

20. HEART DISEASE AND STROKE

Goal

Enhance the cardiovascular health and quality of life of all Kentuckians through improvement of medical management, prevention and control of risk factors, and promotion of healthy lifestyle behaviors.

Terminology

Heart disease: Cardiovascular or heart disease (CVD) is the leading cause of death and a common cause of morbidity in the United States. Coronary heart disease (CHD) and ischemic heart disease are more specific names for the principal forms of heart disease. These terms are used when there are clinical symptoms, such as angina, from coronary atherosclerosis or narrowing of the arteries. The term coronary artery disease (CAD) is used when there is atherosclerosis in the coronary arteries (arteries that feed the heart muscle) but not symptoms. Atherosclerosis in the coronary arteries is the underlying cause of heart attacks, CHD and CAD. Angina pectoris occurs when atherosclerosis causes reduced blood flow and, therefore too little oxygen, to the heart muscle resulting in chest pain. A myocardial infarction or heart attack occurs when a coronary artery becomes blocked, usually by a blood clot (thrombus), resulting in lack of blood flow to the heart muscle. The part of the heart muscle deprived of oxygen and other nutrients then dies or infarcts. About 1.1 million people in the United States experience a heart attack each year. Nearly 500,000 Americans die from CHD a year with more than half of these deaths occurring outside the hospital, within 1 hour of symptom onset.

Modifying risk factors such as stopping smoking, lowering high blood pressure, lowering cholesterol, losing weight, increasing physical activity, and controlling diabetes has been shown to reduce cardiovascular disease risk.

Stroke: a form of cerebrovascular disease that affects the arteries of the central nervous system, is the third leading cause of death in the United States. A stroke occurs when blood vessels bringing oxygen and nutrients to the brain rupture or become clogged by a blood clot or some other particle. Part of the brain is then deprived of the blood flow it needs so the affected area of the brain cannot function and dies within minutes. The part of the body controlled by these cells cannot function either. Preventing and controlling the same risk factors as for cardiovascular disease can reduce or delay deaths from stroke.

Overview

Cardiovascular disease is the leading cause of death in Kentucky. In 1996, approximately 40 percent of all deaths occurred from heart disease (32 percent) and cerebrovascular disease (7 percent). Approximately 15,000 Kentuckians died from heart disease in 1997. Kentucky is ranked as being the eleventh highest cardiovascular mortality state in the nation. In 1997, the rate of heart disease was reported to be highest for white males in Kentucky with the rate of cerebrovascular disease reported highest for white females.

Many scientific studies show that certain characteristics called risk factors increase the risk of coronary heart disease. The major modifiable risk factors are high blood pressure, high blood cholesterol, cigarette smoking, physical activity, and obesity. Counseling and education by physicians and other health care providers could help to increase awareness about signs and symptoms of a heart attack and to reduce and control factors that increase the risk of a heart attack.

Based on the 1998 Behavioral Risk Factor Surveillance System (BRFSS) data, nearly one-third (31 percent) of adult Kentuckians reported being current smokers in 1998; and Kentucky was ranked as the state with the highest smoking prevalence from 1995- 1997. Smoking prevalence has consistently been higher in men than women while racial differences have shifted such that a greater percentage of whites now smoke when compared to non-whites. Smoking rates are high among all age groups. The 2-year period between 1994 and 1996 saw an increase in smoking for all age groups with the exception of those 35-44. Smoking has shown an alarming increase among 18-24 year olds (21.7 percent in 1994 to 31.6 percent in 1996) and 25-34 year olds (33.8 percent in 1994 to 38.1 percent in 1996), while even the oldest age groups (65-74 and 75+) have seen 3 percent increases in smoking. Smoking rates are very high in Eastern Kentucky to the extent that very few restaurants have no-smoking sections.

Also based on the 1995-1997 BRFSS state composite percentages, 24.4 percent of the respondents reported that a physician had told them that they were hypertensive. In the 1993 Kentucky Health Interview and Examination Survey, 24.7 percent of the sampled population ages 12 and over reported having had hypertension. The prevalence of self-reported hypertension was 50.8 percent in ages 65 and older, 35.8 percent in ages 45-64 years, and 15.8 percent in ages 18-44 years. The prevalence of hypertension was 30.6 percent in men and 32.1 percent in women.

BRFSS defines those who report not engaging regularly in physical activity for at least 20 minutes three or more times per week as having a sedentary lifestyle. The BRFSS state composite percentages for 1996 and 1997 show 67.7 percent of Kentuckians ages 18 and over reporting a sedentary lifestyle. This places the state second in the nation for those that report no leisure time physical activity. The prevalence increased with age, ranging from 50.4 percent in the 18-24 years age group to 85.4 percent in the 75 years and older age group. Slightly more females than males and slightly more whites than blacks

reported a sedentary lifestyle. This risk factor has decreased only 2.9 percent from 1986 to 1996.

The Framingham Study demonstrated a positive correlation between coronary heart disease mortality and morbidity and blood cholesterol levels. The National Heart, Lung and Blood Institute considers a blood cholesterol level below 200mg/dl as desirable. Accordingly, a *Healthy Kentuckians 2000* goal is to increase the proportion of adult Kentuckians who have had their blood cholesterol checked within the preceding five years to at least 70 percent. The BRFSS state composite percentages for 1995-1997 show 61.3 percent of adult Kentuckians meeting this criterion. This is a 0.9 percent increase from the 1994-1996 data. According to the BRFSS summary for 1994-1996, percentages of those tested increased with age. 78.1 percent of those ages 65-74 years reported being tested within the last five years. Consistently, women are more apt to be tested than men, and whites are more apt to be tested than nonwhites.

The 1988 Surgeon General's Report on Nutrition and Health established that overweight is associated with elevated serum cholesterol levels, elevated blood pressure, and noninsulin-dependent diabetes, as well as being an independent risk factor for coronary heart disease. A *Healthy Kentuckians 2000* goal is to reduce those overweight to a prevalence of no more than 18 percent among Kentuckians ages 18 and older. Defining overweight as having a body mass index equal to or greater than 27.8 for men and equal to or greater than 27.3 for women, the 1995-1997 BRFSS reports a prevalence of 31.8 percent among Kentuckians ages 18 and older. This is an increase over the 1994-1996 figure of 29.9 percent, and places Kentucky eighth in the nation for the percentage of the population reporting being overweight. According to the 1994-1996 BRFSS, individuals ages 45-54 years had the highest prevalence of overweight. Males are more likely to be overweight than females, and nonwhites are more likely to be overweight than whites.

Progress Toward Year 2000 Objectives

Of the five cardiovascular objectives, only objective 15.5 was met. Progress has been made on three objectives (15.1, 15.2 and 15.4). The number of people who report high blood pressure may have actually increased, so no progress was made on Objective 15.3.

15.1 To reduce heart disease deaths to no more than 209 per 100,000 people (age-adjusted).

From a 1989 baseline rate of 279.1 deaths per 100,000 population, Kentucky experienced a decline through 1991, followed by an increase in 1992, then another decline through the next two years to 230.4 deaths per 100,000 population in 1994. Data for the year 1997 revealed a crude rate of 314.8 deaths per 100,000 population or an age adjusted rate of 230.1 deaths per 100,000 population. The trend is progressing toward the goal of less than 209 deaths per 100,000 people, (Objective 15.1) at a rough rate of 7 fewer deaths per 100,000 people per year. At the present rate, the target of 209 or fewer deaths per 100,000 people could be

reached. However, 1993 BRFSS data indicated that 88.6 percent of all Kentuckians 18 years or older had at least one risk factor for cardiovascular disease, and 1994 BRFSS results show Kentuckians to be above the national average for the risk behaviors of smoking, hypertension, sedentary lifestyle and obesity.

- 15.2 To reduce cerebrovascular deaths to no more than 36.6 per 100,000 people (age-adjusted).

The Kentucky State Center for Health Statistics data indicate that Kentuckians experienced a steep decline in cerebrovascular deaths, from a baseline rate of 54.6 deaths per 100,000 population in 1989 to approximately 48 deaths per 100,000 in 1991. In the following years, there was a very gradual decline in cerebrovascular deaths to 44.8 deaths per 100,000 population in 1994. Data for 1997 reveals a crude rate of 64.6 deaths per 100,000 population, or an age-adjusted rate of 44.6 per 100,000 people. While progressing toward the goal of no more than 36.6 deaths per 100,000 population (Objective 15.2), recent figures do not suggest that Kentucky will attain the goal by the year 2000.

- 15.3 To decrease to at least 15.0% the people who have ever had to be informed that their blood pressure was high, are on blood pressure medicine, or who indicated their blood pressure is still high.

Based on BRFSS data, the trend for those being diagnosed as hypertensive, those taking medication for hypertension or those reporting having hypertension indicates that Objective 15.3 will not be met. In 1989, 18.5 percent of respondents indicated they had ever been told they were hypertensive. During the years from 1990 to 1993, the percent of respondents indicating they had ever been told they were hypertensive ranged from 22.4 percent to 25.3 percent. In 1993, 26.4 percent of respondents indicated that they take medication for hypertension and 24.7 percent of respondents said they had hypertension. From 1995 through 1997, the percent of respondents indicating they had ever been told they were hypertensive steadily increased from 22 percent to 27 percent.

- 15.4 To increase to at least 75% the proportion of adults who have had their blood cholesterol checked within the preceding five years.

Data from the BRFSS clearly indicates a growing trend toward increasing use of cholesterol screening. Baseline data for the year 1988 shows 46.1 percent of those surveyed had had their cholesterol checked within the preceding five years. In 1993, 61.6 percent of respondents had had their cholesterol checked within the last five years. By 1995, the percent of respondents reporting that they had had cholesterol checks within the past five years had slowly climbed to 66 percent. In 1988, the Division of Laboratory Services of the Department for Health Services performed 1,323 hypertensive profiles, which include total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL), and triglycerides. In

1995, the Division of Laboratory Services performed 1,948 hypertensive profiles and 20,959 additional cholesterol tests. While an increase in the use of cholesterol screening continues, the trend has slowed and the goal of reaching 75 percent of adults having had their cholesterol checked in the last five years (Objective 15.4) is doubtful.

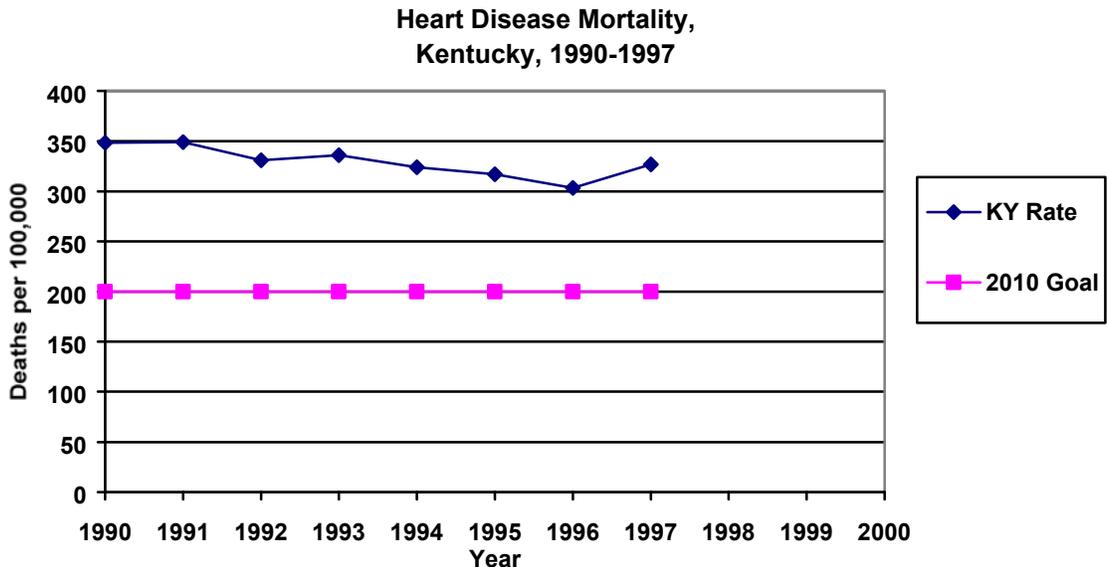
- 15.5 To insure that at least 90 percent of cholesterol test by local health departments (LHD) meet the accuracy level which their cholesterol analyzers are capable of attaining as stated by the manufacturer.

The state administered Method Validation Survey (MVS) records showed 97 percent of the LHD test sites performed satisfactorily, within two standard deviations of the control product mean. Forty-eight percent of those sites performed within 3 percent of the control product mean. CAP-EXCEL Proficiency Test performance was acceptable, at 93 percent.

2010 Objectives

- 20.1. To reduce heart disease deaths to no more than 200 deaths per 100,000 people. (Age-adjusted to the year 2000 standard population.)

Baseline 1997: 316 deaths per 100,000 people, age-adjusted to the year 2000 standard.



Target Setting Method: Adapted from *Healthy Kentuckians 2000* objectives, assuming a continued reduction and reflecting the current rates of ethnicities, sex and aging of the population. It also reflects efforts to eliminate disparities.

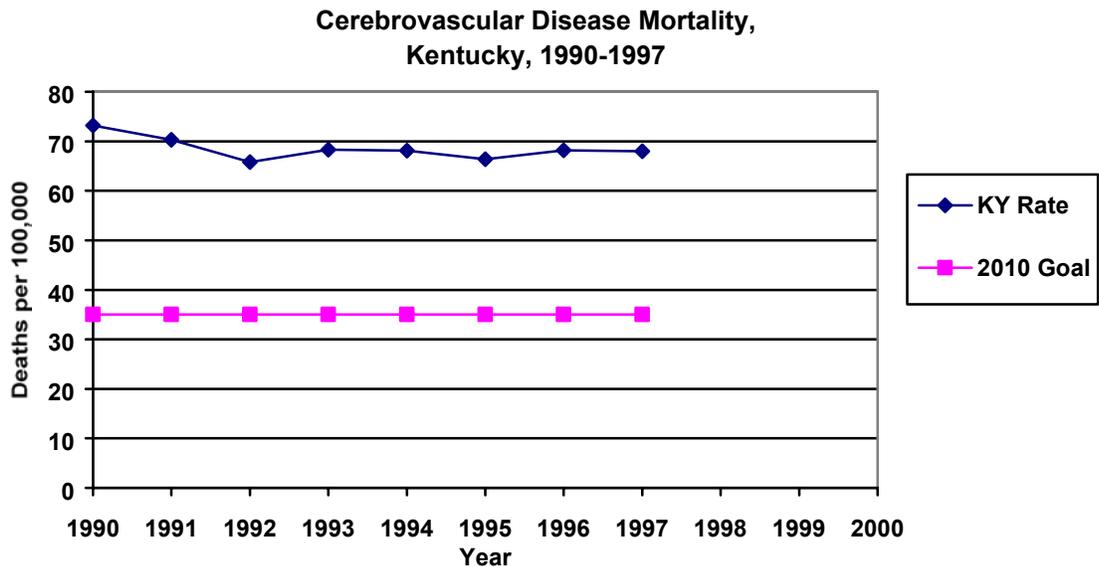
Data Sources: The Kentucky State Center for Health Statistics
Health Data Branch, Department for Public Health

Implementation Strategy:

- Implement the work plan specified in the Kentucky Department for Public Health (KDPH) Cardiovascular Health Program grant application, as funded by the Centers for Disease Control:
- A statewide Cardiovascular Health (CVH) coalition will be assembled, including leaders from both public and private sectors, to help develop and implement a plan to reduce mortality and morbidity from cardiovascular disease in Kentucky, focusing on changes in environment and policy.
- The cardiovascular disease problem in Kentucky and barriers to interventions will be evaluated through joint efforts of the KDPH staff, the CVH Steering Committee, research contracted to the University of Kentucky and assessments conducted by local health departments.
- New partnerships will be formed between the KDPH, other state agencies, and other public and private organizations to promote cardiovascular health.
- The Kentucky Department of Education (KDE) will coordinate with KDPH staff and the CVH Coalition to strengthen and expand their capacity to plan, implement and evaluate strategies that improve cardiovascular health through the KDE Enhanced School Health Project.
- The Jefferson County Health Department will implement a Cardiovascular Health Program aimed at improving the cardiovascular health of the African American community in their county through environmental and policy change.
- Analyze death rate by sex, race and region in order to more accurately target efforts for intervention.
- The American Heart Association will sponsor the American Heart Walk and Jump Rope for Heart in several locations throughout the state.
- The KDE will work through the school nutrition programs to increase students' consumption of fruits and vegetables to five per day.
- The KDE will work with schools and communities to increase moderate to vigorous physical activity to 30 minutes, five times per week.

20.2. To reduce cerebrovascular deaths to no more than 35 deaths per 100,000 people. (Age-adjusted to the year 2000 standard population.)

Baseline 1997: 65 deaths per 100,000 people, age-adjusted to the year 2000 standard.



Target Setting Method: Adapted from *Healthy Kentuckians 2000* objectives, assuming a continued reduction, and reflecting the current rates of ethnicities, sex and aging of the population. The effort to reduce disparities was also considered in setting the target.

Data Sources: The Kentucky State Center for Health Statistics
Health Data Branch, Department for Public Health

Implementation Strategy:

Implement the work plan specified in the KDPH Cardiovascular Health Program grant application, as listed above. Some specific action steps will include:

- Analyze death rate by sex, race and region in order to more accurately target efforts for intervention.
- Partner with the AHA to encourage use of the Stroke Connection and the AHA web site in Kentucky.

20.3. To decrease to at least 20 percent the proportion of adult Kentuckians with high blood pressure.

Baseline 1997: 27 percent of Kentuckians have been informed that their blood pressure is high, are on blood pressure medicine, or have indicated their blood pressure is high.

Target Setting Method: Adapted from *Healthy Kentuckians 2000* objectives, assuming a continued reduction and reflecting the current rates of ethnicities, sex and aging of the population. Efforts to reduce disparities have also been considered.

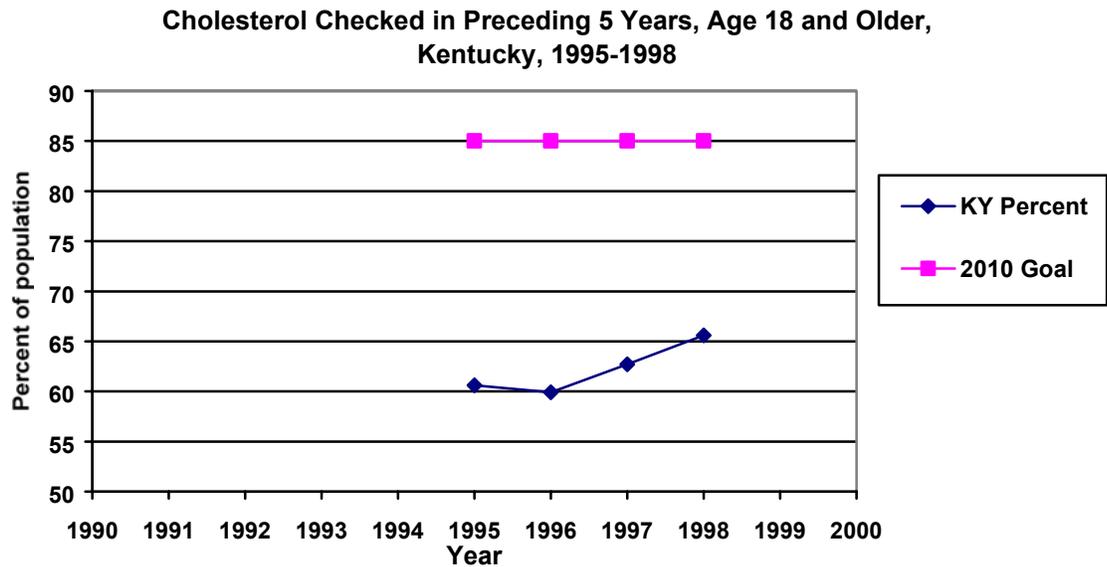
Data Source: BRFSS.

Implementation Strategy:

- Implement the work plan specified in the Cardiovascular Health Program grant application.
- Analyze rate of hypertension by sex, race and region in order to more accurately target efforts for intervention.
- The AHA will implement Search Your Heart, a blood pressure education program in Kentucky churches with large African American congregations.

20.4. To increase to at least 85 percent the proportion of adults who have had their blood cholesterol checked within the preceding five years.

Baseline 1997: 66 percent of adult Kentuckians have had their blood cholesterol checked within the preceding five years.



Target Setting Method: Adapted from *Healthy Kentuckians 2000* objectives, assuming a continued increase and reflecting the fact that the rate of change has slowed within the last four years to one percentage point per year.

Data Source: BRFSS.

Implementation Strategy:

- Analyze screening rates by region, as well as by sex and race, to better target opportunities for improvement.
- Target populations with lowest percentages being tested for intervention through education and increased availability of testing.
- Partner with public and private, for-profit and non-profit related organizations to increase availability of blood cholesterol screening.

20.5. (Developmental) Increase the proportion of Kentucky adults, aged 20 years and over, who are aware of the early warning symptoms and signs of heart attack and importance of accessing rapid emergency care by calling 911.

Potential Data Sources: Kentucky Emergency Medical Services Run Form Data, AHA

Implementation Strategy:

- Determine a baseline percentage of Kentuckians who recognize the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911. One indicator of this might be the percentage of heart attack ambulance runs in which the ambulance service was contacted prior to collapse. The AHA program, Operation Heartbeat, may also provide some useful data for developing this baseline.
- From the baseline data, develop a percentage goal for improvement.
- Analyze the baseline data by sex, race and region to better target opportunities for improvement.
- Target populations with the lowest percentages for intervention through education.
- Partner with public and private, profit and nonprofit organizations to increase education about early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.

As noted in the *Healthy People 2010* Objectives, the importance of time in treating a heart attack cannot be overemphasized. Treatment with clot-dissolving agents restores blood flow to the coronary artery. The sooner these drugs are given when someone is having a heart attack, the better the outcome following a heart attack. Assuring the public is aware of the symptoms of heart attack and the importance of calling 911 for rapid treatment may, therefore, significantly reduce deaths and improve quality of life following heart attack. BRFSS data show that Kentuckians over 65 years of age have the highest prevalence of hypertension and sedentary lifestyle and high prevalence of other risk factors for heart disease. An aging Kentucky population means a greater percentage of Kentucky population at high risk for heart attack. Rapid recognition of symptoms and immediate access to treatment may provide the most effective means of reducing heart disease deaths in the immediate future.

20.6. (Developmental) Increase to 75 percent the proportion of females who are aware that cardiovascular disease (heart disease and stroke) is the leading cause of death for all females.

Target Setting Method: National Average from *Healthy People 2010*.

Potential Data Source: Presently no statewide data concerning awareness of the prevalence of cardiovascular disease are being collected. A question may be added to the BRFSS.

Implementation Strategy:

- Develop a procedure for determining the percentage of adult Kentucky females who are aware that cardiovascular disease is the leading cause of death for all females.
- Determine a baseline percentage for use in measuring progress.
- Analyze data by race and region to better target opportunities for improvement.
- Target populations with the lowest percentages for intervention through education.
- Partner with public and private, profit and nonprofit organizations to provide education to target populations.

Healthy People 2010 reports that heart disease and stroke combined are the leading cause of death for all females. While heart disease mortality is higher in males than in females, heart disease is still the leading cause of death for postmenopausal women. Further, women have poorer outcomes after a myocardial infarction than men. A larger number of women than men die within a year after a myocardial infarction. Women are more apt to have coexisting conditions such as diabetes, and procedure-related complications are more frequent in women than in men after coronary intervention with new devices. Clearly, the greatest indicator for surviving cardiovascular disease among women is prevention. Awareness of cardiovascular disease as a threat plays a vital role in prevention.

There are no baseline data for awareness of the prevalence of cardiovascular disease among women in Kentucky. The BRFSS data, however, clearly indicate that women in Kentucky are at risk for cardiovascular disease. While the general population of Kentucky is above the national average for the CVD risk factors of smoking, hypertension, sedentary lifestyle and obesity, Kentucky women are more likely than Kentucky men to have high blood pressure and high blood cholesterol and are more apt to have a sedentary lifestyle. In order to encourage women in Kentucky to control risk factors and reduce the threat of cardiovascular disease, it is imperative that they be made aware of its prevalence.

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