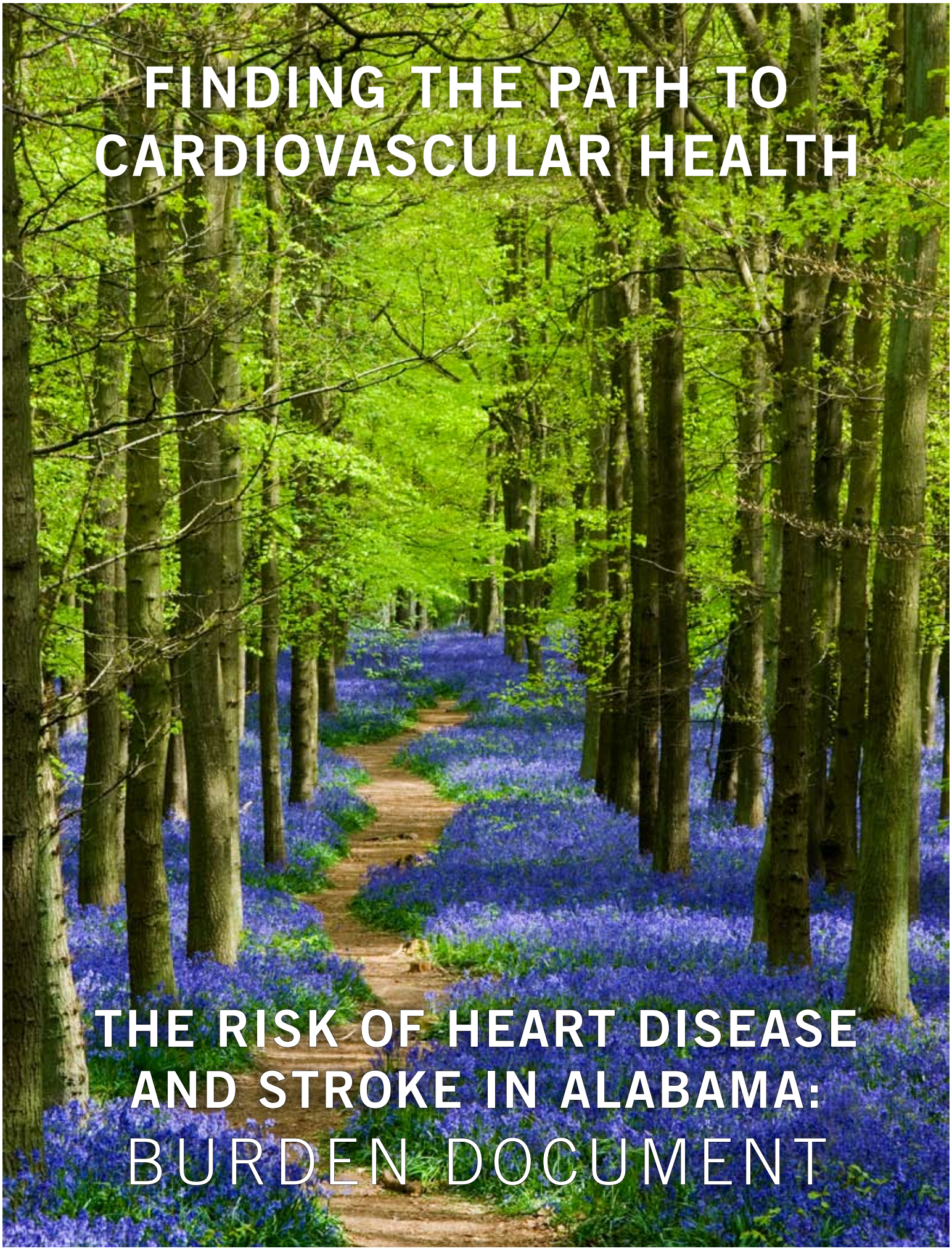


FINDING THE PATH TO CARDIOVASCULAR HEALTH

THE RISK OF HEART DISEASE AND STROKE IN ALABAMA: BURDEN DOCUMENT

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In Alabama, as in the nation, cardiovascular disease (CVD), which includes heart disease and stroke, is the leading cause of death.

Heart disease, the most common form of cardiovascular disease, is the single leading cause of death in Alabama. In 2005, 12,869 people died from heart disease in the state. Men have a higher age-adjusted heart mortality rate than women. Coronary heart disease, the most common type of heart disease, can result in heart attack, which can be prevented by modifying risk factors.

Cerebrovascular accident (CVA), known as stroke, is the third leading cause of death in Alabama, following heart disease and cancer. In 2005, 4,942 people died from a stroke. Compared to heart disease, race is a better predictor of death from stroke than gender, with blacks having higher mortality rates than whites.

Modifiable risk factors for heart disease and stroke highlighted in this report are:
1. high blood pressure;
2. blood cholesterol;
3. diabetes;
4. overweight and obesity;
5. smoking;
6. physical inactivity; and
7. fruit and vegetable consumption.

One in three adults in Alabama is affected by high blood pressure, sometimes called the "silent killer" because it usually has no noticeable warning signs or symptoms. High blood cholesterol can lead to blocked blood vessels, and 39.4 percent of Alabama adults reported they were diagnosed with high blood cholesterol in 2007. Diabetes is a disease with elevated blood glucose which increases the risk for heart disease and stroke. Since 1997, the prevalence of diagnosed diabetes has increased by 48 percent in Alabama. Overweight and obese individuals are more likely to have risk factors for heart disease and stroke, and in Alabama, 66.6 percent of adults are overweight and obese. Smoking more than doubles their risk for heart disease and stroke, and 22.5 percent of adults are current smokers. Physical inactivity also increases the risk for heart disease and stroke, and 29.8 percent of adults were physically inactive. Reduced consumption of fresh fruits and vegetables daily increases the risk for heart disease and stroke, and only 20.6 percent met the recommended requirements.

Focusing on prevention efforts can help reduce deaths from heart disease and stroke by:
1. reducing risk factors;
2. increasing public awareness of warning signs and symptoms of heart attack and stroke; and
3. decreasing the time between the appearance of any warning signs and symptoms and when a person receives appropriate medical care.

Although heart disease and stroke are largely preventable, these diseases continue to result in high mortality rates. This report provides details about this burden by describing the mortality rates and risk factors associated with heart disease and stroke.

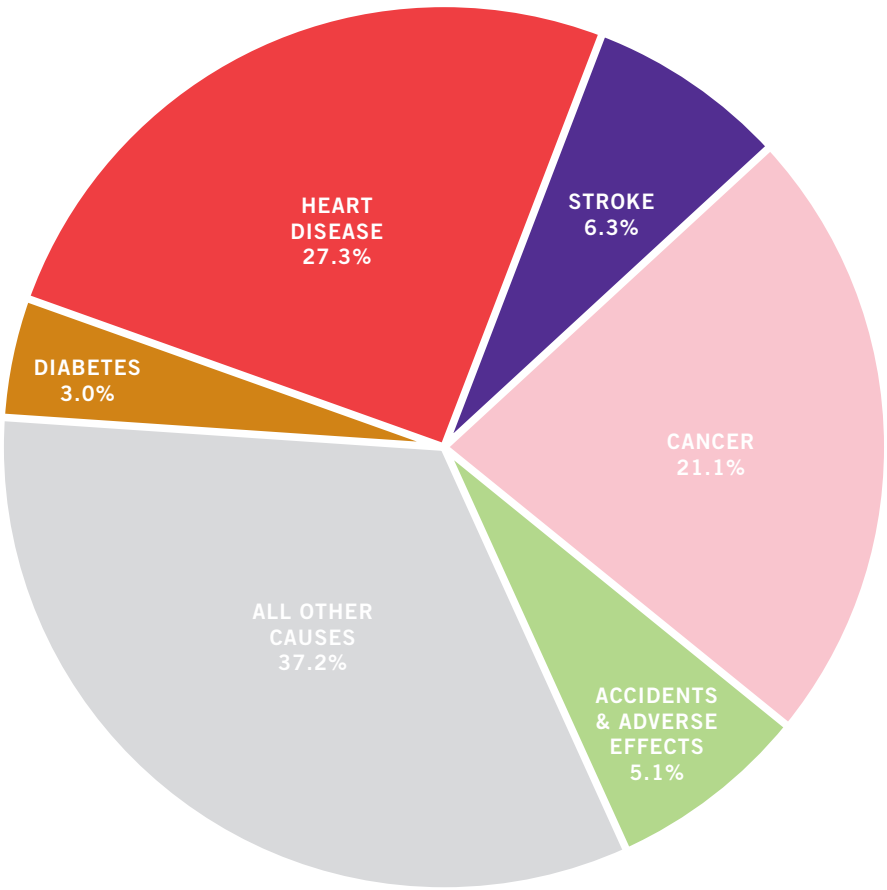
DEMOGRAPHICS

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF ALABAMA 2007

	AL (#)	AL (%)	U.S.
TOTAL POPULATION	4,287,768		299,398,485
Male	2,078,914	48.4	49.2%
Female	2,208,854	51.6	50.8%
MEDIAN AGE (YEARS)	35.6	(x)	36.4
Under 5 years	301,198	6.7	6.8%
18 years and over	3,198,771	75.6	75.4%
65 years and over	522,874	13.4	12.4%
ONE RACE	4,246,242	98.9	98.0%
White	2,760,233	70.3	73.9%
Black or African-American	1,356,981	26.3	12.4%
American Indian or Alaska Native	24,018	0.5	0.8%
Asian	57,084	1.0	4.4%
Some other race	47,211	0.8	6.3%
TWO OR MORE RACES	41,526	1.1	2.0%
Hispanic or Latino (of any race)	123,281	2.5	14.8%
Civilian veterans (civilian population 18 years and over)	324,880	11.8	10.4%
Disability status (population 5 years and over)	729,191	20.3	15.1%
Foreign born	125,204	2.9	12.5%
Male, married, except separated (population 15 years and over)	811,237	54.5	52.4%
Female, married, except separated (population 15 years and over)	793,075	48.8	48.4%
Speak a language other than English at home (population 5 years and over)	336,509	4.2	19.7%

Source: United States Census Bureau, 2007

FIGURE 1: LEADING CAUSES OF DEATH IN ALABAMA 2005



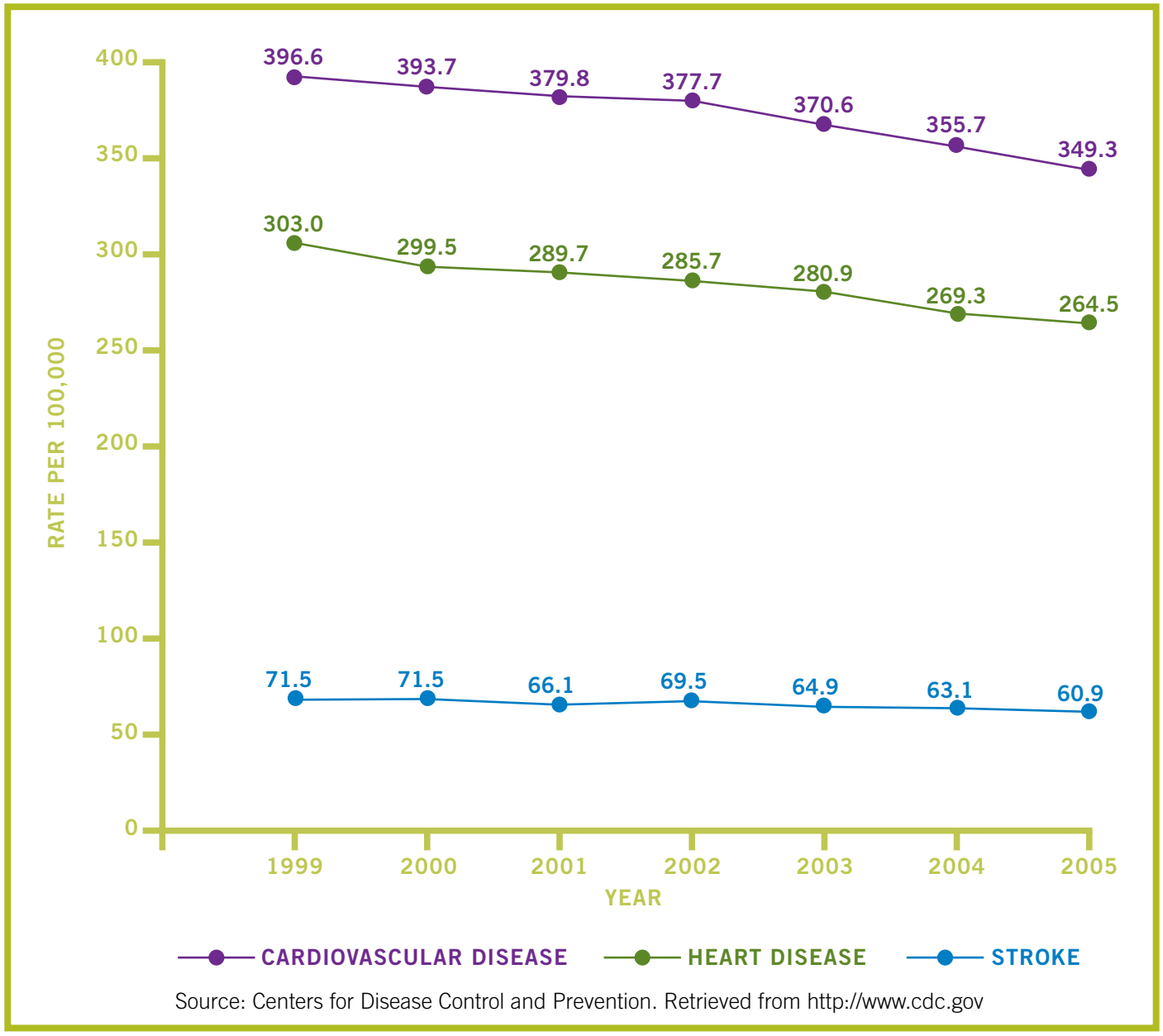
Source: CDC Wonder

- Cardiovascular disease is the leading cause of death and disability in Alabama.
- Heart disease is the primary cause of death in Alabama and kills over 12,000 residents each year.
- 27.3 percent of the deaths in Alabama were due to heart disease and 6.3 percent were due to stroke in 2005.
- Stroke is the third leading cause of death, killing nearly 5,000 people each year.

INTRODUCTION

Cardiovascular disease (CVD) refers to a wide variety of heart and blood vessel diseases, including ischemic heart disease, hypertension, stroke, and rheumatic heart disease. CVD accounts for more deaths in Alabama than any other cause of death. While CVD remains the number one threat as cause of death for Alabamians, many adults do not recognize the signs and symptoms of heart attack or stroke. Most victims surviving a heart attack or stroke often require long-term, expensive medical treatment and experience a compromised quality of life. Refer to Figure 2 for observation of decreasing trends in mortality rates for cardiovascular disease, heart disease, and stroke in Alabama.

FIGURE 2: AGE-ADJUSTED MORTALITY RATES FOR CARDIOVASCULAR DISEASE, HEART DISEASE, AND STROKE IN ALABAMA 1999-2005



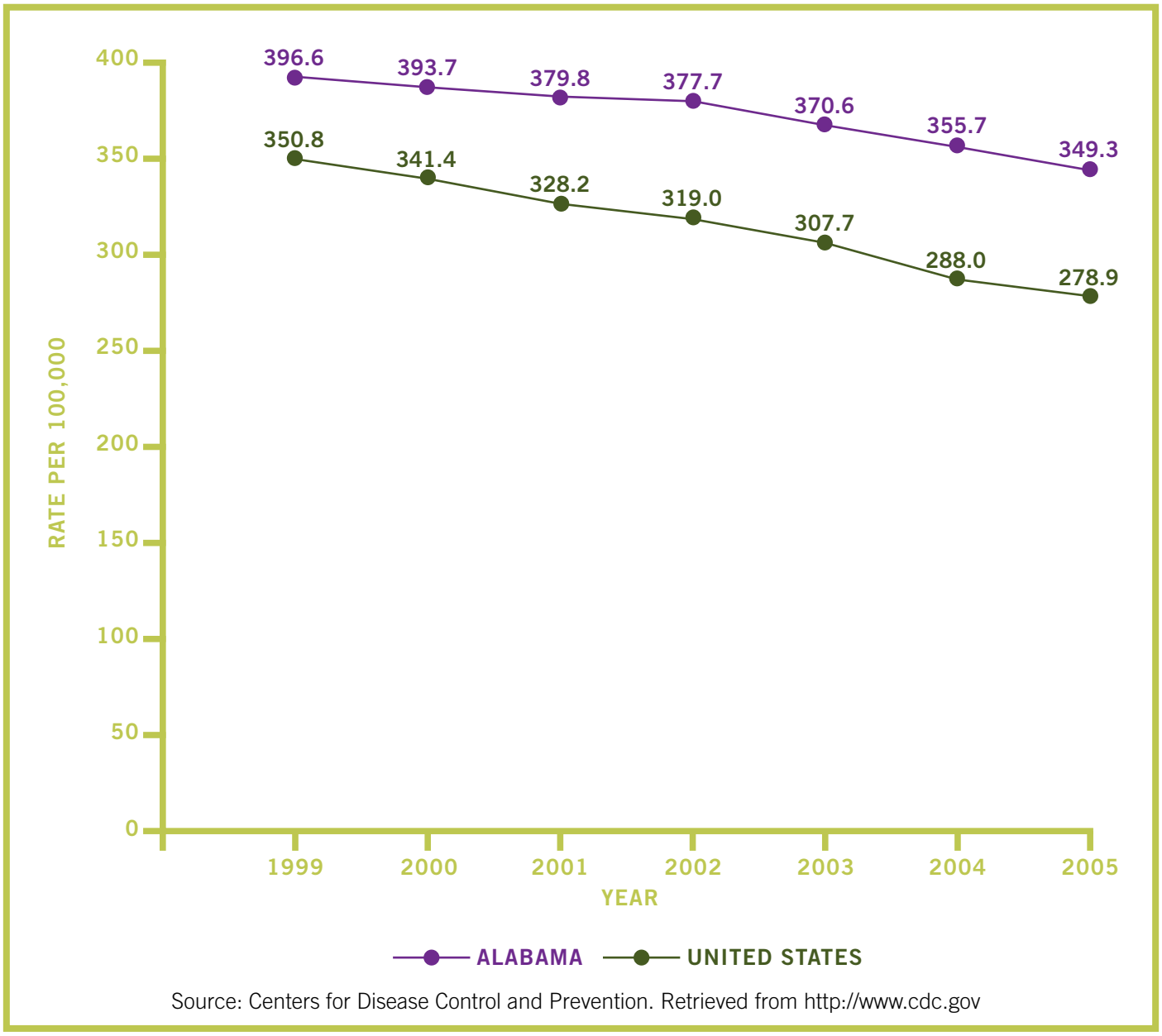
Source: Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov

CARDIOVASCULAR DISEASE

Cardiovascular disease (CVD), a preventable disease, includes conditions of the heart, arteries, and veins that supply oxygen to vital life-sustaining areas of the body like the brain, the heart, and other vital organs. If oxygen does not arrive, the tissue or organ will die. In Alabama, as in the nation, cardiovascular disease, including heart disease and stroke, is the leading cause of death. About one-third of adult Americans have some form of CVD.

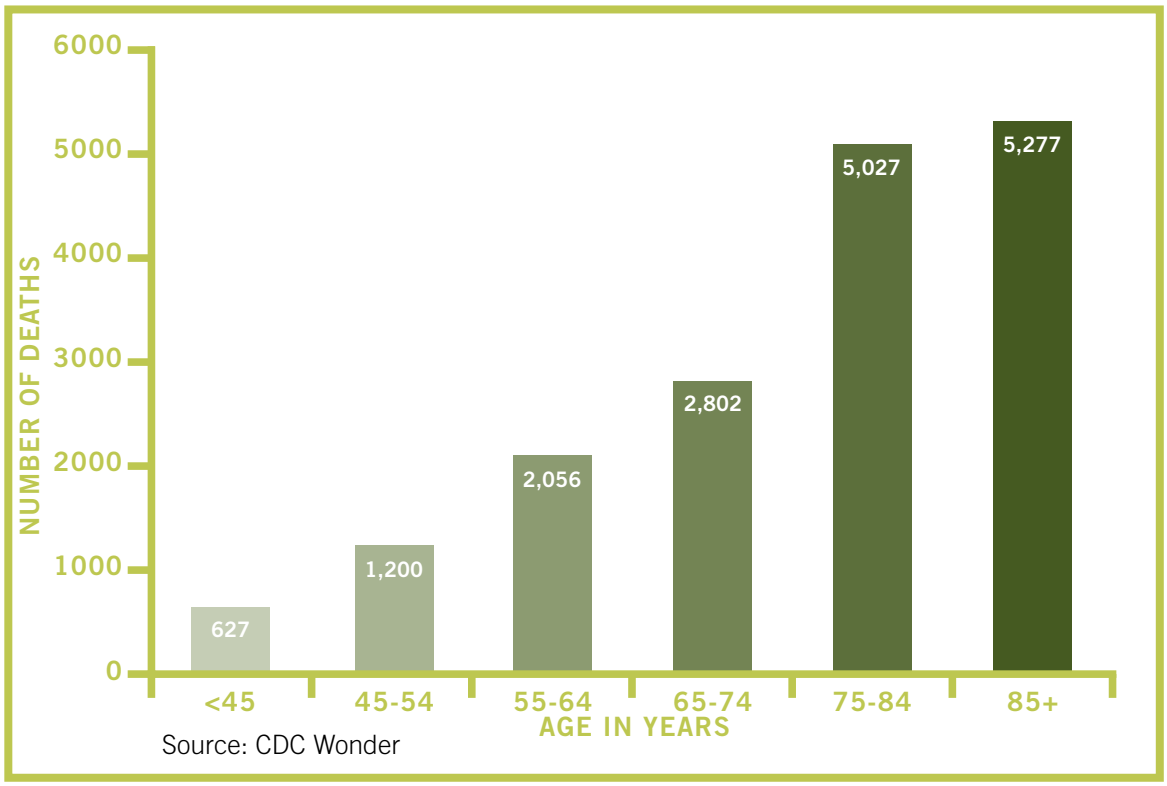
- Cardiovascular disease age-adjusted death rates in Alabama exceeded the comparable rates for the United States over the past ten years.
- In 2005, the age-adjusted death rate for Alabama was 349.3 per 100,000 population, a decrease from 396.6 in 1999. (Figure 3)

FIGURE 3: AGE-ADJUSTED DEATH RATE FOR CARDIOVASCULAR DISEASE IN ALABAMA AND THE UNITED STATES 1999-2005



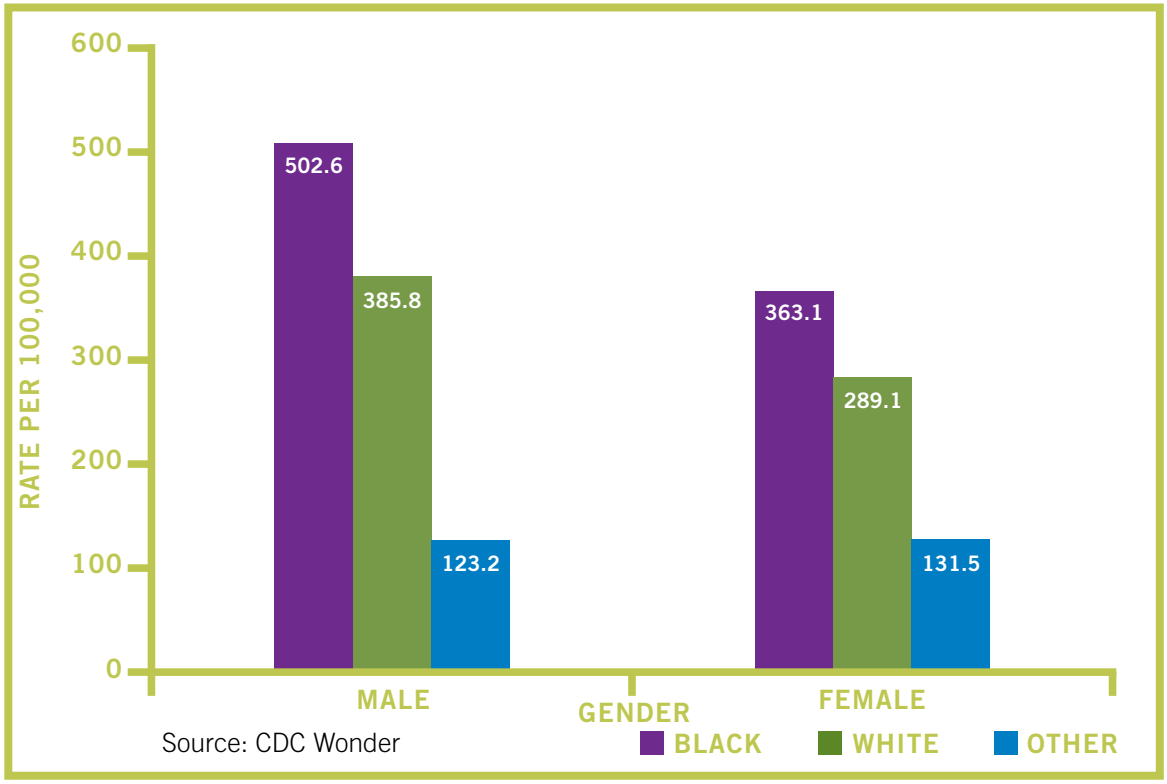
Source: Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov

FIGURE 4: CARDIOVASCULAR DEATHS BY AGE GROUP IN ALABAMA 2005



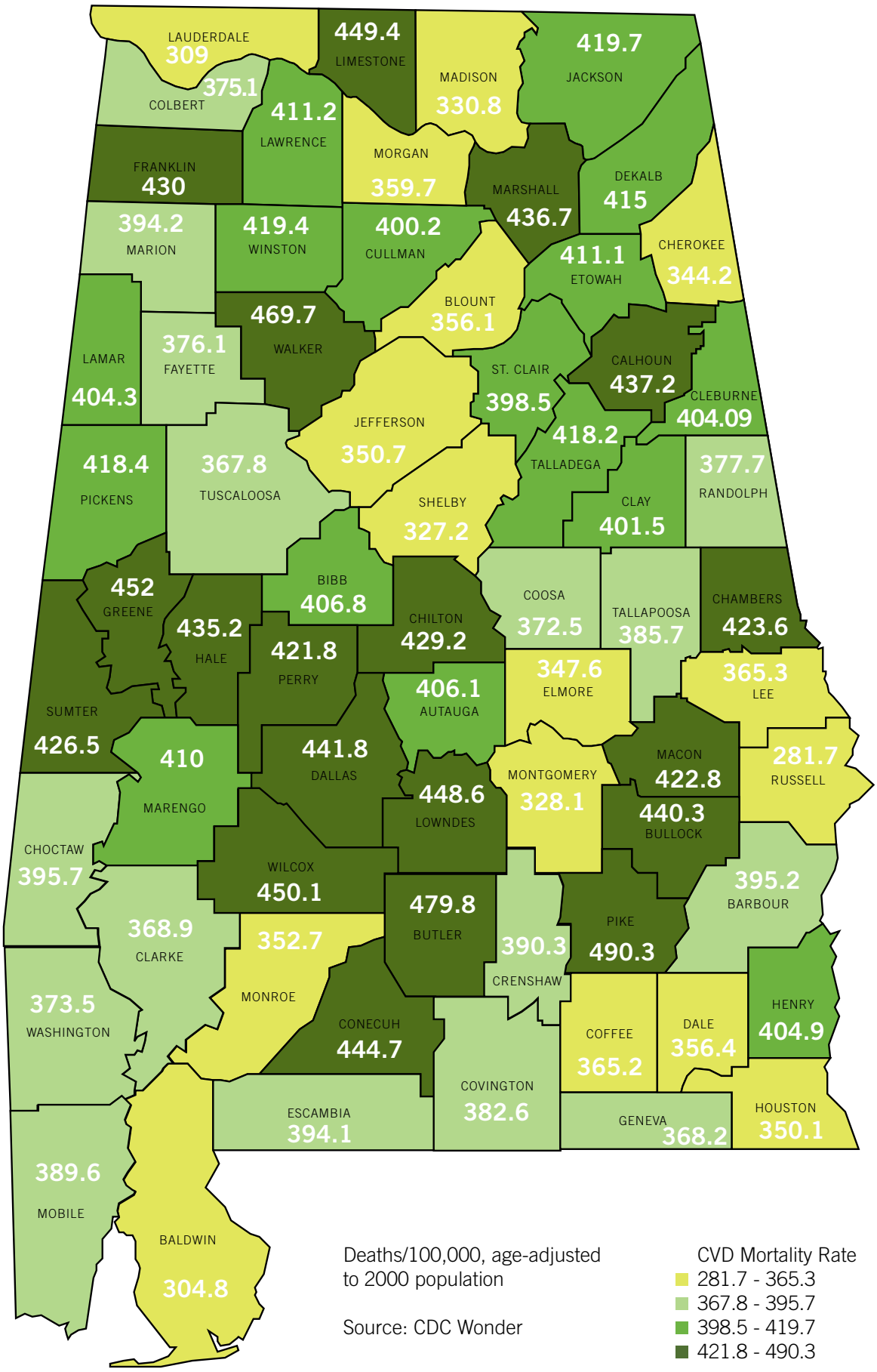
- Age is a non-modifiable risk factor for CVD. The number of CVD deaths increases with age.
- Deaths from CVD occurred more often in those over the age of 75 years.
- Nearly one out of four deaths from CVD occurred in those below the age of 65 in 2005. (Figure 4)

FIGURE 5: AGE-ADJUSTED DEATH RATES FOR CVD BY GENDER AND RACE IN ALABAMA 2005



- In 2005, the age-adjusted death rate was highest among black males (502.6/100,000 population).
- Males were at a higher risk of dying due to CVD than females in 2005. (Figure 5)

FIGURE 6: CARDIOVASCULAR DISEASE MORTALITY RATE IN ALABAMA BY COUNTY 1999-2005 (COMBINED)

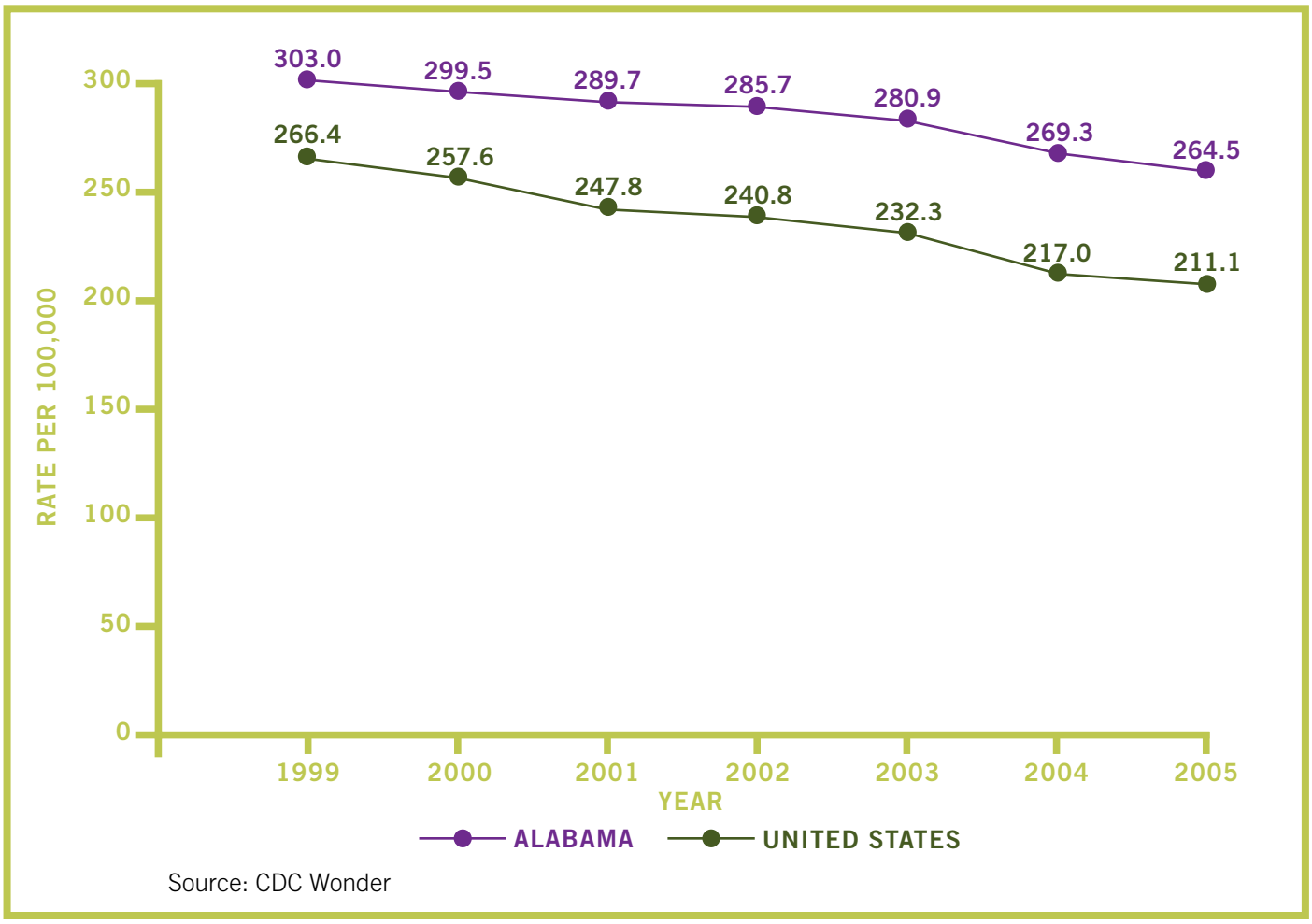


HEART DISEASE

Heart disease is a grouping of various conditions of the heart including coronary heart disease, congestive heart failure, heart attack, hypertension, and others. It is the leading cause of death for both men and women. More than 600,000 deaths occur each year in the United States. It is the most common form of CVD and can cause angina (chest pain), heart attacks (myocardial infarction), and cardiac arrest. Many times, a heart attack is the first sign of heart disease.

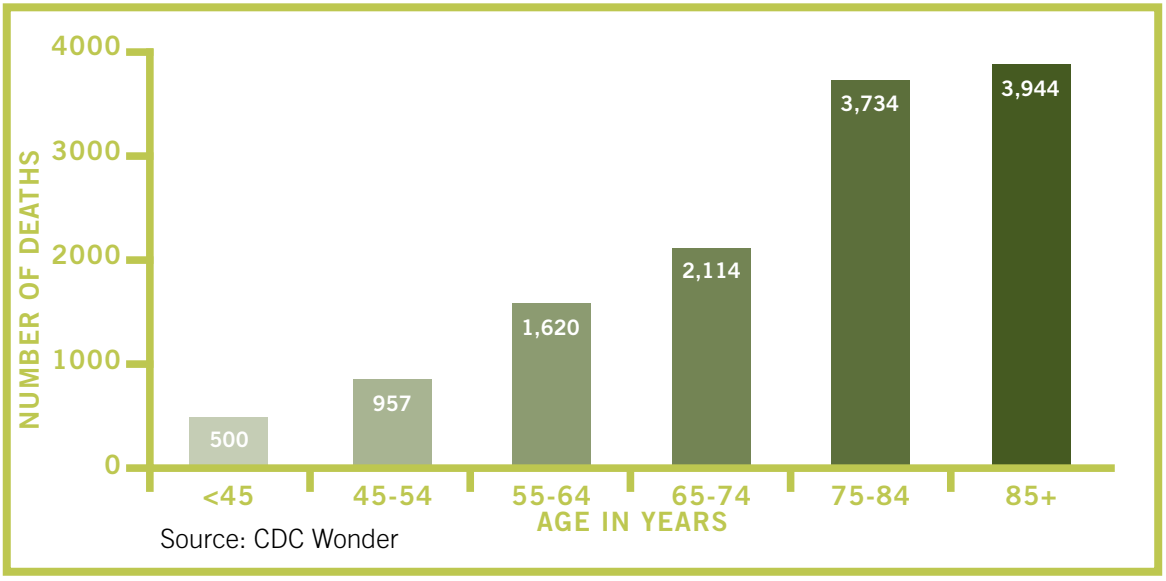
- In 2005, the age-adjusted mortality rate for heart disease was 264.5 per 100,000 population in Alabama and 211.1 per 100,000 population in the United States.
- Death rates were consistently higher for the state of Alabama from 1999 to 2005 compared to national rates. (Figure 7)

FIGURE 7: AGE-ADJUSTED DEATH RATE FOR HEART DISEASE IN ALABAMA AND THE UNITED STATES 1996-2005



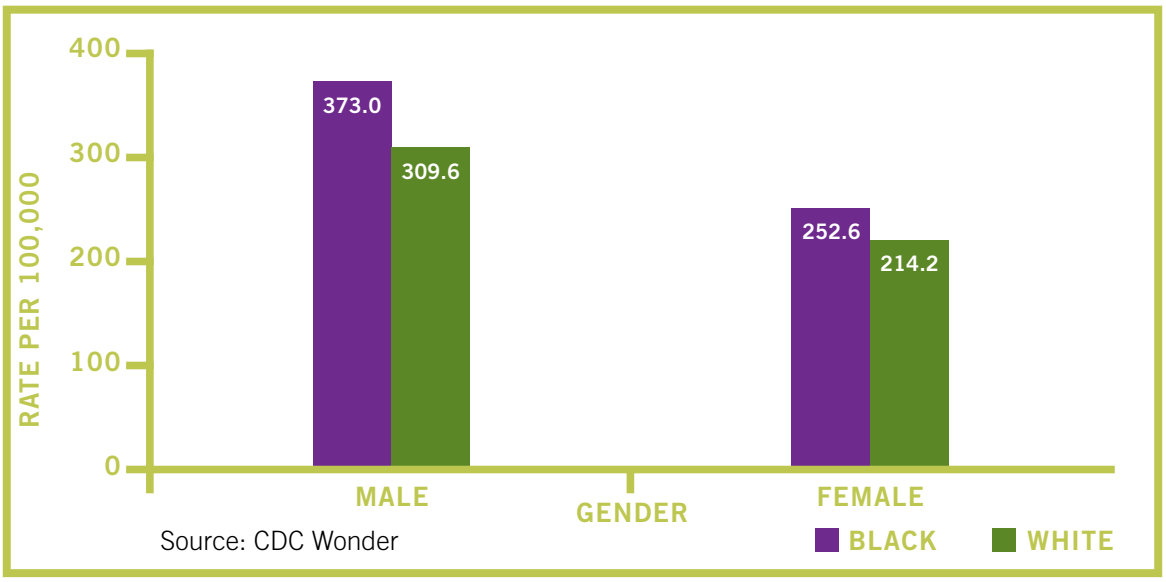
Source: CDC Wonder

FIGURE 8: HEART DISEASE DEATHS BY AGE GROUP IN ALABAMA, 2005



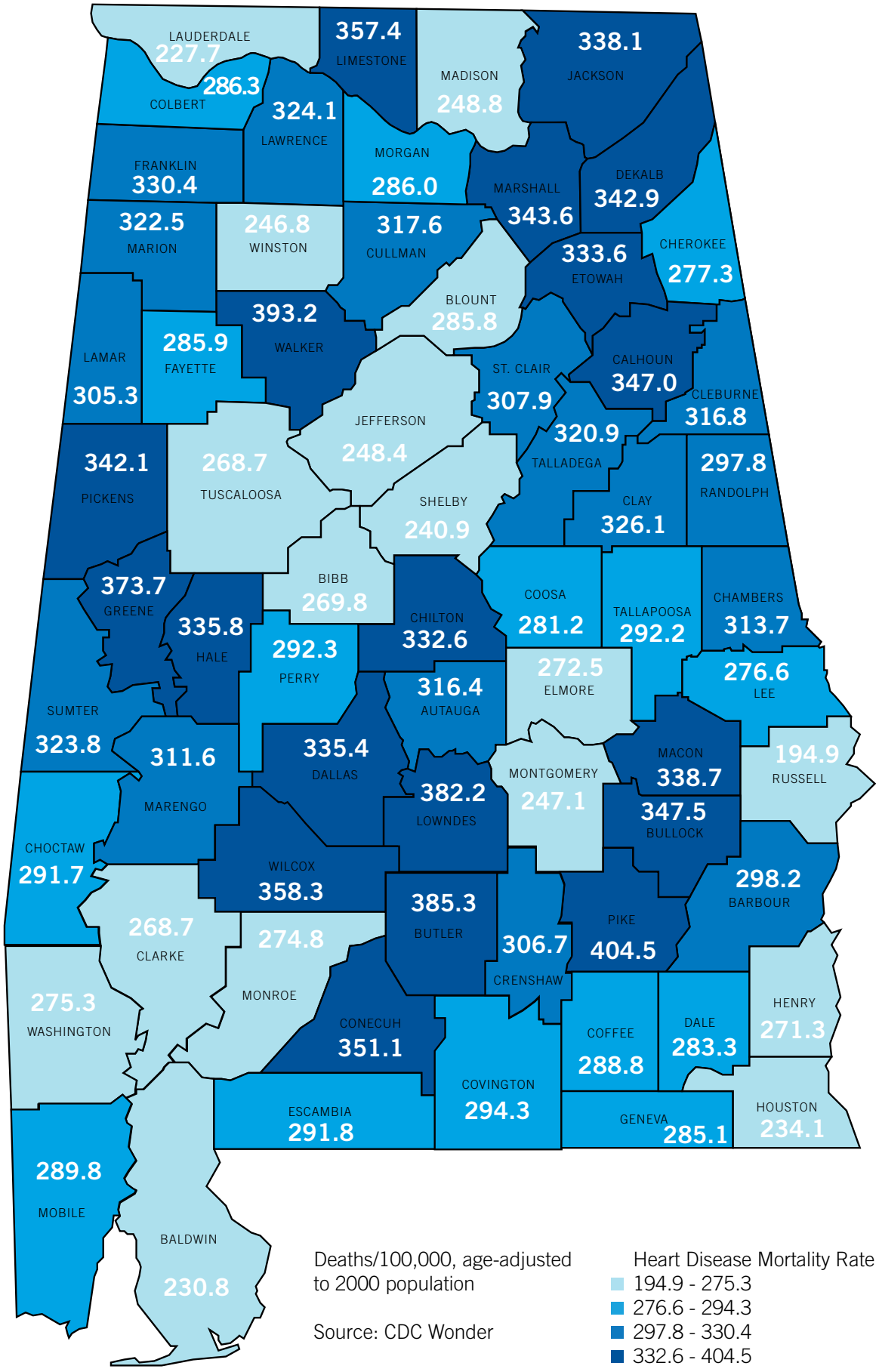
- Deaths from heart disease increased with age.
- A total of 12,869 people died from heart disease in Alabama during 2005.
- 25 percent of the deaths occurred in those below the age of 65 years. (Figure 8)

FIGURE 9: AGE-ADJUSTED DEATH RATES FOR HEART DISEASE BY GENDER AND RACE IN ALABAMA 2005



- In 2005, the age-adjusted mortality rate for heart disease was highest among black males with a rate of 373.0 per 100,000 population.
- Risk of death from heart disease was higher among males compared to females. (Figure 9)

FIGURE 10: HEART DISEASE MORTALITY RATE IN ALABAMA BY COUNTY 1999-2005 (COMBINED)

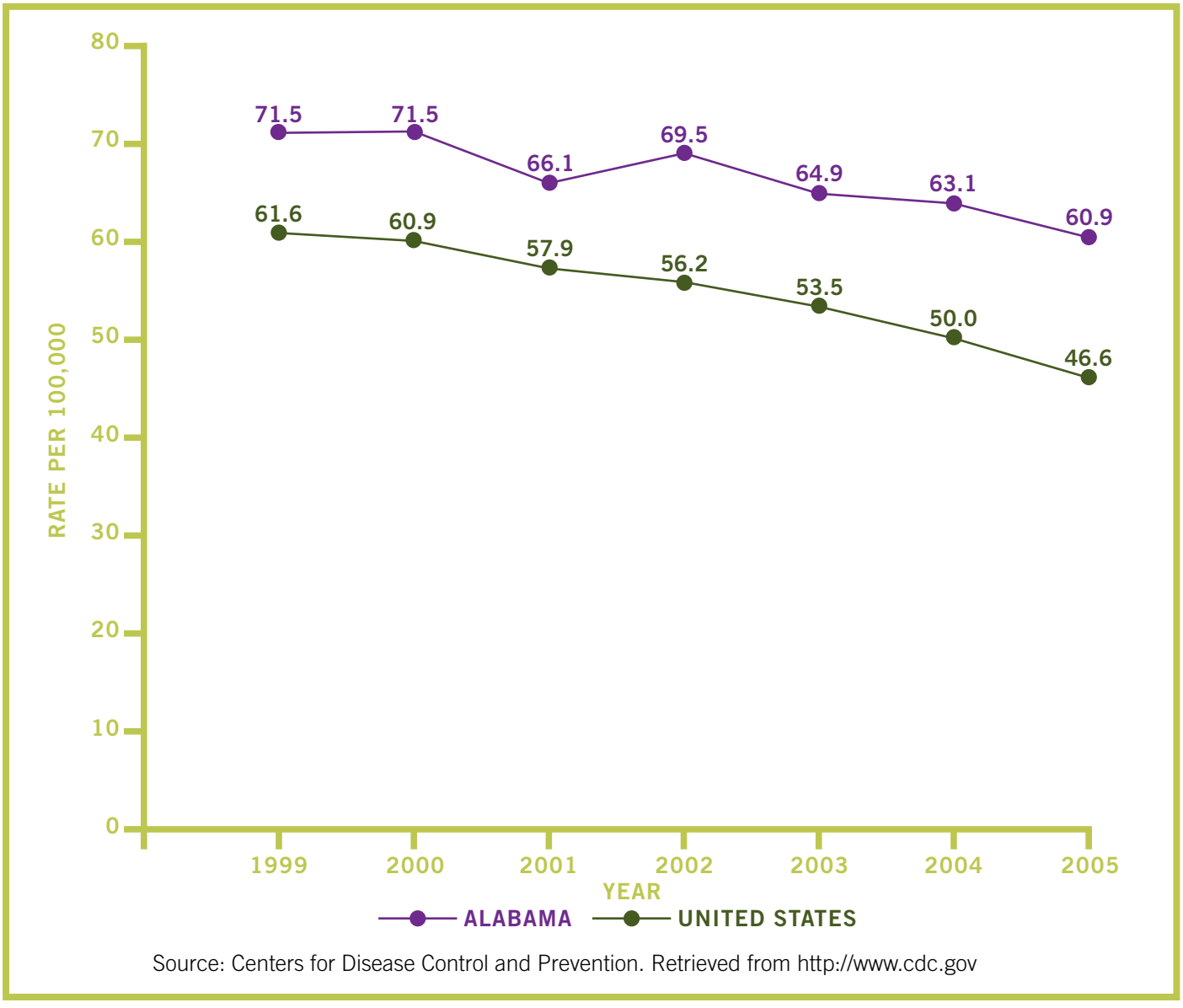


STROKE

Cerebrovascular accident (CVA), more commonly known as stroke, is the third leading cause of death in Alabama, following only heart disease and cancer. A stroke occurs when a blood vessel in or near the brain is blocked or bursts, interrupting the flow of blood to the brain. This causes lack of oxygen and causes brain cells to die. There are two primary types of stroke: ischemic stroke and hemorrhagic stroke. Ischemic stroke occurs when there is a blockage of a blood vessel that is supplying the brain. A hemorrhagic stroke occurs when a blood vessel ruptures or leaks in or around the brain. The most common cause of stroke is ischemic stroke, the blockage of an artery in the brain by a clot.

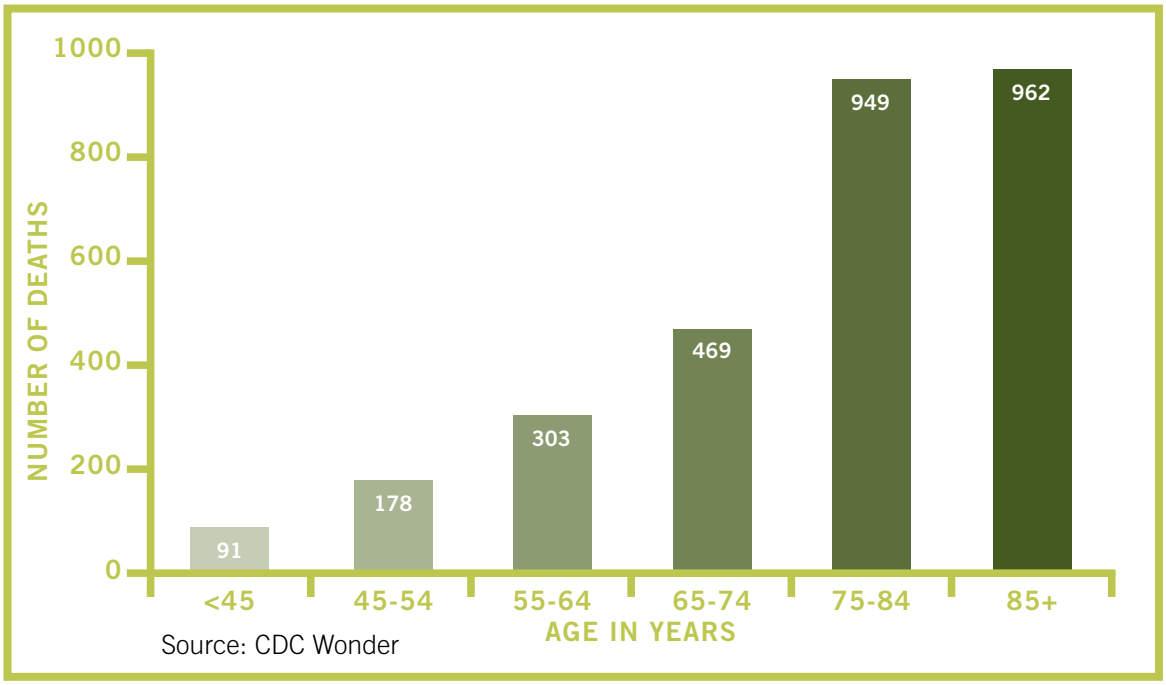
- The stroke mortality rate has declined over the past few years both in Alabama and the United States.
- Age-adjusted mortality rates were 60.9 per 100,000 population for Alabama and 46.6 per 100,000 population for the United States in 2005. (Figure 11)

FIGURE 11: AGE-ADJUSTED DEATH RATE FOR STROKE IN ALABAMA AND UNITED STATES 1999-2005



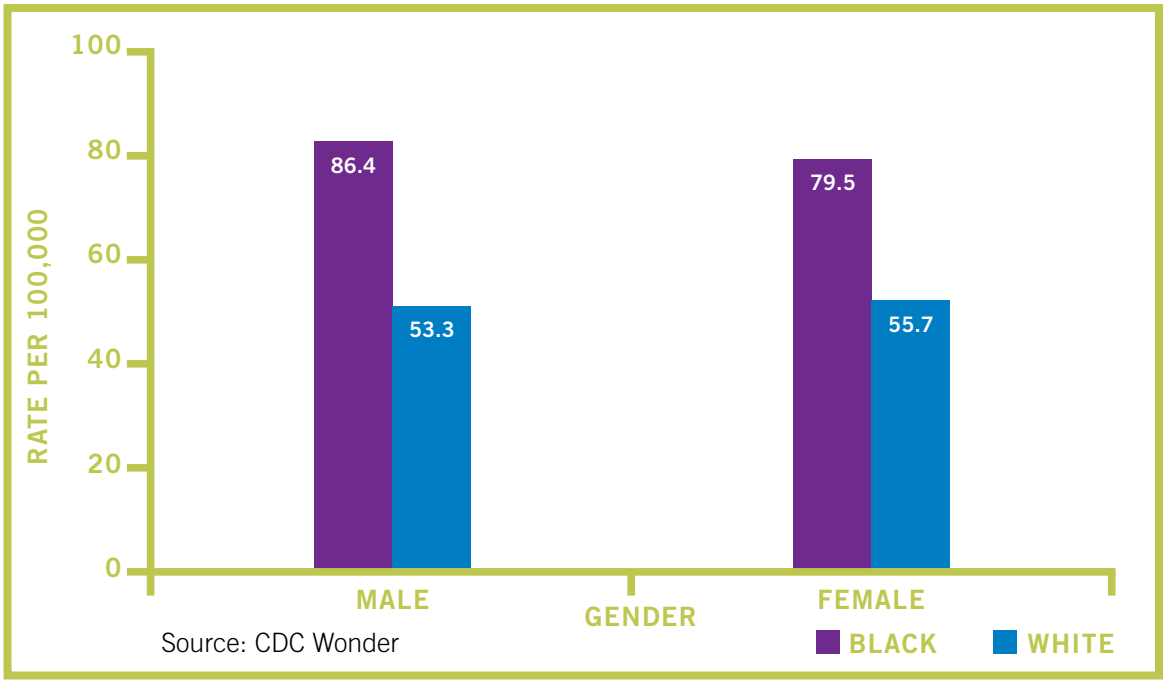
Source: Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov

FIGURE 12: STROKE DEATHS BY AGE GROUP IN ALABAMA 2005



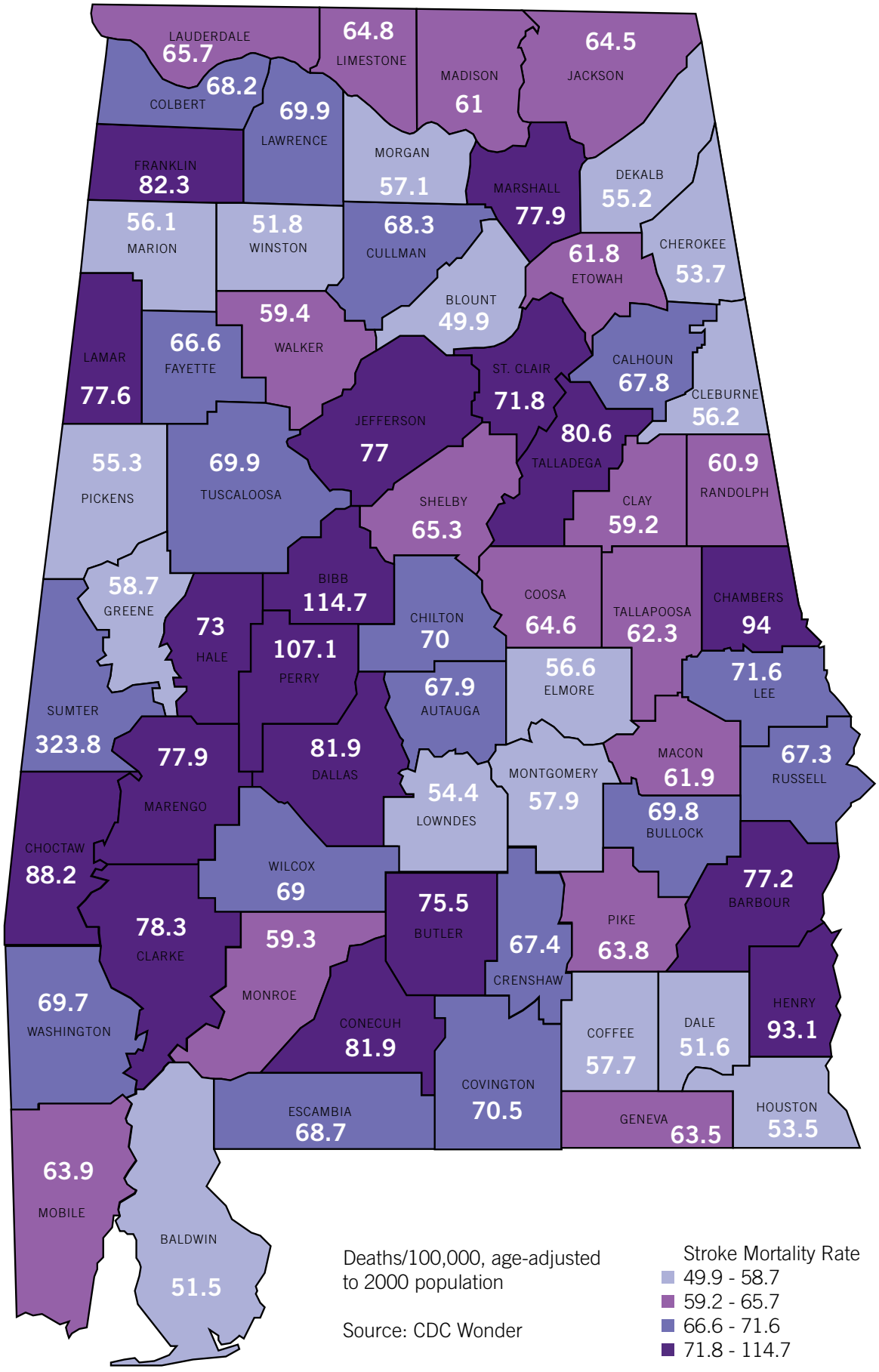
- Deaths from stroke occurred more often in those over the age of 65.
- 4,942 deaths occurred from stroke in 2005. (Figure 12)

FIGURE 13: AGE-ADJUSTED DEATH RATES FOR STROKE BY GENDER AND RACE IN ALABAMA 2005



- In 2005, black males showed the highest stroke death rate of 86.4 per 100,000 population followed by black females with the rate of 79.5 per 100,000 population.
- For stroke, race is a better predictor of death than gender with the black race being at higher risk than whites. (Figure 13)

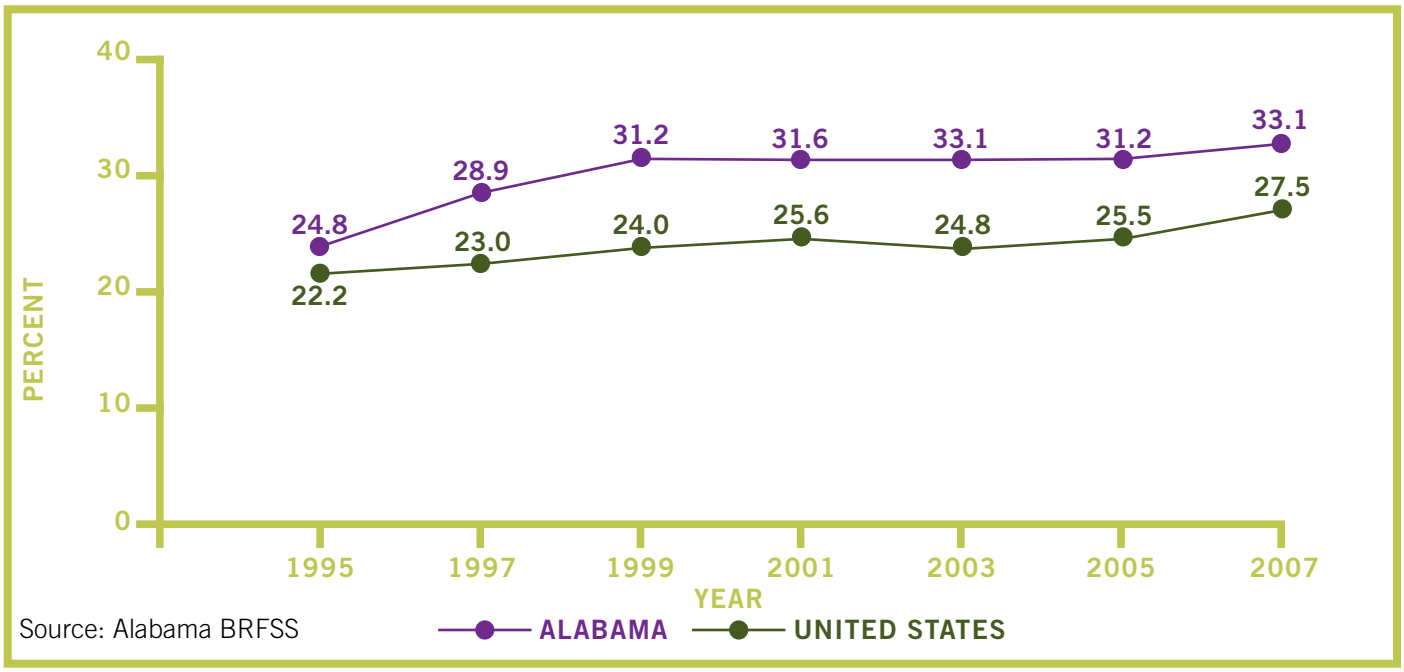
FIGURE 14: STROKE MORTALITY RATE IN ALABAMA BY COUNTY 1999-2005 (COMBINED)



CARDIOVASCULAR RISK FACTORS: HIGH BLOOD PRESSURE

High blood pressure or hypertension is common in the United States, with at least one in three individuals being at risk of developing it. There are often no symptoms to signal high blood pressure. Lowering blood pressure by changes in lifestyle or by medication can lower the risk of heart disease and heart attack.

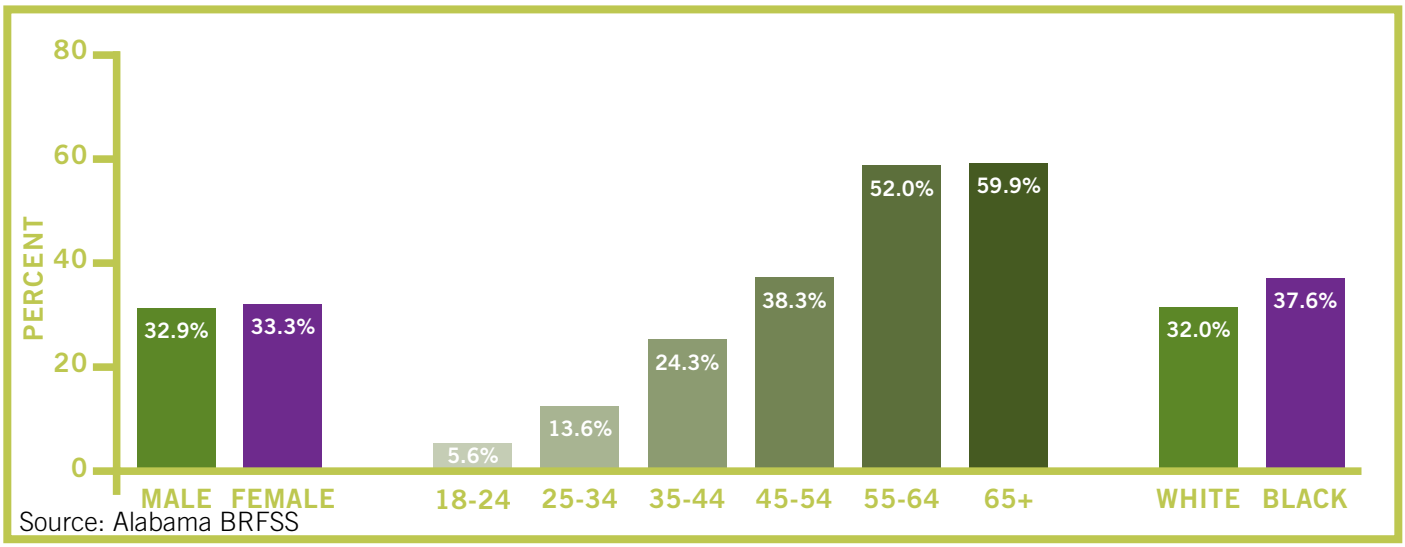
FIGURE 15: PREVALENCE OF REPORTED HIGH BLOOD PRESSURE IN ALABAMA AND THE UNITED STATES 1995-2007



Source: Alabama BRFSS

- The prevalence of high blood pressure in Alabama has continuously increased from 24.8 percent to 33.1 percent between 1995 to 2007. The prevalence has consistently remained above the national average.
- More than one in three adults in Alabama reported having high blood pressure in 2007. (Figure 15)

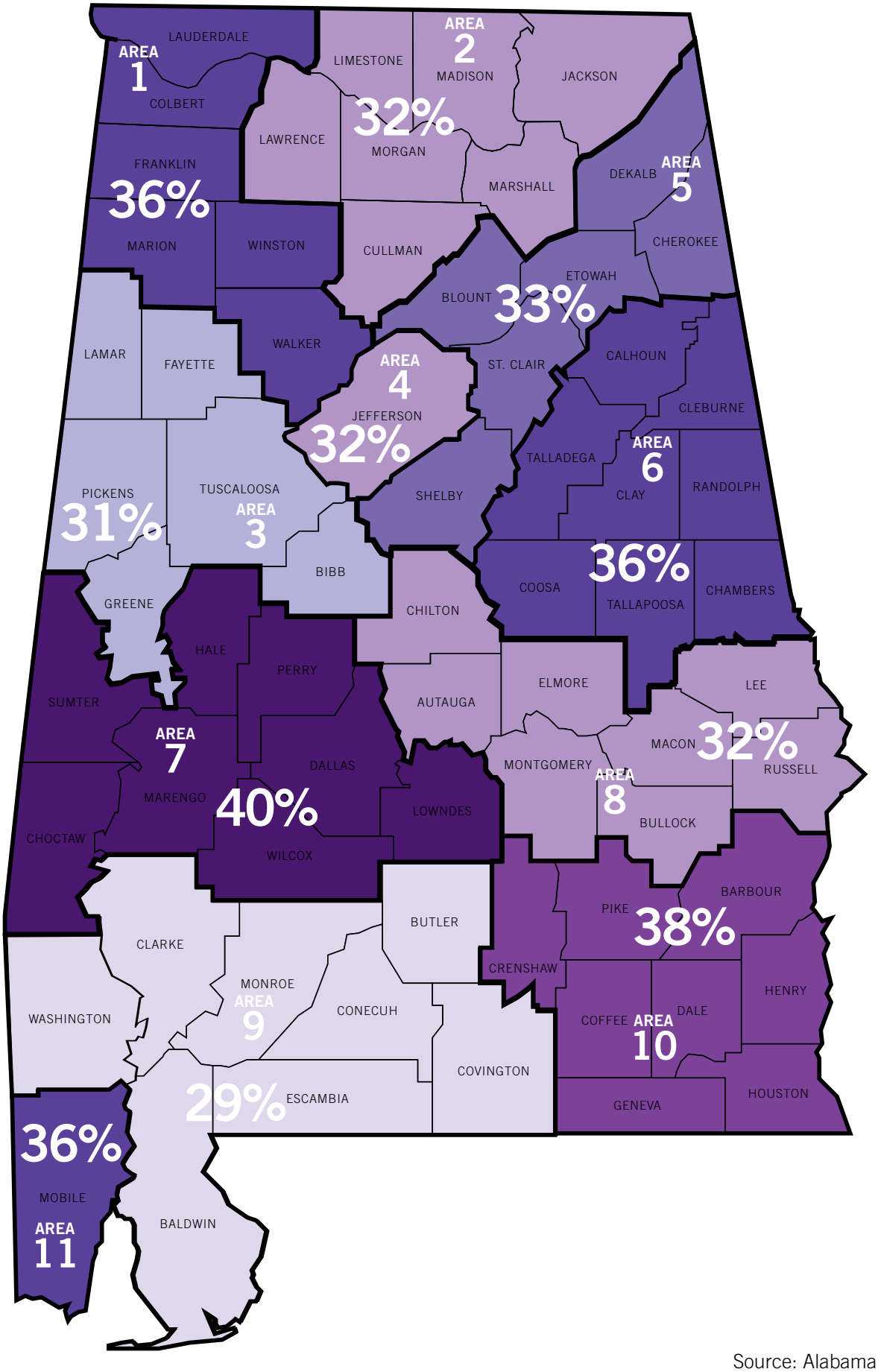
FIGURE 16: PREVALENCE OF REPORTED HIGH BLOOD PRESSURE IN ALABAMA 2007 BY GENDER, AGE, AND SEX



Source: Alabama BRFSS

- Males had a similar prevalence of high blood pressure compared to females in Alabama.
- There was a significant increase of reported high blood pressure with increasing age.
- Blacks had a higher prevalence of high blood pressure than whites. (Figure 16)

FIGURE 17: PERCENTAGE OF ADULTS WITH HIGH BLOOD PRESSURE IN ALABAMA BY PUBLIC HEALTH AREA 2007

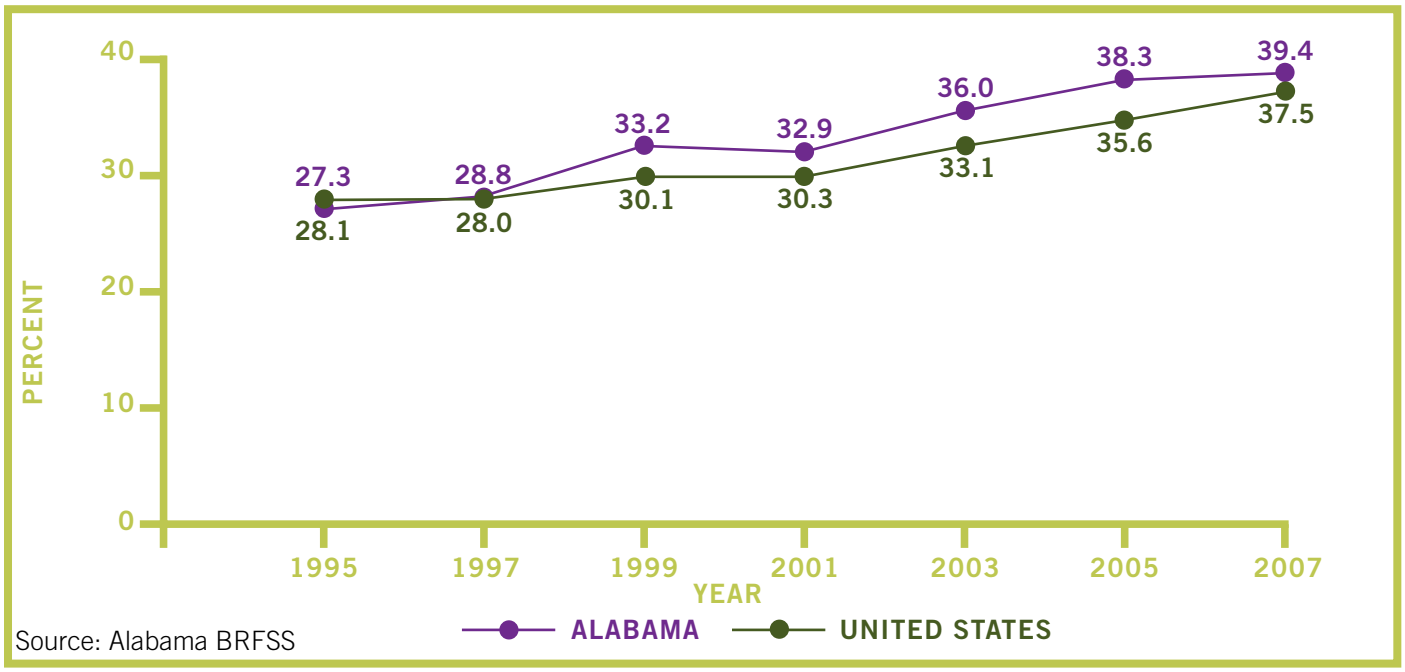


Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: HIGH BLOOD CHOLESTEROL

Cholesterol is a waxy, fat-like substance that occurs naturally in all parts of the body. The body needs some cholesterol to work properly, but too much in your blood can stick to the walls of the arteries causing problems with the circulation of blood. This is called plaque; plaque can narrow the arteries or even block them. High levels of cholesterol in the blood can increase the risk of heart disease. To travel in the bloodstream, cholesterol is carried in small packages called lipoproteins. There are two types of cholesterol in the body, low-density lipoprotein (LDL), sometimes called bad cholesterol, and high-density lipoprotein (HDL), sometimes called good cholesterol.

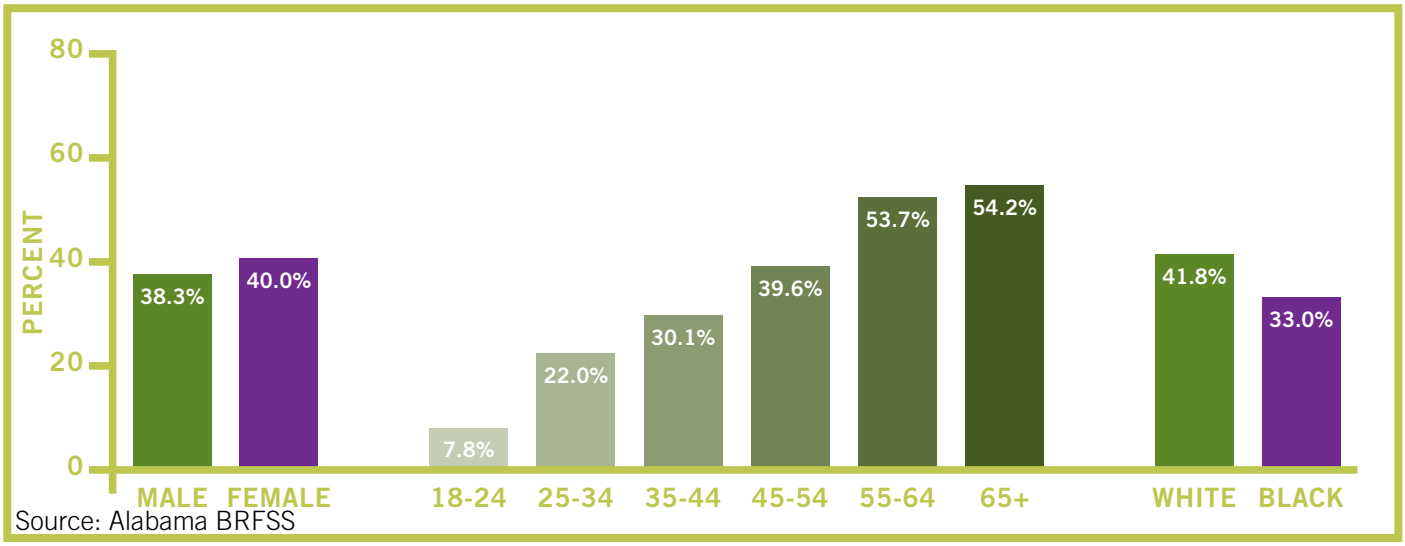
FIGURE 18: PREVALENCE OF REPORTED HIGH BLOOD CHOLESTEROL IN ALABAMA AND THE UNITED STATES 1995-2007



Source: Alabama BRFSS

- Almost 39.4 percent of Alabama adults reported they were diagnosed with high blood cholesterol in 2007, while 37.5 percent were reported in the United States during the same time period.
- The prevalence rate for high blood cholesterol was consistently higher among Alabama residents compared to the national average rates starting to be seen in 1999-2007. (Figure 18)

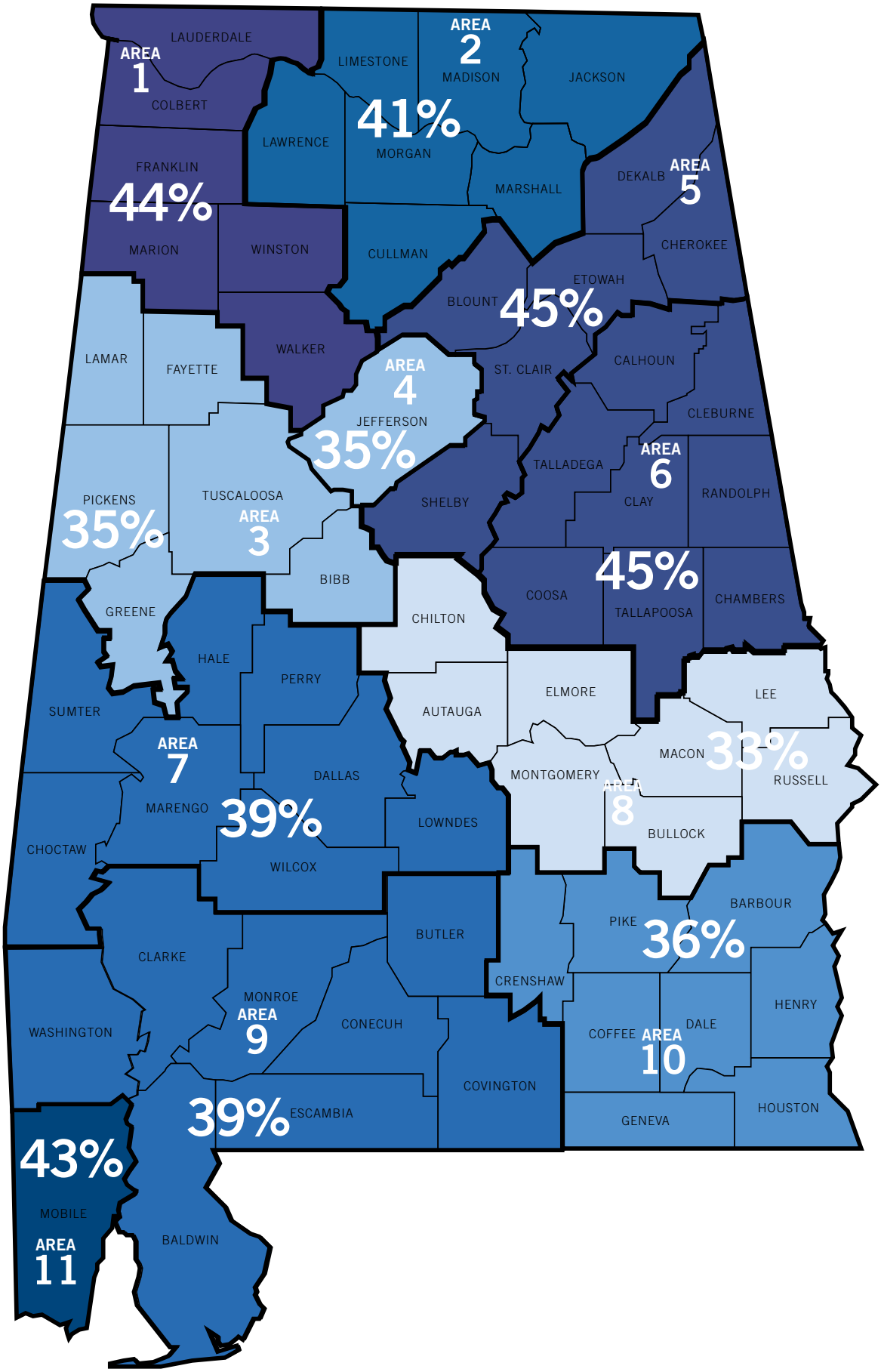
FIGURE 19: PREVALENCE OF REPORTED HIGH BLOOD CHOLESTEROL IN ALABAMA 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- Males had similar rates compared to females for high blood cholesterol in Alabama.
- The high blood cholesterol rate increased with increasing age and then showed nearly the same readings of age group 55-64 compared to the 65 and older group.
- Among the race and ethnic groups, whites reported having the highest rate of 41.8 percent. (Figure 19)

FIGURE 19: PERCENTAGE OF ADULTS WITH HIGH CHOLESTEROL IN ALABAMA BY PUBLIC HEALTH AREA 2007

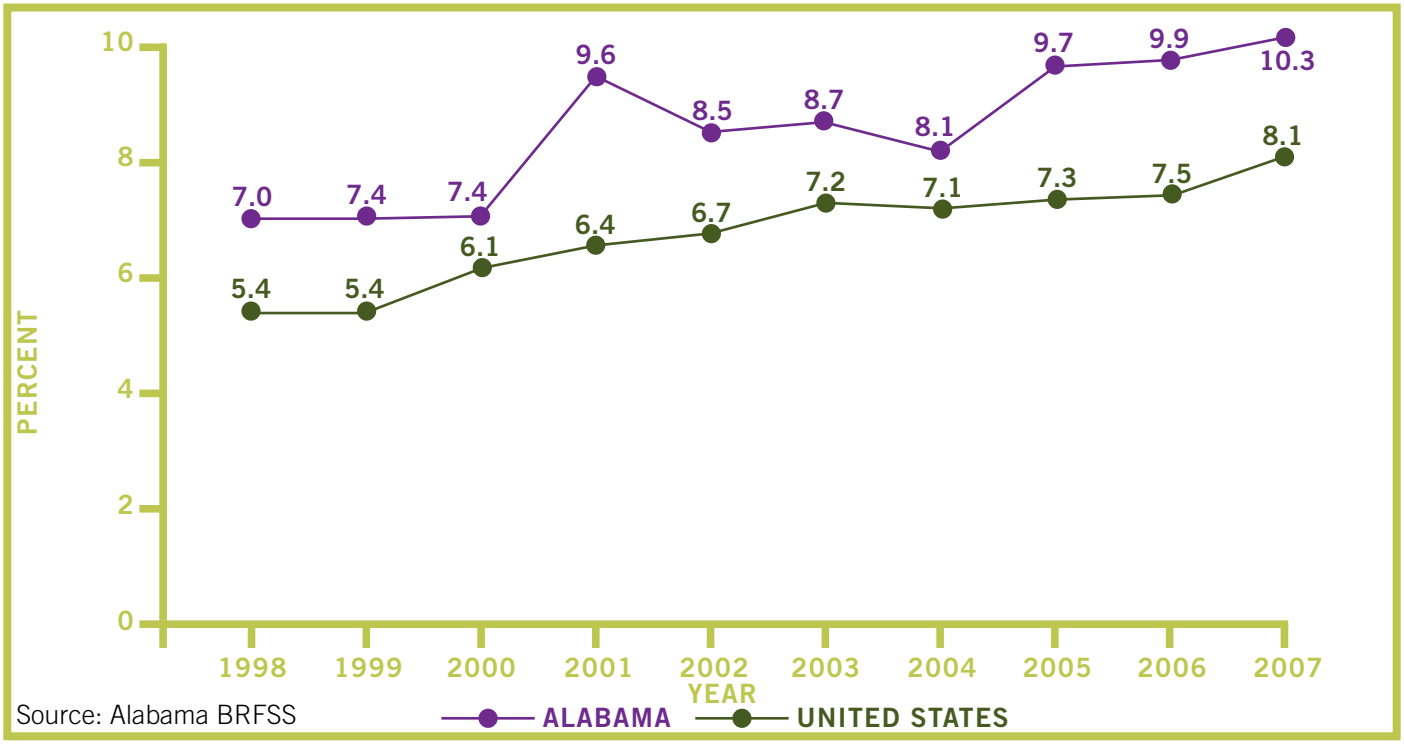


Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: DIABETES

Diabetes is a disease in which the body does not produce or properly use insulin. There are 23.6 million children and adults in the United States, or 7.8 percent of the population, who have diabetes. While an estimated 17.9 million have been diagnosed with diabetes, 5.7 million people are unaware they have the disease. There are two major types of diabetes. Type 1 diabetes results from the body's failure to produce insulin, and Type 2 diabetes results from insulin resistance, a condition in which the body fails to properly use insulin, combined with relative insulin deficiency.

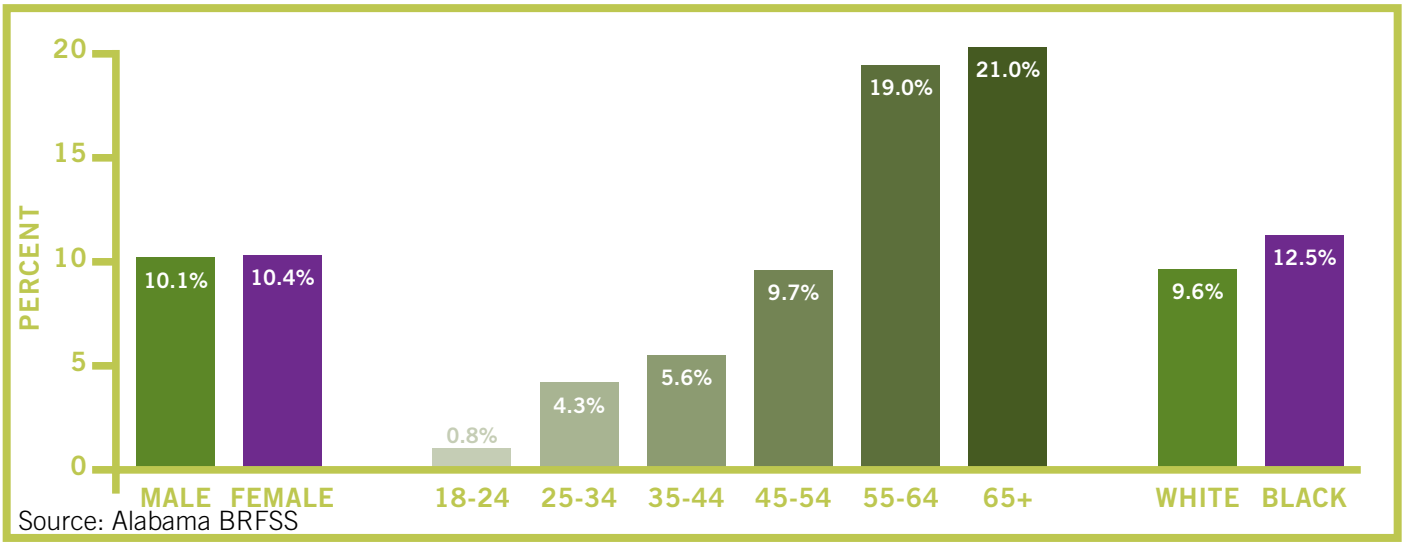
FIGURE 21: PREVALENCE OF ADULT DIAGNOSED DIABETES IN ALABAMA AND THE UNITED STATES 1998-2007



Source: Alabama BRFSS

- The prevalence of self-reported doctor diagnosed diabetes among adults has increased by 48 percent for Alabama and 47 percent for the United States from 1998 to 2007.
- In 2007, the percentage of adults diagnosed with diabetes in Alabama was 2.3 percentage points higher than the national prevalence.
- The prevalence was consistently higher for Alabama from 1998-2007 compared to the United States. (Figure 21)

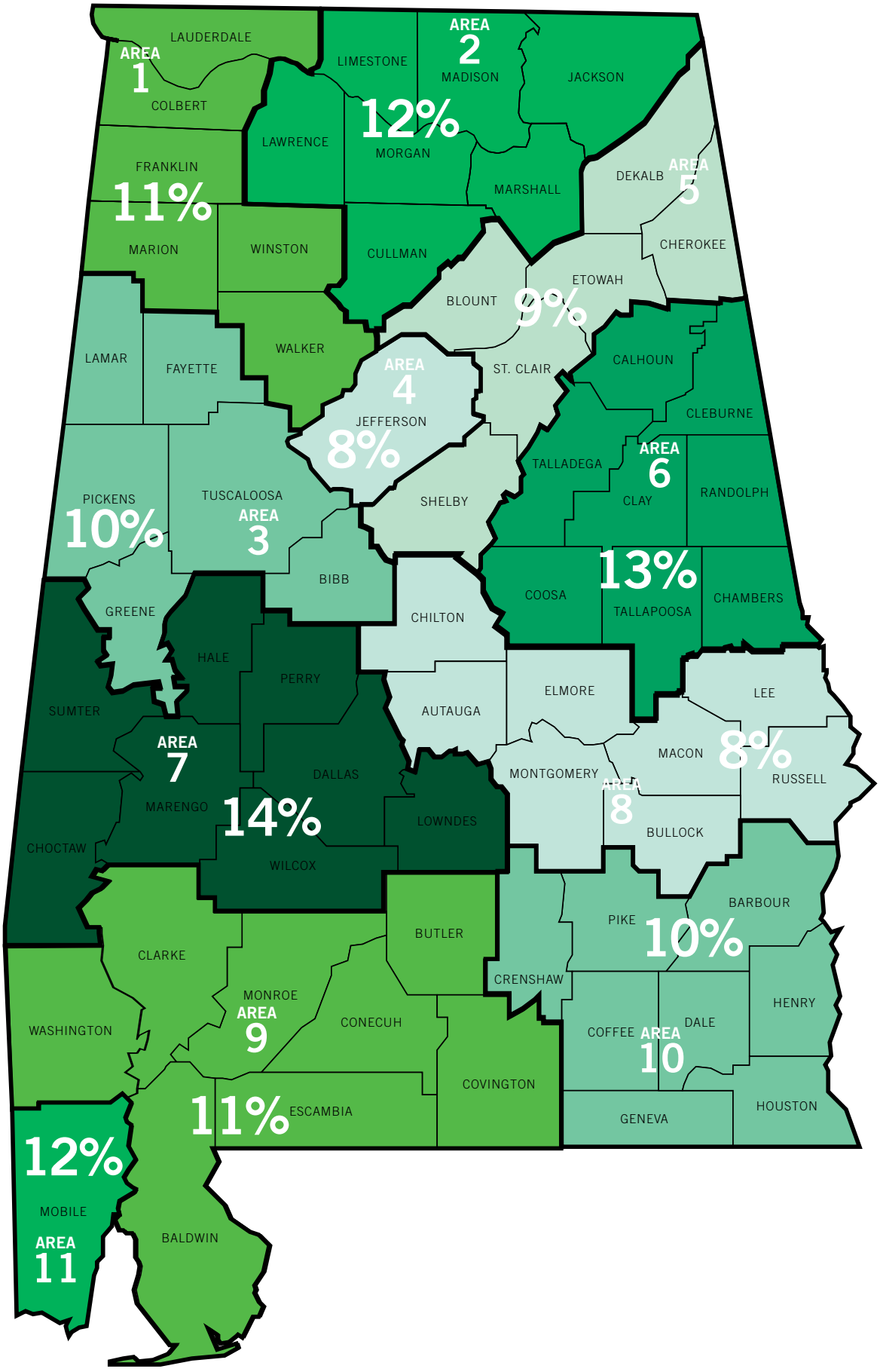
FIGURE 22: PREVALENCE OF ADULT DIAGNOSED WITH DIABETES IN ALABAMA 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- The prevalence of adults diagnosed with diabetes was similar in males and females.
- There was a significant increase in the percentage of diabetics with an increase in age.
- The prevalence of diabetes was greater among blacks than whites. (Figure 22)

FIGURE 23: PERCENTAGE OF ADULTS WITH DIABETES IN ALABAMA BY PUBLIC HEALTH AREA 2007

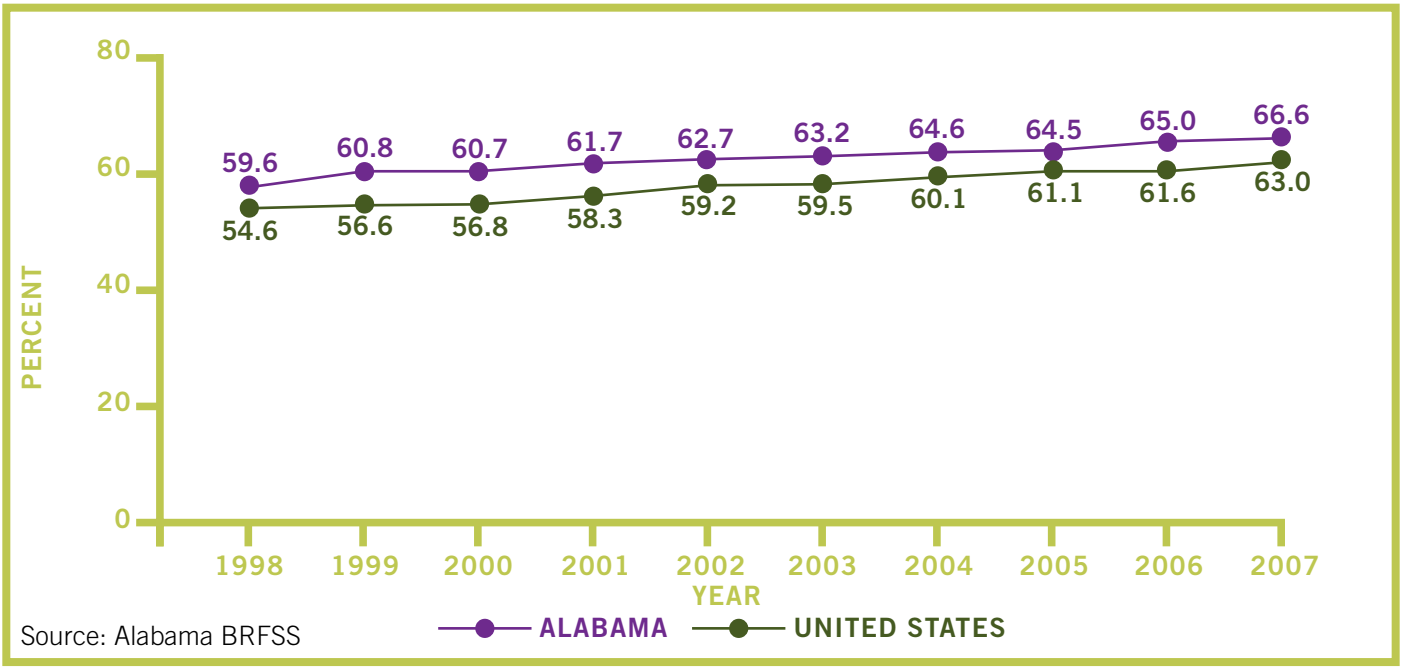


Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: OVERWEIGHT AND OBESITY

Overweight (defined as a body mass index of 25.0 - 29.9 kg/m2) and obesity (defined as a body mass index > 30.0 kg/m2) are common factors contributing to the risk of heart disease and stroke. Overweight and obese individuals are also more likely to have other risk factors for heart disease and stroke, including high blood pressure, high cholesterol, high triglycerides, and diabetes.

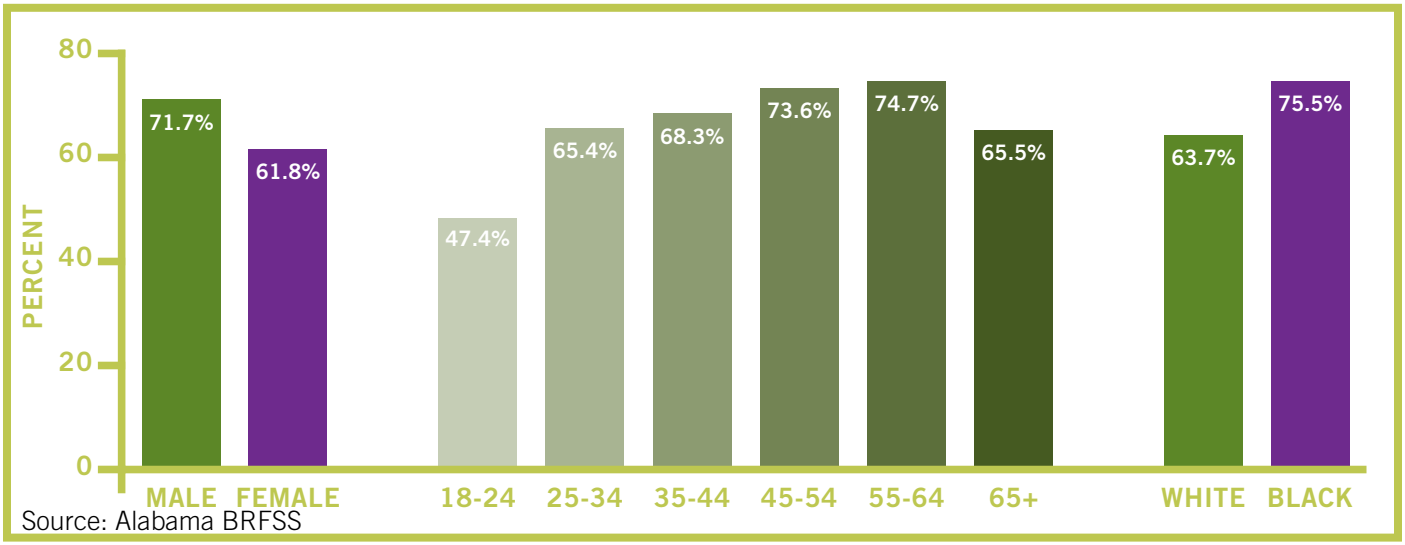
FIGURE 24: PREVALENCE OF OVERWEIGHT AND OBESE IN ALABAMA AND THE UNITED STATES 2007



Source: Alabama BRFSS

- The prevalence of overweight and obesity had increased significantly in Alabama from 1998 to 2007. The trend followed the same pattern as that of the United States.
- In 2007, the prevalence of reported overweight and obese people was 3.6 percentage points higher in Alabama than the national average. (Figure 24)

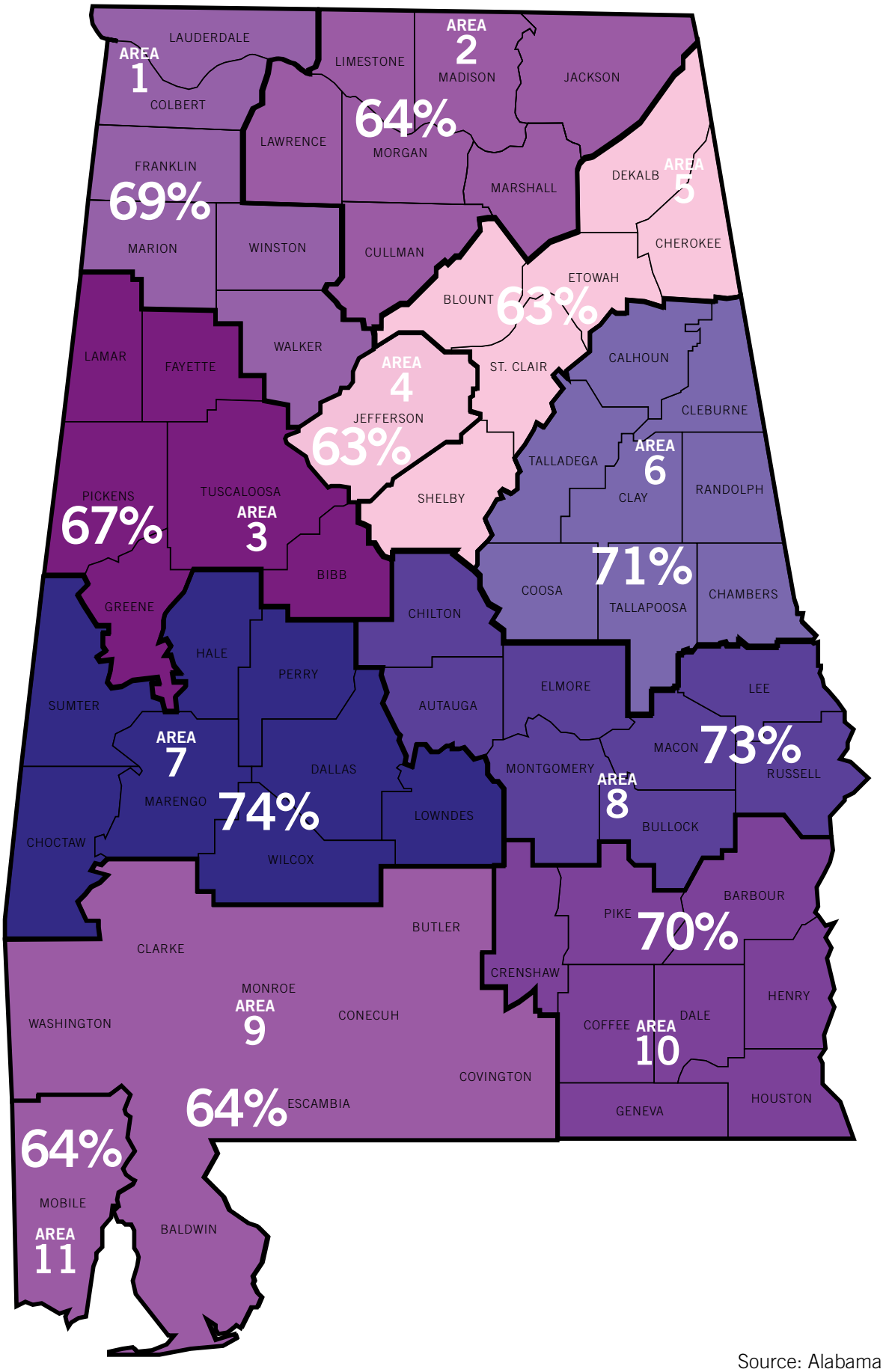
FIGURE 25: PREVALENCE OF OVERWEIGHT AND OBESE IN ALABAMA 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- The prevalence among males was significantly higher than females in Alabama.
- Overweight and obesity increased with an increase in age, with a significant increase from the 18-24 to the 25-34 age group.
- Blacks reported having a higher prevalence of being overweight and obese compared to whites in 2007. (Figure 25)

FIGURE 26: PERCENTAGE OF ADULTS WHO ARE OVERWEIGHT OR OBESE IN ALABAMA BY PUBLIC HEALTH AREA 2007

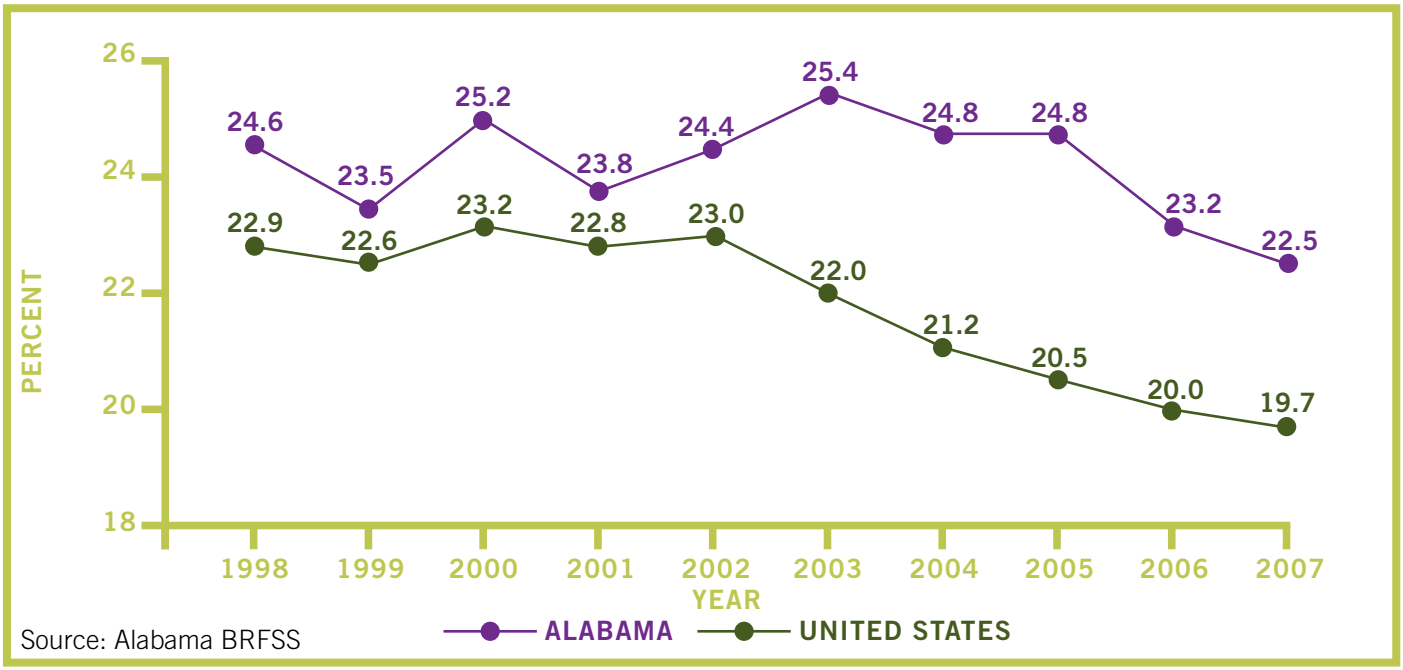


Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: SMOKING

Cigarette smoking is a major cause of heart disease and stroke. It increases the clotting factors in the blood, damages the linings of the blood vessels, and decreases HDL (the good cholesterol) in the blood. Smokers have twice the risk of heart attack or stroke than non-smokers. About 190,000 deaths a year in the United States are smoking-related. It is the single largest preventable cause of heart disease in the United States.

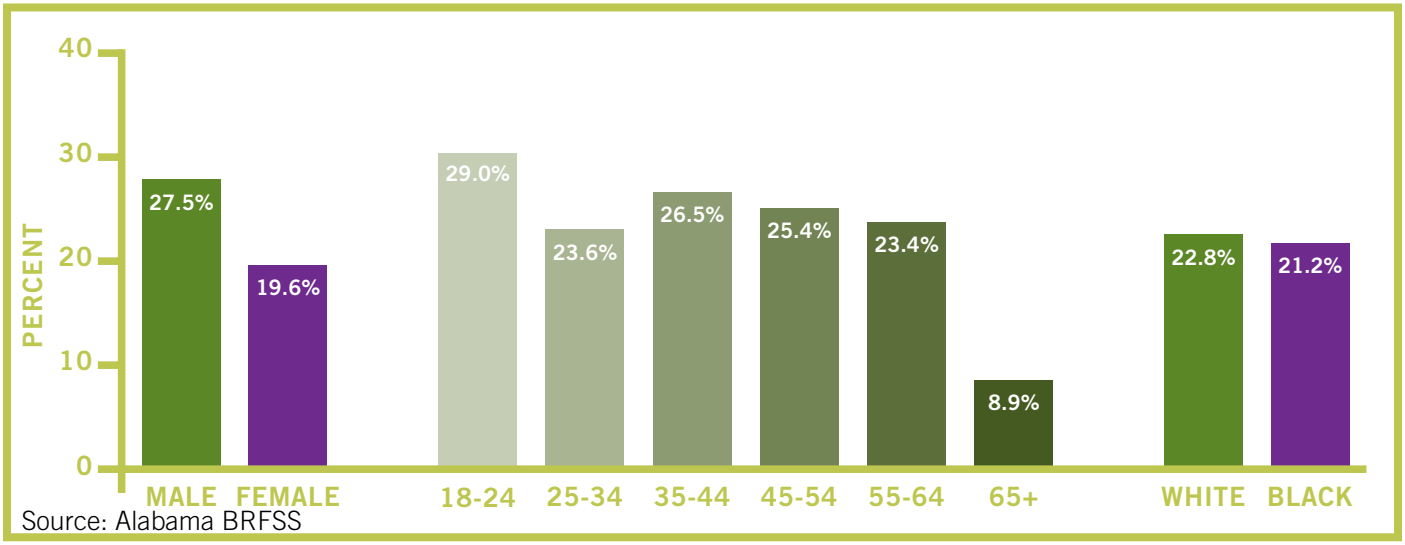
FIGURE 27: PREVALENCE OF CURRENT SMOKERS IN ALABAMA AND UNITED STATES 1999-2007



Source: Alabama BRFSS

- The prevalence of current smokers has decreased over the period of 10 years both in Alabama by 9 percent and in the United States by 14 percent.
- Alabama's rate of current smokers was higher than the national average rates from 1998-2007.
- 22.5 percent of Alabama residents reported that they smoke in 2007. (Figure 27)

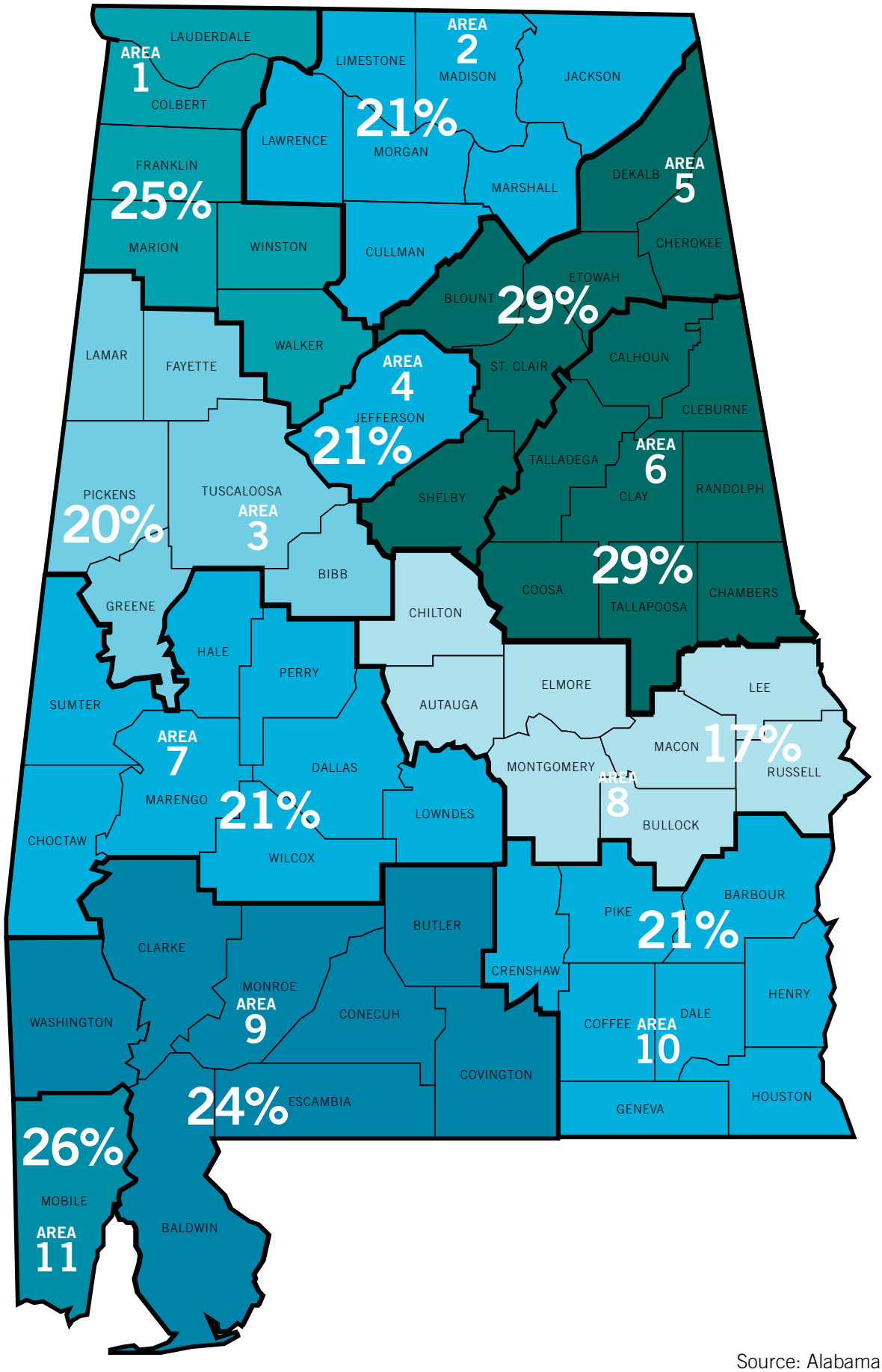
FIGURE 28: PREVALENCE OF CURRENT SMOKERS 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- Males were significantly more likely to be current smokers than females.
- Up to the 55-64 age group the prevalence rate of current smokers showed little variance, and then showed a significant decrease in the 65 and older age group.
- The rates were similar between whites and blacks with little difference. (Figure 28)

FIGURE 29: PERCENTAGE OF ADULTS WHO ARE CURRENT SMOKERS IN ALABAMA BY PUBLIC HEALTH AREA 2007

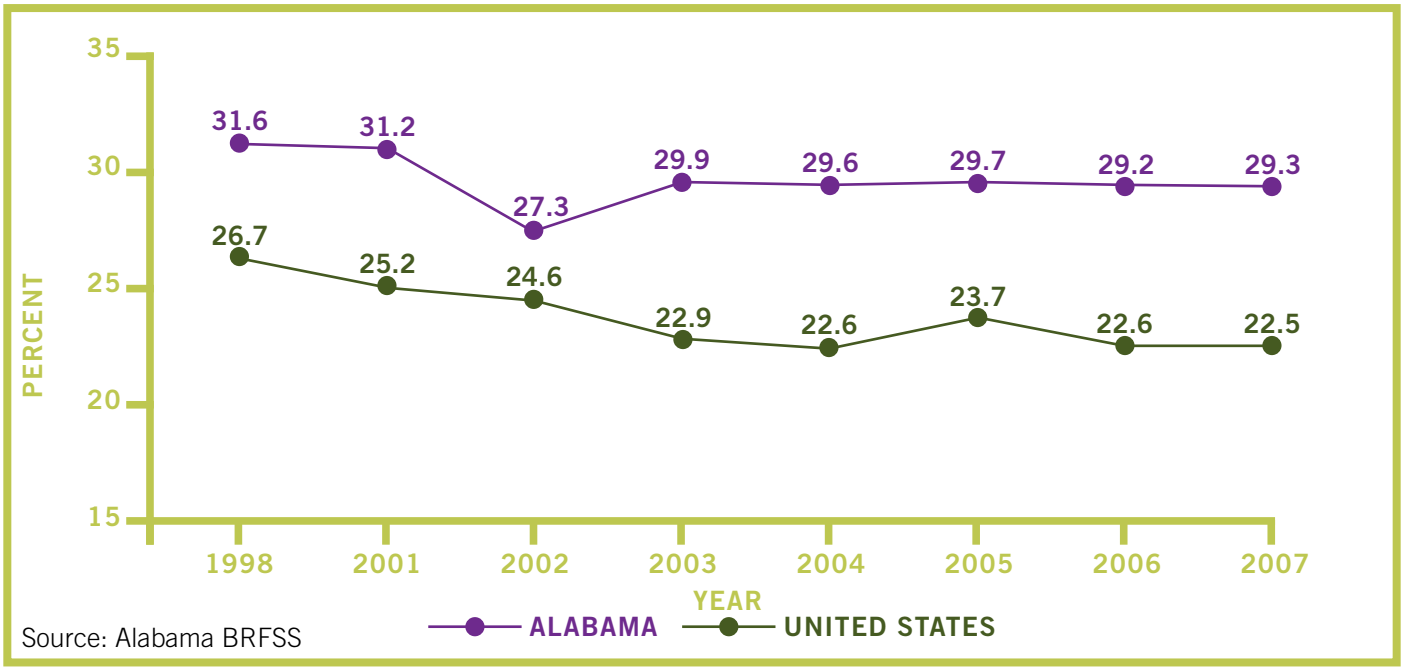


Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: PHYSICAL INACTIVITY

The chances of developing heart disease is 1.5 to 2.5 times higher among those who are physically inactive compared to those who are physically active. Exercise reduces the development of high blood pressure, controls diabetes, lowers weight, and decreases high blood cholesterol.

FIGURE 30: PREVALENCE OF PHYSICAL INACTIVITY* IN ALABAMA AND THE UNITED STATES 2000-2007

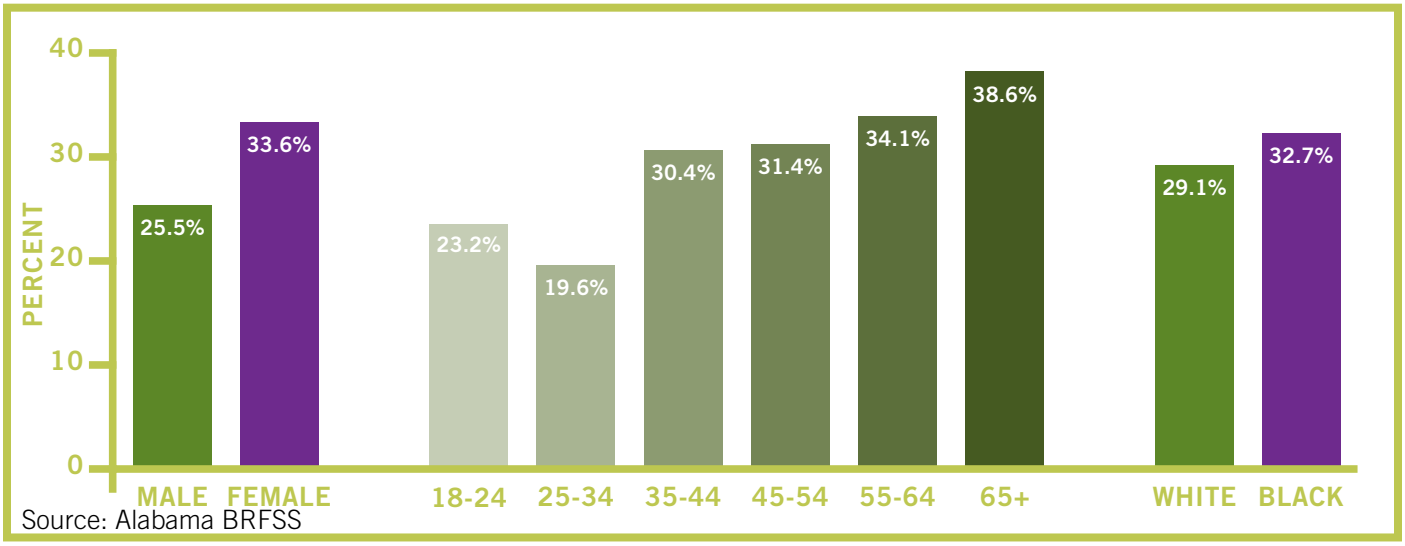


Source: Alabama BRFSS

- In Alabama, the prevalence of physical inactivity has gradually declined over the past 10 years.
- There was a significant decrease of 16 percent in physical inactivity among United States adults compared to a 7 percent decrease in Alabama adults from 1998 to 2007. (Figure 30)

* Physical inactivity is defined as those reporting no physical activity or exercise in the last thirty days.

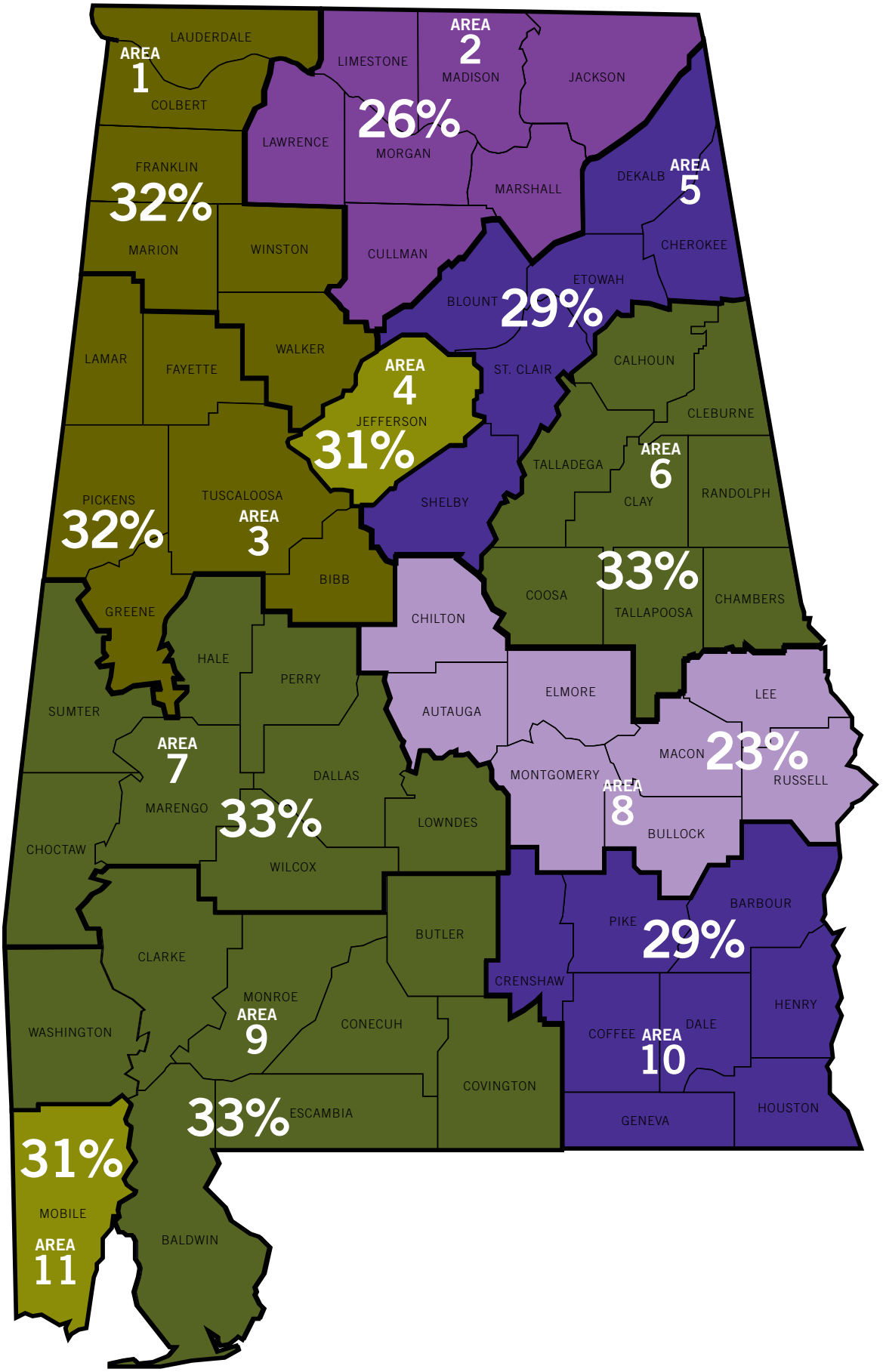
FIGURE 31: PREVALENCE OF PHYSICAL INACTIVITY IN ALABAMA 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- In Alabama, females were more likely to be physically inactive than males.
- The prevalence rate of physical inactivity increases with an increase in age.
- Among race and ethnic groups, blacks had a higher prevalence rate of physical inactivity when compared to whites. (Figure 31)

FIGURE 32: PERCENTAGE OF ADULTS WHO ARE PHYSICALLY INACTIVE* IN ALABAMA BY PUBLIC HEALTH AREA 2007

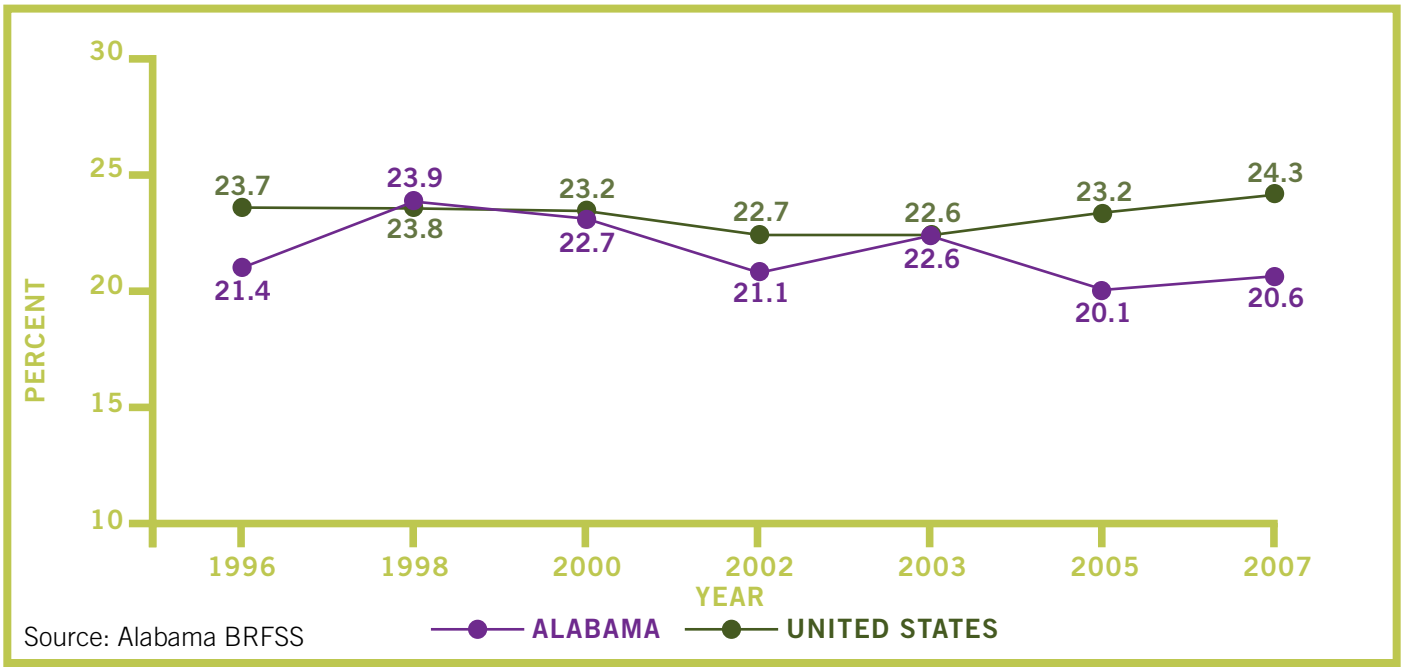


* Physical inactivity is defined as those reporting no physical activity or exercise in the last thirty days. Source: Alabama BRFSS

CARDIOVASCULAR RISK FACTORS: FRUIT AND VEGETABLE CONSUMPTION

Daily consumption of 5 to 10 servings of fresh fruits and vegetables is associated with a reduced risk of heart disease and stroke. The consumption of recommended amounts of fruits and vegetables results in the intake of antioxidants, natural vitamins, and fiber. Inadequate consumption of fruits and vegetables is associated with the development of several CVD risk factors, particularly hypertension, high blood cholesterol, overweight, and diabetes.

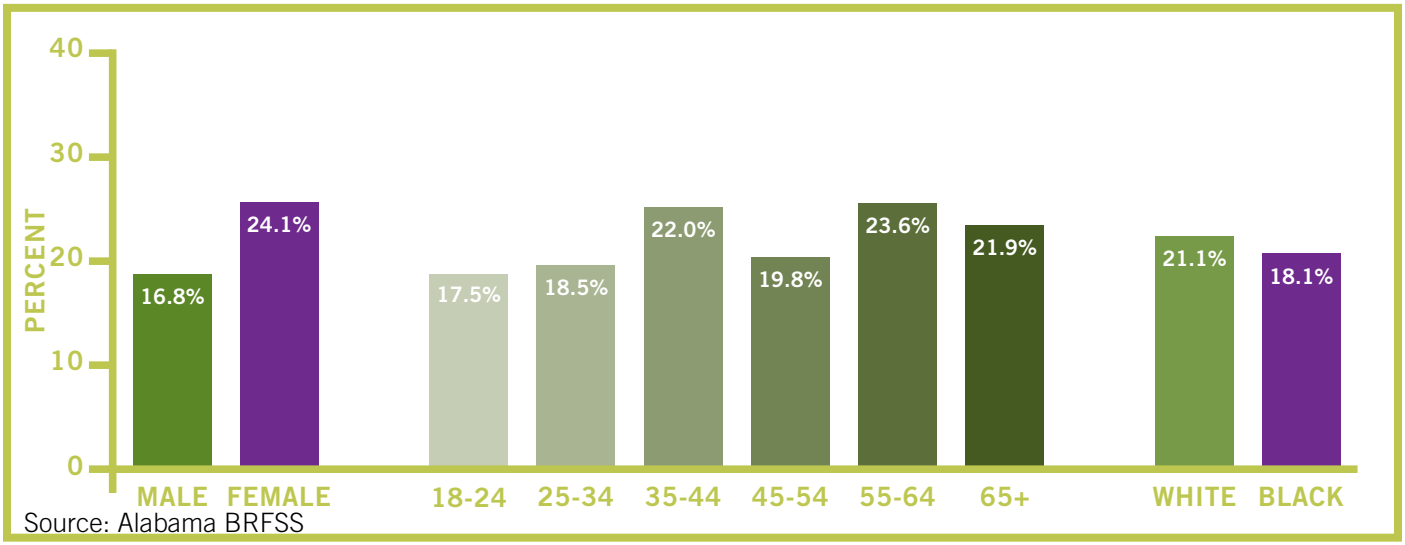
FIGURE 33: PREVALENCE OF CONSUMING FIVE OR MORE FRUITS AND VEGETABLES PER DAY IN ALABAMA AND THE UNITED STATES 1995-2007



Source: Alabama BRFSS

- The prevalence of adequate amounts of fruits and vegetables consumption has not changed significantly for the state in the past 13 years.
- The rate has almost remained constant at 20.6 percent. (Figure 33)

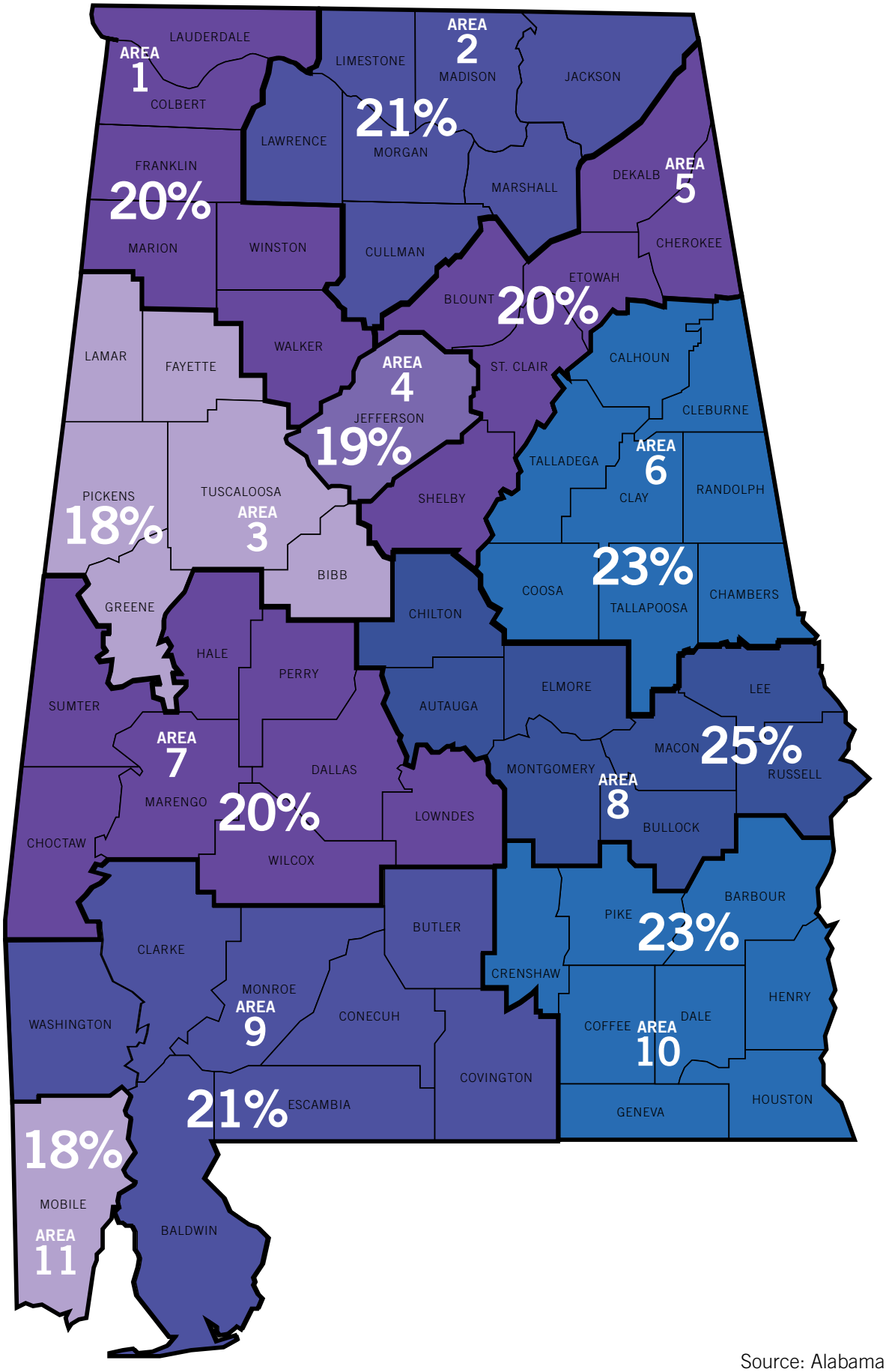
FIGURE 34: PREVALENCE OF CONSUMING FIVE OR MORE FRUITS AND VEGETABLES PER DAY IN ALABAMA 2007 BY GENDER, AGE, AND RACE



Source: Alabama BRFSS

- According to the 2007 BRFSS, there is a difference of nearly 3.8 percentage points in the consumption of five or more daily servings of fruits and vegetables between Alabama residents and the rest of the United States.
- Females were more likely to consume five or more servings per day of fruits and vegetables compared to males.
- Among age groups, the 18-24 and 25-34 age groups did not consume enough fruits and vegetables with the rest of the age groups being very similar in 2007.
- Among race and ethnic groups, there were no significant differences of consumption among whites and blacks. (Figure 34)

FIGURE 35: PERCENTAGE OF ADULTS CONSUMING FIVE SERVINGS OF FRUIT AND VEGETABLES IN ALABAMA BY PUBLIC HEALTH AREA 2007



Source: Alabama BRFSS

SIGNS AND SYMPTOMS OF HEART ATTACK OR STROKE

One of the Healthy People 2010 objectives is to increase the proportion of people who are aware of the early warning signs and symptoms of stroke. One of the factors known to adversely affect the outcome of an acute heart attack or stroke event is the time between the onset of symptoms and actually receiving treatment. There are three stages at which time delays can occur: 1) the onset of symptoms and the 911 call for help; 2) during pre-hospital care; and 3) during transportation.

Stroke: The FAST test

The **FAST** test is an easy way to recognize and remember the signs of stroke or a transient ischemic attack (TIA). Using the **FAST** test involves asking three simple questions.

FAST stands for:

- Facial weakness - can the person smile; have their mouth or eyes drooped?
- Arm weakness - can the person raise both arms?
- Speech/sight difficulty - can the person speak or see clearly and understand what you say?
- Time to act - Time is brain lost. Call 911.

If you suddenly experience any of these symptoms, get to a hospital immediately. Remember, stroke is a life-threatening emergency.

Heart Attack: Signs and Symptoms of a Heart Attack

- Pain or discomfort in jaw, neck, or back
- Feeling weak, lightheaded, faint
- Chest pain or discomfort
- Shortness of breath
- Pain or discomfort in arms or shoulders

A risk factor that can cause heart attack and stroke is high blood pressure or hypertension. The national guidelines for defining hypertension is the following.

Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7)

CLASSIFICATION OF BLOOD PRESSURE (BP)

CATEGORY	SBP mm Hg Systolic		DBP mm Hg Systolic
Normal	<120	and	<80
Pre-hypertension	120-139	or	80-89
Hypertension, Stage 1	140-159	or	90-99
Hypertension, Stage 2	>160	or	>100

Another risk factor that can lead to heart attack and stroke is smoking. Imagine yourself tobacco free! Call 1-800-QUIT-NOW, the ADPH Tobacco Quitline.

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