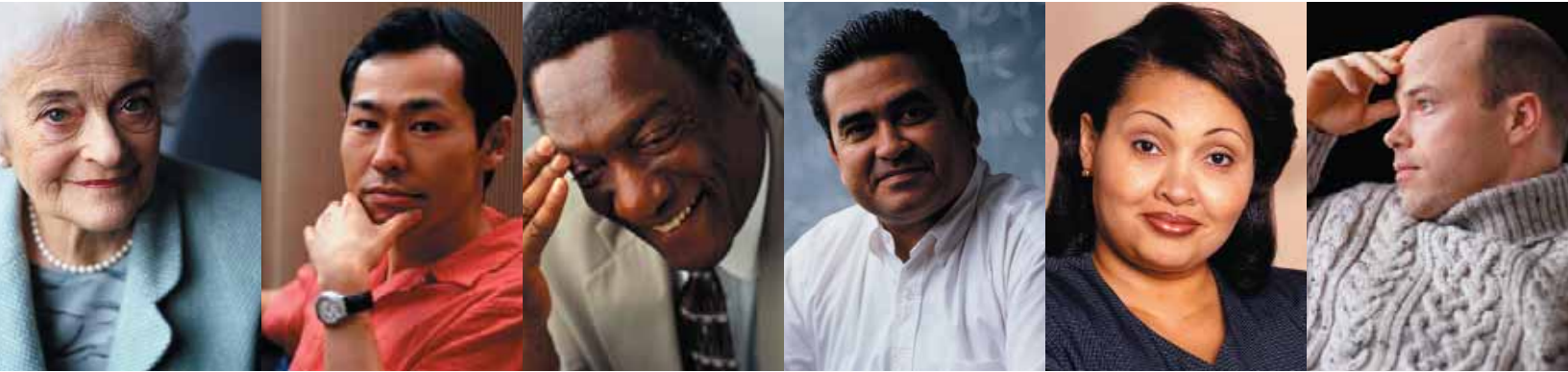


THE ALABAMA
CARDIOVASCULAR
HEALTH
STATE PLAN
2001



Helping
HEART
HEALTH
IN ALABAMA COMMUNITIES

Alabama Department of Public Health
Cardiovascular Health Program

FORWARD



THE ALABAMA CARDIOVASCULAR HEALTH STATE PLAN

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The Alabama Cardiovascular Health State Plan is the result of the hard work and input contributed by members of the Alabama Cardiovascular Health Coalition. The plan represents input from key individuals representing communities, organizations, schools, health professionals and public agencies throughout the state. The recommendations outlined in this document are oriented toward changing policies, community settings, health systems and environmental factors which influence cardiovascular health. The plan is designed to assist policymakers, public health personnel, health care providers, schools, communities and voluntary organizations develop coordinated approaches for cardiovascular disease prevention. Successful implementation will involve participation and coordinated efforts of communities, organizations and individuals. Partnerships between state, public, private and civic and volunteer agencies will be essential to positively impact cardiovascular health in Alabama. While development of a state plan is only a beginning, it is an important initial step in building a statewide program to address cardiovascular disease prevention in Alabama.



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I. EXECUTIVE SUMMARY

Cardiovascular disease (CVD) is the leading cause of death in Alabama. Cardiovascular disease, which includes heart disease and stroke, accounts for almost 40 percent of Alabama deaths each year. Over the past ten years, cardiovascular disease has claimed the lives of more than 170,000 Alabamians. Of those lives lost, the minority population has carried a disproportionate share. In addition, the financial burden of CVD to the state is staggering. The cost of cardiovascular disease to Alabama for 1999 was estimated at \$4.5 billion dollars. This figure includes health expenditures and lost productivity resulting from illness and death. As the number of people living with CVD continues to rise and the state's population continues to age, the health and economic burden of cardiovascular disease will greatly impact the health status of this state.

In 1998, recognizing the immense burden of cardiovascular disease, the Centers for Disease Control and Prevention (CDC) made available funding for states to initiate development of state cardiovascular health programs. In October of that year, the Alabama Department of Public Health was awarded a grant from the CDC to build infrastructure, identify potential partners and bring together a group of interested parties to formalize a state cardiovascular disease prevention plan. In January 2000, the initial meeting of the Alabama Cardiovascular Health Coalition was held to begin that process. Coalition workgroups were formed to develop cardiovascular health goals, objectives and intervention strategies for five different sectors. These sectors were communities, schools, faith organizations, healthsystems, and worksites. An additional workgroup was formed to address data and surveillance issues. Following the coalition meeting, workgroups continued to make progress toward formulating goals, objectives and intervention strategies for each sector which would be incorporated into the state plan. A draft of the recommended goals, actions and outcomes was finalized by the Alabama Cardiovascular Health Coalition workgroups in March 2001.

Three general priorities for the prevention and control of cardiovascular disease emerged from the efforts of the Coalition workgroups. These priorities were translated into three overarching goals for the state plan, addressing issues of awareness, prevention and treatment of cardiovascular disease. Following are the overarching goals which provide a framework for the prevention and control of cardiovascular disease in Alabama:

- ***Increase awareness of cardiovascular disease in Alabama, including awareness of the prevalence and burden of disease, as well as roles that individuals, health care providers and payors, communities, schools, and faith-based organizations can play in promoting individual and collective cardiovascular health.***
- ***Minimize cardiovascular disease-related risk behaviors and promote positive heart-health among citizens of all ages in Alabama through supportive environments which encourage and promote heart-healthy lifestyles.***
- ***Promote access to and utilization of early detection and rapid treatment options for cardiovascular events throughout the state.***

II. INTRODUCTION

Cardiovascular disease (CVD) refers to conditions and diseases of the heart and blood vessels, including coronary artery disease, angina, heart attack, stroke, high blood pressure and congestive heart failure. Since 1900, diseases of the heart have been the leading cause of death in the United States every year except one (1918). Despite increased scientific knowledge and health awareness, CVD continues to be the number one health threat in the United States. Today, cardiovascular disease claims more lives each year than the next seven leading causes of death combined. (American Heart Association)

Heart attack, or myocardial infarction (MI), occurs when the blood supply to the heart is reduced or stopped. If the blood flow is reduced or discontinued for a significant amount of time, this will result in death to part or all of the heart muscle.

Stroke, also called a brain attack, occurs when a blood vessel going to the brain is disrupted either by a blood clot or ruptured vessel. Lack of oxygen to the brain causes the brain cells to die, resulting in permanent damage to the brain. This leads to the devastating, often permanent, effects seen with stroke.

Congestive heart failure (CHF), is a condition where the heart is not able to pump enough blood to meet the body's needs. Heart damage due to a heart attack, coronary artery disease, heart valve disease or cardiomyopathy can result in CHF. Because the heart cannot work as efficiently as it should, people with CHF may become severely limited in their ability to perform everyday activities.

Due to improvements in medical treatment for cardiovascular disease, the death rates for heart attack and stroke declined over the past 20 years. However, the decline in heart disease deaths slowed in the 1990s and the decline in stroke deaths was static in the 1990s. Since 1975, the number of people living with congestive heart failure has increased every year.

The death and disability from cardiovascular disease is especially sobering since we know that **much of heart disease and stroke can be prevented**. Modifiable risk factors have been identified which can prevent the development of CVD or reduce existing CVD. These risk factors are obesity, physical inactivity, improper nutrition, smoking, high cholesterol, high blood pressure and diabetes. The greatest opportunity for reducing cardiovascular disease lies in prevention of the risk factors and conditions which lead to CVD. **According to the American Heart**

Association, if all forms of major CVD were eliminated, the life expectancy of Americans would increase by almost ten years.

Approaches to Change in Cardiovascular Disease Prevention

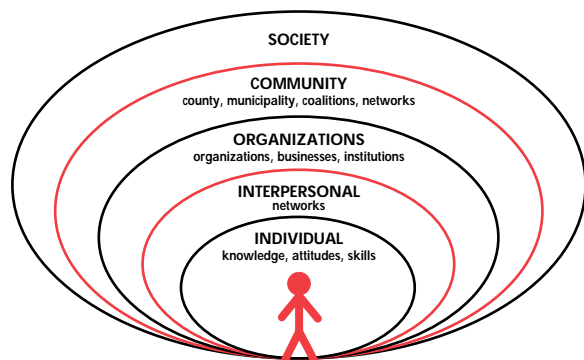
Population-Based Approach to Change

Notable prevention and risk reduction studies have shown that prevention programs which include changes in individual behavior combined with changes in the social and physical environment in which we live can promote cardiovascular health.

Over the past several decades, health behavior change has focused on the individual. This approach involved targeting high-risk individuals for screening, awareness and education related to a particular health condition. While this approach was effective, it generally reached only those who were identified with experiencing a health problem. To effect changes in the larger population, recent prevention efforts have evolved from approaches based on the individual to broader, comprehensive approaches, based on changing the settings in which we live. This is referred to as the population-based approach to change.

A population-based approach recognizes that a substantial number of additional lives can be saved by reducing the level of risk among the general population. A comprehensive population-based approach incorporates environmental and policy interventions and individual behavior change. Population-based interventions promote healthy individual behavior by creating a supportive social and physical environment. The concept is that it is unreasonable to expect large numbers of the population to make or commit to individual behavior changes that are discouraged by the environmental settings and social norms in which we live. Therefore, changes must be made to the settings in which we work, live and play which promote and maintain a healthy lifestyle.

The diagram below illustrates the influence the social and physical environment has on a person's ability to make positive lifestyle changes. While it is ultimately up to individuals to make lifestyle changes to improve their health, forces outside the individual often influence their lifestyle choices (Finger). A population-based approach promotes change at all levels within all settings in society, which encourages and supports change at the individual level.



Adapted from McLeroy, et al. (1988).

Policy and Environmental Strategies

Heart-healthy population-based intervention strategies are educational activities, environmental measures and policies designed to reduce risk factors for cardiovascular disease in the entire population. (ASTCDPD)

Policy strategies include formal and informal laws, regulations and rules that are adopted to make changes in the settings in which we live to assist in promoting heart-healthy behavior (Wallack). Legislation and regulations are examples of formal policy while organizational policy is more informal and usually established within a specific organization or for a specific population such as a worksite (Schmid). An example of organizational policy may be a smoke-free worksite. An example of legislation or a regulation is the state seat belt laws and clean water regulations.

Policy intervention strategies which promote heart health might include laws requiring physical education classes to be taught all four years of high school or laws levying a tax on soft drinks and other high-fat snack food. Informal policy intervention strategies might include an organizational policy of allowing employees an extra fifteen minute walking break.

Environmental strategies are interventions which change the physical or social settings in which we live (Schmid). Environmental strategies provide a supportive setting within a community which allows people to make healthy choices (Mittelmark). Environmental strategies are usually related to issues of availability, accessibility or social norms (Schmid). Environmental strategies which promote heart health might include restaurant menu labeling of low fat items and entrees, after-hour community access to school sports facilities, safe walking routes to schools or bike lanes and availability of low-fat food choices at community events.

National and State 2010 Health Objectives

National Healthy People 2010

The Healthy People 2010 National Goal for heart disease and stroke is to improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.

The *National Healthy People* is an initiative which began over two decades ago which identified health improvement goals and objectives for the nation. Recently released by the U.S. Department of Health and Human Services, *Healthy People 2010* presents 467 objectives to improve the health of Americans by the year 2010. Progress toward achieving these objectives will be tracked over the next ten years to serve as a catalyst for improving the health of all Americans during the first decade of the 21st century.

Chapter 12 of the *Healthy People 2010* lists sixteen national objectives related to heart disease and stroke. Related objectives from other focus areas include several objectives from Chapter 27, Tobacco Use and Cessation, Chapter 12, Nutrition and Overweight, Chapter 19, and Chapter 7, Educational and Community-Based Programs. These national objectives are listed in the appendix of this document.

Healthy Alabama 2010

Building on national objectives set forth in *Healthy People 2010*, the Alabama Department of Public Health developed *Healthy Alabama 2010*. These state-level health objectives will guide initiatives in providing quality health care and improvement of the overall health status of Alabamians over the next decade. Nine of the forty-five Healthy Alabama 2010 objectives are related to cardiovascular disease prevention and are highlighted throughout this document under the related risk factor.

III. THE BURDEN OF CARDIOVASCULAR DISEASE IN ALABAMA

Definition of CVD

The term “cardiovascular disease” is used to refer to a group of diseases and conditions of the heart and blood vessels (CDC, 2000). This group of diseases and disorders includes hypertension (high blood pressure), coronary heart disease (also known as coronary artery disease or ischemic heart disease), atherosclerosis, rheumatic fever/rheumatic heart disease, congestive heart failure, and stroke (cerebrovascular disease).

Estimated Prevalence

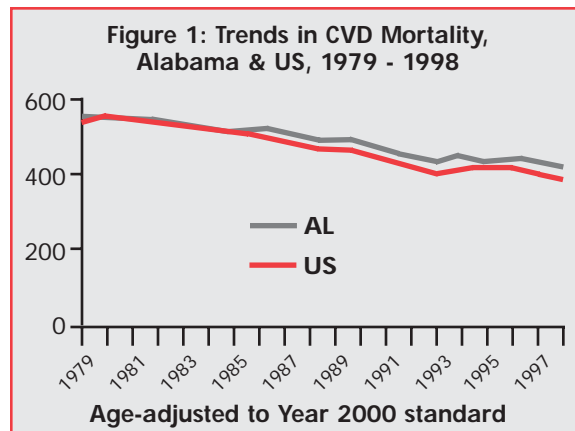
The American Heart Association, working with the CDC, has estimated that nearly 61 million Americans suffer from one or more types of CVD. Among these individuals are some 50 million with high blood pressure, 2 million with coronary heart disease, and 4.7 million with congestive heart failure. Further, the American Heart Association estimates that 7.3 million Americans have had a heart attack and 4.5 million have had one or more strokes.

It is difficult to estimate the number of Alabama residents who may be living with some type of CVD. Phone surveys completed within the state, such as the Alabama Behavioral Risk Factor Surveillance System survey, do not include questions that would allow us to assess the prevalence of heart disease or hypertension. Using national rates and assuming that the pattern of CVD in Alabama is similar to that found nationally, we can estimate that:

800,000 Alabamians have hypertension.
198,000 have coronary heart disease.
116,800 have had one or more heart attacks.
72,000 have had one or more strokes.
75,000 have congestive heart failure.

CVD Mortality

CVD was the leading cause of death in Alabama in 1998, accounting for more than 17,000 deaths or approximately 40 percent of the state’s deaths that year. Coronary heart disease accounted for approximately 6,500 deaths (45% of the CVD deaths), another 2,936 individuals died of stroke (21% of CVD deaths), and more than 2,000 Alabamians died of cardiac arrest (15% of CVD deaths).



Over the past 20 years, CVD mortality rates have been decreasing nationally and in Alabama (see Figure 1). However, in every year since 1983, the mortality rate in Alabama has been greater than that in the US as a whole, after adjustment for differences in the age distributions in the two populations. In 1998, Alabama’s CVD mortality was 13 percent higher than the national rate.

Disability Related to CVD

In 1998, respondents to the BRFSS were asked if they experienced activity limitations because of an impairment or health problem. Approximately 20 percent of the respondents did report activity limitations. Of those, 14 percent indicated that the limitations were due to some form of CVD (heart disease, stroke or hypertension). When asked for how many days in the past month the respondent had felt very healthy and full of energy, the average was only 18 days of health, suggesting that these individuals with CVD were experiencing an important level of disability related to their heart conditions.

Economic Impact of CVD

Specific economic impact data are not available for the state of Alabama. However, using rates obtained via the national surveys and assuming that usage patterns in Alabama are consistent with those national patterns, we can estimate that in 1998 there were:

- 595,000 visits to hospital emergency departments to address CVD complaints, with 42,000 of those visits due to chest pain
- 103,000 hospital admissions to treat cardiovascular disease
- 13,000 admissions due to myocardial infarctions
- 72,000 admissions due to other heart disease

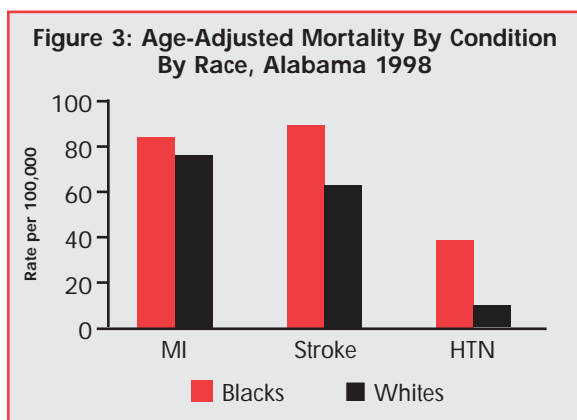
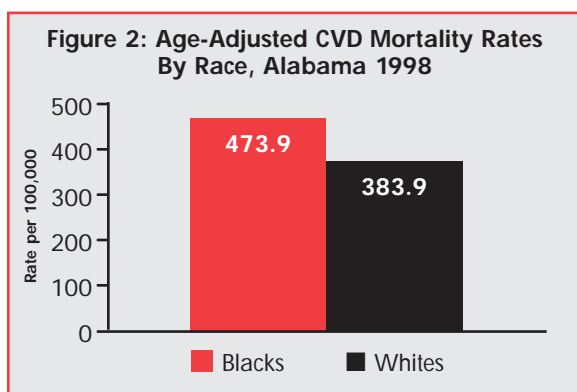
Other direct costs are associated with:

- outpatient visits for diagnosis and treatment
- medications
- diagnostic and treatment procedures, including stent placements, revascularizations, cardiac catheterizations, pacemaker implantations, cardioverter-defibrillator implantations, ablation, heart transplants, and other
- home health care
- nursing home care

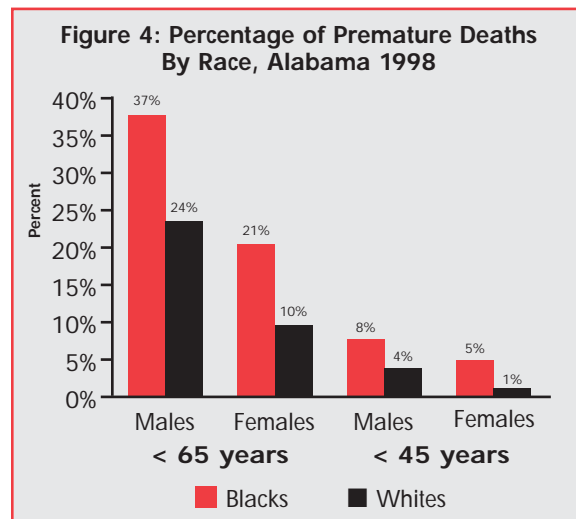
The American Heart Association estimates that the total costs associated with cardiovascular disease in the United States approach \$300 billion dollars.

Alabama's Priority Population

The disparities between Alabama's racial/ethnic groups in terms of CVD mortality are striking. Overall mortality rates are higher for blacks than for whites (Figure 2). Rates are also substantially higher for blacks under the age of 75, compared to their white counterparts, for myocardial infarction, stroke, and hypertension (Figure 3).



In addition, a comparison of percentages of premature deaths due to CVD also indicates substantial disparities between blacks and whites. Looking at premature deaths (i.e., those that occurred in persons less than either 65 years of age or 45 years of age, as a percentage of total CVD deaths within that race/gender group), the frequency of premature death from CVD is greater for both black males and females.



Women and CVD

Heart disease is typically thought of as a "male disease," affecting men more often than women. In general terms, males have a greater risk of developing and dying from CVD. In absolute numbers, however, more women (9,167) than men (8,197) died of CVD in Alabama in 1998. Further, many more women, both black and white, died of CVD than died of breast cancer in that year (Table 1).

Table 1: Breast and CVD Deaths Among Alabama Women, 1998

	# of deaths 1998	Mortality Rate*
Cardiovascular Disease		
Black	870	176.0
White	1645	89.1
Breast Cancer		
Black	121	24.6
White	325	18.8

* Age adjusted to year 2000 standard.

IV. BARRIERS TO CARDIOVASCULAR HEALTH

Health Care Access

Many Alabama residents do not have ready access to specialty care for their CVD. As shown in Figure 5, cardiologists are primarily concentrated in counties with large urban centers (Birmingham, Mobile, Dothan, Huntsville). The majority of counties in the state do not have a practicing cardiologist. In addition, there are a number of counties in the state (indicated in Figure 6) that have very few physicians (per 10,000 persons residing in the county). The scarcity of physicians in those counties poses potential barriers to access to care for those residents with significant health care needs related to CVD.

Similarly, the 42 cardiovascular pulmonary rehabilitation facilities are more frequently located in the urban areas and northern portions of the state (Figure 7). Many counties in the more rural southern portions of the state do not have a facility and those residents cannot easily access needed rehabilitation facilities.

Figure 6: Primary Care Physicians Per 10,000 County Population

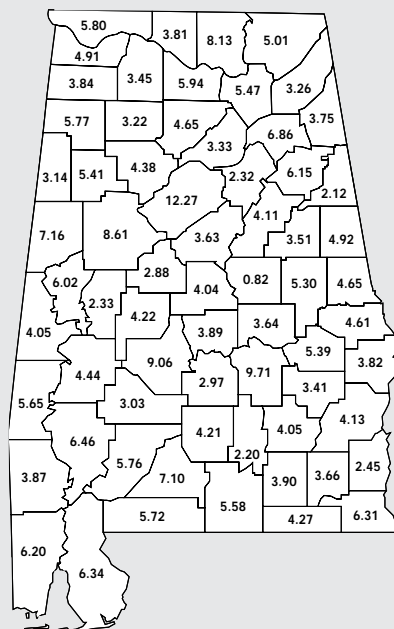


Figure 5: Cardiologists Located In Alabama Counties

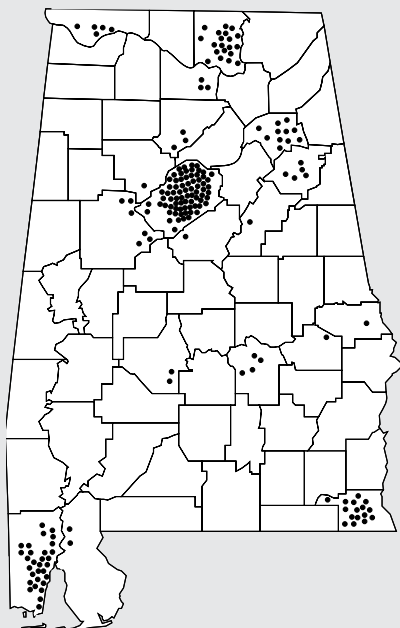
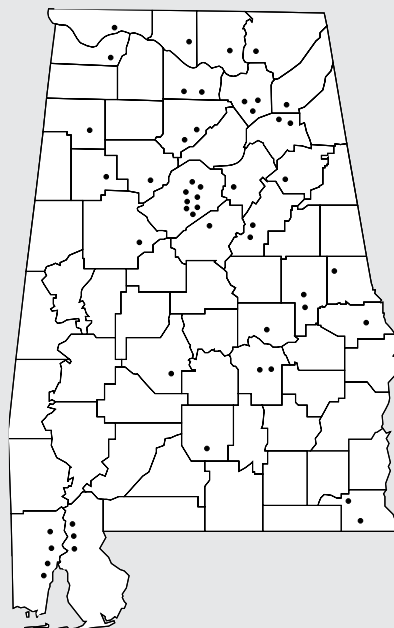


Figure 7: Cardiac Rehab Facilities In Alabama Counties

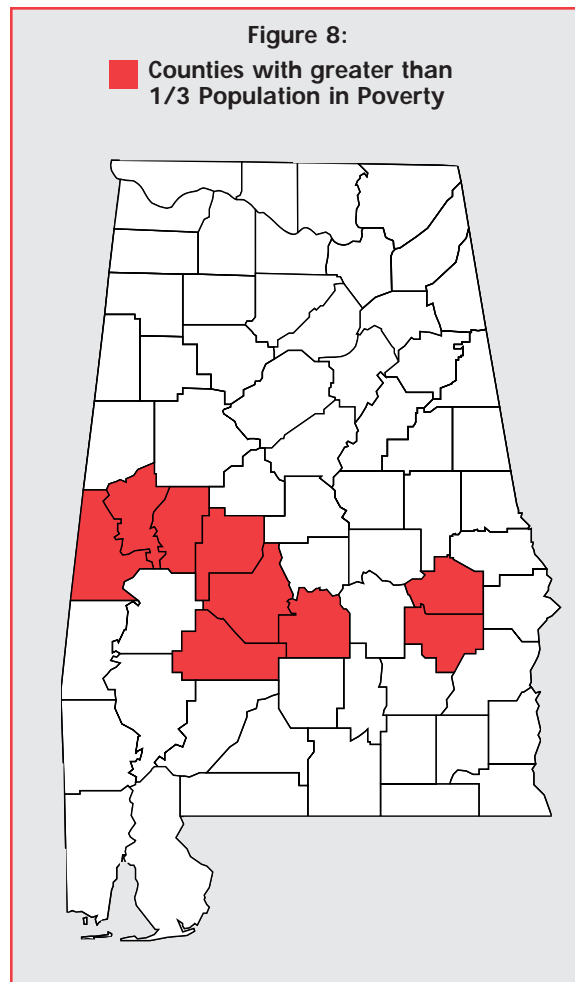


Lack of Health Care Coverage

Some 12 percent of the adult respondents to the Alabama 2000 Behavioral Risk Factor Surveillance Survey indicated that cost had been a barrier to medical care for them in the past year. Overall, 16 percent of the respondents indicated that they did not have health care coverage. Percentages were highest among young adults aged 18 to 24 years (29%) compared to older adults (14 to 19%) under the age of 65. The percentage of uninsured adults was also higher among blacks (25%) compared to whites (13%).

Poverty in Alabama

In 1998, eighteen percent of the population in Alabama reported incomes at or below poverty. A number of counties in the state of Alabama evidence relatively high proportions of persons living in poverty. Nine counties have more than a third of the population in poverty. Many of these counties (shaded in red in the map in Figure 8) are located in the “Black Belt” region of the state, so named because of the color of its rich farm soil. The residents in these rural counties face special challenges in accessing healthcare, since financial resources are frequently limited, health care providers are less common than in more urban areas, and costs associated with obtaining care are often greater (i.e., time, transportation).



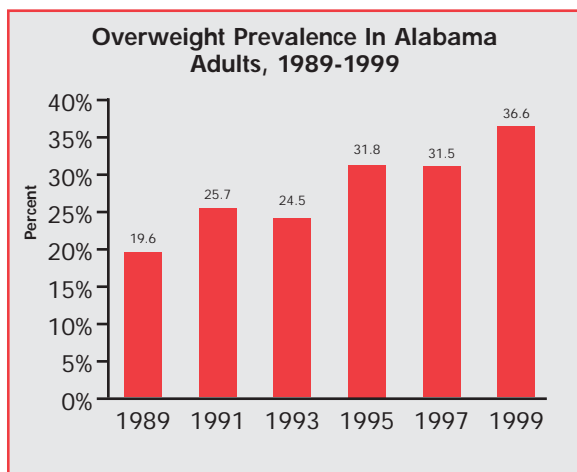
V. RISK FACTORS FOR CARDIOVASCULAR DISEASE

Overweight and Obesity

HEALTHY ALABAMA 2010 OBJECTIVE 1.3
Reduce to 20 percent or less the prevalence of being overweight (defined as body mass index at or above 27.8 for men and 27.3 for women) among adults aged 18 and older.

Overweight and obesity are increasing to epidemic levels both in Alabama and in the nation. It is estimated that approximately 61 percent of adults nationwide are overweight or obese (NCHS 2000). Similarly, 58.9 percent of adults in Alabama are overweight or obese, based on self-reported data from the 2000 Alabama Behavior Risk Factor Survey. All rates have been increasing in the last several decades. Findings from the National Health and Nutrition Examination II Survey (NHANES) conducted from 1976-80, when compared to findings from NHANES 1999, illustrate that nationwide overweight increased from 32 to 34 percent and obesity approximately doubled, from 15 to 27 percent (NCHS 2000). In Alabama, obesity increased 57 percent from 1991-1998 ranking Alabama 14th among all states in increasing obesity prevalence rates. (JAMA 1999).

Overweight and obesity are prevalent among all races, all adult age groups and both genders in Alabama. Although data are not available to determine the number of overweight children living in Alabama, national data suggest that overweight in children is pervasive and it has nearly doubled in the last 30 years (Chronic Disease Notes and Reports, 2000).



Definitions of overweight and obesity in adults are based on findings of *The 1998 Expert Panel on the Identification, Evaluation and Treatment of Overweight and Obesity* from the National Heart Lung and Blood Institute of the National Institutes of Health (Obesity Research 1998). Body Mass Index, (BMI), expressed as weight divided by height squared, is used to classify overweight (BMI 25.0-29.9) and obesity (BMI greater to or equal to 30.0) in adults. BMI is strongly associated with total body fat, and BMI levels above 25 are linked with adverse health consequences including cardiovascular disease, hypertension, Type 2 diabetes, and death. Assessment of overweight and obesity of adults in clinical settings also includes evaluation of waist circumference, and the presence of risk factors for diseases and conditions associated with obesity (NHLBI algorithm).

Overweight and obesity increase the risk of developing coronary heart disease, hypertension, high cholesterol, Type 2 diabetes, and stroke. The relationship between increasing BMI above 25 has been shown to be especially strong for hypertension and Type 2 diabetes. (JAMA 1999). Obesity is clearly an independent risk factor for coronary heart disease. For persons with a BMI of 30 or more, mortality from cardiovascular disease is increased by 50-100 percent. Weight loss in overweight and obese adults has been shown to reduce blood pressure levels, improve cholesterol levels, and lower blood glucose levels in with those with Type 2 diabetes.

Dietary Factors/Nutrition

HEALTHY ALABAMA 2010 OBJECTIVE 1.4
Increase to 40 percent or more the proportion of adults aged 18 years or older who meet the dietary recommendations of a minimum average daily goal of at least five servings of fruits and vegetables.

Dietary factors contribute substantially to the burden of cardiovascular disease (CVD) in the nation and in Alabama. Food and nutrient consumption patterns affect multiple CVD risk factors including high blood cholesterol, hypertension, diabetes, and obesity. Excessive calorie intake coupled with physical inactivity leads to obesity. Excessive total fat, saturated fat, and cholesterol intake can raise blood cholesterol levels; and a high sodium intake can aggravate

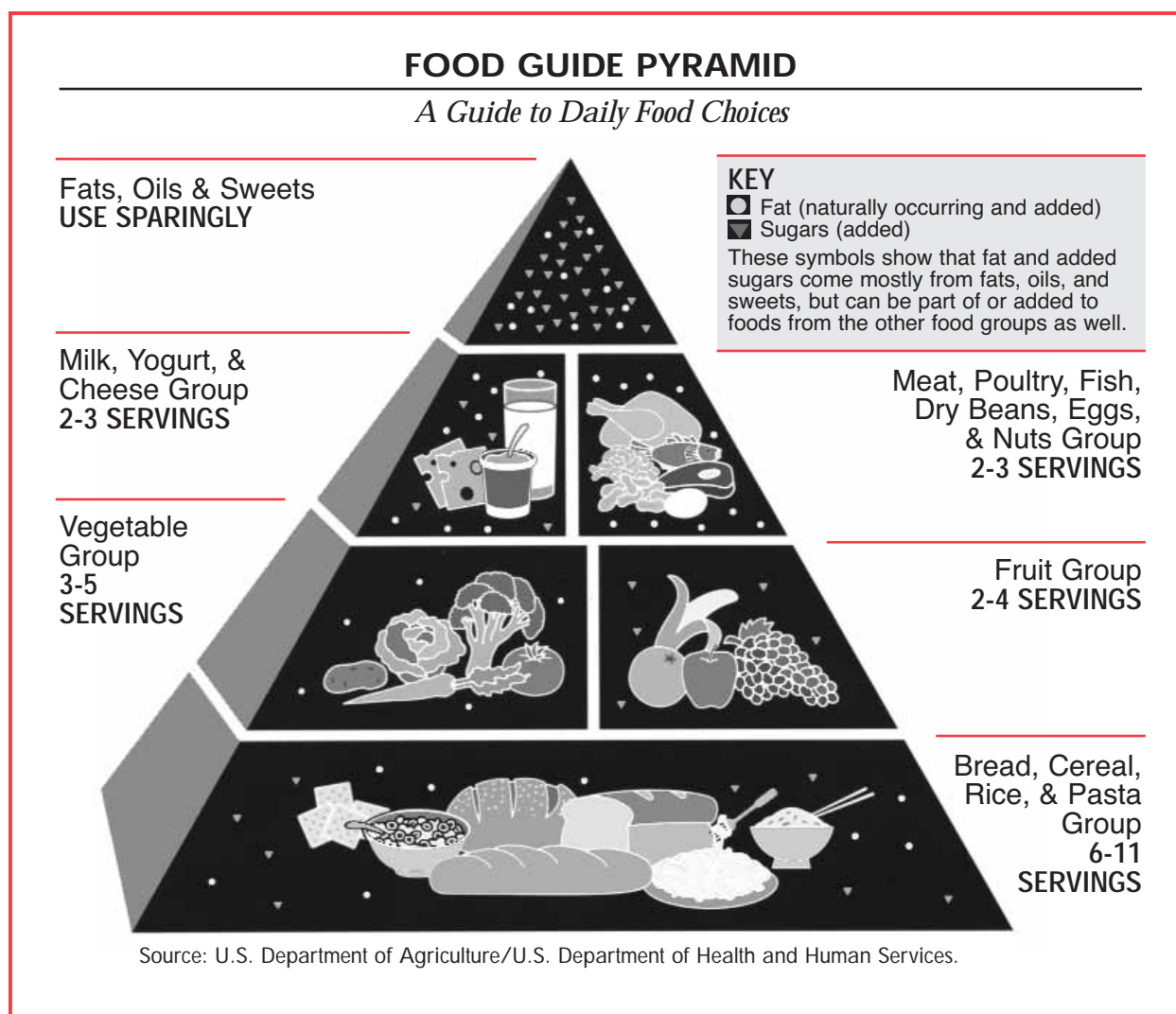
hypertension in susceptible persons. Finally, inadequate consumption of fruits, vegetables, and whole grains reduces intake of fiber, folate, potassium and numerous phytochemicals associated with reduced risk of heart disease.

For the general population, an eating pattern is recommended that includes foods from each of the major food groups as shown in the food guide pyramid. The American Heart Association strongly endorses this approach, and emphasizes choosing foods in each food group that are moderate or low in total fat, saturated fat, cholesterol, and sodium. Recommended daily intakes include 30 percent calories from total fat, ten percent of calories from saturated fat, 300 mg of cholesterol, and 2,400 mg of sodium. For most Americans this means reducing meat portion sizes, choosing low-fat or non-fat dairy

products, whole grains and complex carbohydrates rather than sweets, and significantly increasing fruits and vegetables in their daily diet. To achieve the recommended sodium intake of 2,400 mg a day (equivalent to 6 grams of salt a day), Americans need to choose foods low in salt and limit the amount of salt added to foods in preparation and at the table.

A goal of 5 or more servings of fruits and vegetables a day is strongly recommended, a level associated with lower risk of developing heart disease, stroke, and hypertension.

22.7 percent of adults reported they consumed five or more servings of fruits and vegetables a day. (BRFSS 2000)



Physical Activity

HEALTHY PEOPLE 2010 OBJECTIVE 1.1
Increase to 25 percent or more the proportion of adults aged 18 and older who engage regularly, preferably daily, in sustained physical activity for at least 30 minutes per day.

HEALTHY PEOPLE 2010 OBJECTIVE 1.2
Increase to 60 percent or more the proportion of students in grades 9 through 12 who engage in moderate physical activity for at least 20 minutes a day for three days per week.

Numerous reports over the last several years indicate a disturbing national trend of physical inactivity, i.e., sedentary lifestyles, among Americans of all ages. Links to chronic disease have made physical inactivity and unhealthy eating second only to tobacco use in preventable causes of death. People who are sedentary have twice the risk for heart disease of those who are physically active. ("Preventing CVD: Addressing the Nation's Leading Killer," DHHS, CDC). Regular physical activity is not only associated with decreased risk of cardiovascular disease but prevents or delays the development of other chronic diseases such as high blood pressure, obesity, diabetes and colon cancer.

The American Heart Association, the Centers for Disease Control and Prevention, and the Governors' Commission on Physical Fitness

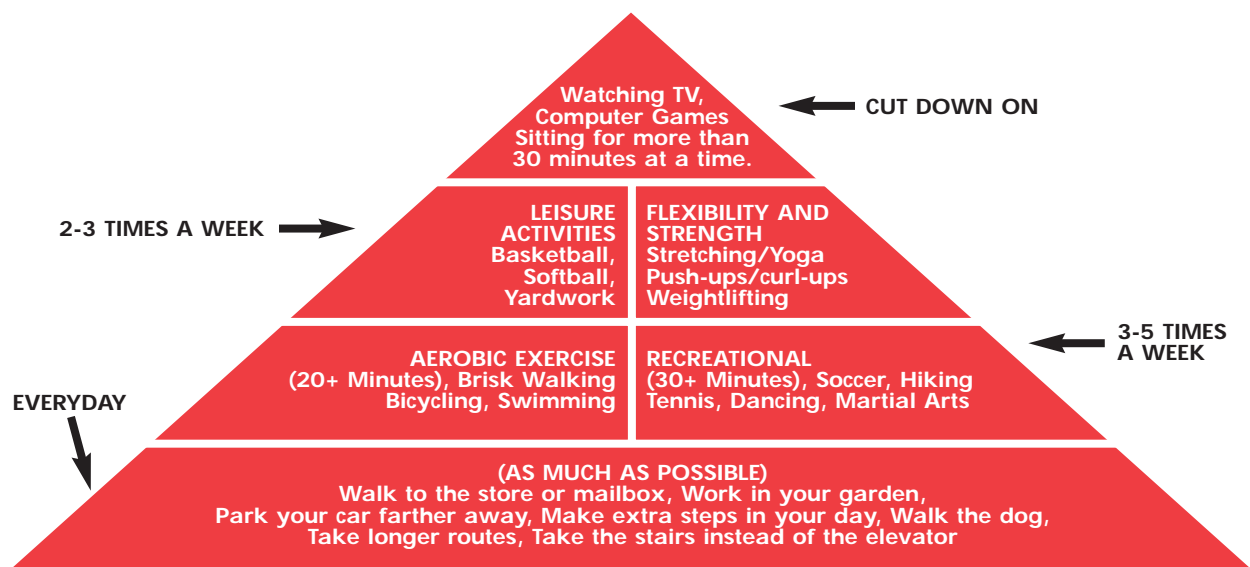
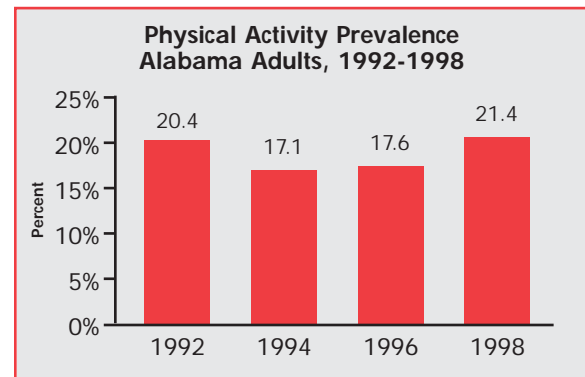
recommend that people of all ages include a minimum of 30 minutes a day of moderate physical activity on most if not all days of the week.

In 2000:

■ **78 percent of Alabama adults did not participate in regular physical activity for 30 minutes a day for at least five days per week.**

In 1999:

- **Fifty-three percent of Alabama high school students did not attend daily physical education classes.**
- **Twenty six percent of Alabama middle school students did not participate in vigorous physical activity three or more days during the past seven days.**



BE CREATIVE IN FINDING A VARIETY OF WAYS TO STAY ACTIVE!

High Cholesterol

HEALTHY ALABAMA 2010 OBJECTIVE 4.8

Reduce to 15 percent or less the proportion of adults aged 18 and over who have a blood cholesterol level of 240 mg/dl or greater.

In 1984 a landmark study, the Coronary Primary Prevention Trial, showed that lowering blood cholesterol levels reduces risk of heart disease. Reducing blood cholesterol by one percent reduced heart attack risk by two percent. Since then, substantial scientific evidence has accumulated showing the benefits of cholesterol lowering in persons with and without existing heart disease.

High blood cholesterol is one of the major risk factors for heart disease. The higher the blood cholesterol level, the greater the risk for developing heart disease or having a heart attack. Cholesterol is a fat-like substance in the blood. When there is too much cholesterol in the blood, it builds up in the walls of the arteries. Over time, this buildup causes the arteries to become narrowed and blood flow to the heart is slowed down or blocked. If the blood supply to the heart is cut off by a blockage, the result is a heart attack. High blood cholesterol itself does not have any symptoms, so it is important to have cholesterol levels checked regularly by a physician.

Total cholesterol is just one measure of cholesterol risk. It is best to get a "lipoprotein profile" to fully determine cholesterol numbers (ATP III). This test gives information about total cholesterol, low density lipoprotein (LDL) cholesterol, high density lipoprotein (HDL) cholesterol and triglycerides. Cholesterol in the blood is carried in these lipoprotein subfractions, each affecting risk of heart disease differently. The low-density-lipoprotein (LDL)-cholesterol, known as "bad" cholesterol because it is the main source of buildup and blockage in the arteries, carries most of the cholesterol in the blood to the tissues and organs. When LDL levels are high, cholesterol and other substances can build up as plaque lining arteries, increasing risk of heart attack and stroke. High-density-lipoprotein (HDL)-cholesterol, known as "good" cholesterol because it helps fight cholesterol build-up, carries cholesterol from other parts of the body back to the liver for removal. Because HDL protects against heart disease, higher numbers are better. Triglycerides are another form of fat in the blood, and elevated levels may also contribute to increased risk of coronary artery disease. Therapeutic lifestyle changes (TLC), such as dietary modification and increased physical activity, are considered the first approach to achieving optimal blood cholesterol levels. Medication may be indicated where TLC alone is unsuccessful (ATP III).

ATP Classification of Total Cholesterol, LDL, and HDL Cholesterol and Serum Triglycerides

Total Cholesterol

less than 200 mg/dldesirable
200-239 mg/dlborderline-high
≥ 240 mg/dlhigh

LDL Cholesterol

less than 100 mg/dloptimal
100-129 mg/dlnear optimal
130-159 mg/dlborderline-high risk
160-189 mg/dlhigh risk
>190 mg/dlvery high

HDL Cholesterol

less than 40 mg/dllow
> 60 mg/dlhigh

Triglycerides

less than 150 mg/dlnormal
150-199 mg/dlborderline-high
200-499 mg/dlhigh
≥500 mg/dlvery high

In 2000, the American Heart Association published revised dietary guidelines for reducing risk of cardiovascular disease. Two major guidelines focus on achieving a desirable blood cholesterol level and lipoprotein profile: (1) Limit the intake of foods with a high content of saturated fatty acids and cholesterol; and (2) Substitute grains and unsaturated fatty acids from vegetables, fish, legumes, and nuts. A population-wide recommendation is made for maintaining a healthy weight and limiting total dietary fat to <30% of calories, saturated fat to <10% of calories, and dietary cholesterol to < 300 mg/day.

In May 2001, the National Cholesterol Education Program (NCEP) issued new clinical practice guidelines on the prevention and management of high cholesterol in adults. The guidelines recommend more aggressive cholesterol-lowering treatment and better identification of those at high risk for heart attack. Key changes in the new guidelines include use of a lipoprotein profile as the first test for high cholesterol, a new level at which low HDL becomes a major heart disease risk factor, intensified use of therapeutic lifestyle changes (TLC) in the treatment of elevated cholesterol and increased attention to the treatment of high triglycerides.

In 1999, thirty percent of Alabama adults reported that a doctor or other health professional told them their cholesterol was high, although no uniform definition for "high" was used.

Hypertension

HEALTHY ALABAMA 2010 OBJECTIVE 4.9
Increase to 97 percent or more the proportion of adults aged 18 and older who have had their blood pressure measured within the preceding two years.

High blood pressure is among the most common of the risk factors for cardiovascular disease. High blood pressure, often called the silent killer, is associated with an increased risk of developing heart disease, stroke, congestive heart failure, kidney disease, and peripheral vascular disease. Based on estimates from the National Health and Nutrition Examination Survey, approximately one of every four adults in the United States has high blood pressure. The prevalence of high blood pressure rises progressively with increasing age and is higher in blacks than in whites. Each year approximately 2 million new cases of hypertension are added to the number currently requiring treatment. It is hard to know the exact number of people with high blood pressure since many are unaware of their condition.

Hypertension, or high blood pressure, is defined as a systolic blood pressure (SBP) of 140 mm Hg or greater, and a diastolic (DBP) of 90 mm Hg or greater. The positive relationship between high blood pressure and cardiovascular risk has long been recognized. Increases in high blood pressure from the optimal level of <120 mm Hg systolic and <80 mm Hg diastolic to higher levels progressively increases the risk of cardiovascular disease mortality.

There are several risk factors for high blood pressure. The controllable risk factors are overweight, obesity, physical inactivity, high salt intake and high alcohol consumption. Family history, race and age are uncontrollable risk factors for hypertension. If left untreated, high blood pressure can lead to stroke, heart attack, heart failure and kidney failure.

According to the 1999 Alabama Behavioral Risk Factor Survey, almost one-third of Alabama adults reported having been told they have high blood pressure by a healthcare professional. The percentage of adults reporting high blood pressure has gradually increased from 20.5 percent in 1993 to 31.1 percent in 1999.

NHLBI Classification of Blood Pressure for Adults, Age 18 and Older

<u>Category</u>	<u>Systolic (mm Hg)</u>	<u>Diastolic (mm Hg)</u>
Optimal	<120	<80
Normal	<130	<85
High-Normal	130-139	85-89
Hypertension		
Stage 1	140-159	90-99
Stage 2	160-179	100-109
Stage 3	>=180	>=110

Diabetes

HEALTHY ALABAMA 2010 OBJECTIVE 4.4
Reduce the diabetes death rate to at least 14.5 per 100,000 people.

Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Diabetes, the seventh leading cause of death in the United States is a chronic disease with no known cure.

Over the past decade 10.5 million persons have been diagnosed with diabetes, 800,000 new cases each year, with an additional 5.5 million persons estimated to have the disease but are undiagnosed. According to the Centers for Disease Control and Prevention, the prevalence of diabetes in adults increased 33 percent during the 1990s with the greatest increase occurring in people age 30-39. Particularly disturbing is the increase of Type 2 diabetes among children and adolescents. As the childhood population becomes increasingly overweight, Type 2 diabetes may be expected to occur in younger prepubertal children, setting the stage for increasing morbidity and mortality as this population ages. (*Pediatric Nutrition - a Building Block for Life, Vol.23, Spring 2000*)

As the occurrence of diabetes increases in the U.S., we can expect associated complications to increase as well. Among the complications of diabetes is heart disease, the leading cause of diabetes-related deaths. Adults with diabetes have heart disease death rates about 2 to 4 times as high as that of adults without diabetes (CDC National Diabetes Fact Sheet, November 1998). The presence of diabetes in women is associated with a 3- to 4- fold increase in coronary heart disease compared to non-diabetic females. The risk of stroke is 2 to 4 times higher in people with diabetes and an estimated 60% to 65% of people with diabetes have high blood pressure (HP2010). While diabetics with additional risk factors such as elevated blood cholesterol, smoking, and obesity are particularly at risk for some form of heart or blood vessel disease, diabetics who control these risk factors may avoid or delay heart and blood vessel disease.

In 2000, 7.4% of Alabama adults, aged 18 and over, reported being told by a healthcare professional they had diabetes. (2000 BRFSS)

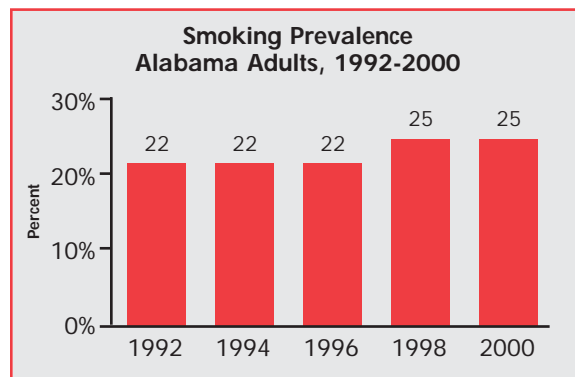
Smoking

HEALTHY ALABAMA 2010 OBJECTIVE 1.5
Reduce to 13 percent or less the proportion of adults aged 18 and older who smoke cigarettes and reduce to 3 percent or less the proportion of adults aged 18 and older who use smokeless tobacco.

HEALTHY ALABAMA 2010 OBJECTIVE 1.6
Reduce to 25 percent or less the proportion of students in grades 9 through 12 who smoke cigarettes and reduce to 5 percent or less the proportion of students in grades 9 through 12 who use smokeless tobacco.

Cigarette smoking is the single most preventable cause of death in the United States and is a significant risk factor for the development of cardiovascular disease. Cigarette smoking is a major cause of heart disease and stroke among both men and women. Smokers have twice the risk for heart attack of non-smokers. Smokers who have a heart attack are more likely to die and die suddenly than are nonsmokers. Smoking

also doubles the risk for stroke. Nearly one-fifth of all deaths from heart disease, or about 180,000 deaths each year, are attributable to smoking.



While adult smoking has decreased throughout the country in recent years, these declines have slowed or stopped. In contrast, smoking among youth increased throughout much of the 1990s. The Centers for Disease Control and Prevention estimate that more than 3,000 young people become regular smokers each day in the United States. In Alabama, approximately 25 percent of adults are regular smokers. Among our youth, 35 percent of high school students smoke. It is estimated that 19,000 youth in Alabama become regular smokers each year.

Cessation of smoking can substantially lower the risk for heart attack and stroke and it is never too late to quit. Smokers who quit can reduce their risk for cardiovascular disease by as much as 50 percent after only one year.



VI. THE CARDIOVASCULAR HEALTH STATE PLAN

Cardiovascular Goals

The goals, recommended actions and outcomes outlined in the cardiovascular health state plan were formulated by the Alabama Cardiovascular Health Coalition and are intended to contribute to the achievement of selected Healthy People 2010 national disease prevention objectives and the Alabama Healthy People 2010 state objectives related to cardiovascular health. These goals are meant to guide Alabama in reducing the burden of cardiovascular disease in our state over the next five years.

HEALTHY ALABAMA 2010 OBJECTIVE 4.7 *Reduce cardiovascular disease death rates per 100,000 as follows:*

	<i>Coronary heart disease</i>	<i>Stroke</i>
<i>AL Baseline</i>	<i>94 (1997)</i>	<i>31.9 (1997)</i>
<i>AL Target</i>	<i>66.0</i>	<i>24.0</i>
<i>US Baseline</i>	<i>108 (1995)</i>	<i>27 (1995)</i>
<i>US Target</i>	<i>51</i>	<i>16</i>

The Alabama Cardiovascular Health Coalition set three overall goals for cardiovascular disease prevention and control in Alabama:

- 1. Increase awareness of cardiovascular disease in Alabama, including awareness of the prevalence and burden of disease, as well as roles that individuals, health care providers and payors, communities, schools, worksites and faith-based organizations can play in promoting individual and collective cardiovascular health.***
- 2. Minimize cardiovascular disease-related risk behaviors and promote positive heart-health among citizens of all ages in Alabama through supportive environments which encourage and promote heart-healthy lifestyles.***
- 3. Promote access to and utilization of early detection and rapid treatment options for cardiovascular events throughout the state.***

Recommended Actions and Outcomes:

To ensure success in meeting the goals set forth in this plan, it will take a collaborative effort from health partners, community organizations, local agencies, schools and other partners throughout the state interested in preventing and reducing cardiovascular disease. Successful implementation of these strategies through a variety of settings, such as schools, worksites, organizations of faith, healthsystems and local communities, have the potential to effect positive changes in heart health throughout the state.

Goal 1: Increase awareness of cardiovascular disease in Alabama, including awareness of the prevalence and burden of disease, as well as roles that individuals, health care providers and payors, communities, schools, and faith-based organizations can play in promoting individual and collective cardiovascular health.

Recommended Actions and Outcomes:

1. Document and publicize the burden of cardiovascular disease in Alabama.
 - Prepare a comprehensive report on the burden of cardiovascular disease in Alabama.
 - Prepare fact sheets reflecting the burden, risk factors, and costs of cardiovascular disease in Alabama.
 - Develop county-level estimates of CVD to identify areas of high risk in the state.
 - Develop screening programs for elementary school children, with assessment of height, weight and blood pressure to develop a report on CVD risk in youth.
2. Develop a resource library and informational materials as needed to provide a primary source of up-to-date information on CVD and risk factors.
 - Gather evidence-based guidelines for the prevention and treatment of cardiovascular disease and related conditions.
 - Gather data on effects of school-based health promotion programs on academic achievement.
 - Gather resource materials from the American Heart Association, the Centers for Disease Control and Prevention and other organizations to be available to the public, including materials targeted to youth, seniors, minorities and high risk populations.

- Develop new materials and timely updates, as necessary, for topics such as worksite wellness programs, informational packets for healthcare providers, public service announcements and models for use in faith-based programs.
3. Disseminate cardiovascular health information through various channels throughout the state.
- Develop a site for cardiovascular health information on the Alabama Department of Public Health's website.
 - Sponsor and produce satellite conferences for statewide broadcast to educate and inform various audiences on cardiovascular disease and prevention.
 - Co-sponsor statewide conferences with other interested organizations to promote issues related to cardiovascular disease in Alabama.
 - Establish a speaker's bureau of public and private healthcare professionals to inform and educate on cardiovascular disease and related conditions.
 - Develop and implement strategies to utilize the media in promoting cardiovascular disease prevention.
 - Facilitate heart health pilot programs in schools and promote successful programs for implementation statewide.
4. Identify key collaborators and community resources to extend the infrastructure for cardiovascular disease prevention activities.
- Identify a key healthcare professional in each Public Health Area to be involved in local cardiovascular disease prevention efforts.
 - Recruit natural helpers and collaborate with community health advisors in the local communities to implement community-based initiatives.
 - Involve youth leaders in area schools to implement and participate in cardiovascular prevention activities.
 - Appoint cardiovascular health coordinators in each Public Health Area to organize and lead in the development of community-based interventions that promote cardiovascular health.

- Explore initiatives of organizations of faith to expand their role in promoting heart health.

Goal 2: Minimize cardiovascular disease-related risk behaviors and promote positive heart- health among citizens of all ages in Alabama through supportive environments which encourage and promote heart-healthy lifestyles.

Recommended Actions and Outcomes:

1. Diet/Nutrition: Make healthy food alternatives more accessible to Alabama residents.
 - Increase the percentage of Alabama schools, worksites, and public buildings that include healthy food choices on campus, such as in cafeterias, vending machines and lunchrooms.
 - Increase the number of local farmers markets operating throughout the state to promote the availability and consumption of fresh fruits and vegetables.
 - Utilize the National 1% or Less Milk campaign to improve consumption of low fat milk and other dairy products.
 - Establish nutrition advisory committees in schools with representation from administrators, teachers, lunchroom staff, coaches, parents and students to address procedures and policies on nutrition issues, and competitive foods sold in schools, fundraisers, and school-sponsored athletic events.
2. Physical Activity: Promote the learning and practice of life-long physical activity.
 - Increase the number of before and after school programs that include opportunities for structured physical activity.
 - Increase the number of certified physical education teachers in elementary schools.
 - Eliminate waivers for physical education requirements in high schools.
 - Promote participation in National Walk/Run to School Week, Jump Rope/Hoops for Heart, Alabama Spirit Day/Week, and National Physical Education/Sports Week.
 - Promote the development of infrastructure, such as walking trails, bike trails, parks and other recreational facilities, that encourages safe, affordable physical activity opportunities in the local communities.

3. **Smoking Prevention/Cessation:** Collaborate with the Alabama Tobacco Prevention and Control Branch to decrease the number of new smokers, promote smoking cessation among current smokers and reduce exposure to environmental tobacco smoke.
 - Promote establishment and enforcement of no-smoking policies in public places such as schools, restaurants, healthcare facilities, and municipal buildings and facilities.
 - Promote the implementation of smoking cessation programs available to adults and youth in communities, including those offered within worksite wellness programs.
 - Develop resource guides outlining smoking cessation programs available within communities.
 - Promote smoke-free workplaces.
 - Promote smoke-free homes for children.
4. **Diabetes Prevention and Control:** Promote awareness of diabetes as a major risk factor for cardiovascular disease.
 - Collaborate with the Alabama Diabetes Control Program to promote awareness and understanding of the role of physical activity and nutrition in the prevention of diabetes.
5. **Hypertension Prevention and Control:** Promote awareness of high blood pressure as a major risk factor for cardiovascular disease.
 - Collaborate with the Alabama Hypertension Program to promote awareness of the role of nutrition and physical activity in preventing and controlling high blood pressure.
6. **High Cholesterol Prevention:** Promote awareness of high cholesterol as a major risk factor for cardiovascular disease.
 - Collaborate with the Nutrition and Physical Activity Unit to promote national campaigns to reduce cholesterol, such as the National Cholesterol Education Program (NCEP), National Five-A-Day Program and the National 1% or Less Milk campaign.
 - Promote awareness of the role blood lipid levels play in the development of cardiovascular disease and how nutrition and physical activity can aid in the control of lipid levels.

Goal 3: *Promote use of recommended treatment guidelines among healthcare professionals and facilitate access to and utilization of early detection and treatment options for cardiovascular events among all citizens.*

Recommended Actions and Outcomes:

1. Collaborate with health care systems and insurance organizations to disseminate and promote nationally accredited guidelines for the prevention and treatment of CVD and related risk factors.
2. Partner with peer review organizations and medical associations to encourage reimbursement for assessment and counseling for physical activity, nutrition, and tobacco cessation by health insurance plans.
3. Partner with the American Heart Association to educate the public about the early warning signs of heart attack and stroke to encourage early detection and rapid treatment.
4. Promote access to rapid treatment by partnering with the American Heart Association to:
 - Promote and establish 911 emergency response systems in every county in Alabama.
 - Encourage counties to implement enhanced 911 emergency response systems.
 - Provide CPR training to 911 dispatchers, first responders and EMS workers, community leaders, healthcare workers and schools.
 - Promote National Mass CPR Training Day
 - Seek resources to provide and promote use of Automated External Defibrillators (AEDs) in public facilities.

Evaluation

Evaluation of the state plan will include process, impact and outcome measures of the proposed objectives. Evaluation will vary for different components of the Alabama Cardiovascular Health Plan. Process evaluation will monitor the step-by-step progress of the program toward achievement of the goals outlined in the state plan. Impact evaluation will assess the number of persons who were beneficially affected by CVH interventions initiated throughout the state.

Outcome evaluation will assess changes in the health behavior and health outcomes of the general population. Outcome evaluation will be a long-term process and will involve monitoring data such as state mortality data, risk factor data and other healthcare data related to CVH outcomes. It will also include measurement of the state's progress toward meeting the *Healthy Alabama 2010* objectives listed in this document.

VII. SECONDARY PREVENTION OF CARDIOVASCULAR DISEASE

Secondary prevention refers to identifying and treating persons with established disease and treating and rehabilitating patients who have had a heart attack or stroke to prevent a second event. Scientific evidence has shown that comprehensive risk factor interventions along with appropriate pharmaceutical management for high blood pressure and high cholesterol can improve quality of life, reduce the incidence of a second event and extend overall survival. Many of the primary prevention risk reduction recommendations are also applicable in secondary prevention of cardiovascular disease.

Nationally accredited clinical practice guidelines have been established to guide healthcare professionals in appropriate management of cardiovascular disease and the related risk factors. Successful implementation and adherence to these guidelines can lead to better disease management and improved patient outcomes. These guidelines include treatment and management for risk factor conditions such as high blood pressure, high cholesterol, and obesity and medical management of patients with a history of coronary artery disease or heart attack and stroke. Some of the guidelines are included in the appendix of this document.



IX. APPENDICES

The Alabama Cardiovascular Health Coalition **State Plan Contributors/Partner Agencies/Organizations**

- Agudath Israel Synagogue
- Air War College Executive Wellness Center
- Alabama Cooperative Extension System
- Alabama Department of Agriculture and Industries
- Alabama Department of Children’s Affairs
- Alabama Department of Economic and Community Affairs
- Alabama Department of Education
- Alabama Department of Human Resources
- Alabama Department of Public Health
 - Bureau of Health Promotion and Chronic Disease
 - Arthritis Prevention Branch
 - Diabetes Branch
 - Hypertension Branch
 - Tobacco Prevention and Control Branch
 - Public Information Division
 - Worksite Wellness Division
 - Office of Primary Care and Rural Health Development
 - Minority Health Section
 - Office of Children’s Health Insurance
 - Office of Professional and Support Services
 - Nutrition and Physical Activity Unit
 - Pharmacy Unit
 - Bureau of Family Health Services
 - Center for Health Statistics
- Alabama Department of Senior Services
- Alabama Department of Transportation
- Alabama Farmers Market Authority
- American Heart Association
- Alabama Indian Affairs Commission
- Alabama Primary Health Care Association
- Alabama Quality Assurance Foundation
- Alabama State Association for Health, Physical Education, Recreation and Dance
- Alabama State Nurses’ Association
- Alabama State University
- Antioch Baptist Church
- Auburn University at Montgomery
- Auburn University School of Pharmacy
- Baptist Health
- Blue Cross Blue Shield of Alabama
- Governor’s Commission on Physical Fitness
- Immanuel Presbyterian Church
- Jefferson County Health Department
- Partners in Progress
- Resurrection Catholic Church
- Southern Association of Cardiac and Pulmonary Rehabilitation
- Tuskegee University Center for Bioethics
- University of Alabama at Birmingham
 - Center for Health Promotion
 - School of Public Health
 - Wilcox County Health Project

Selected Healthy People 2010 Objectives for Cardiovascular Health

Provide Surveillance and Support Primary Prevention Programs to Address Principal Objectives:

- 12.1 Reduce coronary heart disease deaths.
Baseline: 208 deaths per 100,000 in 1998 (age-standardized to 2000) **Target:** 166 deaths per 100,000; 20% improvement
- 12.7 Reduce stroke deaths.
Baseline: 60 deaths per 100,000 in 1998 (age-standardized to 2000) **Target:** 48 deaths per 100,000; 20% improvement
- 12.9 Reduce the proportion of adults with high blood pressure.
Baseline: 28% of adults aged >20 years in 1988-94 (age-standardized to 2000) **Target:** 16%
- 12.13 Reduce the mean total blood cholesterol levels among adults.
Baseline: mean 206 mg/dL among adults aged >20 years in 1988-94 (age-standardized to 2000) **Target:** 199 mg/dL
- 12.14 Reduce the proportion of adults with high total blood cholesterol levels.
Baseline: 21% of adults aged >20 years with total blood cholesterol levels >240 mg/dL in 1988-94 (age-standardized to 2000) **Target:** 17%

Provide Surveillance and Support Programs to Address Secondary Prevention Objectives:

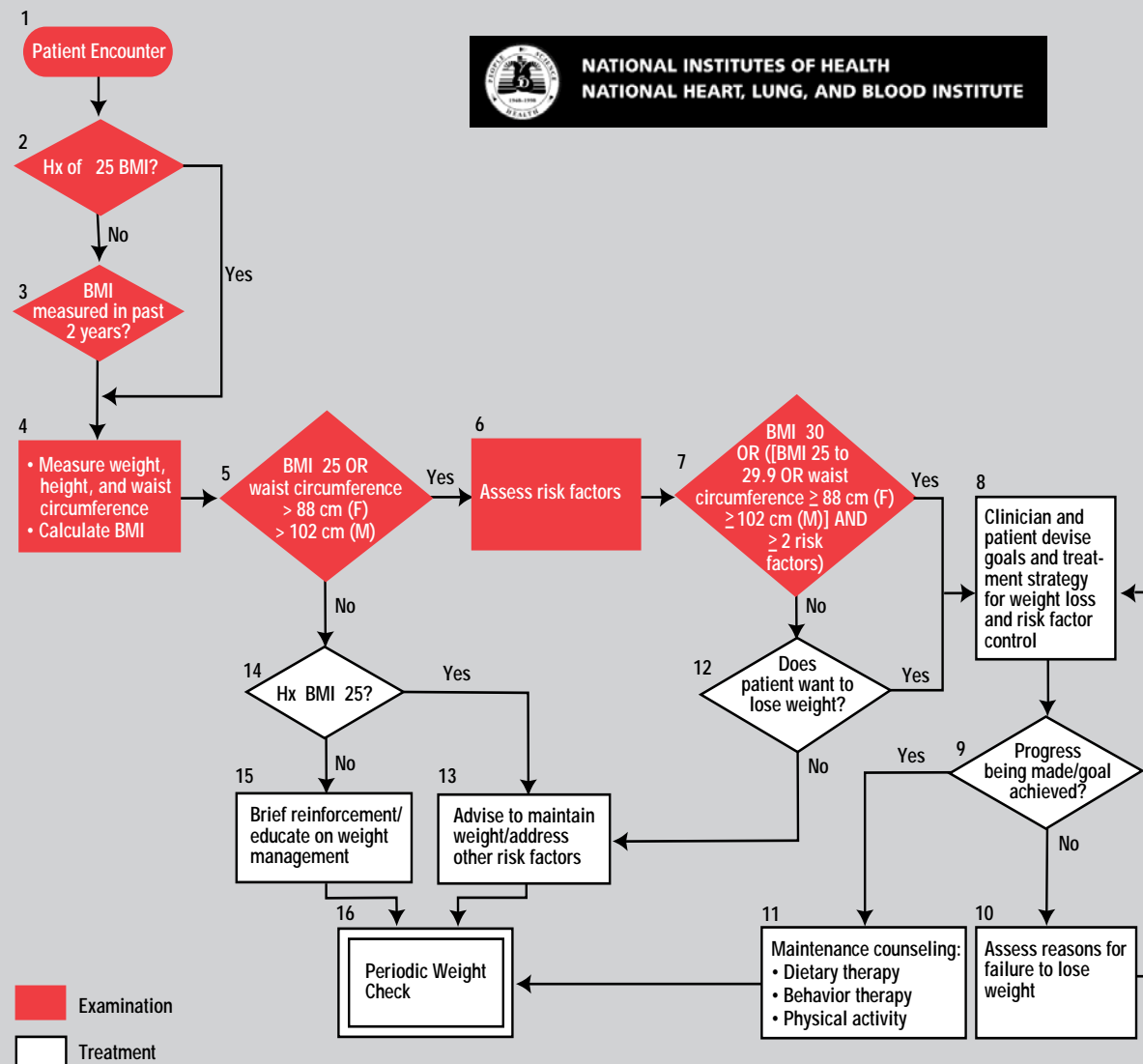
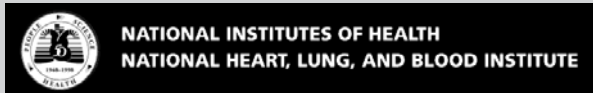
- 12.2 (Developmental) Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 911.
- 12.3 (Developmental) Increase the proportion of eligible patients with heart attacks who receive artery-opening therapy within an hour of symptom onset.
- 12.4 (Developmental) Increase the proportion of adults aged 20 years and older who call 911 and administer cardiopulmonary resuscitation (CPR) when they witness an out-of-hospital cardiac arrest.
- 12.5 (Developmental) Increase the proportion of persons with witnessed out-of-hospital cardiac arrest who are eligible and receive their first therapeutic electrical shock within 6 minutes after collapse recognition.
- 12.6 Reduce hospitalizations of older adults with heart failure as the principal diagnosis.
- | | | |
|-------------|---------------------------------|-------------------------|
| 65-74 years | 1997 Baseline: 13.4/1000 | Target: 6.5/1000 |
| 75-84 years | 26.9/1000 | 13.5/1000 |
| >85 years | 53.1/1000 | 26.5/1000 |
- 12.8 (Developmental) Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke.
- 12.12 Increase the proportion of adults who have had their blood pressure measured within the preceding 2 years and can state whether their blood pressure was high or normal.
Baseline: 90% of adults aged >18 (age-standardized to 2000) **Target:** 95%
- 12.10 Increase the proportion of adults with high blood pressure whose blood pressure is under control.
Baseline: 18% of adults aged >18 with high blood pressure had it under control in 1988-94 (age-standardized to 2000) **Target:** 50%
- 12.11 Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, and reducing sodium intake) to help control their blood pressure.
Baseline: 72% of adults aged >18 with high blood pressure were taking action to control it in 1998 (age-standardized to 2000) **Target:** 95%
- 12.15 Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.
Baseline: 68% of adults aged >18 (age-standardized to 2000) **Target:** 80%

- 12.16 (Developmental) Increase the proportion of persons with coronary heart disease who have their LDL-cholesterol level treated to a goal of less than or equal to 100.
- 1.3 (Developmental) Increase the proportion of persons appropriately counseled about health behaviors.
- 19.17 Increase the proportion of physician office visits made by patients with a diagnosis of cardiovascular disease, diabetes, or hyperlipidemia that include counseling or education related to diet and nutrition.
Baseline: 42% of physician office visits that were related to the diagnosis of cardiovascular disease, diabetes, or hyperlipidemia in 1997 (age-standardized to 2000) **Target:** 75%

Provide Surveillance and Collaborate with Policy/Environmental Strategies to Address Objectives for State CVH Program Evaluation:

- 19.16 Increase the proportion of worksites that offer nutrition or weight management classes or counseling.
Baseline: 50% of worksites with ≥50 employees in 1998-99 **Target:** 85%
- 22.13 Increase the proportion of worksites offering employer-sponsored physical activity and fitness programs.
Baseline in 1998-99 (varies by employee size—see list) **Target:** 75%
- 27.11 Increase smoke-free and tobacco-free environments in schools, including all school facilities, property, vehicles and school events.
Baseline: 37% of middle, junior high, and senior high schools in 1994 **Target:** 100%
- 27.12 Increase the proportion of worksites with formal smoking policies that prohibit smoking or limit it to separately ventilated areas. **Target:** each site in 51 states and districts
- 27.14 Reduce the illegal buy rate among minors through enforcement of laws prohibiting the sale of tobacco products to minors.
- | | | |
|----------------------|-------------------------|-------------------|
| States and Districts | 1998 Baseline: 0 | Target: 51 |
| Territories | 0 | All |
- 27.15 Increase the number of States and the District of Columbia that suspend or revoke State retail licenses for violations of laws prohibiting the sale of tobacco to minors.
States and Districts **1998 Baseline:** 34 **Target:** 51
- 27.16 (Developmental) Eliminate tobacco advertising and promotions that influence adolescents and young adults.
- 27.19 Eliminate laws the preempt stronger tobacco control law.
States **1998 Baseline:** 30 **Target:** 0
- 27.8 Increase insurance coverage of evidence-based treatment for nicotine dependency.
- | | | |
|-------------------------------|---------------------------|---------------------|
| Managed care organizations | 1998 Baseline: 75% | Target: 100% |
| State Medicaid programs | 24% | 51% |
| All Insurance (developmental) | | |
- 22.11 (Developmental) Increase the proportion of the Nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (that is, before and after the school day, on weekends, and during summer and other vacations) **Target:** 75%
- 22.18 Increase the proportion of the Nation's public and private schools that require daily physical education for all students.
- | | | |
|------------------------|---------------------------|--------------------|
| Middle and junior high | 1994 Baseline: 17% | Target: 25% |
| Senior high | 2% | 5% |
- 7.2 Increase the proportion of middle, junior high, and senior high schools that provide comprehensive school health education to prevent health problems in the following areas:....tobacco use and addiction, unhealthy dietary patterns, inadequate physical activity.

NHLBI Obesity Guidelines Treatment Algorithm*



* This algorithm applies only to the assessment for overweight and obesity and subsequent decisions based on that assessment. It does not reflect any initial overall assessment for other conditions and diseases that the physician may wish to do.

The JNC VI Guide To Prevention and Treatment of Hypertension Recommendations

<p>Blood Pressure Measurement</p>	<p>Patient should:</p> <ul style="list-style-type: none"> • Rest for 5 minutes before measurement. • Refrain from smoking or ingesting caffeine for 30 minutes prior to measurement. • Be seated with feet flat on floor, back and arm supported, arm at heart level. <p>Clinician should:</p> <ul style="list-style-type: none"> • Use the appropriate size cuff for the patient; the bladder should encircle at least 80 percent of the upper arm. • Use calibrated or mercury manometer. • Average two or more readings, separated by at least 2 minutes.
<p>Primary Prevention</p>	<p>Encourage patients to make healthy lifestyle choices:</p> <ul style="list-style-type: none"> • Quit smoking to reduce cardiovascular risk. • Lose weight, if needed. • Restrict sodium intake to no more than 100 mmol per day. • Limit alcohol intake to no more than 1-2 drinks per day. • Get at least 30-45 minutes of aerobic activity on most days. • Maintain adequate potassium intake—about 90 mmol per day. • Maintain adequate intakes of calcium and magnesium.
<p>Goal</p>	<p>Set a clear goal of therapy based on patient's risk. Control blood pressure to below:</p> <ul style="list-style-type: none"> • 140/90 mm Hg for patients with uncomplicated hypertension; set a lower goal for those with target organ damage or clinical cardiovascular disease. • 130/85 mm Hg for patients with diabetes. • 125/75 mm Hg for patients with renal insufficiency with proteinuria greater than 1 gram per 24 hours.
<p>Treatment</p>	<p>Begin with lifestyle modifications (see primary prevention box) for all patients. Be supportive!</p> <ul style="list-style-type: none"> • Add pharmacologic therapy if blood pressure remains uncontrolled. • Start with a diuretic or beta-blocker unless there are compelling indications to use other agents. Use low dose and titrate upward. Consider low dose combinations. • If no response, try a drug from another class or add a second agent from a different class (diuretic if not already used).
<p>Adherence</p>	<ul style="list-style-type: none"> • Encourage lifestyle modifications. Be supportive! • Educate patient and family about disease. Involve them in measurement and treatment. • Maintain communications with patient. • Discuss how to integrate treatment into daily activities. • Keep care inexpensive and simple. • Favor once-daily, long-acting formulations. • Use combination tablets, when needed. • Consider using generic formulas or larger tablets that can be divided. This may be less expensive. • Be willing to stop unsuccessful therapy and try a different approach. • Consider using nurse case management.



**NATIONAL INSTITUTES OF HEALTH
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE**

JNC VI Risk Stratification and Treatment Recommendations

- Determine blood pressure stage.
- Determine risk group by major risk factors and TOD/CCD.
- Determine treatment recommendations (by using the table below).
- Determine goal blood pressure.
- Refer to specific treatment recommendations.

Major Risk Factors

- Smoking
- Dyslipidemia
- Diabetes mellitus
- Age > 60 years
- Gender :
 - Men
 - Postmenopausal women
- Family history :
 - Women < age 65
 - Men < age 55

TOD/CCD (Target Organ Damage/ Clinical Cardiovascular Disease)

- Heart diseases
- LVH
 - Angina/prior MI
 - Prior CABG
 - Heart failure
- Stroke or TIA
Nephropathy
Peripheral arterial disease
Hypertensive retinopathy

Blood pressure stages (mm Hg)	Risk Group A No major risk factors No TOD/CCD	Risk Group B At least one major risk factor, not including diabetes No TOD/CCD	Risk Group C TOD/CCD and/or diabetes, with or without other risk factors
High-normal (130-139/85-89)	Lifestyle modification	Lifestyle modification	Drug therapy for those with heart failure, renal insufficiency or diabetes Lifestyle modification
Stage 1 (140-159/90-99)	Lifestyle modification (up to 12 months)	Lifestyle modification (up to 6 months) For patients with multiple risk factors, clinicians should consider drugs as initial therapy plus lifestyle modifications.	Drug therapy Lifestyle modification
Stages 2 and 3 (≥160/≥100)	Drug therapy Lifestyle modification	Drug therapy Lifestyle modification	Drug therapy Lifestyle modification

Example: A patient with diabetes and a blood pressure of 142/94 mm Hg plus left ventricular hypertrophy should be classified as having stage 1 hypertension with target organ disease (left ventricular hypertrophy) and with another major risk factor (diabetes). This patient would be categorized as **Stage 1, Risk Group C**, and recommended for immediate initiation of pharmacologic treatment.

Goal Blood Pressure

<140/90 mm Hg	Uncomplicated hypertension, Risk Group A, Risk Group B, Risk Group C except for the following:
<130/85 mm Hg	Diabetes; renal failure; heart failure
<125/75 mm Hg	Renal failure with proteinuria > 1 gram/24 hours

SPECIFIC TREATMENT RECOMMENDATIONS

Lifestyle modification should be definitive therapy for some patients and adjunctive therapy for all patients recommended for pharmacologic therapy. Turn page over for a list of recommended lifestyle modifications.

INITIAL DRUG CHOICES

- Start with a low dose of a long-acting once-daily drug, and **titrate dose**
- Low-dose combinations may be appropriate

Uncomplicated Hypertension	Compelling Indications	Specific Indications for the Following Drugs:
Diuretics Beta-blockers	Diabetes type 1 (IDDM) start with ACE inhibitor if proteinuria is present Heart failure start with ACE inhibitor or diuretic Myocardial infarction beta-blocker (non-ISA) after MI; ACE inhibitor for LV dysfunction after MI	(See Table 9 in JNC VI for specific indications) ACE inhibitors Angiotensin II receptor blockers Alpha-blockers Alpha-beta-blockers Beta-blockers Calcium antagonists Diuretics
	Isolated systolic hypertension (older patients) diuretics (preferred) or calcium antagonists (long-acting DHP)	

From *The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*. Arch Intern Med 1997; 157:2413-2446. NIH Publication No. 98-4080. For a copy of JNC VI, call the National Heart, Lung, and Blood Institute Information Center at 301-251-1222.

National Cholesterol Education Program

ATP III Guidelines At-A-Glance Quick Desk Reference

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

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.

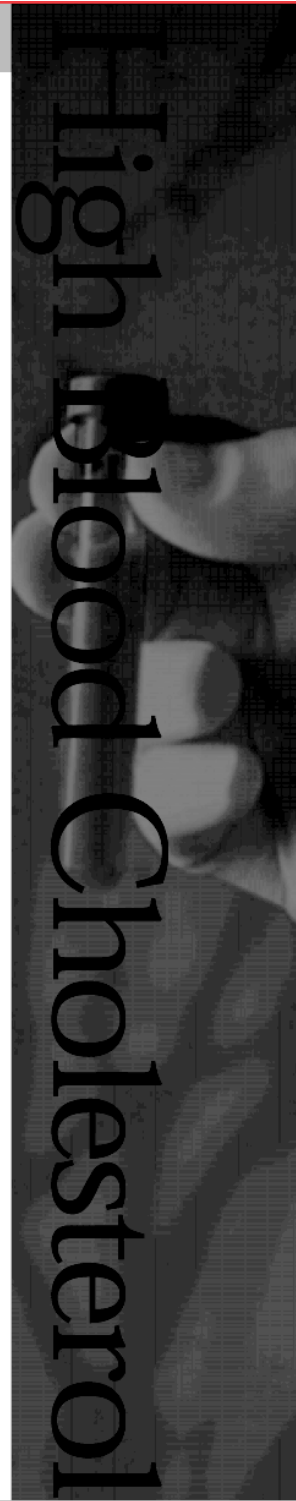
Step 3 Determine presence of major risk factors (other than LDL):

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 fibrate. 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) Pravastatin (20-40 mg) Simvastatin (20-80 mg) Fluvastatin (20-80 mg) Atorvastatin (10-80 mg) Cerivastatin (0.4-0.8 mg)	LDL 18-55% HDL 5-15% TG 7-30%	Myopathy Increased liver enzymes	Absolute: • Active or chronic liver disease Relative: • Concomitant use of certain drugs*
Bile acid sequestrants	Cholestyramine (4-16 g) Colestipol (5-20 g) Colesevelam (2.6-3.8 g)	LDL 15-30% HDL 3-5% TG No change or increase	Gastrointestinal distress Constipation Decreased absorption of other drugs	Absolute: • dysbeta-lipoproteinemia • TG >400 mg/dL Relative: • TG >200 mg/dL
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% HDL 15-35% TG 20-50%	Flushing Hyperglycemia Hyperuricemia (or gout) Upper GI distress Hepatotoxicity	Absolute: • Chronic liver disease • Severe gout Relative: • Diabetes • Hyperuricemia • Peptic ulcer disease
Fibric acids	Gemfibrozil (600 mg BID) Fenofibrate (200 mg) Clofibrate (1 000 mg BID)	LDL 5-20% <i>(may be increased in patients with high TG)</i> HDL 10-20% TG 20-50%	Dyspepsia Gallstones Myopathy	Absolute: • Severe renal disease • Severe hepatic disease

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

8

Step 8

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).

9

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 $\leq 20\%$	<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 ($\leq 15\%$ 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.



Heart Attack Warning Signs

- Uncomfortable pressure, fullness, squeezing or pain in the center of the chest that lasts more than a few minutes, or goes away and comes back
- Pain that spreads to the shoulders, neck or arms
- Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath

Not all of these warning signs occur in every heart attack. If some start to occur, don't wait. Get help immediately.

Heart attack is a medical emergency – call 9-1-1.



Stroke Warning Signs

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

Not all of these warning signs occur in every stroke. If some start to occur, don't wait. Get help immediately.

Stroke is a medical emergency – call 9-1-1.

American Heart Association Comprehensive Risk Reduction for Patients with Coronary and Other Vascular Diseases

Consensus Panel Statement

Preventing Heart Attack and Death in Patients with Coronary Disease.

Circulation. 1995;92:2-4.



Comprehensive Risk Reduction for Patients With Coronary and Other Vascular Disease

Risk Intervention	Recommendations																				
Smoking: Goal: complete cessation	Strongly encourage patient and family to stop smoking. Provide counseling, nicotine replacement, and formal cessation programs as appropriate.																				
BP control: Goal: <140/90 mm Hg or <130/85 mm Hg if heart failure, renal insufficiency or diabetes.	Initiate lifestyle modification — weight control, physical activity, alcohol moderation, and moderate sodium restriction — in all patients with blood pressure ≥130 mm Hg systolic or 85 mm Hg diastolic. Add blood pressure medication, individualized to other patient requirements and characteristics (i.e., age, race, need for drugs with specific benefits) if blood pressure is not less than 140 mm Hg systolic or 90 mm Hg diastolic or if blood pressure is not <130 mm Hg systolic or 85 mm Hg diastolic for individuals with heart failure, renal insufficiency or diabetes.																				
Lipid management: Primary goal LDL <100 mg/dL Secondary goals HDL >35 mg/dL; TG <200 mg/dL	<p>Start AHA Step II Diet in all patients: ≤30% fat, <7% saturated fat, <200 mg/d cholesterol and promote physical activity. Assess fasting lipid profile. In post-MI patients, lipid profile may take 4 to 6 weeks to stabilize. Add drug therapy according to the following guide:</p> <table border="1"> <tr> <td>LDL <100 mg/dL No drug therapy</td> <td>LDL 100 to 130 mg/dL Consider adding drug therapy to diet, as follows:</td> <td>LDL >130 mg/dL Add drug therapy to diet, as follows:</td> <td>HDL <35 mg/dL Emphasize weight management and physical activity. Advise smoking cessation. If needed to achieve LDL goals, consider niacin, statin, fibrates.</td> </tr> <tr> <td colspan="4" style="text-align: center;">↘ Suggested drug therapy ↗</td> </tr> <tr> <td></td> <td>TG <200 mg/dL</td> <td>TG 200 to 400 mg/dL</td> <td>TG >400 mg/dL</td> </tr> <tr> <td></td> <td>Statin Resin Niacin</td> <td>Statin Niacin</td> <td>Consider combined drug therapy (niacin, fibrates, statin)</td> </tr> <tr> <td colspan="4" style="text-align: center;">If LDL goal not achieved, consider combination drug therapy.</td> </tr> </table>	LDL <100 mg/dL No drug therapy	LDL 100 to 130 mg/dL Consider adding drug therapy to diet, as follows:	LDL >130 mg/dL Add drug therapy to diet, as follows:	HDL <35 mg/dL Emphasize weight management and physical activity. Advise smoking cessation. If needed to achieve LDL goals, consider niacin, statin, fibrates.	↘ Suggested drug therapy ↗					TG <200 mg/dL	TG 200 to 400 mg/dL	TG >400 mg/dL		Statin Resin Niacin	Statin Niacin	Consider combined drug therapy (niacin, fibrates, statin)	If LDL goal not achieved, consider combination drug therapy.			
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	TG <200 mg/dL	TG 200 to 400 mg/dL	TG >400 mg/dL																		
	Statin Resin Niacin	Statin Niacin	Consider combined drug therapy (niacin, fibrates, statin)																		
If LDL goal not achieved, consider combination drug therapy.																					
Physical activity: Minimum Goal 30 minutes 3 to 4 times per week	Assess risk, preferably with exercise test, to guide prescription. Encourage minimum of 30 to 60 minutes of activity 3 or 4 times weekly (walking, jogging, cycling, or other aerobic activity) supplemented by an increase in daily lifestyle activities (e.g., walking breaks at work, gardening, household work). Maximum benefit 5 to 6 hours a week. Advise medically supervised programs for moderate- to high-risk patients.																				
Weight management: Goal BMI 21–25 kg/m ²	Measure patient's weight and height, BMI, and waist-to-hip ratio at each visit as part of routine evaluation. Start weight management and physical activity as appropriate. Desirable BMI range: 21–25 kg/m ² . Desirable waist circumference <40 inches in men and <36 inches in women.																				
Diabetes management: Near normal fasting plasma glucose and near normal HbA1c (<7)	Appropriate hypoglycemic therapy to achieve near normal fasting plasma glucose as indicated by HbA1c. Treatment of other risks (e.g., physical activity, weight management, blood pressure and for cholesterol management see recommendations above).																				
Antiplatelet agents/ anticoagulants:	Start aspirin 80 to 325 mg/d if not contraindicated. Manage warfarin to international normalized ratio = 2 to 3.5 post-MI patients not able to take aspirin.																				
ACE inhibitors post-MI:	Start early post-MI in stable high-risk patients (anterior MI, previous MI, Killip class II [S ₃ gallop, rales, radiographic CHF]). Continue indefinitely for all with LV dysfunction (ejection fraction ≤40%) or symptoms of failure. Use as needed to manage blood pressure or symptoms in all other patients.																				
Beta-blockers:	Start in high-risk post-MI patients (arrhythmia, LV dysfunction, inducible ischemia) at 5 to 28 days. Continue 6 months minimum. Observe usual contraindications. Use as needed to manage angina, rhythm, or blood pressure in all other patients.																				
Estrogens:	Estrogen replacement: individualize consistent with other health risks.																				

ACE indicates angiotensin-converting enzyme; MI, myocardial infarction; TG, triglycerides; and LV, left ventricular.

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