

Kansas Cardiovascular Health State Plan



October 2006





Kansas Cardiovascular Health Plan

Published October 2006

Kathleen Sebelius, Governor

Roderick L. Bremby, Secretary
Kansas Department of Health and Environment

Howard Rodenberg, MD, MPH, Director
Kansas Department of Health and Environment
Division of Health



This publication was supported by Cooperative Agreement Number U50/CCU721289-05 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.



ACKNOWLEDGEMENTS

The *Kansas Cardiovascular Health Plan 2006 – 2010* was created by the Cardiovascular Disease Advisory Council of the Kansas Heart Disease and Stroke Prevention Coalition and the Kansas State Stroke Task Force. The council has representation from health systems, professional societies and associations, community-based organizations, private industry, state agencies, academic institutions, health foundations, voluntary non-profit organizations, and those living with cardiovascular disease. This plan represents two years of work from a group of individuals who are dedicated to reducing the burden of cardiovascular disease in Kansas. The Kansas Department of Health and Environment facilitated the meetings of each workgroup and compiled the information provided by the workgroups for this statewide plan.

For more information about the plan or to receive additional copies, contact:

Kansas Heart Disease and Stroke Prevention Program
Office of Health Promotion
Kansas Department of Health and Environment
1000 SW Jackson, Suite 230
Topeka, KS 66612
Phone: (785) 296-3921
Fax: (785) 296-8059



KANSAS

OFFICE OF THE GOVERNOR

KATHLEEN SEBELIUS, GOVERNOR

Dear Fellow Kansans,

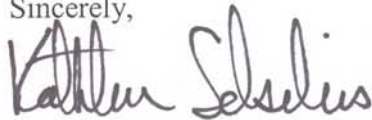
Cardiovascular disease has touched nearly all of our lives. You may have a neighbor, friend, church member or associate who has battled with this illness. Perhaps heart disease or stroke has hit much closer to home for you with a relative, spouse or child affected by the disease. You yourself may be living with heart disease or the effects of a stroke.

The reality is that one out of three deaths in Kansas is due to cardiovascular disease. Despite slight declines in recent years, this disease remains the leading cause of death and disability among Kansans. Heart disease, stroke and related conditions kill 9,000 of our fellow Kansans each year.

The good news is that heart disease and stroke are largely preventable. Adopting a healthy lifestyle, making healthy food choices, being physically active, abstaining from tobacco, and controlling weight, blood pressure, blood cholesterol and diabetes can reduce your chances of developing cardiovascular disease.

The Kansas Cardiovascular Health Plan was created through collaborative efforts between health professionals in public and community health programs, state and local health departments, non-profit organizations, and other organizations dedicated to the improvement of the health of all Kansans. Using this document as a guide, all Kansans have the opportunity to decrease the burden of heart disease and stroke in our state. By working together, we can reduce the incidence of risk factors and ultimately have a positive impact on cardiovascular health.

Sincerely,



Kathleen Sebelius
Governor

Capitol, 300 SW 10th Ave., Ste. 212S, Topeka, KS 66612-1590

Voice 785-296-3232

Fax 785-296-7973

www.ksgovernor.org

governor@state.ks.us

TABLE OF CONTENTS

SECTION I:	5
BACKGROUND AND NEED	5
INTRODUCTION.....	6
HISTORY	6
VISION.....	7
GOALS.....	7
FRAMEWORK OF THE PLAN.....	7
THE BURDEN OF HEART DISEASE AND STROKE IN KANSAS.....	9
ASSETS AND BARRIERS.....	20
SECTION II:	22
PREVENTION AND MANAGEMENT INTERVENTIONS FOR HEART DISEASE AND STROKE IN KANSAS	22
PRIMORDIAL PREVENTION.....	24
PRIMARY PREVENTION.....	29
SECONDARY PREVENTION.....	37
TERTIARY PREVENTION	47
DATA AND SURVEILLANCE, PROGRAM EVALUATION AND RESEARCH..	52
SECTION III:	55
MEASUREMENT AND EVALUATION	55
OUTLINE OF MEASURES FOR EVALUATION OF GOALS/OBJECTIVES OF KANSAS CARDIOVASCULAR HEALTH PLAN.....	56
SECTION IV:	59
APPENDICES	59
APPENDIX 1: REFERENCES	60
APPENDIX 2: GLOSSARY	61
APPENDIX 3: ACRONYMS	66
APPENDIX 4A: GET WITH THE GUIDELINES	67
APPENDIX 4B: WORKSITE WELLNESS	67
APPENDIX 4C: MISSION POSSIBLE	68
APPENDIX 4D: GO RED FOR WOMEN AND THE HEART TRUTH CAMPAIGN	68
APPENDIX 5: JNC 7	69
APPENDIX 6: ATP GUIDELINES	71
APPENDIX 7: PARTNER LIST	77
APPENDIX 8: ORGANIZATIONAL CHART	79
APPENDIX 9: STATE STROKE SYSTEMS OF CARE	80
APPENDIX 10: TIMELINE	82

FOREWORD

The Kansas Cardiovascular Health Plan outlines a comprehensive approach for reducing the burden of heart disease and stroke, leading causes of death in Kansas and the nation. This document reflects the commitment and dedication of more than 30 organizations, programs, and associations who came together to develop effective strategies for the prevention and control of cardiovascular disease in Kansas.

Cardiovascular disease (CVD) is defined as all diseases of the heart and blood vessels, including ischemic heart disease, hypertensive heart disease, cerebrovascular disease (stroke), congestive heart failure, atherosclerosis, diseases of the veins, and rheumatic heart disease. Coronary Heart Disease and stroke have remained the primary causes of death for Kansans, accounting for almost 25% of all deaths in 2003. The good news is that CVD can be prevented or delayed through adoption of healthy lifestyle behaviors and utilization of preventive health services. Becoming physically active; adopting healthy eating habits; quitting smoking; maintaining a healthy body weight; and controlling blood pressure, cholesterol and diabetes can substantially reduce one's risk of the disease. Prevention of heart disease and stroke is a top priority of this plan and is comprehensively addressed in the recommendations detailed in this document.

Because the cardiovascular health of Kansans can be improved through the detection and treatment of risk factors, as well as early identification and treatment of heart attack and stroke, the plan addresses the continuum of care progressing through primary, secondary and tertiary prevention and management interventions. The plan's framework illustrates the areas of program and focus efforts (Table 1). Reducing disparities in CVD among population subgroups must receive priority as well, and is reflected throughout the plan in addressing access to care, quality of care and cultural competency issues.

This plan highlights effective approaches that increase public and professional awareness of CVD. Prevention and treatment of the disease through risk factor management and policy development can make communities across Kansas heart healthy and stroke-free.



Dr. Howard Rodenberg
Director of Health

Table 1. PREVENTION AND MANAGEMENT INTERVENTIONS TO ADDRESS HEART DISEASE AND STROKE IN KANSAS

	Primordial	Primary	Secondary	Tertiary	
Presence of Disease	No	No	Yes	Yes	
Presence of Risk Factors	No	Yes	Yes	Yes	
Presence of Complications	No	No	No	Yes	
Goals	Promotion of healthy lifestyle behaviors preventing disease and disease risk factors	Prevention and management of one or more risk factors	Early identification and treatment of heart disease and stroke and risk factor management	Prevention and management of recurrent events and complications of disease	
Places of Intervention	Worksite, community, school, healthcare settings				
Strategies to Address Disparities	Access to care improvement (including cultural competency issues)				
	Quality of care improvement (including cultural competency issues)				
	Advocacy and policy development				
Statewide Prevention and Management Efforts	Public education				
	Professional education				
	Community interventions				
	Policy development				
	Systems change				
Primary Focus Areas	General population				Healthy eating
					Increased physical activity
					Prevention and cessation of tobacco use
					Diabetes management and control
					Overweight/obesity management and control
					High blood pressure management and control
					High blood cholesterol management and control
	General population				Knowledge of signs and symptoms of heart attack and stroke
					Seeking rapid treatment
					Patient and professional compliance with heart disease and stroke management protocols
					Social support
					Survivorship issues
					Patient navigation
General population				Cardiac disease and stroke rehabilitation	

 = General population

 = Target population

Section I:
Background and Need

INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death and disability in the United States and Kansas. Approximately 37% of all deaths in Kansas are caused by coronary heart disease and stroke, despite knowledge of risk factors and advances in cardiovascular care. The situation requires immediate action if improvement is to occur.

The Kansas Heart Disease and Stroke Prevention Program (KHDSPP), working together with statewide stakeholders has an opportunity to positively impact the burden of CVD in Kansas. Collaboratively, we can provide better CVD prevention, treatment and management opportunities to the citizens of our state. Creating a comprehensive statewide plan promises to have a great influence and positive impact on the population. A statewide plan will provide a framework for health professionals working with CVD prevention, treatment and management to fight this disease.

HISTORY

Kansas has a long and rich history of taking a proactive approach to public health. From the establishment of one of the first public health agencies in 1885 to current initiatives to prevent and control specific diseases and conditions, the state has established innovative programs to keep Kansans safe and healthy. CVD prevention and management is a logical and important step in achieving the goal of Healthy Kansans by 2010 and beyond.

Prevention efforts for CVD include promotion of increased physical activity, adoption of healthy eating behaviors, and tobacco use prevention and cessation. These areas of prevention have been a priority of the Kansas Department of Health and Environment since 1990 when it established an Office of Chronic Disease and Injury Prevention, now known as the Office of Health Promotion. Secondary prevention for CVD includes the detection, treatment and management of existing risk factors for those with the disease, as well as the early identification and treatment of heart disease and stroke. In 2002, the Office of Health Promotion received funds from the Centers for Disease Control and Prevention (CDC) to establish the infrastructure at the Kansas Heart Disease and Stroke Prevention Program (KHDSPP) devoted to the secondary prevention of CVD. Supported by these funds, the KHDSPP has been building capacity within the state to implement programming for secondary prevention of heart disease and stroke.

PRESENT

The issues concerning heart disease and stroke prevention are complex and simply cannot be addressed in isolation. As the KHDSPP began building capacity to address the burden of CVD in the state, it became vitally important

that a body be convened whereby goals, objectives, strategies and actions could be identified and developed. The Cardiovascular Disease Advisory Council (CVDAC) was convened and has grown to involve stakeholders who represent clinical, academic and public health disciplines, as well as members from professional organizations and health foundations. CVDAC organized into workgroups to develop specific objectives regarding public education, professional education, policy and systems change, and community intervention strategies. These focus areas address the entire continuum of care for heart disease and stroke issues.

VISION

The vision of the plan's developers is to have a heart-healthy, stroke-free population living in an environment where communities, worksites, schools and health care settings support and promote behaviors leading to healthy lifestyles. This vision can be accomplished with the strong partnerships that exist to promote policy and system-wide change.

GOALS

The goal of the CVDAC was to develop a state plan for cardiovascular health that is consistent with the Healthy People 2010 objectives of improving cardiovascular health through prevention, detection and treatment of risk factors; early identification of heart attacks and strokes; and prevention of recurrent cardiovascular events. The plan is intended to serve as a guide for those working in the areas of prevention, detection and treatment of risk factors, associated with heart attacks and strokes, and provides recommendations implementing programs and policies that will lead to a heart-healthy and stroke-free Kansas.

FRAMEWORK OF THE PLAN

Kansas' statewide plan for cardiovascular health focuses on the entire scope of care. The layout of the plan is based on disease progression and addresses opportunities for intervention and prevention. The plan contains four sections of prevention and management interventions with specific supporting goals, objectives, strategies and actions.

The first prevention and management intervention section addresses **Primordial Prevention** involving health promotion activities directed toward the general population. This approach focuses on educating all Kansans about risk factors and lifestyle behaviors to reduce the risk of developing cardiovascular disease. The second intervention section covers **Primary Prevention**. Primary Prevention assists people in the management of risk factors for CVD so that the disease is prevented or postponed. **Secondary Prevention** focuses on the early identification and treatment of the disease and management of risk factors to prevent disease complications. Lifestyle behavior changes and medications can help prevent complications and control risk factors such as high blood pressure

and elevated cholesterol. The last section discusses **Tertiary Prevention**, with the goal of preventing recurrent events, disease complications, and disability. Adherence to disease management protocols and rehabilitation are examples of tertiary prevention. (Table 2 presents a summary of the prevention and management interventions addressed in this document).

Table 2. PREVENTION AND MANAGEMENT INTERVENTIONS TO ADDRESS HEART DISEASE AND STROKE IN KANSAS

	Primordial	Primary	Secondary	Tertiary
Presence of Disease	No	No	Yes	Yes
Presence of Risk Factors	No	Yes	Yes	Yes
Presence of Complications	No	No	No	Yes
Goals	Promotion of healthy lifestyle behaviors to prevent disease and risk factors	Prevention and management of one or more risk factors	Early identification and treatment of heart disease and stroke and risk factor management	Prevention and management of recurrent events and complications of disease

Each prevention and management intervention section includes goals, objectives, strategies and actions to address public education, professional education, community interventions, policy efforts and systems change. These focus areas occur in worksite, community, school and health care settings.

Strategies to address disparities such as access to care, quality of care and cultural competency issues are an overarching priority for this plan. Advocacy for improvement in these areas is vital. The plan pulls together existing advocacy efforts and identifies strategies requiring further collaboration among partners.

THE BURDEN OF HEART DISEASE AND STROKE IN KANSAS

Cardiovascular disease is defined as all diseases of the heart and blood vessels, including ischemic heart disease, hypertensive heart disease (together also called coronary heart disease), cerebrovascular disease (stroke), congestive heart failure, atherosclerosis, diseases of the veins, and rheumatic heart disease. Coronary Heart Disease (CHD) and stroke are the major components of cardiovascular disease affecting Kansas' population. These are the leading causes of death and result in enormous health care expenses.

CHD and Stroke Mortality

Table 3. How Kansas compares to Healthy People 2010 objectives for coronary heart disease and stroke mortality

Healthy people 2010 objective description	HP 2010 target ^b	Kansas (2003) ^c
To reduce the CHD death rate	162.0 deaths per 100,000 population ^a	136.0 per 100,000 population ^a
To reduce the stroke death rate	50.0 per 100,000 population ^a	56.3 per 100,000 population ^a

a. Percentages were age-adjusted per 100,000 U.S. standard 2000 population estimate.

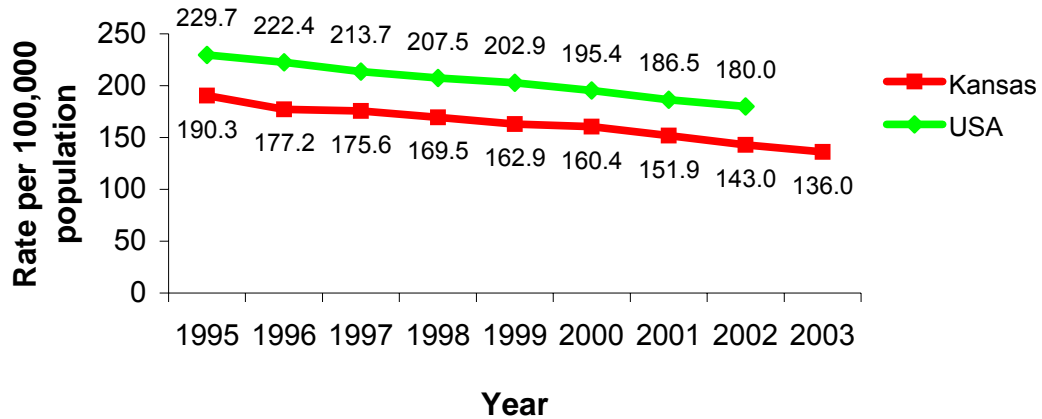
b. Healthy People 2010 Objectives. www.healthypeople.gov/data/midcourse/comments/faobjective.asp?id=12.

c. 2003 Kansas mortality data.

CHD and stroke were the primary causes of death for Kansas residents, accounting for 4,127 CHD deaths and 1,749 stroke deaths in 2003. The age-adjusted mortality rate for CHD declined from 190.3 per 100,000 population in 1995 to 136.0 per 100,000 population in 2003 (Figure 1). This represents a decrease in mortality of nearly 40% from 1995-2003. Similarly, the age-adjusted mortality rate from stroke in Kansas declined from 67.3 per 100,000 population in 1995 to 56.3 per 100,000 population in 2003 (Figure 2). This represents a 19.5% decrease in stroke mortality rate from 1995-2003. However, despite this continuing decline, both CHD and stroke remain the leading causes of death in Kansas.

Figure 1

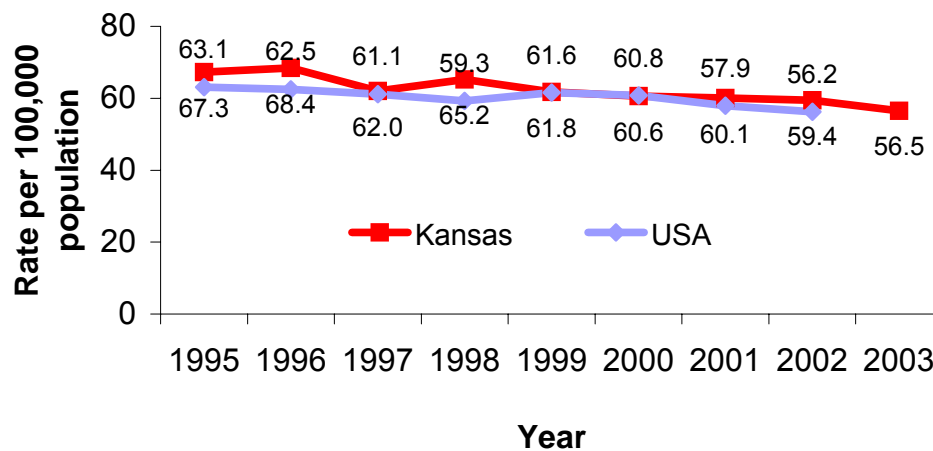
Age-Adjusted Coronary Heart Disease Mortality Rate, Kansas and United States 1995-2003



Age-adjustment used rate per 100,000 U.S. standard 2000 population estimate.
 Data for U.S mortality rate was for 1995- 2002 only.
 Source: 1995-2003 Kansas CHD mortality data. Center for Health and Environmental Statistics. KDHE.
 United States CHD mortality data. Center for Disease Control and Prevention.
<http://wonder.cdc.gov/mortsql.html>.
 Kansas Residence Data: Number of deaths compiled on the basis of the usual place of residence of the person(s) to whom the death occurred.

Figure 2

Age-Adjusted Stroke Mortality Rate, Kansas and United States 1995-2003



Age-adjustment used rate per 100,000 U.S. standard 2000 population estimate.
 Data for U.S mortality rate was for 1995- 2002 only.
 Source: 1995-2003 Kansas mortality data. Center for Health and Environmental Statistics. KDHE.
 United States CHD mortality data. Center for Disease Control and Prevention. <http://wonder.cdc.gov/mortsql.html>.
 Kansas Residence Data: Number of deaths compiled on the basis of the usual place of residence of the person(s) to whom the death occurred.

- In 2003, CHD and stroke were responsible for almost a quarter of all deaths (24.1%) in Kansas, with CHD accounting for 16.9% and stroke accounting for 7.2%.
- 1 in 6 CHD deaths occurred prematurely (before age 65).
- 1 in 12 stroke deaths occurred prematurely (before age 65).
- The CHD death rate among males was twice the death rate among females.
- African Americans had higher death rates for CHD and stroke than whites.
- More than half of all CHD and stroke deaths occurred before reaching a hospital, clinic or medical center and receiving appropriate clinical care (pre-transport deaths).

Risk Factors for CHD and Stroke

Table 4. How Kansas compares to Healthy People 2010 objectives for coronary heart disease and stroke risk factors

Healthy people 2010 objective description	HP 2010 target^c	Kansas Status (2004)^d
Reduce the proportion of adults with high blood pressure	14% ^a	24.7% ^a
Increase the proportion of adults with high blood pressure whose blood pressure is under control	68% ^a	NA ^b
Increase the proportion of adults with high blood pressure who are taking action to help control their blood pressure	98% ^a	NA
Increase the proportion of adults who had their blood pressure measured within the preceding 2 years and can state whether their blood pressure was normal or high	95% ^a	NA
Reduce the mean total blood cholesterol levels among adults	199 mg/DL (mean)	NA
Reduce the proportion of adults with high total blood cholesterol levels	17% ^a	29.4% ^a
Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years	80% ^a	69.2%
Reduce cigarette smoking by adults	12% ^a	19.8% ^a
Reduce the overall rate of diabetes that is clinically diagnosed	2.5% ^a	6.4% ^a
Reduce the proportion of adults who are obese	15% ^a	23.3% ^a

a. Percentages were age-adjusted per 100,000 U.S. standard 2000 population estimate.

b. NA=Data not available.

c. Healthy People 2010 Objectives. www.healthypeople.gov/data/midcourse/comments/faobjective.asp?id=12.

d. 2004 Kansas Behavioral Risk Factor Surveillance System.

High blood pressure, high blood cholesterol, cigarette smoking, diabetes, physical inactivity, overweight, obesity, and unhealthy dietary habits are known and modifiable risk factors for CHD and stroke. Table 5 shows Kansas and national prevalence of modifiable risk factors for coronary heart disease and stroke.

Table 5. Prevalence of modifiable risk factors for coronary heart disease and stroke in adults, Kansas and United States, 2004.

Risk Factor	Kansas ^b		United States ^c
	Crude Prevalence (%)	Age-adjusted prevalence ^d (%)	Age-adjusted prevalence (%)
High blood pressure	25.3	24.7	24.8**
High blood cholesterol	33.1	29.4	33.1**
Cigarette smoking	19.8	19.8	20.8*
Diabetes	6.5	6.4	7.0*
Physical inactivity (no leisure time physical activity)	23.2	23.2	22.8*
Overweight ^a	37.5	37.6	37.0***
Obesity ^a	23.2	23.3	22.1***
Unhealthy diet (not consuming five a day fruits and vegetables)	81.8	81.0	77.4**

a. Overweight and obesity was defined by Body Mass Index (BMI).

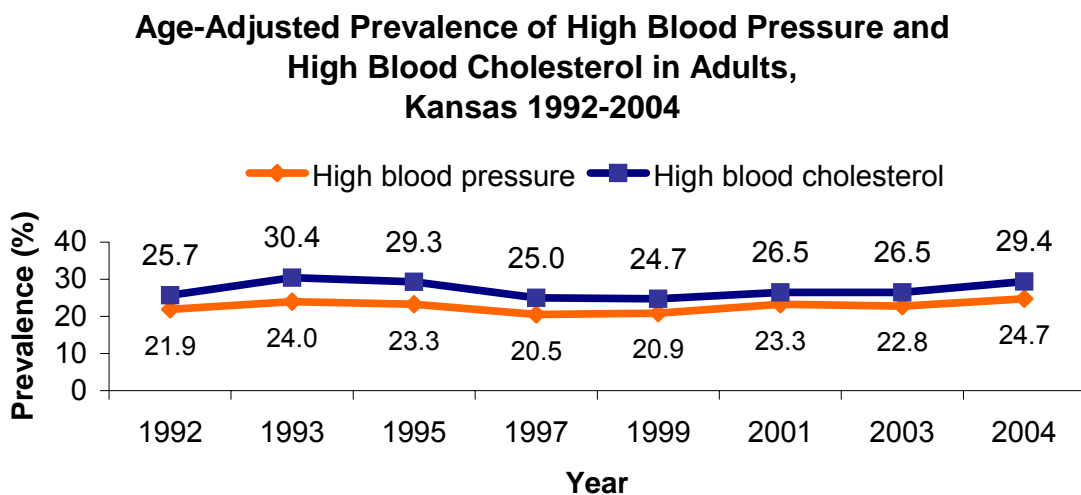
b. 2004 Kansas Behavioral Risk Factor Surveillance System. KDHE.

c. 2003, 2004 Behavioral Risk Factor Surveillance System. Centers for Disease Control and Prevention. * 2004 data, ** 2003 data, *** 2002 data.

d. Percentages were age-adjusted per 100,000 U.S. standard 2000 population estimate.

- In 2004, nearly 1 in 4 (24.7%) adult Kansans reported being diagnosed with high blood pressure. In the last 13 years, there was a 13% increase in the overall prevalence of high blood pressure among adult Kansans (Figure 3).
- More than one-third (35.3%) of adult African Americans reported high blood pressure, the highest among all racial and ethnic groups.
- More than one-fourth (29.4%) of adults reported being diagnosed with high blood cholesterol. There was a 14.4% increase in the age-adjusted prevalence of high blood cholesterol among Kansans who tested from 1992 to 2004 (Figure 3).

Figure 3



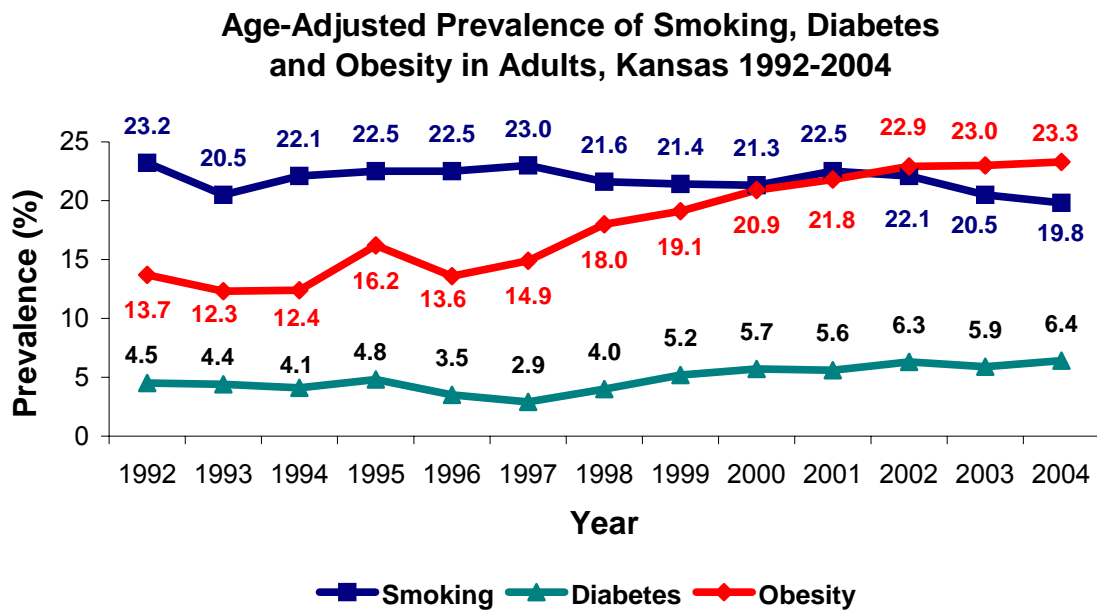
Age-adjustment used rate per 100,000 U.S. standard 2000 population estimate.
1992-2004 Kansas Behavioral Risk Factor Surveillance System. KDHE.
Question on high blood pressure was not asked in 1994, 1996, 1998, 2000, 2002 Kansas Behavioral Risk Factor Surveillance System.

* Cholesterol prevalence was calculated among those who said that they ever had their blood cholesterol checked.
Question on high blood cholesterol was not asked in 1994, 1996, 1998, 2000, 2002 Kansas Behavioral Risk Factor Surveillance System.

- Approximately one in five (19.8%) adults were current cigarette smokers. The prevalence of smoking in adults has declined over recent years (Figure 4).
- The prevalence of diabetes among adult Kansans has risen since 1992. In 2004, 1 in 16 (6.4%) adults reported being diagnosed with diabetes. The prevalence of diabetes among Kansas adults has increased steadily in the last decade (Figure 4).
- African Americans and Hispanics reported a higher prevalence of diagnosed diabetes (12.1% and 10.6%, respectively) than whites.
- Approximately 1 in 4 (23.2%) adults were physically inactive (they did not participate in any leisure time physical activity).
- The Kansas population has not escaped the national epidemic of obesity. In 2004, nearly two-thirds (60.9%) of the adult Kansas population was either overweight or obese; nearly 1 in 4 adults (23.3%) were obese. The prevalence of obesity has increased sharply during the last decade. From 1992-2004, the prevalence of obesity increased by 70% (Figure 4).

- More than 80% of adults reported that they did not consume five fruits and vegetables per day (the minimum recommended daily amount).
- The prevalence of high blood pressure, high blood cholesterol, diabetes and obesity were much higher in persons with CHD and stroke than in persons without CHD and stroke.

Figure 4



Obesity was defined as body mass index ≥ 30.0 kg/m.²
 Source: 1992-2004 Kansas Behavioral Risk Factor Surveillance System. KDHE.

Heart attack and stroke symptom awareness and calling 911

Many people in Kansas are at high-risk for CHD and stroke or have already experienced CHD or stroke. Consequently, it is important that Kansans should be able to recognize the signs and symptoms of heart attack and stroke and act immediately by calling 911.

- The 2004 BRFSS data showed that recognition of individual signs and symptoms for heart attack and stroke were high.
- 87.7% reported that they would call 911 if someone was having a heart attack or stroke.
- Correct recognition of all signs and symptoms of heart attack and stroke were very low (13.1% and 23.1%, respectively).

- Only 1 in 9 adults (11.3%) were able to correctly recognize all signs and symptoms of a heart attack and said they would call 911.
- Only 1 in 5 adults (20.2%) were able to correctly recognize all signs and symptoms of a stroke and said they would call 911.

Actions taken to control risk of heart attack or stroke

Adult Kansans with and without coronary heart disease or stroke are taking measures and following their health provider's advice to prevent and control heart attack or stroke.

- A higher percentage of adults with a history of CHD or stroke reported receiving advice from health professionals about eating fewer fatty foods (38.8%), eating more fruits and vegetables (47.1%), and engaging in physical activity (44.6%) than adults without a history of CHD or stroke. However, the proportion of adults who received professional health advice to control the risk of heart attack or stroke was low in both groups (with and without past history of CHD or stroke).
- More adults with a history of CHD or stroke were taking actions to reduce the risk of CHD or stroke like eating fewer fatty and high cholesterol foods (75.3%) and eating more fruits and vegetables (62.3%) than adults without a history of CHD or stroke.
- However, persons with a history of CHD or stroke (58.9%) were less physically active than persons without a history of CHD or stroke (64.5%).

Interventions and services

CHD and stroke are the major causes of hospitalization among men and women, as either the primary or a contributing cause (secondary cause). Surgical procedures like coronary artery bypass grafting or angioplasty are effective treatments for CHD. These procedures can improve the survival and quality of life of patients with heart disease. Monitoring the use of clinical interventions and health services can provide information for planning and evaluation of health services to meet the changing needs of the population.

- In 2002, there were 16,315 inpatient hospital discharges for CHD by primary diagnosis and 6,614 inpatient hospital discharges for stroke by primary diagnosis.
- Males had a higher age-adjusted inpatient hospital discharge rate for CHD and stroke as compared to females (78.2/10,000 population vs. 41.8/10,000).

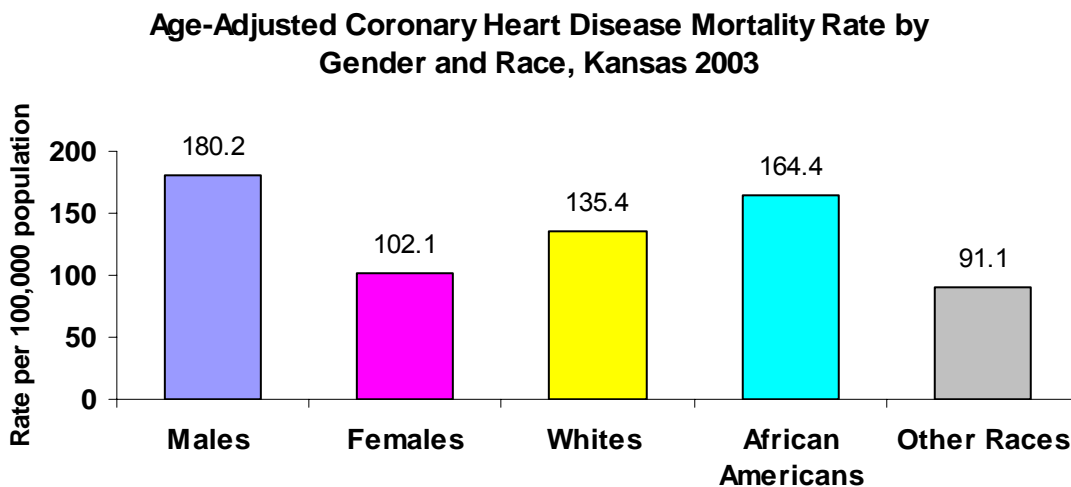
population for CHD and 25.2/10,000 population vs. 21.5/10,000 population for stroke).

- Coronary angioplasty and coronary angiography were two of the most frequently performed procedures among the selected cardiovascular procedures (coronary angioplasty, coronary artery bypass grafting, coronary angiography and carotid endarterectomy).
- Medicare was the major source of payment for inpatient hospital discharges due to CHD and stroke.
- Medicare was the major source of payment for selected cardiovascular procedures and operations (coronary angioplasty, coronary artery bypass grafting, coronary angiography and carotid endarterectomy).
- The mean length of hospital stay for CHD and stroke was 4.2 days and 4.8 days, respectively.

Disparities

- In 2003, males (as compared to females) and African Americans (as compared to whites and other races) had higher mortality rates due to CHD and stroke (Figure 5, 6).

Figure 5



Other races included Asian, Pacific Islander, American Indian/Alaskan Natives, Hawaiian or any race other than whites and African Americans.

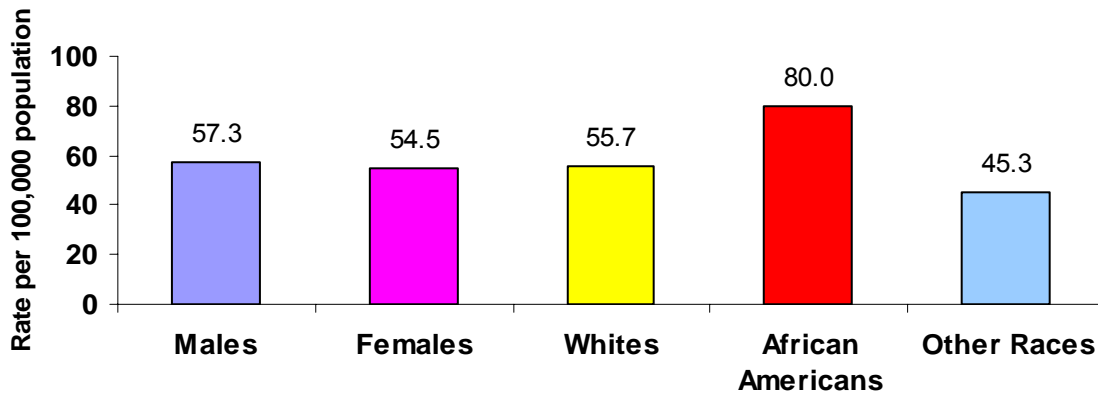
Age-adjustment used rate per 100,000 U.S. standard 2000 population estimate.

Source: 2003 Kansas mortality data. Center for Health and Environmental Statistics. KDHE.

Kansas Residence Data: Number of deaths compiled on the basis of the usual place of residence of the person(s) to whom the death occurred.

Figure 6

Age-Adjusted Stroke Mortality Rate by Gender and Race, Kansas 2003



Other races included Asian, Pacific Islander, American Indian/Alaskan Natives, Hawaiian or any race other than whites and African Americans.

Age-adjustment used rate per 100,000 U.S. standard 2000 population estimate.

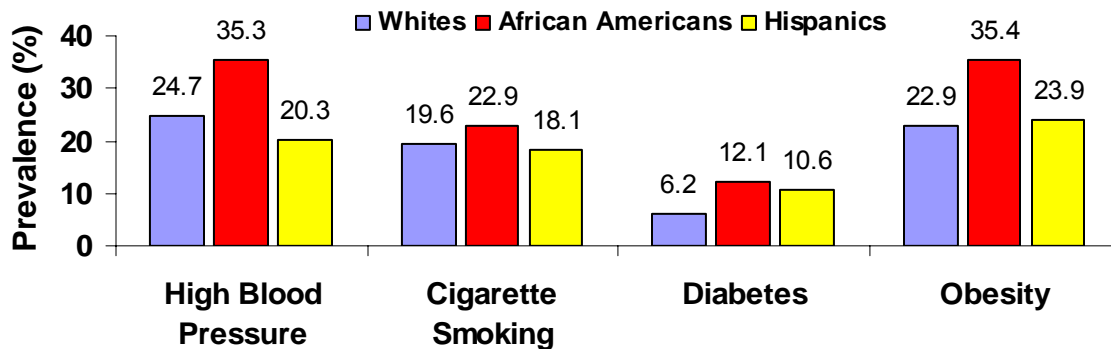
Source: 2003 Kansas mortality data. Center for Health and Environmental Statistics. KDHE.

Kansas Residence Data: Number of deaths compiled on the basis of the usual place of residence of the person(s) to whom the death occurred.

- African Americans reported higher rates of high blood pressure, cigarette smoking, diagnosed diabetes and obesity than whites and Hispanics (Figure 7).

Figure 7

Age-Adjusted Prevalence of High Blood Pressure, Cigarette Smoking, Diabetes and Obesity in Adults by Race and Ethnicity, Kansas 2004



Obesity was defined as body mass index ≥ 30.0 kg/m²

Source: 2004 Kansas Behavioral Risk Factor Surveillance System. KDHE.

Age-adjustment uses 2000 U.S. standard population.

- The recognition of signs and symptoms of a heart attack and stroke were generally lower in African Americans and Hispanics (Table 6).
- The recognition of signs and symptoms of a heart attack and stroke were generally lower in persons with less than a high school education (Table 6).

Table 6. Percentage of adults correctly recognizing all heart attack symptoms and the need to call 911 by selected characteristics, Kansas 2004. *

Characteristic	All correct heart attack symptoms reported (%)	All correct heart attack symptoms recognized and action to call 911 reported (%)
Race/Ethnicity		
White	14.0	12.0
African American	10.4	8.8
Hispanic	9.5	9.0
Education		
<High school	3.9	3.1
High school	9.9	8.8
Some college	12.8	10.8
College graduate	18.1	15.7

*2004 Kansas Behavioral Risk Factor Surveillance System. Kansas Department of Health and Environment.

Although the mortality from CHD and stroke has declined in recent years, both are still the leading causes of death in Kansas. The aging of Kansas' population will further increase the burden of CHD and stroke. The prevalence of risk factors like high blood pressure, high blood cholesterol, obesity and diabetes are on the rise among the Kansas population. This will further result in increase in mortality and morbidity from CHD and stroke.

The cardiovascular health of Kansans can be improved through the prevention, detection and treatment of risk factors; early identification and treatment of heart attack and stroke; and prevention of recurrent cardiovascular events. Thus, collaborative public health efforts can achieve the goal of improved cardiovascular health for Kansans.

ASSETS AND BARRIERS

Major Assets:

Kansas has a number of assets to help address the burden of cardiovascular disease.

- Kansas has established data and surveillance systems such as the Behavioral Risk Factor Surveillance System (BRFSS) to monitor risk factors for cardiovascular disease (CVD), hospital discharge data regarding hospitalizations due to CVD, and mortality data on the number of deaths due to CVD in Kansas. Kansas is conducting the Cardiovascular Health Examination Survey which will provide better insight into the burden of cardiovascular disease (CVD) risk factors and the level of control of those risk factors in various racial/ethnic populations in Kansas.
- Kansas has strong established partnerships between local health departments, state health agencies, non-profit and voluntary health organizations, health care systems, faith-based organizations, professional societies and academic institutions. (See Appendix 6 for a complete partnership list.)
- Kansas has a network of urban and rural hospitals, private and public clinics, physicians, nurses and other health care providers.
- Public health efforts directed towards prevention and control of cardiovascular disease are a priority in Kansas and are currently being implemented.

Major Barriers:

While Kansas has many assets addressing cardiovascular disease, we also have barriers that must be addressed. Efforts to overcome these barriers must become a priority.

- Kansas has more than 80,000 square miles and a population of approximately 2.7 million. The majority of Kansas' 105 counties are designated as either rural or frontier and most of the state qualifies as medically underserved. Eleven counties rely on a single physician to provide care.
- Because of limited health care services in rural areas of Kansas, access to care in these areas is limited. Transportation to the nearest available care site poses a physical and financial challenge to some rural residents.
- Data on heart disease and stroke exist, however there are gaps in existing data systems preventing access to CVD data that address specific sub-group populations. Furthermore, it is difficult to collect data about residents who do not have regular access to care.

- Funding for heart disease and stroke programs is limited and financial assistance for uninsured and underinsured Kansans is needed.

**SECTION II:
Prevention and Management interventions for Heart Disease and
Stroke in Kansas**

Figure 5: Two examples of Primordial Prevention efforts in Kansas.

Kansas Coordinated School Health (KCSH) is a joint effort between the Kansas Department of Health and Environment and the Kansas State Department of Education. These two agencies are working together to increase physical activity, improve nutrition and decrease tobacco use in schools. KCSH offers a grant program to all Kansas schools that is based on the Eight Component Coordinated School Health Model. This model addresses health education, physical education, health services, nutrition services, counseling, healthy school environments, health promotion for staff, and family/community Involvement. By including all eight components, Kansas schools will become a place for students, staff and the community to work together to improve health.



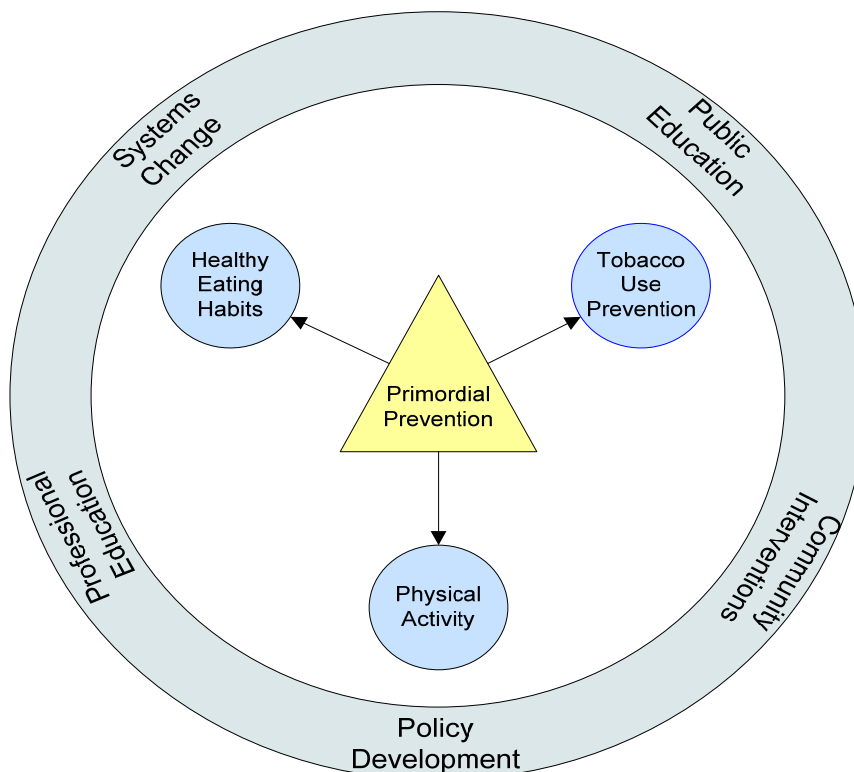
The mission of Safe Kids Kansas is to prevent accidental injuries for kids age 0-14 years. Through education and community events addressing pedestrian, bicycle, playground, sports and other safety issues, Safe Kids Kansas encourages physical activity while integrating safety measures to prevent injuries. Programs such as “Walk This Way” focus on good pedestrian habits and safe routes to school, looking at both behavior and environmental risks. Many parents are wary of letting their children walk to school because of a combination of these factors. By finding solutions and initiating changes, families have the opportunity to lead a more physically active life that fits into their environment and lifestyle.

PRIMORDIAL PREVENTION

Goal: Prevent cardiovascular disease risk factors by promoting healthy lifestyles among the general population in Kansas.

Healthy nutrition, abstaining from tobacco use, and increasing physical activity are the core components of living a healthy life and are the focus of primordial prevention. Primordial prevention refers to strategies designed to decrease the development of cardiovascular disease risk factors. Health promotion activities are directed at the general population to educate about the prevention of risk factors. Education efforts focus on lifestyle behaviors to reduce disease risk. For example, interventions to increase physical activity and eat a healthy diet to prevent the development of obesity are primordial prevention efforts. Primordial prevention encompasses the whole population and is not limited to individuals with recognized risk factors for cardiovascular disease.

This section addresses five avenues (public education, professional education, community interventions, policy efforts and systems change) for primordial prevention. The objectives and strategies include statewide collaboration to support increased physical activity opportunities, tobacco use prevention, and adoption of healthy eating habits to prevent the onset of risk factors for heart disease and stroke among the entire population of Kansas. Support and collaboration will occur in worksites, communities, schools and health care settings. The diagram below illustrates objectives and strategies for primordial prevention addressed in this section.



Strategies and action steps will address the reduction of heart disease and stroke among various disparate population subgroups (racial/ethnic, educational, income and geographically disparate groups).

PUBLIC EDUCATION

Objective: By June 2010, increase knowledge regarding healthy lifestyle benefits (prevention of tobacco use, increased physical activity, and adoption of healthy eating habits) among Kansans.

Strategy: Provide consistent and accurate information to the general public about the link between healthy lifestyle behaviors (avoiding tobacco use, being physically active, and adoption of healthy eating habits) and prevention of heart disease and stroke risk factors.

Action: Support statewide comprehensive and culturally competent education efforts and campaigns for the general public that promote:

- Efforts for increasing awareness regarding the benefit of adopting dietary guidelines such as eating 5-9 fruit and vegetable servings per day and limiting consumption of foods with high cholesterol and fat content
- Benefits of regular recommended physical activity such as accumulating 30 minutes of walking per day
- Prevention of tobacco use

A few examples of current programs and campaigns designed to promote healthy lifestyles and environments in Kansas include:

- Tobacco Use Prevention
- Farmers Market Program/5-A-Day Program
- Walk Kansas
- Sunflower State Games
- Healthy Kansas Communities Project
- Coordinated School Health Program
- Governor’s Healthy Kansas Initiative

PROFESSIONAL EDUCATION

Objective: By 2010, increase resources available for health professionals to promote healthy lifestyles (prevention of tobacco use, promotion of physical activity, and adoption of healthy eating habits) among Kansans.

Strategy: Provide evidence-based healthy lifestyle resources to health professionals promoting heart disease and stroke prevention strategies.

Action: Support statewide efforts to provide resources to Kansas health professionals.

A few examples of resources available to Kansas health professionals for promotion of healthy lifestyles and environments include:

- Continuing education opportunities
- Training opportunities
- Information on current healthy lifestyle campaigns
- Referral opportunities to community-based programs which promotes skill development
- Healthy lifestyle education materials

COMMUNITY INTERVENTIONS

Objective: By 2010, increase healthy lifestyles of Kansans (prevention of tobacco use, promotion of physical activity, and adoption of healthy eating habits).

Strategy: Increase opportunities for Kansans to be more physically active; eat healthy; and avoid exposure to tobacco in communities, schools and worksites.

Action: Support statewide comprehensive and culturally competent healthy lifestyle intervention efforts in communities, schools and worksites.

A few examples of current programs designed to support the promotion of healthy lifestyles and environments in Kansas include:

- Tobacco Use Prevention
- Farmers Market Program
- 5-A-Day Program
- Healthy Communities Project
- Coordinated School Health Program
- Kansas Lean Program
- Go Red for Women

POLICY

Objective: By 2010, promote advocacy efforts related to healthy lifestyles (prevention of tobacco use, promotion of physical activity, and adoption of healthy eating habits) in Kansas.

Strategy: Develop policy recommendations related to healthy lifestyles and environments in Kansas.

Action: Support comprehensive and collaborative efforts to develop and implement healthy lifestyle policies at the local level.

A few examples of advocacy efforts include:

- Promotion of clean indoor and outdoor air policies
- Encourage school-based nutrition guidelines
- Promotion of physical education teaching guidelines in schools
- Encourage daily physical activity in schools

SYSTEMS CHANGE

Objective: By 2010, increase system changes in identified settings that support prevention of tobacco use, promotion of physical activity, and adoption of healthy eating habits.

Strategy: Develop and implement system changes that promote healthy lifestyles and environments in Kansas.

Action: Support comprehensive and collaborative efforts to change policy and practices within identified settings that promote healthy lifestyles and environments.

Four identified settings where efforts for change can be implemented include:

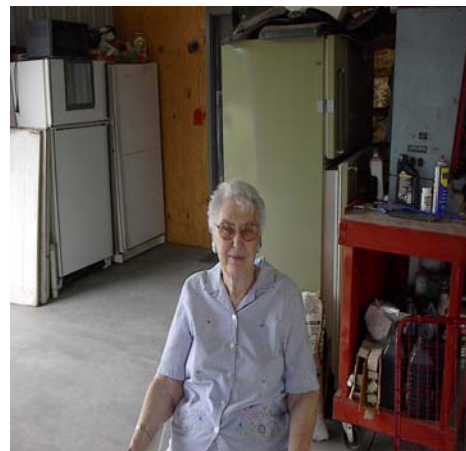
- Worksites
- Schools
- Communities
- Health care settings

Figure 6: Testimonials reflecting primary prevention submitted from the Walk Kansas Program.



“Prior to Walk Kansas, I started a weight loss program and was having a tough time incorporating daily exercise into my routine. My participation in Walk Kansas provided me with the challenge and motivation to be sure to walk everyday. As the captain I felt I had a responsibility to maintain a standard. As I motivated my teammates I also was motivated. Since the start of Walk Kansas, I lost an additional 10 pounds for a total of 23 pounds. I will continue to keep the focus alive. Thanks for the challenge.”

“It’s a wonderful way to get people interested in walking. Over two years ago, I suffered a compressed, fractured vertebrae. By the time it was diagnosed, it was compressed too much to repair. It was a slow healing process. Walking was much of my therapy. I have learned how enjoyable it is to get into the fresh air and see the seasons and the areas changing. Days that I get very tired and just want to sit around I find if I just walk for 10 or 15 minutes. I feel so much better. When the weather is bad, I walk around inside the house for 20 to 30 minutes two or three times a day. I truly feel I am in better physical condition (at nearly 76) than I have ever been. I have also completed over two million steps in the Million Step Club.”



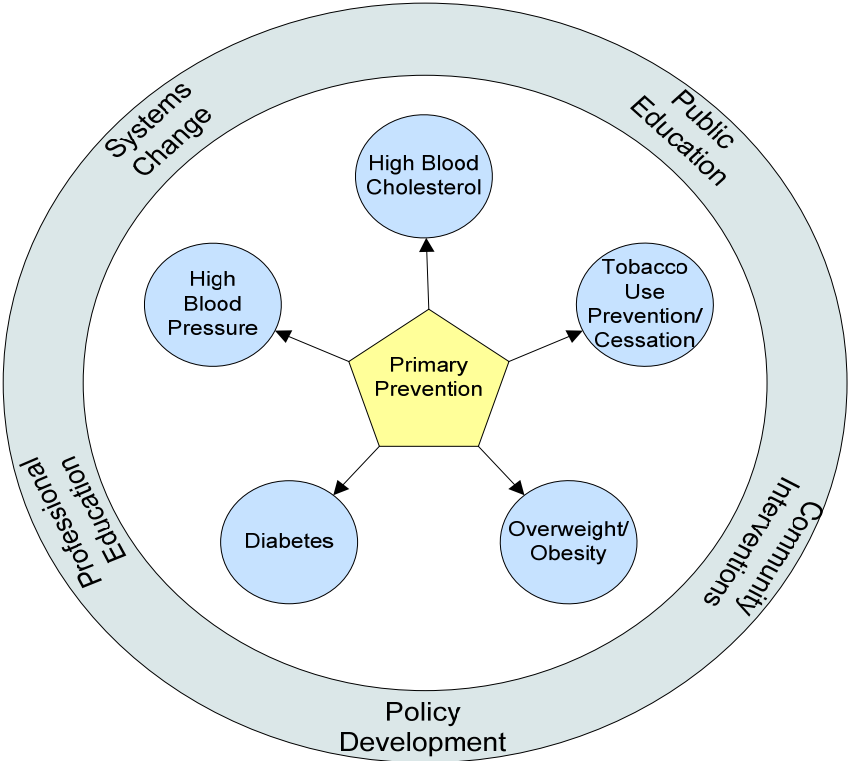
“It was a good experience and even though for several years we have walked almost daily. I live by a personal philosophy that asserts the “we rust out faster than we wear out.” I believe we are more aware of the need to be active after these eight weeks. I see and feel a need to keep walking and, in fact, walk even more, especially on weekends. Thanks for the gentle arm-twist that got us into this.”

PRIMARY PREVENTION

Goal: Prevent and manage one or more cardiovascular disease risk factors among Kansans at risk of developing heart disease and stroke.

Primary prevention of cardiovascular disease is an integral part of overall prevention and reduction of the cardiovascular disease burden in Kansas. Primary prevention interventions seek to prevent development of cardiovascular disease. Primary prevention is defined as the management of risk factors of heart disease and stroke to prevent or postpone the onset of the disease. For example, behavior modification and medicinal therapy can reduce high blood pressure and high blood cholesterol, which will prevent the development of heart disease and stroke.

This section addresses five avenues (public education, professional education, community interventions, policy efforts and systems change) for primary prevention. The objectives and strategies include statewide collaboration and support for risk factor management. Risk factors to be managed include high blood pressure, high blood cholesterol, tobacco use, diabetes and overweight/obesity. Efforts to manage these risk factors will take place in systems within worksites, communities, schools and health care settings. The diagram below illustrates objectives and strategies for primary prevention addressed in this section.



Strategies and action steps will address reduction of heart disease and stroke among various disparate population subgroups (racial/ethnic, educational, income and geographically disparate groups).

PUBLIC EDUCATION

Objective 1: By 2010, Kansas residents with one or more risk factors for heart disease and stroke will be informed and educated about the risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) and their relationship to the disease.

Strategy 1: Provide consistent and accurate information to at-risk populations about the relationship between cardiovascular disease risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) and the development of heart disease and stroke.

Action 1: Implement comprehensive and collaborative efforts to educate those with high blood pressure and high blood cholesterol about the role of these risk factors in the development of heart disease and stroke.

Action 2: Implement comprehensive and collaborative efforts to educate people at risk for cardiovascular disease about prevention and management of high blood pressure and high blood cholesterol.

- Education material will be prepared by compiling current information
- Dissemination of information through multiple mechanisms
- Social marketing
- Partner with worksites and other organizations to conduct public campaigns and programs

A few examples of current programs and campaigns providing information about the effect of prevention on high blood pressure and high blood cholesterol on heart disease and stroke include:

- Go Red for Women
- Search Your Heart
- Mission Possible
- Worksite Wellness Initiatives
- Collaborate with the American Heart Association/Stroke Association Programs

Action 3: Support efforts that emphasize the importance of consistent blood pressure and cholesterol measurements.

- Explore resources and opportunities for helping community-based efforts to develop screening and follow-up programs.

Examples of current screening and education programs include:

- African American Hypertension and Cholesterol Screening Program
- American Heart Association/American Stroke Association Programs

Action 4: Support a comprehensive and collaborative effort to educate people at risk for cardiovascular disease about screening and prevention of other risk factors of heart disease and stroke such as diabetes, smoking and overweight/obesity.

A few examples of current programs and campaigns designed to prevent heart disease and stroke risk factors in Kansas include:

- American Heart Association/Stroke Association Programs
- Tobacco Use Prevention efforts (QUITLINE)
- 5-A-Day Program
- Coordinated School Health Program
- Diabetes Prevention and Control Program
- Community-based lifestyle education Programs

Objective 2: By 2010, Kansas residents with one or more risk factors for heart disease and stroke will know how to manage their risk factors to prevent development of the disease.

Strategy 1: Provide consistent and accurate information to at-risk populations about skills needed to manage their risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) to prevent development of heart disease and stroke.

Action 1: Implement comprehensive and collaborative efforts to educate and promote skill development among the at-risk population to manage or reduce high blood pressure and high blood cholesterol.

Steps for implementation of education efforts will include preparation of culturally competent education materials and dissemination through ongoing collaboration among state partners via mailing literature, websites, electronic transmission, media and other campaigns and other avenues.

A few examples of current programs and campaigns in Kansas include:

- Search Your Heart
- Mission Possible
- Worksite Wellness
- American Heart Association/Stroke Association Programs

Action 2: Support comprehensive and collaborative efforts to educate and promote skill development among at-risk populations to manage (diabetes, smoking, overweight/obesity) risk factors for heart disease and stroke.

A few examples of current programs and campaigns in Kansas include:

- Tobacco Use Prevention efforts
- 5-A-Day Program
- Coordinated School Health Program
- Diabetes Prevention and Control Program (Quality of Care Project)
- American Heart Association/American Stroke Association Programs

PROFESSIONAL EDUCATION

Objective: By 2010, enhance the capacity of Kansas health professionals to prevent, detect and treat heart disease and stroke risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity).

Strategy: Provide training for health professionals to prevent, detect, and treat heart disease and stroke risk factors according to current scientific information and national guidelines.

Action 1: Compile current scientific information including national guidelines for prevention, detection and treatment of risk factors developed by national organizations.

- The tracking of scientific information and guidelines will be done through an ongoing partnership between the Kansas Department of Health and Environment, the American Heart Association and other profit/non-profit organizations.

A few examples of organizations developing scientific information and guidelines include:

- American Heart Association/American Stroke Association
- Centers for Disease Control and Prevention
- National Heart Lung and Blood Institute
- American Academy Family Practice
- American Diabetes Association
- American College of Cardiology
- American Lung Association
- American Dietetic Association

Action 2: Disseminate current scientific information including national guidelines for prevention, detection and treatment of risk factors to health professionals through collaboration with national organizations.

- The current scientific information including national guidelines for prevention, detection and treatment of risk factors that are developed and released by national organizations will be disseminated through ongoing collaboration among state partners via mailings, literature, websites,

electronic transmissions, conferences, media campaigns and other available avenues.

Action 3: Coordinate continuing education opportunities for health professionals to update their knowledge for prevention, detection and treatment of risk factors.

- Through ongoing collaboration, state partners will coordinate continuing education and training opportunities for health professionals to update their knowledge of current modalities available for prevention, detection, and treatment of risk factors. Resources needed to accomplish these coordinated activities include financial, personnel, technical, communication and organizational support.

COMMUNITY INTERVENTIONS

Objective: By 2010, increase opportunities for Kansans at risk of heart disease and stroke for prevention, detection and treatment of risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) through community, school and worksite interventions.

Strategy: Collaboration between statewide partners to prevent, detect and manage heart disease and stroke risk factors (high blood pressure, high blood cholesterol, diabetes, tobacco use, overweight/obesity) among at-risk populations through community, school and worksite interventions.

Action 1: Provide technical assistance through trainings and resources for planning, implementation, and evaluation of community, school and worksite interventions.

A few examples of current programs and campaigns providing information about prevention, detection and treatment of high blood pressure and high blood cholesterol on heart disease and stroke include:

- Go Red for Women/Heart Truth Campaign (Red Dress Campaign)
- Search Your Heart
- Mission Possible
- African American Hypertension and Cholesterol Screening Program

Action 2: Support collaborative efforts to prevent, detect, and manage obesity/overweight, diabetes, and tobacco use among high risk populations through community, school and worksite interventions.

A few examples of current programs and campaigns providing information about prevention, detection and treatment on heart disease and stroke include:

- Jump Rope for Heart/Hoops for Heart
- Healthy Communities
- Tobacco Quitline

POLICY

Objective: By June 2010, increase support for state and local policies that support prevention, detection and treatment of risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) in Kansas.

Strategy: Promote statewide advocacy for policies that relate to prevention, detection and treatment of risk factors for heart disease and stroke.

Action 1: Identify policies needed to address prevention, detection and treatment of risk factors associated with heart disease and stroke.

Action 2: Support comprehensive and collaborative efforts to implement policies related to prevention, detection and treatment of heart disease and stroke risk factors.

A few examples of current efforts are:

- Clean indoor and outdoor air
- School-based nutrition guidelines
- Physical education teaching guidelines in schools

SYSTEMS CHANGE

Objective: By June 2010, increase support for systems change associated with prevention, detection and treatment of risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity).

Examples of systems change include payment issues, service provision, health care referral patterns and patient education.

Strategy 1: Promote system changes that address prevention, detection and treatment of heart disease and stroke risk factors (high blood pressure, high blood cholesterol, diabetes, tobacco use, overweight/obesity) through systems change.

Action 1: Implement collaborative efforts to prevent, detect, and treat high blood pressure and high blood cholesterol among high-risk populations for heart disease and stroke through systems change.

- Strengthen the partnerships between stakeholders to identify opportunities for systems change and to implement steps to apply these changes.

A few examples of current systems where efforts for change are being implemented:

- Worksite Wellness Initiative
- Cardiovascular Quality of Care Project

Action 2: Support comprehensive and collaborative efforts to develop and implement systems change to prevent, detect and treat heart disease and stroke risk factors among high-risk populations.

A few examples of current systems where efforts for change are being implemented:

- Coordinated School Health
- Diabetes Quality of Care Project
- Healthy Communities (change to the built environment/infrastructure)

Strategy 2: Promote improvement in health care delivery systems to enhance more effective, efficient delivery of services to prevent, detect and treat heart disease and stroke risk factors (high blood pressure, high blood cholesterol, diabetes, tobacco use, overweight/obesity).

Action 1: Provide resources to health professionals for educating their patients about “knowing their numbers” (blood pressure, blood cholesterol, blood sugar levels, weight, waist circumference and body mass index) and how these numbers relate to their overall health.

Action 2: Health professionals will encourage physical activity, healthy eating habits and weight management among their patients.

Action 3: Health professionals will refer all patients who smoke to the statewide smoking cessation Quitline or other cessation resource.

Figure 7: Quitting Tobacco is Possible



“My name is Cindy Fowler. I am 49 years old, a widowed mother of two, a grandmother, a CT Scan Technician, and also in my senior year of college. My life, to say the least, is stressful. I have smoked off and on since I was about 16 years old. That’s over 30 years! I have tried to quit smoking a hundred times before. I know smoking cessation is hard, and I know I need help. I want to be here when my grandson is growing up. My father died of lung cancer, and my mother died of Chronic Obstructive Pulmonary Disease (COPD) due to complications from smoking. I cannot put my family through the health complications that I have had to see my parents face.”

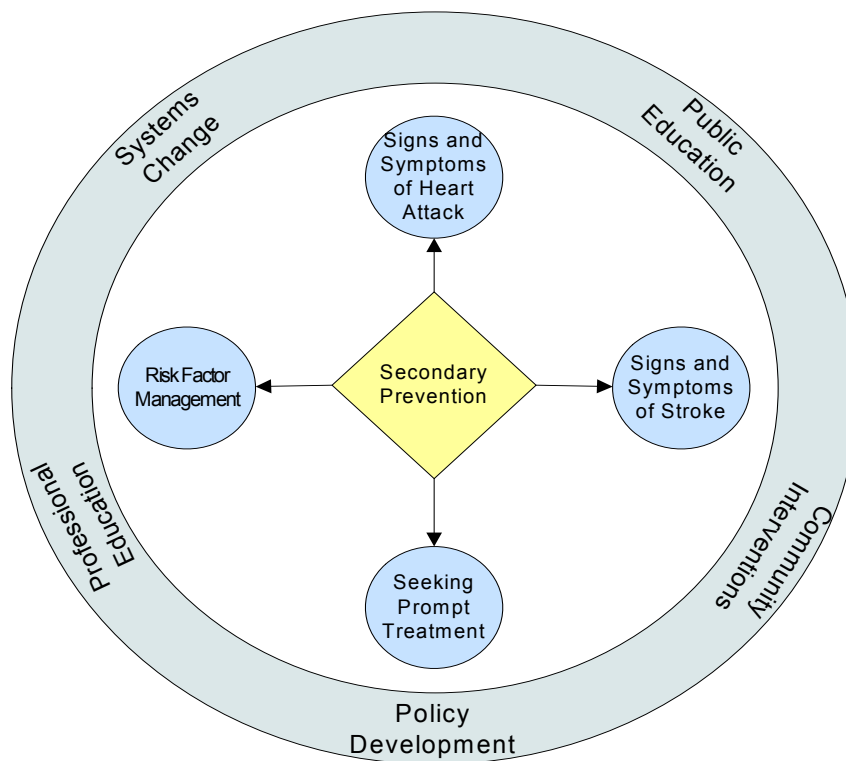
“I was trying to find a way that I could quit smoking successfully and have support along the way. After weighing my options, I chose to call the Kansas Tobacco Quitline. I realized I could not win the fight over tobacco alone. The Kansas Tobacco Quitline helped save my life, and save my family from the misery that would come if I continued smoking. The Kansas Tobacco Quitline provided me with personal, confidential counseling that was available anytime I was having a difficult time in my quit attempt. I also received self-help materials in the mail that helped me decide what I needed to do in my daily life to quit smoking successfully. I was assigned a counselor that helped me set up a personal quit plan that fit my life and schedule. On one occasion, I had two big tests and a paper to write; my stress got the best of me...I smoked. I called the Kansas Tobacco Quitline and they helped me get back on track with my plan. The specialized counselors did not criticize me, or make me feel bad about smoking; they were there to help and support me so that I could quit for good. With the positive support offered by the Tobacco Quitline staff, I was able to quit successfully! I want Kansans to know, the Kansas Tobacco Quitline (1-866-KAN-STOP) is a free, wonderful resource for anyone who is considering quitting tobacco. I am proud to say that I am now tobacco-free thanks to the Kansas Tobacco Quitline!”

SECONDARY PREVENTION

Goal: Improve detection and treatment of risk factors and promote early identification and treatment of heart disease and stroke among Kansans.

Secondary prevention is the early identification and treatment of heart disease and stroke, which can be achieved by Kansans knowing the signs and symptoms of heart attack and stroke, and providing culturally appropriate campaigns, programs and materials. It also addresses management of cardiovascular disease risk factors. Secondary prevention involves not only treatment mechanisms but self-management skills as well. This prevention effort focuses on people with heart disease and stroke who seek to prevent complications of the disease. Maintaining normal blood pressure and blood cholesterol levels are strategies that have been shown to reduce heart disease and stroke complications.

This section addresses secondary prevention relating to risk factor management, increasing awareness about knowing the signs and symptoms of a heart attack and stroke and the importance of seeking prompt treatment. Prevention and management efforts are implemented through five channels (public education, professional education, community intervention, policy efforts, and systems change) in worksites, communities, schools and health care settings. The diagram below illustrates objectives and strategies for secondary prevention addressed in this section.



Strategies and action steps will address reduction of heart disease and stroke among various disparate population subgroups (racial/ethnic, educational, income and geographically disparate groups).

PUBLIC EDUCATION

Objective 1: By 2010, increase awareness among Kansans about the signs and symptoms of heart attack and stroke and the importance of seeking prompt treatment.

Strategy 1: Provide consistent and accurate information to Kansans about the signs and symptoms of heart attack and stroke.

Action: Implement a comprehensive and collaborative effort to educate Kansans about the signs and symptoms of heart attack and stroke.

- Coordinate with organizations such as the American Heart Association/ American Stroke Association, National Heart Lung and Blood Institute, and others to provide resources and educational materials.
- Disseminate educational materials/information through various avenues including media and other campaigns.

Strategy 2: Provide consistent information to Kansans about the importance of seeking prompt treatment for heart attack and stroke by calling 911 and other emergency services.

Action: Implement collaborative and culturally competent efforts to educate Kansans about the importance of seeking prompt treatment for heart attack and stroke by calling 911 and other emergency services.

- Collaborate and coordinate with partner organizations to provide resources and educational materials to the public.
- Disseminate information through various mechanisms including media.

A few examples of current programs and campaigns providing information about the signs and symptoms of heart attack and stroke and the importance of seeking prompt treatment include:

- Go Red for Women/Heart Truth Campaign (Red Dress Campaign)
- Mission Possible
- Stroke When Minutes Matter
- 911: Warning Signs

Objective 2: By 2010, increase awareness among Kansans with heart disease and stroke about self-management of disease and related risk factors.

Strategy: Provide consistent information to Kansans with heart disease and stroke about the importance of self-management of the disease and related risk factors.

Self-management requires patients to address issues related to their disease outside of formal institutions. Self-management skills involve healthy eating, physical activity, prevention and cessation of tobacco, medication adherence, and physician consultations. Barriers to self-management include: education level, socio-economic status, language, and insurance coverage.

Action 1: Implement collaborative and culturally competent efforts to increase awareness of Kansans with heart disease and stroke about the importance and availability of self-management programs.

- Disseminate information in collaboration with partner organizations using different avenues including media.

Objective 3: By 2010, increase awareness among Kansans who have previously experienced a cardiac event of the relationship between risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) and the disease to prevent recurrent events.

Strategy: Provide consistent and accurate information to Kansans with heart disease and stroke about the relationship between cardiovascular disease risk factors (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) and prevention of heart disease and stroke.

Action: Implement a comprehensive and collaborative effort to educate the at-risk population about the effect of uncontrolled high blood pressure and high blood cholesterol on heart disease and stroke.

PROFESSIONAL EDUCATION

Objective 1: By 2010, enhance the capacity of health professionals in Kansas to advise heart disease and stroke patients on the recognition of signs and symptoms of heart attack and stroke, the importance of seeking prompt treatment, and self-management of the disease and related risk factors.

Strategy 1: Support continuing education of health professionals to advise patients on the recognition of signs and symptoms of heart attack and stroke, the importance of seeking prompt treatment, and self-management of the disease and related risk factors.

Action 1: Compile current scientific information including national guidelines for recognition of signs and symptoms of heart attack and stroke, the importance of seeking prompt treatment, and self-management of heart disease and stroke and related risk factors.

The tracking of scientific information and guidelines will be done through an ongoing partnership between the Kansas Department of Health and Environment, the American Heart Association and other profit/non-profit organizations.

A few examples of organizations developing scientific information and guidelines include:

- American Heart Association/American Stroke Association
- Centers for Disease Control and Prevention
- National Heart Lung and Blood Institute
- American Academy Family Practice
- American Diabetes Association
- American College of Cardiology
- American Lung Association
- American Dietetic Association

Action 2: Disseminate current scientific information and national guidelines to health professionals on the recognition of signs and symptoms of heart attack and stroke, the importance of seeking prompt treatment, and self-management of heart disease and stroke and related risk factors.

- Disseminate information using various mechanisms such as print, electronic media, as well as participation at conferences.

Action 3: Coordinate continuing education opportunities for health professionals to enhance their ability to advise patients on the recognition of signs and symptoms of heart attack and stroke, the importance of seeking prompt treatment, and self-management of heart disease and stroke and related risk factors.

- Develop a database of professionals who are qualified to speak about cardiovascular health topics in continuing education settings.
- Post speaker information and availability on the Kansas Heart Disease and Stroke Prevention Program website and other organizational websites.

Objective 2: By 2010, emergency response personnel in Kansas will use standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke.

Strategy: Increase and update knowledge of health professionals and emergency response personnel on standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke.

Action 1: Compile current scientific information on standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke.

- The tracking of scientific information and guidelines will be done through an ongoing partnership between the Kansas Department of Health and Environment, the American Heart Association and other profit/non-profit organizations.

Action 2: Disseminate current scientific information on standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke to health professionals and emergency response personnel.

- The current scientific information on standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke will be disseminated to health professionals and emergency response personnel through ongoing collaboration among state partners via mailings, literature, websites, electronic transmissions, conferences, media campaigns and other available avenues.

Action 3: Coordinate continuing education opportunities for health professionals and emergency response personnel to enhance their knowledge regarding standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke.

- Through ongoing collaboration, state partners will coordinate continuing education and training opportunities to enhance their knowledge regarding standardized guidelines and established disease care models for diagnosis and management of heart disease and stroke.

Objective 3: By 2010, enhance the capacity of emergency dispatchers in Kansas to respond to calls from persons experiencing a possible heart attack or stroke by providing early emergency action steps.

Strategy: Provide training to emergency dispatchers to respond to calls from persons experiencing a possible heart attack or stroke by providing early emergency action steps.

Action 1: Disseminate updates of scientific information about signs and symptoms and initial emergency actions regarding heart attack and stroke.

Action 2: Disseminate scientific information about signs and symptoms and initial emergency actions regarding heart attack and stroke to the partners who are involved in the provision of trainings to emergency dispatchers.

Action 3: Support training and continuing education opportunities for emergency dispatchers to respond to calls from persons experiencing a possible heart attack or stroke.

COMMUNITY INTERVENTIONS

Objective: By 2010, promote interventions for early identification and management of heart disease and stroke in communities, schools and worksites.

Strategy: Implement culturally appropriate efforts to promote early identification and management of heart disease and stroke in community, school and worksite settings.

Action 1: Support collaborative efforts to identify and manage heart disease and stroke in community, school and worksite settings through Cardiopulmonary Resuscitation (CPR), Automated External Defibrillator (AED) and other trainings and campaigns.

Action 2: Support collaborative efforts that provide culturally appropriate resources to health care professionals and community members regarding identification and treatment of heart disease and stroke.

A few examples include:

- Heart Profilers
- Cardiovascular Patient Education Toolkit

POLICY

Objective: By 2010, increase support for state and local policies related to early identification and management of heart disease and stroke in Kansas.

Strategy: Promote statewide advocacy for policies that relate to early identification and management of heart disease and stroke in Kansas.

Action: Identify policies needed to effectively address early identification and management of heart disease and stroke in Kansas.

Examples of current advocacy efforts include:

- Statewide EMD certification
- Medical interpreter bill
- Encourage data submission by emergency medical agencies

SYSTEMS CHANGE

Objective 1: By June 2010, improve access to health care for early identification and management of heart disease and stroke and related risk factors in Kansas.

Strategy 1: Advocate for enhanced affordable access to care for early identification and management of heart disease and stroke and related risk factors.

Action 1: Explore through collaborative statewide efforts the financial options for uninsured and/or underinsured Kansans.

Action 2: Support collaborative efforts to improve insurance coverage for routine costs associated with early identification and management of heart disease and stroke.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers on issues concerning health insurance and care for uninsured and underinsured Kansans.

Strategy 2: Provide timely access to care for early identification and management of heart disease and stroke in Kansas.

Action 1: Coordinate collaborative statewide efforts for the provision of adequate transportation options for timely access to care.

Action 2: Support and enhance the statewide efforts to provide early identification and management opportunities through telemedicine.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers on issues concerning timely access to care for Kansans.

Strategy 3: Promote patient advocacy services and resources for early identification and management of heart disease and stroke.

Action 1: Support collaborative statewide efforts to establish and assign patient navigators/advocates to assist patients in negotiation of medical culture and navigation of the medical system.

Action 2: Support collaborative statewide efforts to establish culturally competent services for medical interpretation and translation.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers on issues concerning patient advocacy.

Objective 2: By June 2010, improve quality of care for early identification and management of heart disease and stroke and related risk factors in Kansas.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is an independent, not-for-profit organization and is the nation's predominant standards

setting and accrediting body in health care. The commission has maintained state-of-the-art standards that focus on improving the quality and safety of care provided by health care organizations. The commission's comprehensive accreditation process evaluates an organization's compliance with these standards and other accreditation requirements.

Strategy 1: Encourage health provider/organization compliance with AHA/ASA and accrediting organizations such as JCAHO and National Council for Quality Assurance (NCQA) guidelines to improve the quality of care for early identification and management of heart disease and stroke.

Action 1: Explore potential for the establishment of additional stroke centers.

Action 2: Implement and encourage statewide collaborative efforts for the establishment of quality of care protocols in medical centers.

- A current example for quality of care efforts in medical centers/organizations includes collaborative efforts between AHA, the state health department, insurance providers and medical centers/organizations to establish Get With The Guidelines Program to improve quality of care.

Action 3: Encourage statewide collaborative efforts to establish an electronic health records system of acute care for heart disease and stroke.

Action 4: Implement and encourage statewide collaborative efforts for the establishment of quality of care protocols.

- A current example for quality of care efforts in medical practices includes collaborative efforts between NCQA, AHA/ASA and insurance providers to implement the NCQA Heart and Stroke Recognition Program in medical practices.

Strategy 2: Encourage emergency response systems to adopt and/or comply with national guidelines for the improvement of quality of care for early identification and management of heart disease and stroke.

Emergency response systems include, but are not limited to:

- Dispatchers
- First Responders
- EMS Personnel
- Emergency Room Physicians
- Nurses
- Emergency Room Teams

Action 1: Support development of policy to assure compliance with national guidelines.

Action 2: Provide training opportunities for emergency response dispatchers to be certified as an Emergency Medical Dispatcher.

Action 3: Provide continuing education opportunities for all emergency medical personnel to improve quality of care emergency services.

Action 4: Provide resources (financial, personnel, communication and organizational support) to all emergency response systems.

A few examples of resources available include:

- Acute Stroke Treatment Program Toolkit
- Advanced Cardiac Life Support (ACLS) materials and training
- Funding to support local EMS operations

Action 5: Support collaborative efforts to educate and inform state and federal elected officials and policy makers on issues concerning quality of care for early identification and management of heart disease and stroke.

Figure 8: Surviving a Stroke



Do you see it? All I see is a couple in love who have been married 32 years. One of the two people pictured above has suffered not one, not two, not three, but six strokes. Can you tell which one? This is their story.

Being a stroke survivor is like starting your life over. Some of us have to learn to walk, talk, eat, go to the bathroom, groom yourself, and express your needs or thoughts all over again. The biggest question you will probably have is: Why me? I know because I had six strokes.

One thing that I have learned from the first day was to keep a positive attitude even when you have a setback. You will never be the same physically or mentally as you were before the stroke. If you do not deal with it, then you have given up on yourself. You will learn how to do everything that you did before your stroke but will have to do it a different way or make adjustments. For example, we would go out and eat every Friday night before the strokes. After the strokes, I did not want to go because I was embarrassed that I could not cut my own steak. I learned how to concentrate on my left hand to keep a hold of the fork while it held the steak so I could cut with my right hand. The problem was that the plate moved all over the table when I tried to cut my steak. The solution came when my wife came up with the idea of using a rubber pad under the plate. Now I enjoy eating steak every Friday night.

Being a stroke caregiver takes a lot of love and the need to learn when to step back from the survivor to let them do it for themselves. The life as you know it is gone and you are starting all over again. We have been married for 32 years and after the stroke it was like we were married for 5 years and starting a new relationship again. We had to learn how to relate to one another again.

The mood swings are the hardest to get over. The stroke survivor gets so angry, thinking they are worthless because they do not work anymore or cannot do the things they could do before. I became the primary breadwinner and it was hard for him, because for so many years, he was the breadwinner. I find myself always trying to find things that can help us to have a normal life.

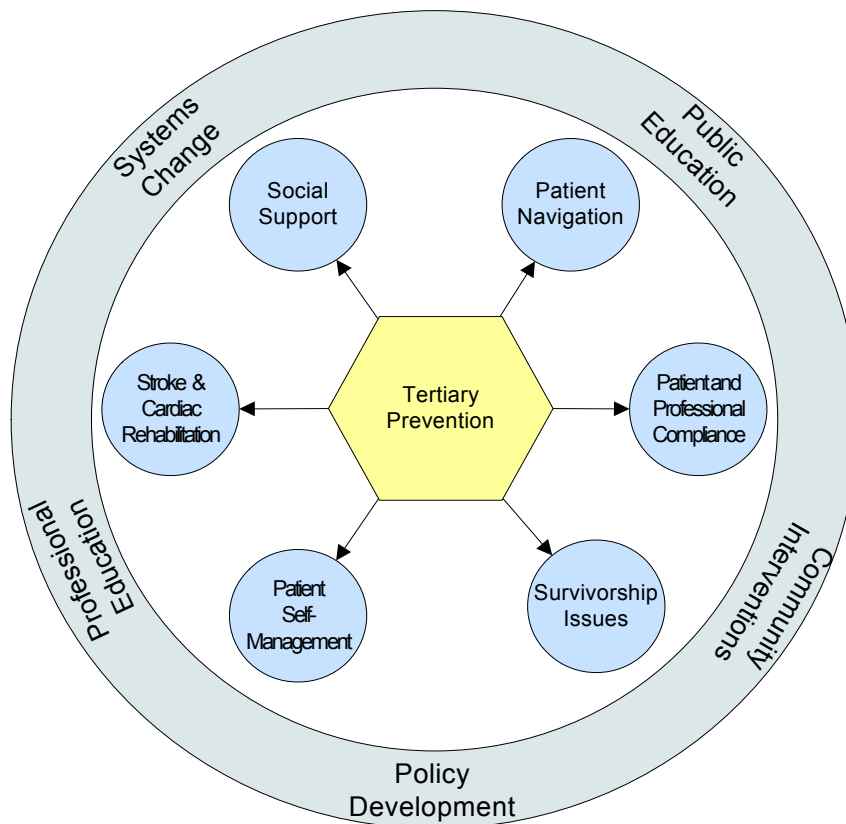
What has worked for me the most was to find others that have had to deal with the disease. I needed the support of others.

TERTIARY PREVENTION

Goal: Prevention of recurrent cardiovascular disease events, related complications, and disability among Kansans with heart disease and stroke through disease and risk factor management and rehabilitation strategies.

Tertiary prevention involves the treatment of those who have experienced heart disease and/or suffered a stroke, with attempts made to restore highest function, and prevent disability and disease-related complications. Tertiary care starts after an event has occurred and usually begins in a hospital or rehabilitation facility. The goal of tertiary care is to support the patient through a rehabilitation process so disease progression is prevented and quality of life is improved and sustained.

This section focuses on tertiary prevention and addresses issues concerning survivorship, social support, stroke and cardiac rehabilitation, patient navigation, and professional and patient compliance with medical management protocols. The avenues for tertiary prevention include public education; professional education; community interventions; and policy efforts and systems change in worksites, communities, schools and health care environments. The diagram below illustrates objectives and strategies for tertiary prevention addressed in this section.



Strategies and action steps will address the reduction of heart disease and stroke among various disparate population subgroups (racial/ethnic, educational, income and geographically disparate groups).

PUBLIC EDUCATION

Objective: By 2010, increase the awareness of Kansans of the importance of compliance with heart disease and stroke management protocols (lifestyle changes, control of risk factors, medication usage, follow-up visits with physicians) to prevent recurrent events and complications of the disease.

Strategy 1: Provide consistent and accurate information to Kansans with heart disease and stroke about the link between healthy lifestyle behaviors and prevention of recurrent events and complications.

Action 1: Compile current scientific information and guidelines related to healthy lifestyle behaviors for prevention of recurrent events and complications of disease through statewide partnerships.

A few examples include:

- Physical activity guidelines
- Comprehensive Tobacco Use Prevention and Control Program
- Nutrition guidelines

Action 2: Disseminate current scientific information and guidelines related to healthy lifestyle behaviors through statewide partnerships using media and other campaigns, websites, printed literature and presentations/speaking engagements.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers regarding the correlation between healthy lifestyles and prevention of recurrent events and complications of heart disease and stroke.

Strategy 2: Provide consistent and accurate information to Kansans with heart disease and stroke about the link between risk factor management (high blood pressure, high blood cholesterol, diabetes, smoking, overweight/obesity) and prevention of recurrent events and complications of the disease.

Action 1: Compile current scientific information and guidelines related to risk factor management (through lifestyle changes and compliance with pharmaceutical interventions) for prevention of recurrent events and complications for heart disease and stroke.

Action 2: Disseminate current scientific information and guidelines related to risk factor management (through lifestyle changes and compliance with

pharmaceutical interventions) for prevention of recurrent events and complications for heart disease and stroke.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers regarding the correlation between risk factor management and prevention of recurrent events and complications of heart disease and stroke.

Strategy 3: Provide consistent and accurate information to Kansans with heart disease and stroke about the importance of compliance with heart disease and stroke management in prevention of recurrent events and complications.

Action 1: Compile current scientific information and guidelines related to heart disease and stroke management (through lifestyle changes, compliance with pharmaceutical interventions and regular physician visits) for prevention of recurrent events and complications for heart disease and stroke.

Action 2: Disseminate current scientific information and guidelines related to heart disease and stroke management (through lifestyle changes, compliance with pharmaceutical interventions and regular physician visits) for prevention of recurrent events and complications for heart disease and stroke.

Action 3: Support collaborative efforts to educate and inform state and federal elected officials and policy makers regarding the importance of compliance with heart disease and stroke management in prevention of recurrent events and complications.

Strategy 4: Provide consistent and accurate information to Kansans with heart disease and stroke about the available facilities and resources for disease management, rehabilitation and social support.

Action 1: Compile information on facilities and resources for disease management, rehabilitation and social support through statewide partnerships.

Action 2: Disseminate information on facilities and resources for disease management, rehabilitation and social support through statewide partnerships.

Action 3: Support statewide collaborative efforts to educate and inform state and federal elected officials and policy makers regarding the importance of the availability of facilities and resources for disease management, rehabilitation and social support.

PROFESSIONAL EDUCATION

Objective: By 2010, enhance the capacity of health professionals in Kansas to advise patients regarding compliance with heart disease and stroke management

protocols (lifestyle changes, control of risk factors, medication usage, follow-up visits with physicians) to prevent recurrent events and complications of the disease.

Strategy: Support continuing education for Kansas health professionals on evidence-based disease management and rehabilitation protocols.

Action 1: Support implementation of quality of care improvement measures.

Action 2: Support dissemination of standardized guidelines for care.

COMMUNITY INTERVENTIONS

Objective: By 2010, increase opportunities for continuous care management to prevent disease complications, recurrent events and quality of life improvement in communities, worksites and schools.

Strategy 1: Provide opportunities for healthy lifestyle and disease management support.

Action: Support comprehensive and collaborative healthy lifestyle intervention efforts in communities, schools and worksites.

Strategy 2: Provide opportunities for access to rehabilitation and social services to improve quality of life of Kansans with heart disease and stroke.

Action 1: Support comprehensive and collaborative efforts to provide access to support groups.

Action 2: Support comprehensive and collaborative efforts to provide access to medical care.

Action 3: Support comprehensive and collaborative efforts to provide access to rehabilitation services.

Strategy 3: Provide opportunities for business and industry return-to-work standards.

Action 1: Develop and promote an industry standard of excellence for business leaders and human resource professionals to support employees who return to work after a heart disease or stroke diagnosis.

Action 2: Implement trainings for business leaders and human resource professionals on the standard of excellence for managing heart disease and stroke in the workforce.

POLICY

Objective: By 2010, increase support for state and local policies related to quality of life improvement among Kansans with heart disease and stroke.

Strategy: Develop and implement advocacy efforts related to quality of life improvement among Kansans with heart disease and stroke.

Action 1: Support collaborative efforts to educate and inform state and federal elected officials and policy makers regarding the correlation between healthy lifestyles and prevention of recurrent events and complications of heart disease and stroke.

Action 2: Support collaborative efforts to assure the availability of insurance coverage to not only restore function but also assist people with disabilities caused by heart disease and stroke to promote a healthy lifestyle and improve their quality of life.

SYSTEMS CHANGE

Objective: By 2010, increase support for systems change associated with recurrence of cardiovascular events, complications, and disabilities through provision of quality of care.

Strategy 1: Support implementation of quality improvement measures in clinical and rehabilitation facilities.

Action: Support and implement utilization of quality improvement methods to improve quality of care.

Strategy 2: Promote implementation of patient advocacy/navigation services.

Action: Explore collaborative statewide efforts to establish and assign patient navigators/advocates to assist patients through the process of acute treatment to rehabilitation and recovery.

Strategy 3: Collaborate with partners to enhance affordable access to care.

Action: Through collaborative statewide efforts, explore the financial options for uninsured and/or underinsured Kansans regarding options for treatment, rehabilitation and social services.

DATA AND SURVEILLANCE, PROGRAM EVALUATION AND RESEARCH

The overarching goal of Kansas heart disease and stroke data and surveillance systems is to identify the burden of these diseases and related risk factors in the population, track the trends in the prevalence of the disease and risk factors, and assess public awareness regarding signs and symptoms and strategies to prevent and control disease and related risk factors. The information from heart disease and stroke data and surveillance systems is essential for making timely and effective decisions to address cardiovascular disease in Kansas.

Evaluation of heart disease and stroke programs allow us to monitor progress towards intended program goals and objectives. The evaluation process is critical in making timely and effective decisions to develop and modify disease prevention and control efforts and ensuring efficient allocation of resources.

Research is integral in identifying new methods and practices that can be applied to reduce morbidity and mortality from heart disease and stroke and its associated risk factors. Clinical trials are essential to identify new information and add to the current knowledge of treatments and interventions that can be used effectively for the prevention and control of heart disease and stroke and its associated risk factors.

Objective 1: To identify and monitor the status of heart disease and stroke among Kansans by strengthening the population-based surveillance and data systems.

Strategy: Ensure and enhance the collection, quality and dissemination/communication of information obtained from ongoing population-based surveillance and data systems for heart disease and stroke in Kansas.

Action 1: Collect, analyze and interpret population-based data on heart disease, stroke, and associated risk factors.

Action 2: Maintain the quality of population-based data on heart disease and stroke and associated risk factors by encouraging use of standardized and validated data collecting instruments and definitions.

Action 3: Develop an inventory of all existing surveillance and data resources for heart disease and stroke. This will help to identify assets and gaps related to data systems.

Action 4: Promote public and private partnerships to identify and support the resources for ongoing maintenance of surveillance and data systems.

Action 5: Promote partnerships between organizations to share databases for effective utilization of information on heart disease and stroke and associated risk factors.

Action 6: Promote timely dissemination/communication of surveillance and data information on heart disease, stroke and associated risk factors to public, health professionals, community organizations and decision makers through print and electronic publications and presentations in public and professional forums. Data communication/dissemination will help in developing interventions to address issues related to heart disease and stroke.

- The current surveillance and data systems that identify and monitor the status of heart disease and stroke and associated risk factors in Kansas are Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavioral Survey (YRBS), Adult Tobacco Survey (ATS), Youth Tobacco Survey (YTS), Cardiovascular Health Examination Survey, Kansas Mortality Data, Kansas Hospital Discharge data, Medicare and Medicaid, and other claims data systems.

Objective 2: Encourage and support the evaluation of heart disease and stroke prevention and control programs.

Strategy: Ensure and enhance the implementation of activities for evaluation of heart disease and stroke prevention and control programs.

Action 1: Provide resources for evaluation of the heart disease and stroke prevention and control programs such as evaluation models, tools, guidelines, trainings and technical assistance.

Action 2: Promote public and private partnerships to identify and support resources for evaluation of heart disease and stroke prevention and control programs.

Action 3: Promote timely dissemination/communication of program evaluation results to public, health professionals, community organizations and decision makers through print and electronic publications and presentations in public and professional forums. This will help in assessing the impact of programs addressing heart disease and stroke issues. In addition, evaluation will help strengthen and modify the programs addressing heart disease and stroke prevention and control efforts.

Objective 3: Encourage and support research to identify issues related to prevention and control of heart disease and stroke.

Strategy: Ensure and enhance the identification and implementation of research initiatives that can provide scientific insight on issues related to prevention and control of heart disease and stroke and risk factors.

Action 1: Develop an inventory of current research initiatives related to prevention and control of heart disease and stroke.

Action 2: Promote public and private partnerships to identify and support the resources for research initiatives related to prevention and control of heart disease and stroke.

Action 3: Promote dissemination of information about research trials to health care providers.

Action 4: Promote timely dissemination/communication of results of the research initiatives to public, health professionals, community organizations and decision makers through print and electronic publications and presentations in public and professional forums. The information will help in providing evidence-based guidance for prevention and control of heart disease and stroke.

Action 5: Promote the translation of results from research initiatives into practice in different settings.

Section III:
Measurement and Evaluation

OUTLINE OF MEASURES FOR EVALUATION OF GOALS/OBJECTIVES OF KANSAS CARDIOVASCULAR HEALTH PLAN

Primordial Prevention

- Updated and accurate information to adopt healthy lifestyles is provided to the general public.
- Health professionals are provided with resources to promote evidence based healthy lifestyles in Kansas.
- Appropriate assistance is provided to communities, schools and worksites to adopt healthy lifestyle.
- Health policy development related to healthy lifestyles is promoted at the state and local level.
- Environmental and systems changes for healthy lifestyles are promoted at the state and local level.

Primary Prevention

- Updated and accurate information about the relationship between cardiovascular disease risk factors and prevention of heart disease and stroke is provided to the population at risk for heart disease and stroke.
- Persons at risk for heart disease and stroke are provided updated and accurate information to manage their risk factors for heart disease and stroke.
- Current and updated scientific information and guidelines are provided to health professionals to continually update their knowledge to prevent, detect, and treat patients with one or more risk factors for heart disease and stroke.
- Appropriate assistance is provided to communities, schools and worksites to develop interventions that will assist in the prevention, detection and treatment of risk factors for heart disease and stroke.
- Health policy development and implementation to prevent, detect and treat risk factors for heart disease and stroke is promoted at the state and local level.
- Environmental and systems changes to prevent, detect and treat risk factors for heart disease and stroke are promoted at the state and local level.

Secondary Prevention

- Updated and accurate information about the relationship of recognition of signs and symptoms of heart attack and stroke is provided to the population.
- Updated and accurate information about the importance of self management of heart disease and stroke and its related risk factors is provided to the population.
- Updated and accurate information is provided to persons with heart disease and stroke to prevent, detect and manage risk factors for heart disease and stroke.
- Current and updated scientific information and guidelines are provided to health professionals to continually update their knowledge for provision of advice to patients to recognize signs and symptoms of heart attack and stroke, seek

immediate care, and adopt self management strategies to control risk factors for heart disease and stroke.

- Current and updated scientific information and guidelines are provided to health professionals to continually update their capacity for diagnosis and management of patients with heart disease and stroke and its related risk factors.
- Technical assistance is provided to communities, schools and worksites to develop interventions that will assist in early identification and management of heart disease and stroke.
- Health policy development and implementation efforts for early identification and management of heart disease and stroke and related risk factors are promoted at the state and local level.
- Environmental and systems change efforts for early identification and management of heart disease and stroke and related risk factors are promoted by enhancement of affordable access to care and improved quality of care at the state and local level.

Tertiary Prevention

- Kansans are provided with updated and accurate information about compliance with heart disease and stroke management protocols to prevent recurrent events and complications of the disease by adopting lifestyle changes, control of risk factors, medication usage, and follow-up visits with physicians.
- Current and updated scientific information and guidelines are provided to health professionals to continually update their knowledge for provision of advise to patients to adopt lifestyle changes, control of risk factors, medication usage, and follow-up visits with physicians to prevent recurrent events and complications of heart disease and stroke and related risk factors.
- Technical assistance is provided to communities, schools and worksites to develop interventions that will assist in continuous care management to prevent heart disease and stroke complications, prevent recurrent events, and quality of life.
- Health policy development and implementation efforts for improvement of quality of life of patients with heart disease and stroke are promoted at the state and local level.
- Environmental and systems changes efforts to prevent recurrent cardiovascular events, complications and disabilities are promoted by enhancement of quality improvement measures, patient advocacy and navigation services and affordable access to care at the state and local level.

Data and Surveillance

- Ongoing collection of reliable data on prevalence of heart disease and stroke and related risk factors, awareness of signs and symptoms of disease, and strategies applied by individuals for prevention and control of disease and risk factors is conducted.

- Timely dissemination of data on heart disease and stroke and related risk factors to public, health professionals, community organizations and decision makers is conducted.
- Technical assistance for interpretation and utilization of data on heart disease and stroke and related risk factors is promoted to stakeholders and partners.
- Resources for strengthening the data and surveillance systems of heart disease and stroke and related risk factors are identified.

Program Evaluation and Research

- Technical assistance for evaluation of heart disease and stroke prevention and control programs is provided to partners and stakeholders.
- Collaborative partnerships are developed to encourage and support research initiatives related to prevention and control of heart disease and stroke.
- Translation and dissemination of results of research initiatives is conducted in a timely manner.
- Dissemination of information about research trials to health providers is conducted in a timely manner.

Section IV:
APPENDICES

APPENDIX 1: REFERENCES

American Heart Association (2002). Secondary Prevention. Available at: [http://216.185.102.50/Heart and Stroke A Z Guide/prevsec.html](http://216.185.102.50/Heart_and_Stroke_A_Z_Guide/prevsec.html). Accessed May 2006.

American Heart Association. Get with the Guidelines. Available at: www.americanheart.org/presenter.jhtml?identifier=1165. Accessed April 2006.

Centers for Disease Control and Prevention, National Center for Health Statistics. (2000). Healthy People 2010: Objectives for Improving Health, Vol. 1. Hyattsville, MD: CDC NCHS.

Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention, National Center for Chronic Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. Toolkit of Successful Business Strategies to Prevent Heart Disease and Stroke. 2005.

Kansas Department of Health and Environment. The Burden of Heart Disease and Stroke in Kansas. Topeka, Kansas: Office of Health Promotion; December 2005.

Kansas Public Safety Communications Survey. Report by Kansas Foundation for Medical Care, Inc. 2003.

U.S. Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. Seventh Report of the Joint National Council on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. 2004; NIH Publication No. 04-5230.

U.S. Department of Health and Human Services, National Institutes of Health, National Heart Lung and Blood Institute. 2002. National Cholesterol Education Program ATP III Guidelines.

APPENDIX 2: GLOSSARY

Acute Treatment: Treatment for people who have experienced a first or recurrent cardiovascular event (e.g., heart attack, heart failure, and stroke) designed to increase their probability of survival and to minimize associated damage or disability.

Atherosclerosis: Hardening of the medium-sized and larger arteries, especially those that supply the heart (coronary arteries), the brain (the carotid and cerebral arteries), and the lower extremities (the peripheral arteries), as well as the aorta.

Behavioral Change: An intervention approach that uses public information and education to promote behavioral patterns favorable to health for the population as a whole; also includes interventions (e.g., counseling) at the group or individual level for the same purpose.

Behavioral Risk Factor Surveillance System (BRFSS): A state-based, CDC-sponsored system of health surveys that generate information about health risk behaviors and attitudes, clinical preventive practices, and health care access and use primarily related to chronic diseases and injury.

Blood Cholesterol: The blood concentration of a family of lipid or “fatty” molecular compounds obtained directly from the diet or produced in the body from fatty dietary components; a necessary factor in the development of atherosclerosis; total cholesterol concentration is classified as “high” if it is > 200 mg/dl. Subtypes of cholesterol differ in their relation to CV risk, with high-density lipoprotein (HDL) cholesterol is considered “good,” and low-density (LDL) cholesterol considered “bad.”

Body Mass Index (BMI): Measures weight in relation to height (see calculation under obesity).

Cardiopulmonary Resuscitation (CPR): Cardiopulmonary resuscitation (CPR) is emergency first aid for an unconscious person whose breathing and pulse have stopped.

Cardiovascular Disease (CVD): May refer to all disease of the heart and blood vessels, including ischemic heart disease, hypertensive heart disease (together also called coronary heart disease), cerebrovascular disease (stroke), congestive heart failure, atherosclerosis, diseases of veins and rheumatic heart disease.

Cardiovascular Disease Prevention: A set of interventions designed to prevent first and recurrent CVD events (e.g., heart attack, heart failure, and stroke). CVD primary prevention refers to detection and control of risk factors, whereas secondary prevention includes long-term case management for survivors of CVD events. CVD prevention complements cardiovascular health (CVH) promotion.

Cardiovascular Health (CVH): A combination of favorable health habits and conditions that protects against development of cardiovascular disease.

Coronary Heart Disease: Heart disease caused by impaired circulation in one or more coronary arteries; often manifests as chest pain (angina pectoris) or heart attack. Ischemic heart disease and hypertensive heart disease together are called coronary heart disease.

Culturally appropriate (HP 2010): Refers to an unbiased attitude and organizational policy that values cultural diversity in the population served. Reflects an understanding of diverse attitudes, beliefs, behaviors, practices, and communication patterns that could be attributed to race, ethnicity, religion, socioeconomic status, historical and social context, physical or mental ability, age, gender, sexual orientation, or generational and acculturation status. Includes an awareness that cultural differences may affect health and the effectiveness of health care delivery. Knowledge of disease prevalence in specific cultural populations, whether defined by race, ethnicity, socioeconomic status, physical or mental ability, gender, sexual orientation, age, disability or habits.

Cultural competence: The design, implementation and evaluation process that accounts for special issues of select population groups (ethnic and racial, linguistic) as well as differing educational levels and physical abilities.

Diabetes (or Diabetes Mellitus): A metabolic disorder resulting from insufficient production or utilization of insulin that commonly leads to cardiovascular complications.

Disparities: Large gaps or differences in the burden of heart disease and stroke among populations or groups that may be related to race/ethnicity, gender, geography or socioeconomic status.

Health Care Systems: The community health centers, health care clinics, hospitals, and health insurance plans that deliver or pay for health services.

Health Disparities: Differences in the burden and impact of disease among different populations, defined by sex, race, ethnicity, education, income, disability, place of residence, or sexual orientation.

Health Promotion: Any combination of health education and related organizational, economic, and environmental supports for behavior of individuals, groups, or communities conducive to health.

Healthy People 2010: A national document that presents the most important health-related goals and objectives to be achieved in the United States by the year 2010.

Heart Attack: An acute event in which the heart muscle is damaged because of lack of blood flow from the coronary arteries, typically accompanied by chest pain and other

warning signs but sometimes occurring with no recognized symptoms (Silent Heart Attack).

Heart Disease & Stroke Prevention Program: A CDC program initiated in 1998 that supports state efforts to prevent heart disease and stroke; for more information see www.cdc.gov/cvh/stateprogram.htm.

Heart Disease: Any affliction that impairs the structure or function of the heart such as atherosclerotic and hypertensive disease, congenital heart disease, rheumatic heart disease, and cardiomyopathies.

Heart Failure: Impairment of the pumping function of the heart as a result of heart disease; heart failure often causes physical disability and increased risk for other CVD events.

High Blood Pressure (Hypertension): A condition in which the pressure in the arterial circulation is greater than desired; associated with increased risk for heart disease, stroke, chronic kidney disease, and other conditions; blood pressure is considered “high” if systolic pressure (measured at the peak of contraction of the heart) is ≥ 140 mm Hg or if diastolic pressure (measured at the fullest relaxation of the heart) is ≥ 90 mm Hg.

Hypertensive Heart Disease: Abnormality in the structure and function of the heart caused by long-standing high blood pressure, often manifesting as heart failure.

Incidence: The number of new cases of disease occurring in a population of given size within a specified time interval.

Inventory: A written assessment of existing policy and environmental conditions that function as resources for, or barriers to, cardiovascular health in a specified setting at the state, regional or community level.

Mortality: Rate of death expressed as the number of deaths occurring in a population of given size within a specified time interval (e.g., 265 annual deaths from heart disease per 100,000 U.S. Hispanic women, 1991-1995).

Obesity: Usually defined in terms of body mass index (BMI) which is calculated as body weight in kilograms ($1 \text{ kg}=2.2\text{lbs}$) divided by height in meters ($1 \text{ m}=39.37 \text{ in}$) squared; adults with a BMI equal to or greater than 30.0 kg/m^2 are considered “obese,” and those with a BMI of $25\text{-}29.9 \text{ kg/m}^2$ are considered “overweight.” In children, overweight is defined as BMI equal to or greater than the 95th percentile value for the same age and sex group.

Prevalence: The frequency of a particular condition within a defined population at a designated time (e.g., 12.6 million Americans living with heart disease in 1999).

Primary CVD Prevention: A set of interventions, including the detection and control of risk factors, designed to prevent the first occurrence of heart attack, heart failure or stroke among people with identifiable risk factors.

Primordial CVD Prevention: A set of interventions targeting people without risk factors or CVD (including promotion of healthy behavior patterns) to prevent the development of risk factors.

Public Health Agency: A government or non-government entity authorized to provide one or more essential public health services. Included are health, mental health, substance abuse, environmental health, occupational health, educational, and public health agencies.

Quality of care: According to the Institute of Medicine, “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.” Simply stated, it is doing the right thing, for the right patient, at the right time, with the right outcomes.

Quality of life: An expression that, in general, connotes an overall sense of well-being when applied to an individual and a pleasant and supportive environment when applied to a community. On the individual level, health-related quality of life has a strong relationship to a person’s health perceptions and ability to function. On the community level, it can be viewed as including all aspects of community life that have a direct and quantifiable influence on the physical and mental health of its members.

Rehabilitation: An intervention approach designed to limit disability among survivors of CVD events and reduce their risk for subsequent events.

Risk Behavior: A behavioral pattern associated with increased frequency of specified health problems; for example, high salt intake, smoking, and binge drinking are all associated with CVD.

Risk Factor Detection & Control: An intervention approach that targets people with identifiable risk factors; includes both screening or other methods of detection and long-term disease management through changes in lifestyles, behavior, and medication when necessary.

Secondary Prevention: A set of interventions aimed at survivors of acute CVD events (e.g., heart attack, heart failure, and stroke) or others with known CVD in which long-term case management is used to reduce disability and risk for subsequent CVD events.

Social Marketing: The application of marketing principles and techniques to program development, implementation, and evaluation related to promoting healthy behaviors or reducing risky ones.

Stroke: Sudden interruption of blood supply to the brain caused by an obstruction or the rupture of a blood vessel.

Survivorship: Remaining alive for a specified period (e.g., beyond the 28-day definition of case fatality) after a CVD event.

Target Population: Groups at especially high risk for CVD such as those identified by sex, race, ethnicity, education, income, disability, place of residence, or sexual orientation.

Tertiary CVD Prevention: An intervention approach included in secondary prevention, sometimes distinguished as reducing disability among survivors of CVD events through rehabilitation.

APPENDIX 3: ACRONYMS

ADA	American Diabetes Association
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
CDEMS	Chronic Disease Electronic Management System
CHD	Coronary Heart Disease
CVD	Cardiovascular Disease
CVDAC	Cardiovascular Disease Advisory Council
CVH	Cardiovascular Health
CVHES	Cardiovascular Health Examination Survey
DHHS	Department of Health and Human Services
DPCP	Diabetes Prevention and Control Program
GWTG	Get With the Guidelines
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JNC – 7	Seventh Report of the Joint National Council on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7, 2004)
KDHE	Kansas Department of Health and Environment
KHDSPP	Kansas Heart Disease and Stroke Prevention Program
NCQA	National Council for Quality Assurance
NHLBI	National Heart Lung and Blood Institute

APPENDIX 4a: GET WITH THE GUIDELINES

Get with the Guidelines is a hospital-based quality improvement program designed to close the treatment gap in cardiovascular disease. The program provides physicians and health care providers with materials, information and tools. Discharge protocols in the hospital setting help ensure patients with cardiovascular disease are placed on appropriate medications, informed of recommended behavioral modifications, and improve the rate of intervention with cardiovascular disease (CVD) patients both in-hospital and post-discharge to reduce the incidence of CVD events. The hospital setting has been identified as the “teachable moment.”

This program focuses on building consensus among a hospital team, identifying a program champion to drive the program, and implementing discharge protocols that include medication and lifestyle modifications.

The program improves care by:

- Identifying, developing and mobilizing hospital teams.
- Reviewing existing care maps and discharge protocols for agreement with American Heart Association/American College of Cardiology Secondary Prevention guidelines.
- When appropriate, developing and implementing appropriate new guideline-based care maps and discharge protocols.
- Focusing on the discharge protocols used by the hospital care team to ensure patients are discharged with appropriate medication prescriptions and risk-modification counseling.

APPENDIX 4b: WORKSITE WELLNESS

Cardiovascular disease is the leading killer in the United States, killing 50% more Americans than cancer, the second leading cause of death. Its major risk factors are the most prevalent chronic conditions in the workforce, and it is one of the leading causes of disability.

Worksite Wellness is a health promotion strategy in which employers and health care stakeholders address cardiovascular health and wellness and refers to programs that are offered to improve employee health, decrease health care costs, reduce absenteeism and increase productivity. These programs may involve a combination of policy, environmental and educational approaches. Employees will be able to increase their knowledge of cardiovascular risk factors, primary prevention and their role in improving overall health. Employers and employees working collaboratively can make the worksite a better place to work.

APPENDIX 4c: MISSION POSSIBLE

The Kansas Heart Disease and Stroke Prevention Program has collaborated with the National Heart Lung and Blood Institute and local health departments to educate people about prevention and control of high blood pressure. *Prevent and Control High Blood Pressure: Mission Possible* is an initiative designed to mobilize all Americans in the fight against high blood pressure and reduce the more than one million heart attacks, strokes, and kidney failure cases caused annually by high blood pressure.

A few examples of the fact sheets include:

- Prevent and Control High Blood Pressure: What you should know.
- Prevent and Control High Blood Pressure: What every mid-life and older American should know.
- Prevent and Control High Blood Pressure: What every African-American should know.
- Prevent and Control High Blood Pressure: What every young adult should know.
- Prevent and Control High Blood Pressure: What every physician should know.
- Prevent and Control High Blood Pressure: DASH to the diet.

APPENDIX 4d: GO RED FOR WOMEN AND THE HEART TRUTH CAMPAIGN

Go Red for Women is the American Heart Association's nationwide campaign to bring women together to wipe out heart disease. Very few people know that heart disease is the number one killer of women. This campaign empowers women with knowledge whereby they can reduce their risk of heart disease and stroke. The campaign gives women information on healthy eating; physical activity; and risk reduction such as smoking cessation, weight maintenance, blood pressure control and blood cholesterol management. During the year, women and men across the country wear red in support of mothers, daughters, sisters and friends who are at risk for heart disease and stroke.

- ♥ Heart disease is the number one killer of women.
- ♥ Each year since 1984, more women than men have died from heart disease.
- ♥ Cardiovascular disease kills more people each year than the next four leading causes of death combined (malignant cancers, chronic lower respiratory diseases, unintentional injuries and Alzheimer's disease).
- ♥ 1 in 2.6 women will die from cardiovascular disease, while 1 in 30 women will die from breast cancer.
- ♥ Nearly 12 women a day die from cardiovascular disease.

APPENDIX 5: JNC 7



Reference Card From the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)

EVALUATION

CLASSIFICATION OF BLOOD PRESSURE (BP)*			
CATEGORY	SBP MMHg		DBP MMHg
Normal	<120	and	<80
Prehypertension	120–139	or	80–89
Hypertension, Stage 1	140–159	or	90–99
Hypertension, Stage 2	≥160	or	≥100

* See Blood Pressure Measurement Techniques (reverse side)
Key: SBP = systolic blood pressure DBP = diastolic blood pressure

DIAGNOSTIC WORKUP OF HYPERTENSION

- Assess risk factors and comorbidities.
- Reveal identifiable causes of hypertension.
- Assess presence of target organ damage.
- Conduct history and physical examination.
- Obtain laboratory tests: urinalysis, blood glucose, hematocrit and lipid panel, serum potassium, creatinine, and calcium. Optional: urinary albumin/creatinine ratio.
- Obtain electrocardiogram.

ASSESS FOR MAJOR CARDIOVASCULAR DISEASE (CVD) RISK FACTORS

- Hypertension
- Obesity (body mass index ≥ 30 kg/m²)
- Dyslipidemia
- Diabetes mellitus
- Cigarette smoking
- Physical inactivity
- Microalbuminuria, estimated glomerular filtration rate <60 mL/min
- Age (>55 for men, >65 for women)
- Family history of premature CVD (men age <55, women age <65)

ASSESS FOR IDENTIFIABLE CAUSES OF HYPERTENSION

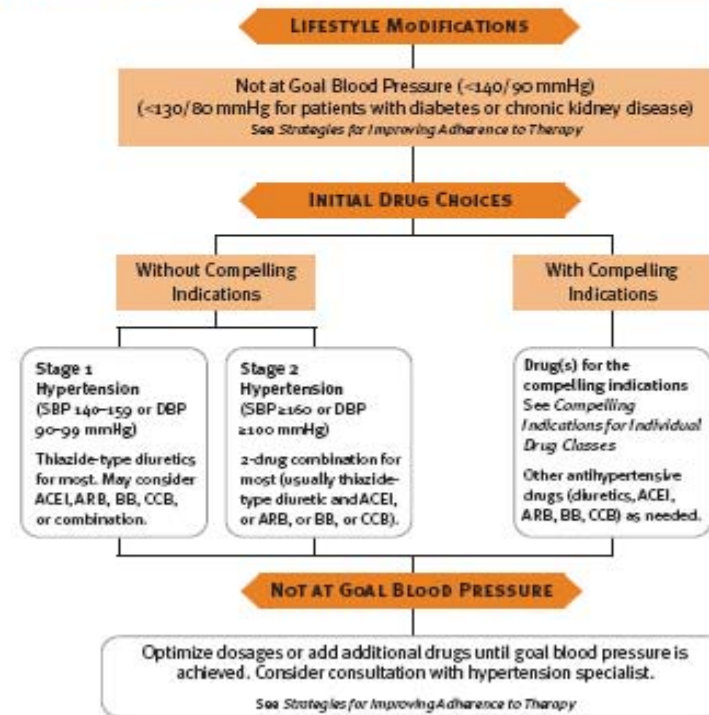
- Sleep apnea
- Drug induced/related
- Chronic kidney disease
- Primary aldosteronism
- Renovascular disease
- Cushing's syndrome or steroid therapy
- Pheochromocytoma
- Coarctation of aorta
- Thyroid/parathyroid disease

TREATMENT

PRINCIPLES OF HYPERTENSION TREATMENT

- Treat to BP <140/90 mmHg or BP <130/80 mmHg in patients with diabetes or chronic kidney disease.
- Majority of patients will require two medications to reach goal.

ALGORITHM FOR TREATMENT OF HYPERTENSION



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
National Heart, Lung, and Blood Institute

BLOOD PRESSURE MEASUREMENT TECHNIQUES

METHOD	NOTES
In-office	Two readings, 5 minutes apart, sitting in chair. Confirm elevated reading in contralateral arm.
Ambulatory BP monitoring	Indicated for evaluation of "white coat hypertension." Absence of 10–20 percent BP decrease during sleep may indicate increased CVD risk.
Patient self-check	Provides information on response to therapy. May help improve adherence to therapy and is useful for evaluating "white coat hypertension."

CAUSES OF RESISTANT HYPERTENSION

- Improper BP measurement
- Excess sodium intake
- Inadequate diuretic therapy
- Medication
 - Inadequate doses
 - Drug actions and interactions (e.g., nonsteroidal anti-inflammatory drugs (NSAIDs), illicit drugs, sympathomimetics, oral contraceptives)
 - Over-the-counter (OTC) drugs and herbal supplements
- Excess alcohol intake
- Identifiable causes of hypertension (see reverse side)

COMPELLING INDICATIONS FOR INDIVIDUAL DRUG CLASSES

COMPELLING INDICATION	INITIAL THERAPY OPTIONS
• Heart failure	THIAZ, BB, ACEI, ARB, ALDO ANT
• Post myocardial infarction	BB, ACEI, ALDO ANT
• High CVD risk	THIAZ, BB, ACEI, CCB
• Diabetes	THIAZ, BB, ACEI, ARB, CCB
• Chronic kidney disease	ACEI, ARB
• Recurrent stroke prevention	THIAZ, ACEI

Key: THIAZ = thiazide diuretic, ACEI = angiotensin converting enzyme inhibitor, ARB = angiotensin receptor blocker, BB = beta blocker, CCB = calcium channel blocker, ALDO ANT = aldosterone antagonist

STRATEGIES FOR IMPROVING ADHERENCE TO THERAPY

- Clinician empathy increases patient trust, motivation, and adherence to therapy.
- Physicians should consider their patients' cultural beliefs and individual attitudes in formulating therapy.

The National High Blood Pressure Education Program is coordinated by the National Heart, Lung, and Blood Institute (NHLBI) at the National Institutes of Health. Copies of the JNC 7 Report are available on the NHLBI Web site at <http://www.nhlbi.nih.gov> or from the NHLBI Health Information Center, P.O. Box 30105, Bethesda, MD 20824-0105; Phone: 301-592-8573 or 240-629-3255 (TTY); Fax: 301-592-8563.

PRINCIPLES OF LIFESTYLE MODIFICATION

- Encourage healthy lifestyles for all individuals.
- Prescribe lifestyle modifications for all patients with prehypertension and hypertension.
- Components of lifestyle modifications include weight reduction, DASH eating plan, dietary sodium reduction, aerobic physical activity, and moderation of alcohol consumption.

LIFESTYLE MODIFICATION RECOMMENDATIONS

MODIFICATION	RECOMMENDATION	AVG. SBP REDUCTION RANGE†
Weight reduction	Maintain normal body weight (body mass index 18.5–24.9 kg/m ²).	5–20 mmHg/10 kg
DASH eating plan	Adopt a diet rich in fruits, vegetables, and lowfat dairy products with reduced content of saturated and total fat.	8–14 mmHg
Dietary sodium reduction	Reduce dietary sodium intake to ≤100 mmol per day (2.4 g sodium or 6 g sodium chloride).	2–8 mmHg
Aerobic physical activity	Regular aerobic physical activity (e.g., brisk walking) at least 30 minutes per day, most days of the week.	4–9 mmHg
Moderation of alcohol consumption	Men: limit to ≤2 drinks* per day. Women and lighter weight persons: limit to ≤1 drink* per day.	2–4 mmHg

* 1 drink = 1/2 oz or 15 mL ethanol (e.g., 12 oz beer, 5 oz wine, 1.5 oz 80-proof whiskey).

† Effects are dose and time dependent.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Heart, Lung, and Blood Institute

National High Blood Pressure Education Program

NIH Publication No. 03-5231

May 2003

APPENDIX 6: ATP GUIDELINES

www.nhlbi.nih.gov/guidelines/cholesterol/atglance.pdf

National Cholesterol Education Program

ATP III Guidelines At-A-Glance Quick Desk Reference

- 1**
Step 1 Determine lipoprotein levels—obtain complete lipoprotein profile after 9- to 12-hour fast.

ATP III Classification of LDL, Total, and HDL Cholesterol (mg/dL)

LDL Cholesterol – Primary Target of Therapy

<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	High
≥190	Very high

Total Cholesterol

<200	Desirable
200-239	Borderline high
≥240	High

HDL Cholesterol

<40	Low
≥60	High

- 2**
Step 2 Identify presence of clinical atherosclerotic disease that confers high risk for coronary heart disease (CHD) events (CHD risk equivalent):

- Clinical CHD
- Symptomatic carotid artery disease
- Peripheral arterial disease
- Abdominal aortic aneurysm.

- 3**
Step 3 Determine presence of major risk factors (other than LDL):

Major Risk Factors (Exclusive of LDL Cholesterol) That Modify LDL Goals

Cigarette smoking

Hypertension (BP ≥140/90 mmHg or on antihypertensive medication)

Low HDL cholesterol (<40 mg/dL)*

Family history of premature CHD (CHD in male first degree relative <55 years; CHD in female first degree relative <65 years)

Age (men ≥45 years; women ≥55 years)

* HDL cholesterol ≥60 mg/dL counts as a "negative" risk factor; its presence removes one risk factor from the total count.

- Note: in ATP III, diabetes is regarded as a CHD risk equivalent.



4

Step 4

If 2+ risk factors (other than LDL) are present without CHD or CHD risk equivalent, assess 10-year (short-term) CHD risk (see Framingham tables).

Three levels of 10-year risk

- >20% — CHD risk equivalent
- 10-20%
- <10%

5

Step 5

Determine risk category:

- Establish LDL goal of therapy
- Determine need for therapeutic lifestyle changes (TLC)
- Determine level for drug consideration

LDL Cholesterol Goals and Cutpoints for Therapeutic Lifestyle Changes (TLC) and Drug Therapy in Different Risk Categories.

Risk Category	LDL Goal	LDL Level at Which to Initiate Therapeutic Lifestyle Changes (TLC)	LDL Level at Which to Consider Drug Therapy
CHD or CHD Risk Equivalents (10-year risk >20%)	<100 mg/dL	≥100 mg/dL	≥130 mg/dL (100-129 mg/dL: drug optional)*
2+ Risk Factors (10-year risk ≤20%)	<130 mg/dL	≥130 mg/dL	10-year risk 10-20%: ≥130 mg/dL 10-year risk <10%: ≥160 mg/dL
0-1 Risk Factor†	<160 mg/dL	≥160 mg/dL	≥190 mg/dL (160-189 mg/dL: LDL-lowering drug optional)

* Some authorities recommend use of LDL-lowering drugs in this category if an LDL cholesterol <100 mg/dL cannot be achieved by therapeutic lifestyle changes. Others prefer use of drugs that primarily modify triglycerides and HDL, e.g., nicotinic acid or fibrates. Clinical judgment also may call for deferring drug therapy in this subcategory.

† Almost all people with 0-1 risk factor have a 10-year risk <10%, thus 10-year risk assessment in people with 0-1 risk factor is not necessary.

6

Step 6

Initiate therapeutic lifestyle changes (TLC) if LDL is above goal.

TLC Features

- TLC Diet:
 - Saturated fat <7% of calories, cholesterol <200 mg/day
 - Consider increased viscous (soluble) fiber (10-25 g/day) and plant stanols/sterols (2g/day) as therapeutic options to enhance LDL lowering
- Weight management
- Increased physical activity.

7

Step 7

Consider adding drug therapy if LDL exceeds levels shown in Step 5 table:

- Consider drug simultaneously with TLC for CHD and CHD equivalents
- Consider adding drug to TLC after 3 months for other risk categories.

Drugs Affecting Lipoprotein Metabolism

Drug Class	Agents and Daily Doses	Lipid/Lipoprotein Effects	Side Effects	Contraindications	
HMG CoA reductase inhibitors (statins)	Lovastatin (20-80 mg)	LDL	↓18-55%	Myopathy Increased liver enzymes	Absolute: • Active or chronic liver disease Relative: • Concomitant use of certain drugs*
	Pravastatin (20-40 mg)	HDL	↑5-15%		
	Simvastatin (20-80 mg)	TG	↓7-30%		
	Fluvastatin (20-80 mg)				
	Atorvastatin (10-80 mg) Cerivastatin (0.4-0.8 mg)				
Bile acid sequestrants	Cholestyramine (4-16 g)	LDL	↓15-30%	Gastrointestinal distress Constipation Decreased absorption of other drugs	Absolute: • dysbeta-lipoproteinemia • TG >400 mg/dL Relative: • TG >200 mg/dL
	Colestipol (5-20 g)	HDL	↑3-5%		
	Colesevelam (2.6-3.8 g)	TG	No change or increase		
Nicotinic acid	Immediate release (crystalline) nicotinic acid (1.5-3 gm), extended release nicotinic acid (Niaspan®) (1-2 g), sustained release nicotinic acid (1-2 g)	LDL	↓5-25%	Flushing Hyperglycemia Hyperuricemia (or gout) Upper GI distress Hepatotoxicity	Absolute: • Chronic liver disease • Severe gout Relative: • Diabetes • Hyperuricemia • Peptic ulcer disease
		HDL	↑15-35%		
		TG	↓20-50%		
Fibric acids	Gemfibrozil (600 mg BID) Fenofibrate (200 mg) Clofibrate (1000 mg BID)	LDL	↓5-20%	Dyspepsia Gallstones Myopathy	Absolute: • Severe renal disease • Severe hepatic disease
			(may be increased in patients with high TG)		
		HDL	↑10-20%		
		TG	↓20-50%		

* Cyclosporine, macrolide antibiotics, various anti-fungal agents, and cytochrome P-450 inhibitors (fibrates and niacin should be used with appropriate caution).

Identify metabolic syndrome and treat, if present, after 3 months of TLC.

Clinical Identification of the Metabolic Syndrome – Any 3 of the Following:

Risk Factor	Defining Level
Abdominal obesity*	Waist circumference†
Men	>102 cm (>40 in)
Women	>88 cm (>35 in)
Triglycerides	≥150 mg/dL
HDL cholesterol	
Men	<40 mg/dL
Women	<50 mg/dL
Blood pressure	≥130/≥85 mmHg
Fasting glucose	≥110 mg/dL

* Overweight and obesity are associated with insulin resistance and the metabolic syndrome.

However, the presence of abdominal obesity is more highly correlated with the metabolic risk factors than is an elevated body mass index (BMI). Therefore, the simple measure of waist circumference is recommended to identify the body weight component of the metabolic syndrome.

† Some male patients can develop multiple metabolic risk factors when the waist circumference is only marginally increased, e.g., 94-102 cm (37-39 in). Such patients may have a strong genetic contribution to insulin resistance. They should benefit from changes in life habits, similarly to men with categorical increases in waist circumference.

Treatment of the metabolic syndrome

- Treat underlying causes (overweight/obesity and physical inactivity):
 - Intensify weight management
 - Increase physical activity.

- Treat lipid and non-lipid risk factors if they persist despite these lifestyle therapies:
 - Treat hypertension
 - Use aspirin for CHD patients to reduce prothrombotic state
 - Treat elevated triglycerides and/or low HDL (as shown in Step 9).

Treat elevated triglycerides.**ATP III Classification of Serum Triglycerides (mg/dL)**

<150	Normal
150-199	Borderline high
200-499	High
≥500	Very high

Treatment of elevated triglycerides (≥150 mg/dL)

- Primary aim of therapy is to reach LDL goal
- Intensify weight management
- Increase physical activity
- If triglycerides are ≥200 mg/dL after LDL goal is reached, set secondary goal for non-HDL cholesterol (total - HDL) 30 mg/dL higher than LDL goal.

Comparison of LDL Cholesterol and Non-HDL Cholesterol Goals for Three Risk Categories

Risk Category	LDL Goal (mg/dL)	Non-HDL Goal (mg/dL)
CHD and CHD Risk Equivalent (10-year risk for CHD >20%)	<100	<130
Multiple (2+) Risk Factors and 10-year risk ≤20%	<130	<160
0-1 Risk Factor	<160	<190

If triglycerides 200-499 mg/dL after LDL goal is reached, consider adding drug if needed to reach non-HDL goal:

- intensify therapy with LDL-lowering drug, or
- add nicotinic acid or fibrate to further lower VLDL.

If triglycerides ≥500 mg/dL, first lower triglycerides to prevent pancreatitis:

- very low-fat diet (≤15% of calories from fat)
- weight management and physical activity
- fibrate or nicotinic acid
- when triglycerides <500 mg/dL, turn to LDL-lowering therapy.

Treatment of low HDL cholesterol (<40 mg/dL)

- First reach LDL goal, then:
- Intensify weight management and increase physical activity
- If triglycerides 200-499 mg/dL, achieve non-HDL goal
- If triglycerides <200 mg/dL (isolated low HDL) in CHD or CHD equivalent consider nicotinic acid or fibrate.

Men

Estimate of 10-Year Risk for Men

(Framingham Point Scores)

Age	Points
20-34	-9
35-39	-4
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	11
70-74	12
75-79	13

Total Cholesterol	Points				
	Age 20-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79
<160	0	0	0	0	0
160-199	4	3	2	1	0
200-239	7	5	3	1	0
240-279	9	6	4	2	1
≥280	11	8	5	3	1

	Points				
	Age 20-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79
Non-smoker	0	0	0	0	0
Smoker	8	5	3	1	1

HDL (mg/dL)	Points
≥60	-1
50-59	0
40-49	1
<40	2

Systolic BP (mmHg)	If Untreated	If Treated
<120	0	0
120-129	0	1
130-139	1	2
140-159	1	2
≥160	2	3

Point Total	10-Year Risk %
<0	< 1
0	1
1	1
2	1
3	1
4	1
5	2
6	2
7	3
8	4
9	5
10	6
11	8
12	10
13	12
14	16
15	20
16	25
≥17	≥ 30

10-Year risk _____%

Women

Estimate of 10-Year Risk for Women

(Framingham Point Scores)

Age	Points
20-34	-7
35-39	-3
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	12
70-74	14
75-79	16

Total Cholesterol	Points				
	Age 20-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79
<160	0	0	0	0	0
160-199	4	3	2	1	1
200-239	8	6	4	2	1
240-279	11	8	5	3	2
≥280	13	10	7	4	2

	Points				
	Age 20-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79
Non-smoker	0	0	0	0	0
Smoker	9	7	4	2	1

HDL (mg/dL)	Points
≥60	-1
50-59	0
40-49	1
<40	2

Systolic BP (mmHg)	If Untreated	If Treated
<120	0	0
120-129	1	3
130-139	2	4
140-159	3	5
≥160	4	6

Point Total	10-Year Risk %
< 9	< 1
9	1
10	1
11	1
12	1
13	2
14	2
15	3
16	4
17	5
18	6
19	8
20	11
21	14
22	17
23	22
24	27
≥25	≥ 30

10-Year risk _____%

APPENDIX 7: PARTNER LIST

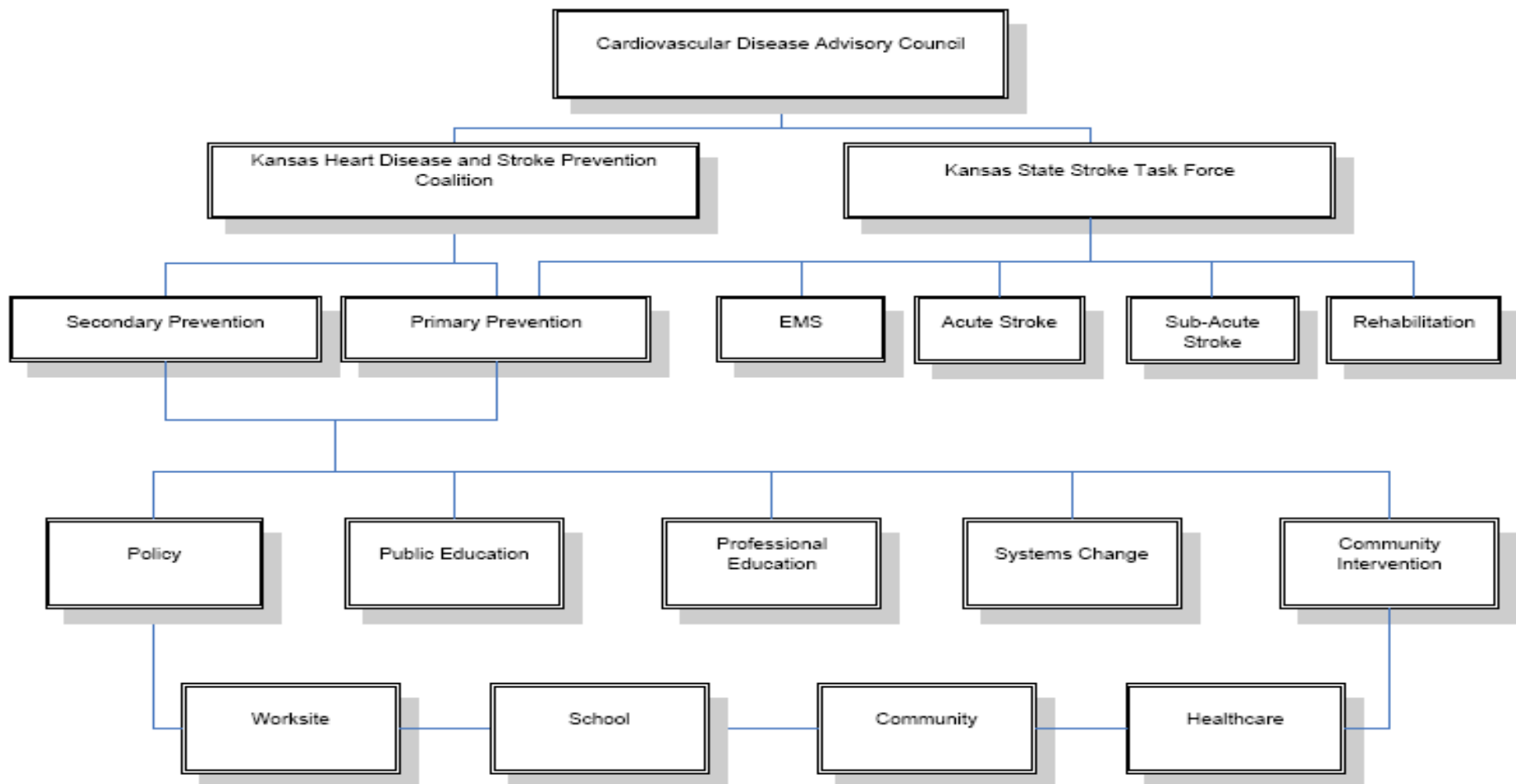
**American Heart Association/American Stroke Association
Area Health Education Centers
BlueCross BlueShield
Center for Health and Wellness
Central Kansas Foundation on Preventive Services
Central Kansas Medical Center
Cloud County Health Department
Cotton O’Neil Heart Center
Fort Hays State University
Four Rivers Community Health Organization
Kansas African American Affairs Commission
Kansas Association of Local Health Departments
Kansas Association of the Medically Underserved
Kansas Board of Emergency Medical Services
Kansas Department on Aging
Kansas Department of Health and Environment**

- Arthritis Program**
- Coordinated School Health**
- Diabetes Prevention and Control**
- Tobacco Use Prevention**
- Office of Local and Rural Health**
- Kansas LEAN**
- Office of Minority Health**

**Kansas Foundation for Medical Care
Kansas Hispanic and Latino American Affairs Commission
Kansas Hospital Association
Kansas Rehabilitation Hospital
Kansas State Department of Education
Kansas State Emergency Medical Services
Kansas State Nurses Association
Kansas State Research and Extension
Kansas Trauma Program
Mid America Cardiology
Mid-America Coalition on Healthcare
Olathe Medical Center
Ottawa County Health Department
Reno County Health Department
Riley County Health Department
Rooks County Health Department
Saline County Health Department
Sedgwick County Health Department
Social and Rehabilitation Services**

St. Francis Medical Center
St. Luke Hospital
Stormont-Vail Healthcare
University of Kansas Department of Preventive Medicine and Public Health
University of Kansas Medical Center

APPENDIX 8: ORGANIZATIONAL CHART



APPENDIX 9: STATE STROKE SYSTEMS OF CARE

In February 2005, the American Stroke Association (a division of the American Heart Association) released its recommendations for the establishment of a state stroke systems of care. The Kansas Department of Health and Environment immediately recognized the importance of this plan and collaborated with the American Heart Association/American Stroke Association to facilitate convening strategic partners who could best implement improved stroke care in Kansas. This effort led to the formation of Kansas Stroke Prevention Task Force. This ongoing process addresses quality improvements in the areas of primordial prevention, Emergency Medical Systems Response (EMS), acute stroke treatment, secondary/sub-acute treatment and rehabilitation/integration back in to the community.

Nationally, stroke is the third leading cause of death and the leading cause of disability. In 2003, 1,749 Kansans died as a result of stroke and in 2004, an estimated 43,000 adult Kansans reported that their health provider told them they had a stroke. Another troubling statistic is that strokes are occurring at younger ages. A majority of adults reported that their first stroke occurred before age 65.

The first task force meeting was held in May 2005 with a subsequent survey sent in June 2005 to key stakeholders throughout the state. The data indicated that Kansas was in the average range overall in responding to stroke prevention, stroke emergencies and treatments.

With this baseline knowledge, the council began developing a logic model to improve stroke systems of care throughout the state. While this plan is still in the development phase, the council strives towards realizing implementations that affect every Kansan, despite their geographic locale. The Kansas Heart Disease and Stroke Prevention Coalition is working together with the Kansas Stroke Prevention Task Force to engage in a joint mission of reducing heart disease and stroke and subsequent disabilities in Kansas. A national perspective provides us with the incentive to be prepared for the inclusion of the federal STOP Stroke Act, the Coverdell registry and the emphasis the American Heart Association/American Stroke Association places on improving stroke systems of care within states.

Timeline	Public Education	Professional Education	Community Interventions	Policy	Systems Change
2006					
July					Chronic Disease Electronic Management
August					4 Hospitals with Get with the Guidelines
September	Know Your Cholesterol Campaign				
October					
November	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
December	Develop Speakers Database	Develop Speakers Database		Discuss opportunities to Inform Policy Makers	
2007					
January		Disseminate updated CVH Guidelines Statewide		Educate and Inform Policy Makers	Patient Navigation/ Advocacy
February	Red Dress Campaign				
March					
April	Statewide Coalition Meeting	Statewide Coalition Meeting	Tobacco Cessation Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
May	Mission Possible Campaign				
June			Prevention Vital Signs Introduced		
July			Black Nurses Assn. for Hypertension in African-Americans	Assist Tobacco program Raise Cigarette Tax	Chronic Disease Electronic Management
August					4 Hospitals with Get with the Guidelines
September	Know Your Cholesterol Campaign			EMD Policy Issues	
October			CME/CNE Workshop		
November	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
December	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
2008					
January		Disseminate updated CVH Guidelines Statewide	Return to Work Program	Educate and Inform Policy Makers	Worksite Wellness
February	Red Dress Campaign				
March					
April	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Patient Navigation/Advocacy
May					Statewide Coalition Meeting
June	Mission Possible Campaign	Prevention Vital Signs Implementation	Black Nurses Assn. for Hypertension in African-Americans		Healthy Vending in Schools
July					
August				Clean Air Ordinances	Chronic Disease Electronic Management

Timeline	Public Education	Professional Education	Community Interventions	Policy	Systems Change
September	Know Your Cholesterol Campaign	CME/CNE Workshop	Statewide Coalition Meeting	Medical Interpreters Bill	4 Hospitals with Get with the Guidelines
October				Statewide Coalition Meeting	Statewide Coalition Meeting
November	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
December	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
2009					
January	Red Dress Campaign	Disseminate updated CVH Guidelines Statewide	Return to Work	Educate and Inform Policy Makers	Worksite Wellness
February					Statewide Coalition Meeting
March	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
April	Mission Possible Campaign	CME/CNE Workshop	Black Nurses Assn. for Cholesterol in African-Americans	Clean Air Ordinances	Chronic Disease Electronic Management
May					
June	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
July	Know Your Cholesterol Campaign	CME/CNE Workshop	Statewide Coalition Meeting	PE in all schools	4 Hospitals with Get with the Guidelines
August					
September	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
October	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
November	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
December	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
2010					
January	Red Dress Campaign	Disseminate updated CVH Guidelines Statewide	Return to Work	Educate and Inform Policy Makers	Worksite Wellness
February					Statewide Coalition Meeting
March	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
April	Mission Possible Campaign	CME/CNE Workshop	Black Nurses Assn. for Cholesterol in African-Americans	Clean Air Ordinances	Chronic Disease Electronic Management
May					
June	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
July	Know Your Cholesterol Campaign	CME/CNE Workshop	Statewide Coalition Meeting	Statewide Coalition Meeting	4 Hospitals with Get with the Guidelines
August					
September	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting	Statewide Coalition Meeting
October	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
November	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	
December	Update Speakers Database	Update Speakers Database	Education Efforts	Discuss opportunities to Inform Policy Makers	