. and Kentucky students from the 1993 and 1997 surveys. Kentucky students were more likely than total U.S. students to have smoked cigarettes on one or more days of the 30 days preceding the survey, i.e., "current cigarette use," in both survey years.[1] Likewise, Kentucky exceeded the U.S. in the percent of "frequent cigarette use," smoking cigarettes on 20 or more of the 30 days preceding the survey. Finally, Kentucky students also exceeded the U.S. in "lifetime cigarette use," the percent of students "who had ever tried cigarette smoking (even one or two puffs)." Not only did Kentucky students exceed the nation in these measures, but a comparison of the two years indicates that the prevalence of these behaviors is increasing nationally and in Kentucky.

A comparison of these same behaviors between Kentucky male and female students in the two survey years indicates that males were more likely than females to report these behaviors, and that the prevalence of these behaviors increased between 1993 and 1997 in both sexes (Fig. C).

State-specific data by race were not included in the CDC report, but nationally, white students were more likely than black students to report both current and frequent cigarette use, but there was no significant difference between the races in lifetime use.

Kentucky 12th graders were more likely than students in other grades to have reported that they had ever smoked a whole cigarette (Fig. B). However, 9th and 10th graders were more likely than 11th graders to have reported this behavior, and males in the 9th and 10th grade reported a higher prevalence than females.

In 1997, 15.6% of Kentucky students reported that they had used chewing tobacco or snuff on one or more of the 30 days preceding the survey (Fig. D).[3] Males were ten times more likely than females to have reported this behavior (28.6% to 2.3%, respectively). Nationally, whites were over five times more likely than blacks to have reported chewing tobacco.[1]

The increasing prevalence of tobacco use among Kentucky's youth should be cause for alarm. These data support the urgent need to focus smoking education and cessation efforts among younger persons before the onset of chronic disease associated with smoking.

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[1]Centers for Disease Control and Prevention. *CDC Surveillance Summaries*, March 24, 1995. MMWR 1995;44(No. SS-1) *and* August 14, 1998. MMWR 1998;47(No. SS-3).
[2]Johnson LD, O'Malley PM, Bachman JG. *National Trends in Drug Use and Related Factors among American High School Stuudents and Young Adults, 1975-1986*. DHHS Pub. No. (ADM)7-1535. National Institute on Drug Abuse.
[3]*1997 Kentucky Youth Risk Behavior Survey Report*. February 1998:24.

Figure A. Youth Cigarette Use Kentucky and U.S., 1993 & 1997

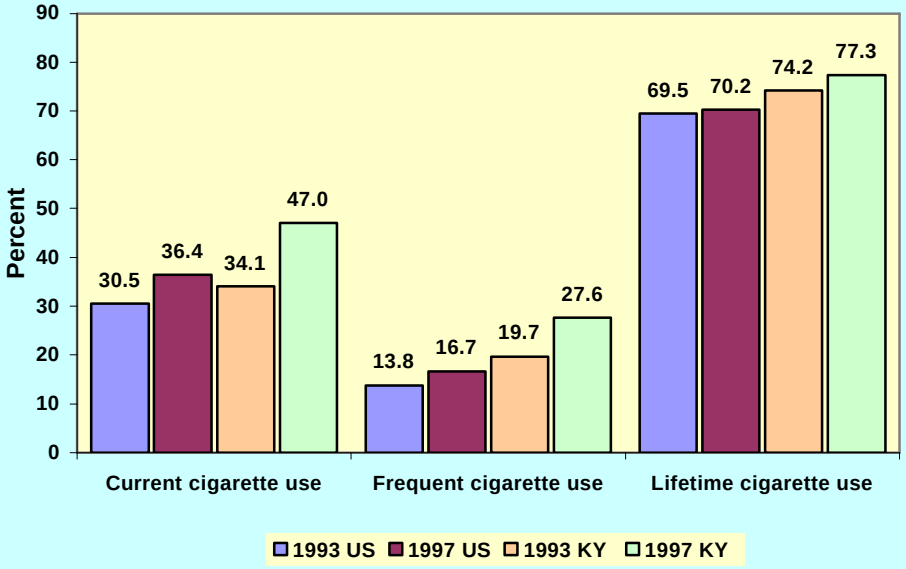


Figure C. Youth Cigarette Use by Sex Kentucky, 1993 & 1997

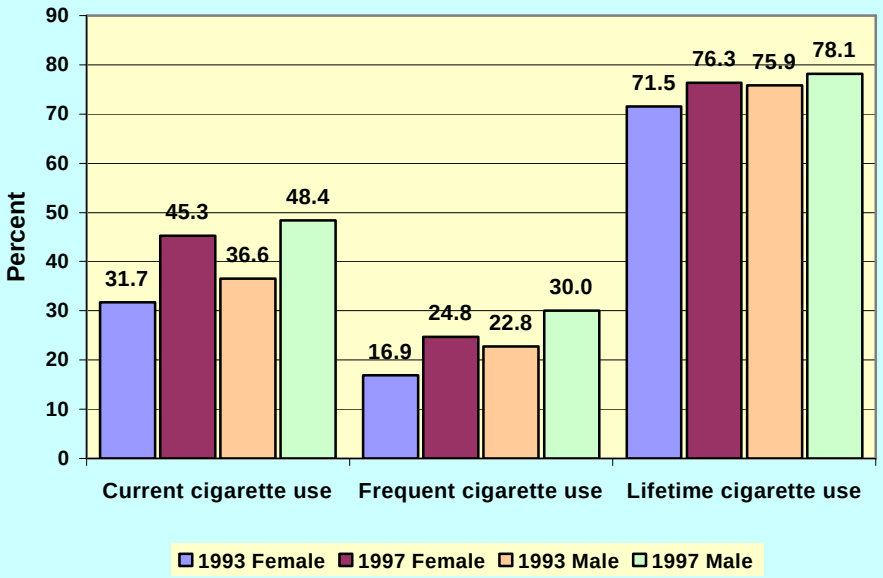


Figure B. Percent of Students Who Have Smoked A Whole Cigarette, By Grade and Sex Kentucky, 1997

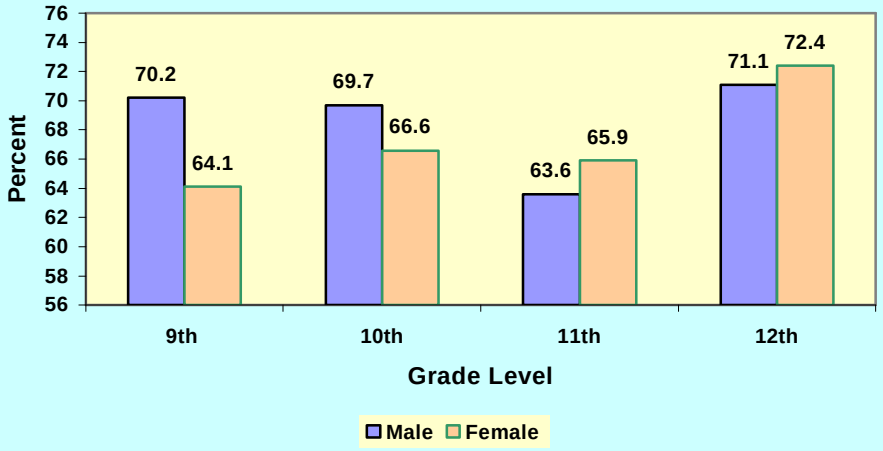
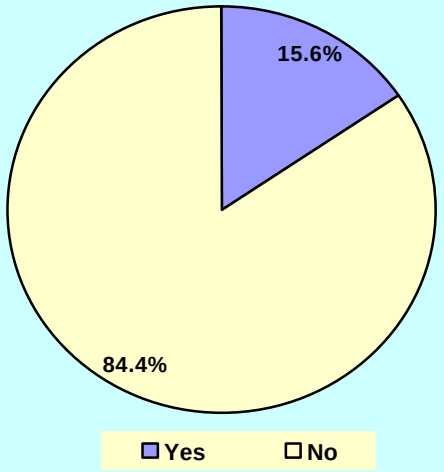


Figure D. Percent of Students Who Used Chewing Tobacco or Snuff on One or More of the Past Thirty Days, 1997



YOUTH RISK BEHAVIORS: WEAPONS AND SUICIDE

Weapons

"Homicide rates increase dramatically in the United States during adolescence from less than one per 100,000 to 13.9 per 100,000 by age 20. Approximately nine out of ten homicide victims in the U.S. are killed with a weapon. The immediate accessibility of a firearm or other lethal weapon is often a factor."[1] One of the priority behaviors monitored by the Youth Risk Behavior Surveillance System (YRBSS) is the prevalence of weapon carrying by youth.

Figure A compares weapon carrying among U.S. and Kentucky students from the 1993 and 1997 surveys. Kentucky students were more likely than total U.S. students to have carried a weapon (e.g., a gun, knife, or club) on one or more of the 30 days preceding the survey in both survey years.[2] Likewise, Kentucky exceeded the U.S. in the percent of students who carried a gun and in the percent of students who carried a weapon on school property.[2] In addition, data show that the prevalence of these behaviors is increasing. However, Kentucky's percentage of students threatened or injured with a weapon on school property was lower than the U.S. percentage in both survey years.

A comparison of these same behaviors between Kentucky male and female students in the two survey years indicates that males were much more likely than females to report weapon carrying behavior, and with the exception of carrying a weapon on school property, the prevalence of these behaviors has either decreased or remained stable (Fig. C).

State-specific data by race were not included in the CDC report, but nationally, black students were more likely than whites to report weapon carrying behaviors.

Suicide

"Suicide is the third leading cause of death among U.S. youth aged 15-24. The suicide rate among U.S. youth aged 15-24 has tripled since 1950."[1] In Kentucky in 1997, there were 58 suicides among youth aged 15-24 for a rate of 10.1 per 100,000.

Figure B compares suicide behaviors among U.S. and Kentucky students from the 1993 and 1997 YRBSS. Kentucky students were slightly more likely than total U.S. students to have reported that they had either attempted or seriously considered suicide in both survey years.[2] However, data also indicate that both behaviors decreased in prevalence from 1993 to 1997 both nationally and in Kentucky.

A comparison of these same behaviors between Kentucky male and female students in the two survey years indicates that females were more likely than males to report that they had either attempted or seriously considered suicide. With the exception of a slight increase in the percent of males who have attempted suicide, the prevalence of these behaviors decreased considerably from 1993 to 1997 (Fig. D).

Although the decrease in the prevalence of considered and attempted suicide is encouraging, the problem of youth suicide remains a serious and complex societal issue.

---

[1] *1997 Kentucky Youth Risk Behavior Survey Report*. February 1998:7.

[2] Centers for Disease Control and Prevention. *CDC Surveillance Summaries*, March 24, 1995. MMWR 1995;44(No. SS-1) *and* August 14, 1998. MMWR 1998;47(No. SS-3).

Figure A. Youth Weapon Activity
Kentucky and U.S., 1993 & 1997

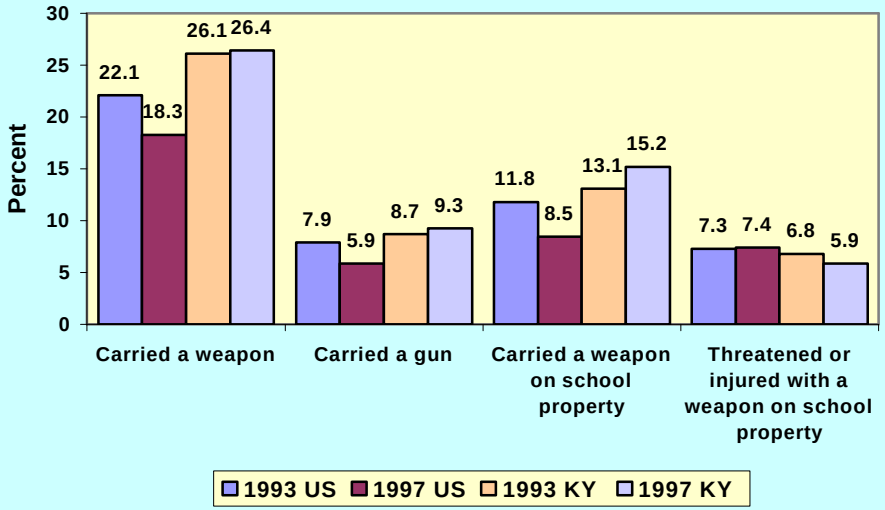


Figure B. Youth Suicide Behavior
Kentucky and U.S., 1993 & 1997

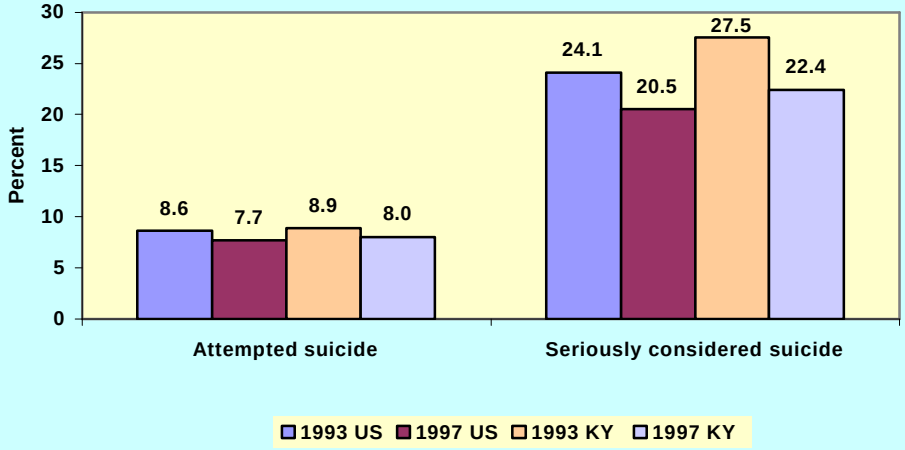


Figure C. Youth Weapon Activity by Sex
Kentucky, 1993 & 1997

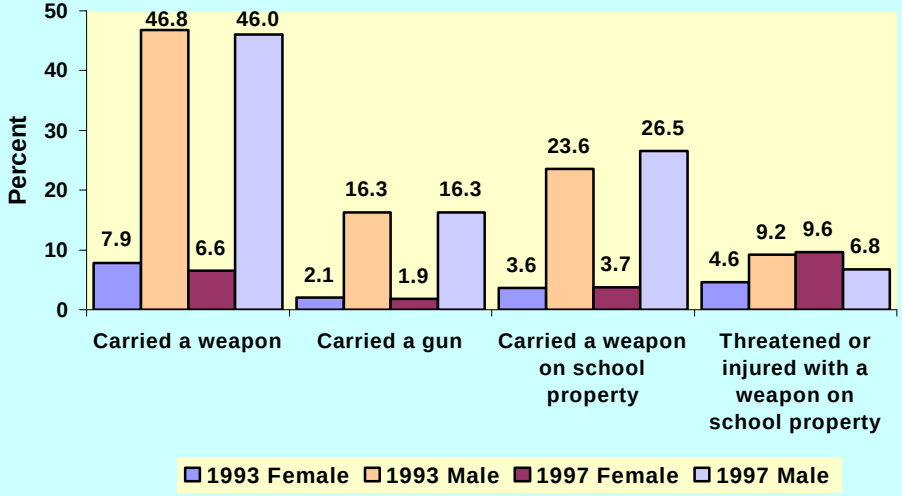
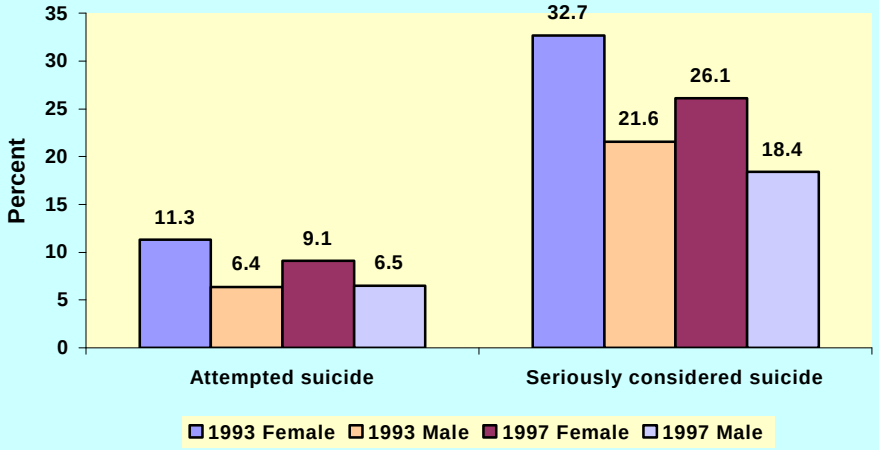


Figure D. Youth Suicide Behavior by Sex
Kentucky, 1993 & 1997



YOUTH RISK BEHAVIORS: SEXUAL BEHAVIOR

"Early sexual activity is associated with unwanted pregnancy and sexually transmitted diseases (STDs), including HIV infection, and negative effects on social and psychological development. Number of sexual partners and age at first intercourse are associated with STD. Of the 12 million new cases of STD per year in the U.S., 86% are among people aged 15-29. STD may result in infertility and facilitation of HIV transmission, and may have an adverse effect on pregnancy outcome and maternal and child health."[1] One of the priority behaviors monitored by the Youth Risk Behavior Surveillance System (YRBSS) is the prevalence of sexual behavior among youth.

Figure A compares sexual activity among U.S. and Kentucky students from the 1993 and 1997 surveys. Kentucky students were more likely than total U.S. students to have reported that they had had sexual intercourse during the 3 months preceding the survey (i.e., "currently sexually active") in both survey years.[2] In 1993, the percentage of Kentucky students who had ever had sexual intercourse in their lifetime was slightly less than the U.S. percentage, but the 1997 percentage (53.7%) exceeded that of the U.S. The percentage of Kentucky students reporting that they had had sexual intercourse in their lifetime with four or more sex partners also exceeded the U.S. percentage in both survey years. However, the percentage of Kentucky students reporting that they are currently sexually active and the percentage who reported they have had more than one sex partner both decreased from 1993 to 1997.

A comparison of these same behaviors between Kentucky male and female students in the two survey years indicates that males were more likely than females to report that they had ever had sexual intercourse and that they had had four or more sex partners.[2] There was little difference in the percentages reporting that they were currently sexually active (Fig. C).

State-specific data by race were not included in the CDC report, but nationally, black students were significantly more likely than whites to report these behaviors.

Figure B shows the 1997 percentage of Kentucky students reporting at what age they had their first sexual intercourse.[1] A higher percentage of males than females reported having had their first sexual intercourse before age 14. Overall, 15.5% of students reported having had their first sexual intercourse before age 14.

Figure D shows the percentage of students reporting that they have had sexual intercourse by grade level. Over one-half of 9th grade males and one-third of 9th grade females reported having had sexual intercourse in their lifetime. Three-quarters of 12th grade males reported having had sexual intercourse.[1]

The 1997 survey also indicated that 5.8% of all Kentucky high school females reported that they have been pregnant at least once, and 9.7% of 12th grade females reported so.

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[1] *1997 Kentucky Youth Risk Behavior Survey Report*. February 1998:29.
[2] Centers for Disease Control and Prevention. *CDC Surveillance Summaries*, March 24, 1995. MMWR 1995;44(No. SS-1) *and* August 14, 1998. MMWR 1998;47(No. SS-3).

Figure A. Youth Sexual Behavior Kentucky and U.S., 1993 & 1997

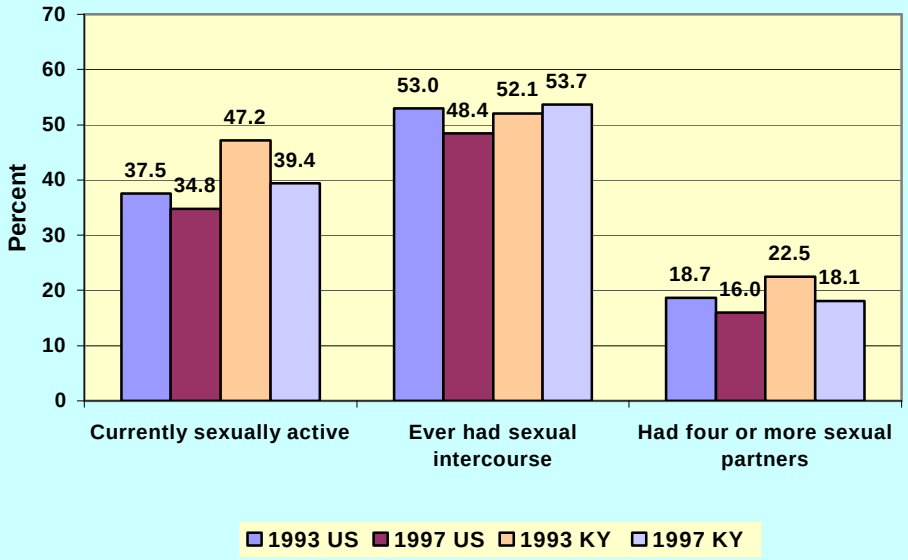
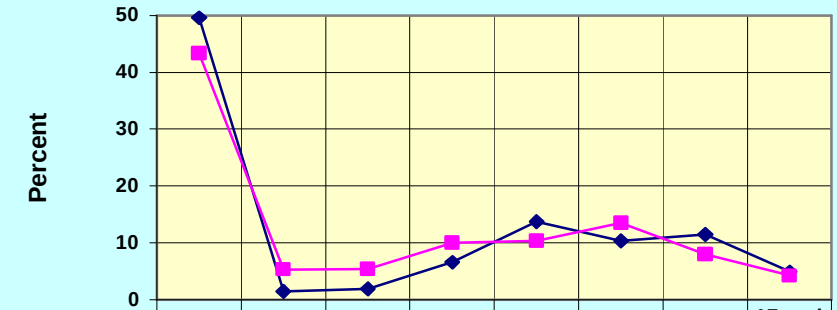


Figure B. Age at Which Students Had Their First Sexual Intercourse by Sex, Kentucky, 1997



	Never	<11	12	13	14	15	16	17 and Older
Female	49.6	1.5	1.9	6.6	13.7	10.3	11.5	4.9
Male	43.3	5.3	5.4	10	10.3	13.5	8	4.2

Figure C. Youth Sexual Behavior by Sex Kentucky, 1993 & 1997

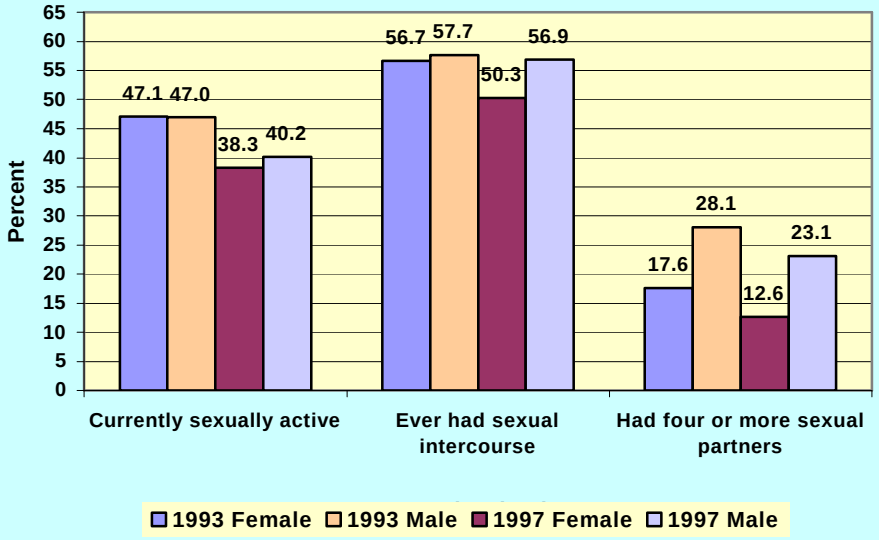
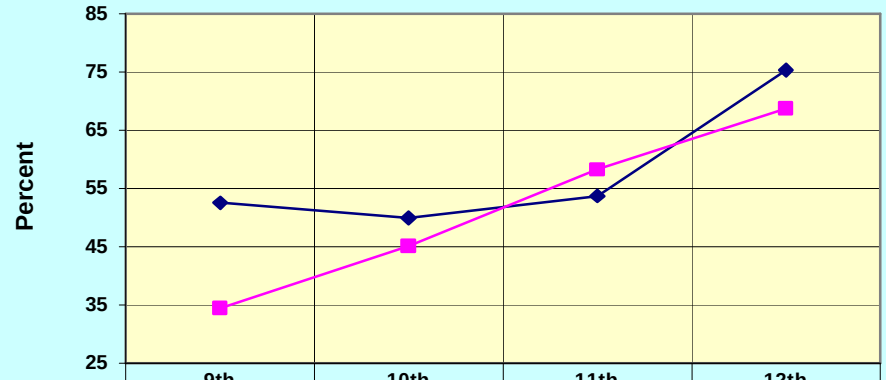


Figure D. Percent of Students Who Have Had Sexual Intercourse by Grade Level, 1997



	9th	10th	11th	12th
Male	52.5	49.9	53.7	75.3
Female	34.4	45.1	58.2	68.7

SOCIOECONOMIC STATUS

Several measures of health status and health care utilization have indicated that children from lower socioeconomic status (SES) families had worse health status and more risk factors for poor health while having less adequate access to and utilization of health services. Studies have shown that lack of early prenatal care, smoking during pregnancy, adolescent childbearing, low birthweight, and infant mortality are all more common among mothers of lower socioeconomic status.[1] These data illustrate the importance of addressing both overall socioeconomic status and inequities in socioeconomic status for the future of the public's health.

Percentage of children living in poverty

Childhood poverty, as measured by the proportion of children under 18 years of age living in families at or below the poverty level, was included in CDC's consensus set of health status indicators because "this is an indicator of global risk factors which also has implications for access to preventive services."[2] This indicator is just one of several that relate health status to socioeconomic status.

One in four (25.5%) Kentucky children under the age of 18 lived in families at or below the federal poverty level ($16,036 for a family of four[3]) in 1996. The percentage for the nation as a whole was 20.5%. Kentucky's rate was the eighth highest among the 50 states and the District of Columbia.[4]

The percentage of children in poverty in Kentucky has decreased by 9.3 percent since 1993, but it is still higher than the 1989 figure of 24.8% (Fig. A).

Figure C shows the distribution by county of the percent of children under 18 living at or below the poverty level in 1995.

Median household income

"Income is the most common measure of socioeconomic status, and is probably the most relevant to health policy formulation. … Income may be related to health because it increases access to medical care, enables one to live in better neighborhoods and afford better housing, and increases the opportunity to engage in health-promoting behaviors."[5]

A commonly used, comparable measure of income is median household income. The median household income in Kentucky was $30,418 in 1996 (Fig. B), 85.7% of the U.S. median, and 42nd among the 50 states and the District of Columbia.[4] However, Kentucky's median income has increased by 35 percent since 1989, almost twice the national increase of 18.1 percent. In 1989, Kentucky's median household income in of $22,534 was only 75% of the U.S. median.

Figure D shows the distribution by county of the percent of children under 18 living at or below the poverty level in 1995. A comparison of Figures C and D strikingly illustrates the strong inverse relationship between median household income and percent of children living in poverty.

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[1]National Center for Health Statistics. *Health, United States, 1998 with Socioeconomic Status and Health Chartbook*. Hyattsville, Maryland: 1998:46-47.
[2]Freedman MA. *Health Status Indicators for the Year 2000*. Statistical notes; vol. 1 no. 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
[3]US Department of Commerce, Bureau of the Census, *Poverty in the United States: 1996*. September 1997:60-198.
[4]Kentucky State Data Center. *Small Area Income and Poverty Estimates – 1996*. http://cbpa.louisville.edu/ksdc/kpr/povest/saipeus96.txt, 12/3/99.
[5]National Center for Health Statistics, op. cit., 24-29.

Figure A. Percentage of Children Under 18 in Poverty, 1989, 1993, 1995 and 1996

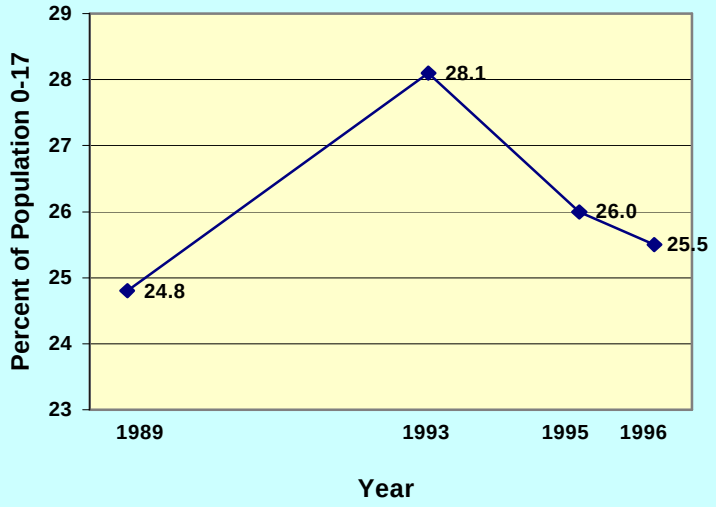


Figure B. Median Household Income, Kentucky and U.S., 1989, 1993, 1995 and 1996

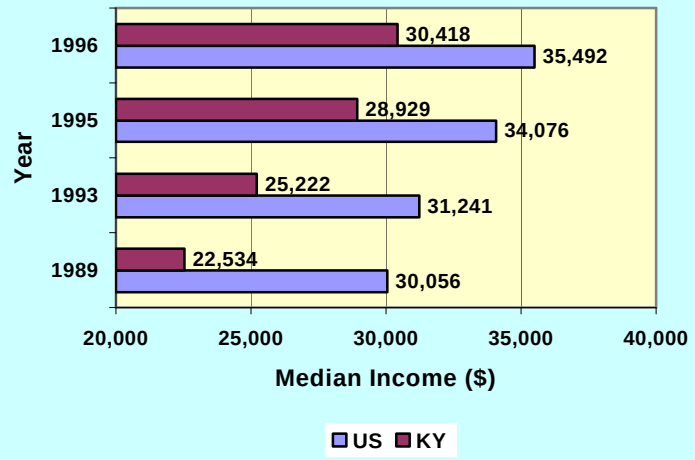


Figure C. Percent of Children Under 18 Living in Families At or Below Poverty Level, 1995

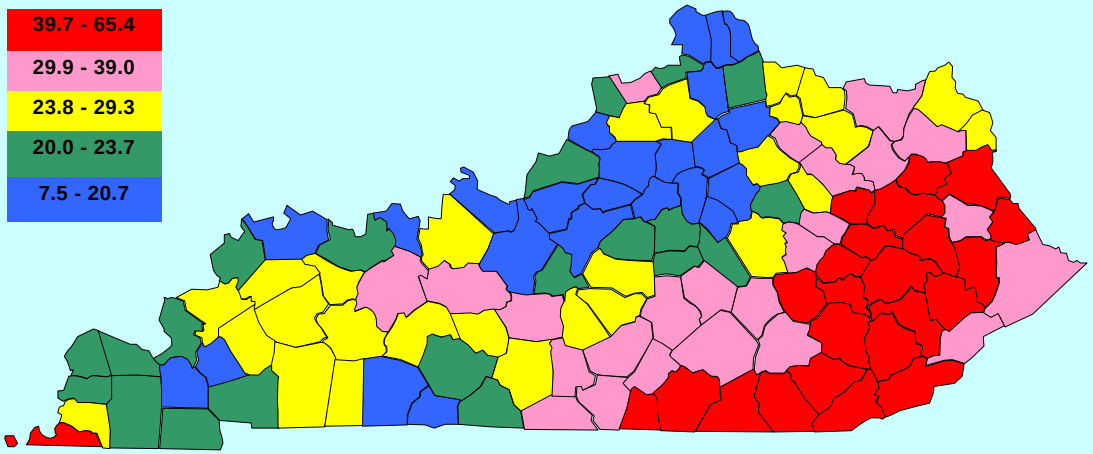
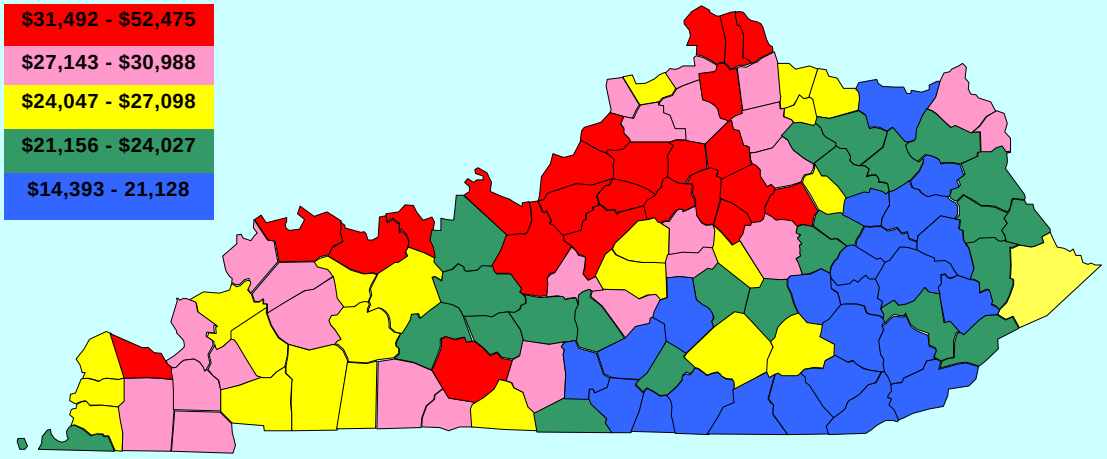


Figure D. Median Household Income, 1995



TECHNICAL NOTES

Age-adjusted death rate: The hypothetical death rate that would have occurred if the age-specific rates in the population being observed were present in a population whose age distribution were that of a standard population. Statistically, it is the weighted average of the age-specific death rates, where the weights represent the fixed population proportions by age. The age-adjusted death rate is used to indicate the relative risk of dying among different populations by relating them to a standard population. By removing the influence of the age composition, the age-adjusted rate allows for valid comparisons between different populations.

With the exceptions noted below, all age-adjusted death rates in this report are per 100,000 population and are adjusted by the direct method to the 1940 U.S. standard population using 11 age groups. Cancer incidence rates and lung cancer and female breast cancer death rates have been adjusted to the 1970 U.S. standard population, following the practice of the National Cancer Institute.

Average annual rate: In this report, average annual rates are computed by dividing the 3-year (1995-1997) mean of the number of events by the mid-period (1996) population estimates provided by the Urban Studies Institute at the University of Louisville.

Behavioral Risk Factor Surveillance System (BRFSS): An ongoing program conducted by the Kentucky Department for Public Health in cooperation with CDC. The survey is designed to collect data on and to monitor prevalence of health risk factors which contribute to disability and premature death in adult (age 18 and older) Kentuckians.

The BRFSS uses a standardized core questionnaire and interview protocol developed jointly by CDC and participating states, and utilizes a cluster sampling design based on a random-digit dialing technique. Weighting factors are used to compensate for sampling bias and to provide a more representative population-based estimate of risk factor prevalence. BRFSS samples yield estimates for the state as a whole with a margin or error of +/-2.5% with a 95% confidence interval. The standardized protocol and weighting adjustments allow CDC to make valid comparisons among the states.

Cause of death: The underlying cause determined by using death certificate information and established nosological rules. The underlying cause is defined as that cause deemed responsible for the sequence of morbid events leading directly to death. All causes of death in this report are coded in accordance with the *International Classification of Diseases, Ninth Revision* (ICD-9).

Crude death rate: The total number of deaths divided by the population, usually expressed per 100,000 population. The crude rate relates the number of deaths to the population at risk, and thus indicates the risk of dying in a population. However, since the crude death rate is influenced by the age composition of a population as well as by the number of deaths by age group, the crude rate is not appropriate for comparisons between different populations.

Data sources: Birth and death data were derived from the birth and death certificate statistical files of the Kentucky Vital

TECHNICAL NOTES

Statistics System. Sources of other data are noted in the footnotes of the text.

Incidence: The number of new cases of a disease which occur in a population during a given time period.

Maps: With the exception of cancer incidence rate maps provided by the Kentucky Cancer Registry, maps in this report were produced by dividing the distribution of ranked county rates into quintiles, (approximately) equal numbers of counties in each of five ranges.

Prevalence: The number or proportion of persons in a population who have a particular disease or attribute at a specified point in time or over a specified period of time.

Racial classification: The Urban Studies Institute at the University of Louisville provided 1996 population estimates in two racial categories, African-American (Black) and White (white plus all other non-black races). Consequently, in order to compute accurate rates, events (numerators) were compiled to be compatible with these population groupings (denominators). For this reason and due to limitations of space in this report, Black refers to African-Americans, and White includes all other races.

Years of potential life lost prior to age 75 (YPLL-75): A measure of premature mortality, YPLL-75 is calculated over the age range from birth to 75 years of age using eight age groups. The number of deaths for each age group is multiplied by the years of life lost, calculated as the difference between age 75 years and the midpoint of the age group. Years of potential life lost is then derived by summing years of life lost over all age groups, rounded to the next whole year.

Youth Risk Behavior Surveillance System (YRBSS): A school-based survey of priority health-risk behaviors which contribute to the leading causes of mortality and morbidity among youth and young adults. It includes a national survey conducted by CDC as well as state and local surveys conducted by education and health agencies. State data sets with an overall response rate of at least 60% are weighted to produce a representative sample that can be generalized to all public school students in grades 9-12 in the jurisdiction. The 1997 Kentucky survey data were weighted, but the 1993 data were unweighted.

ACKNOWLEDGMENTS

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Questions about this report or requests for additional information may be addressed to:

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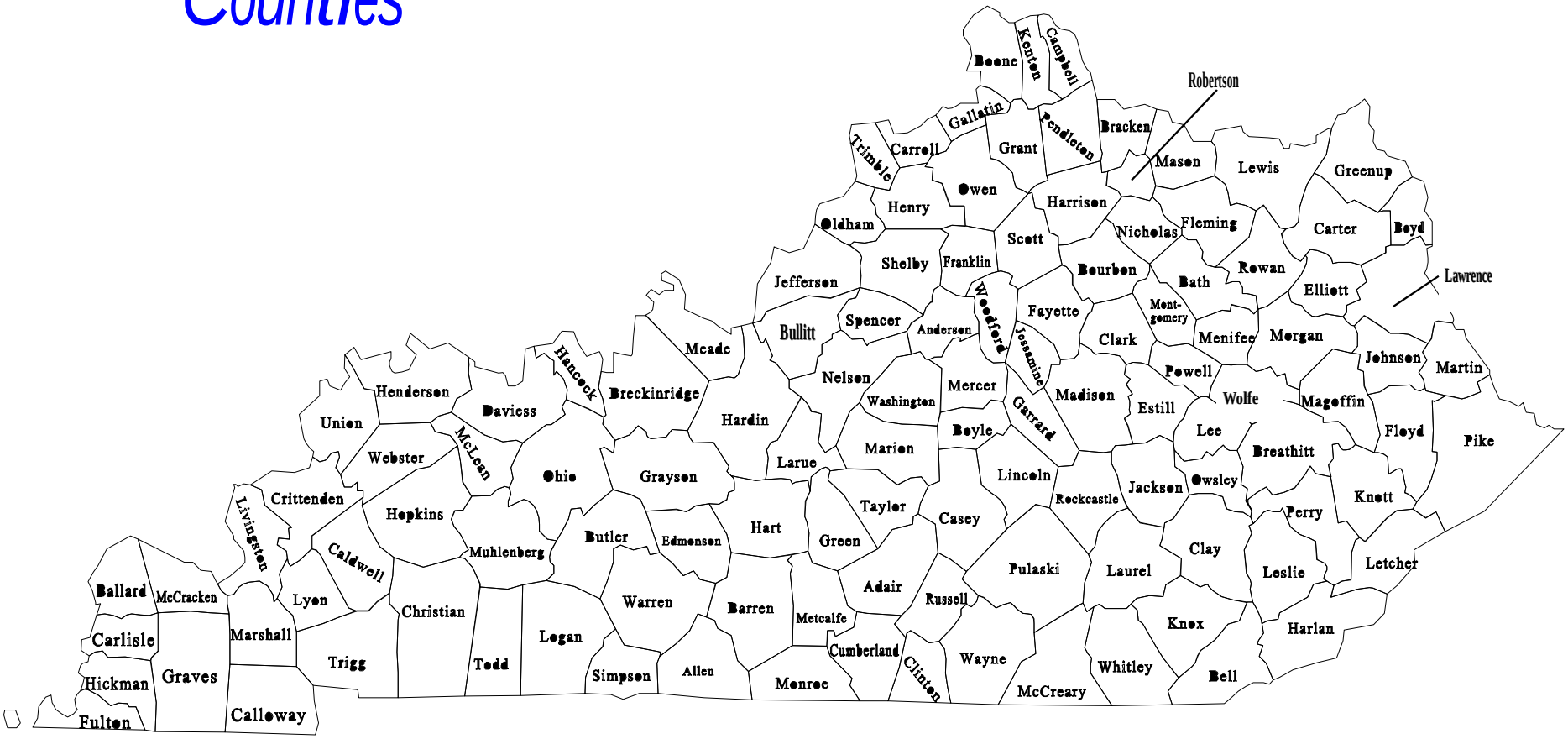
Kentucky Department for Public Health
275 East Main Street, HS1E-C
Frankfort, Kentucky 40621

Phone: 502-564-2757
Fax: 502-564-6533

Kentucky Counties



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