The Burden of Cardiovascular Disease in Arkansas

Arkansas Cardiovascular Health Program

Arkansas Department of Health

Summer 2004

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Namvar Zohoori, MD, MPH, PhD
Chief Epidemiology Officer
State Chronic Disease Epidemiologist
Arkansas Department of Health
and
Associate Professor
Department of Epidemiology
College of Public Health
University of Arkansas for Medical Sciences

with support from

Linda Faulkner
Program Coordinator
Cardiovascular Health Program
Arkansas Department of Health

John Senner
Neha Thakkar
Sue Ellen Peglow
Arkansas Center for Health Statistics
Arkansas Department of Health

Appathurai Balamurugan
Senior Epidemiologist
Arkansas Department of Health

Little Rock, Arkansas

Preface

Information on Arkansas' cardiovascular disease burden is compiled every other year for Cardiovascular Task Force partners and others committed to improving cardiovascular health for the citizens of our state. Since the first printing of the "Cardiovascular Disease in Arkansas" document in June 2002, the Program and it's Task Force have used this information to complete the "Small Steps, Great Strides for a Healthier Arkansas"–a comprehensive plan for cardiovascular health (heart disease and stroke) in Arkansas.

With the completion of the state plan and other grant objectives, the Cardiovascular Health Program applied to move from capacity building to basic implementation status. This competitive process included other state programs eligible to apply. Arkansas was awarded a grant increase of $680,000 for a total grant award of $980,000 from the Centers for Disease Control and Prevention's Cardiovascular Health Branch in June 2004. With this grant award the Cardiovascular Health Program and its partners are able to begin implementation of interventions laid out in the state plan in communities, schools, health care, and worksite settings, to reduce the heart disease and stroke burden in Arkansas. Without the synergistic and collaborative efforts of the Cardiovascular Health Program's Task Force Partners, these accomplishments would not have been possible, and we express our gratitude to all our partners.

The second edition of "The Burden of Cardiovascular Disease in Arkansas" is a resource and benchmark to not only determine progress in reducing the burden of heart disease and stroke in Arkansas, but to reach the Healthy People 2010 goals for heart disease and stroke. Task Force Partners will continue to use this burden document as a guide to determine future goals, objectives and interventions and to update the state cardiovascular health plan.

For additional copies of this report or information contact:

Cardiovascular Health Program
Arkansas Department of Health
4815 West Markham, Slot 11
Little Rock, AR 72205-3867
501-661-2627 (phone)
501-661-2070 (fax)
www.ArkansasHeartHealth.com

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Highlights

- Heart disease is the number one leading cause of death in Arkansas.
- Stroke is the 3rd leading cause of death in Arkansas.
- 37% of all deaths in Arkansas in 2002 were due to coronary heart disease (CHD) and stroke, more than any other cause.
- Heart disease mortality rate, which was below the national average in the 1980's, is now just above the national average.
- In 2001, Arkansas had the highest stroke mortality rate and the 15th highest coronary heart disease mortality rate in the nation.
- These deaths translated into 49,400 years of life lost in 2001.
- Average costs for hospitalization for both CHD and stroke increased about 70% between 1997 and 2003.
- Overall, hospitalizations for CHD and stroke cost Arkansans over 807 million dollars in 2003. Seventy-nine percent of this cost was due to CHD alone.
- Cardiovascular disease behavioral risk factors (smoking, obesity, low fruit and vegetable consumption and physical inactivity) are fairly common among Arkansans–in 2003, 25% were smokers, 25% were obese, 30% were physically inactive and almost 80% consumed less than 5 servings of fruits and vegetables per day.
- Smoking prevalence has shown very little change over the decade from 1993-2003, and remains consistently higher in Arkansas than the US average.
- During the period from 1993-2003, prevalence of obesity in Arkansas has risen from 16.3% to 25.2%, a 55% increase. This is equivalent to a 5.5% per annum increase.
- The prevalence of diabetes, a major risk factor for cardiovascular disease, has increased steadily over the past decade in Arkansas, and the prevalence of hypertension is high.
- Significant disparities exist among Arkansans with respect to the prevalence of cardiovascular diseases and their risk factors–generally, older, poorer, rural (particularly in the Delta region), and African-American residents have more risk factors, and are at greater risk of death from cardiovascular diseases in Arkansas (see text for more detailed breakdowns).

Introduction

Cardiovascular diseases (CVD–heart disease and stroke) are major causes of death in Arkansas, in the United States, and increasingly in other parts of the world.[1] The major risk factors for CVD's are primarily lifestyle related, such as smoking, physical activity, diet and nutritional status.[2-4] As such, CVD's are largely preventible through a combination of education, policies and environmental changes that facilitate healthy choices in day-to-day living at home, at work, in schools and within communities.

Over the past few decades, there has been a large increase in the rates of incidence and prevalence of cardiovascular and other chronic diseases in the United States and Arkansas–this largely due to major shifts in rates of physical inactivity and caloric intake, and resulting epidemic levels of overweight and obesity.[5]

In May 2004, Arkansas embarked on the Healthy Arkansas Initiative, a statewide campaign aimed at reducing the burden of cardiovascular diseases by targeting the problems of physical inactivity, obesity and smoking in the state.[6] As part of this campaign, local communities will be initiating projects to increase levels of physical activity, and reduce overweight, obesity and smoking levels among their citizens.

Before effective measures can be put into place to combat this epidemic in Arkansas, it is important to appreciate the magnitude, and to understand the sociodemographic and geographic distribution of these diseases and their risk factors. In this way, programs and policies can be effected in a targeted and more efficient manner. This document presents statistics on cardiovascular diseases and their risk factors in the state of Arkansas, with occasional comparable US statistics.

Throughout this document, various cardiovascular disease groupings are referred to. For clarity, Table 1 defines these terms and groupings with respect to International Classification of Diseases (ICD) codes. It must be noted that in 1999, a new cause-of-death tabulation was developed in the form of ICD-10 codes. Before 1999, the ICD-9 classification was used. In this report we have used ICD-10 codes for statistics from 1999 and later, and have converted ICD-9 codes to ICD-10 codes for statistics from years prior to 1999, using the NCHS comparability ratios shown in the Table 1.[7]

All *mortality* rates in this report are adjusted to the US 2000 standard population, while *prevalence* rates are shown unadjusted.

Table 1: Cause-of-Death Classification According to ICD-10 and ICD-9 Codes (see Reference #7)

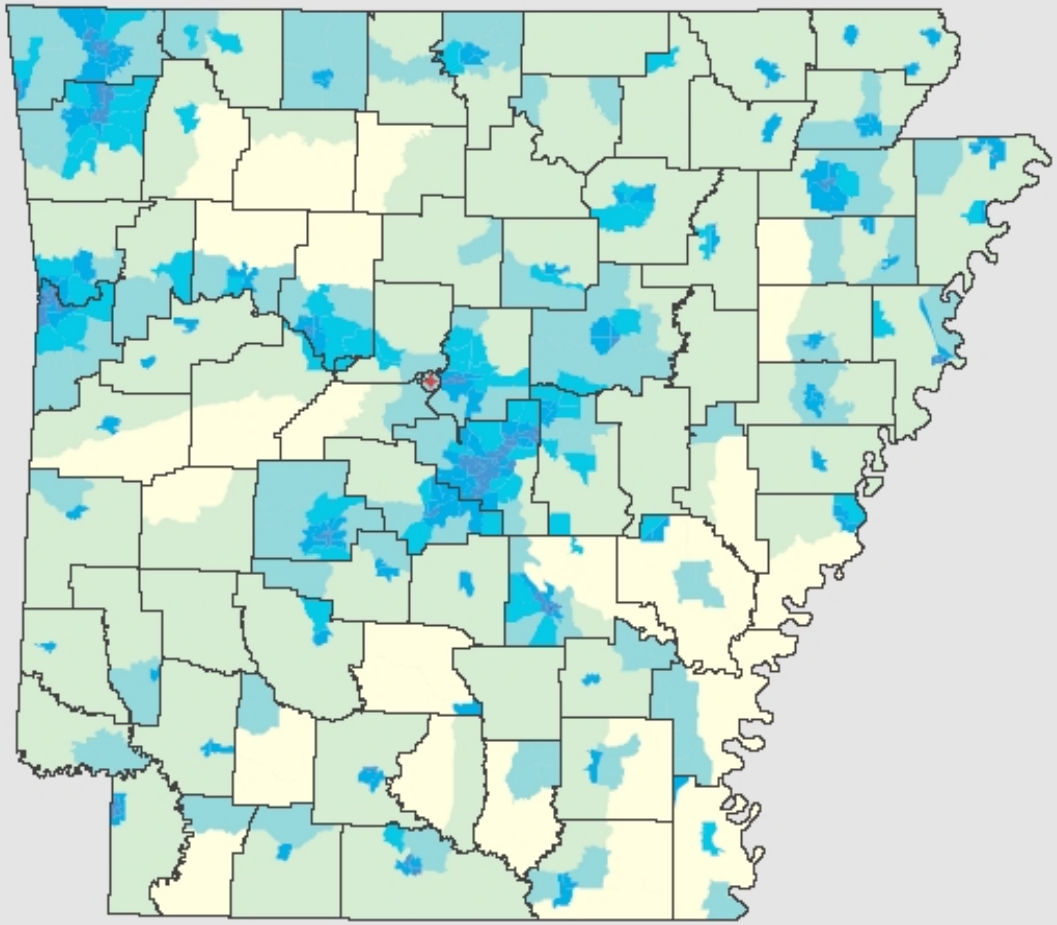
Cause of Death	Category codes		Comparability Ratio
	ICD-10	ICD-9	
Cardiovascular Diseases	I00-I78	390-434, 436-448	0.9981
Diseases of the Heart (Heart Disease)	I00-I09, I11, I13, I20-I51	390-398, 402, 404, 410-429	0.9858
Ischemic Heart Disease (Coronary Heart Disease)	I20-I25	410-414, 429.2	0.9990
Cerebrovascular Disease (Stroke)	I60-I69	430-434, 436-438	1.0588

State Demographic Characteristics

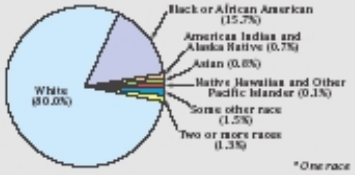
- See *Map 1–Census 2000: Arkansas Profile* on following page.
- The total population of Arkansas, based on US Census 2000 data, is estimated at 2,673,400.
- There is greater density around the urban areas of central and northwestern parts of the state.
- Male:Female ratio is about 49:51.
- About 80% of the population is white, with the largest minority being black or African American (15.7%).
- Hispanics or Latinos (of any race) make up about 3.2% of the state population.
- About 21% of the population is under the age of 15, while 14% is 65 years and older.
- 75% are high school graduates or higher; 17% have graduate or professional degrees.
- 61% of the population are in the labor force, and 3.7% are unemployed.
- Median household income is $32,182, and per-capita income is $16,904.
- 15.8% of individuals, 12% of families, and 34.7% of female-headed households (no husband present), live below the poverty line.
- Among the civilian, non-institutionalized population 65 years and older, 49% have a disability.
- A national survey on health and risk factors, the Behavioral Risk Factor Surveillance Survey (BRFSS), indicated that 82.8% of all Arkansans, 84.7% whites, 75.5% blacks, and 67.9% Hispanics in Arkansas had some type of health care coverage in 2000.Nationally, 88.1% of all residents, and 90.2% of whites, 82.6% of blacks, and 74.7% of Hispanics reported having some type of health care coverage.

Census 2000: Arkansas Profile

Population Density by Census Tract



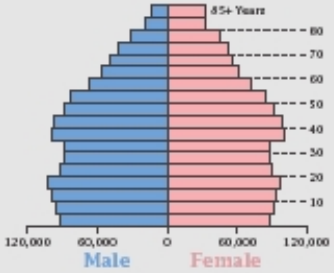
State Race* Breakdown



Hispanic or Latino (of any race) makes up 3.2% of the state population.

Population by Sex and Age

Total Population: 2,673,400



Housing Tenure

Total Occupied Housing Units:
1,042,696

69.4% Owner Occupied	30.6% Renter Occupied

Average Household Size of Owner-Occupied Units:	Average Household Size of Renter-Occupied Units:
2.54 people	2.40 people

Population Per Square Mile by Census Tract

- 5,000.0 to 6,383.9
- 1,000.0 to 4,999.9
- 200.0 to 999.9
- 79.6 to 199.9 (U.S. density is 79.6)
- 30.0 to 79.5
- 10.0 to 29.9
- Less than 10.0
- County Boundary
- Arkansas Mean Center of Population

0 10 20 40 60 Kilometers
0 10 20 40 60 Miles

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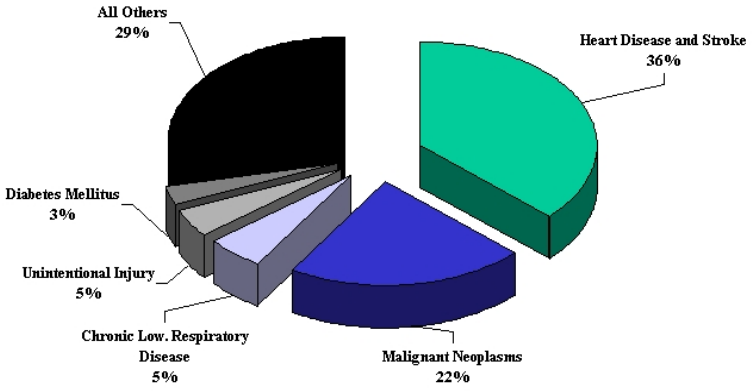
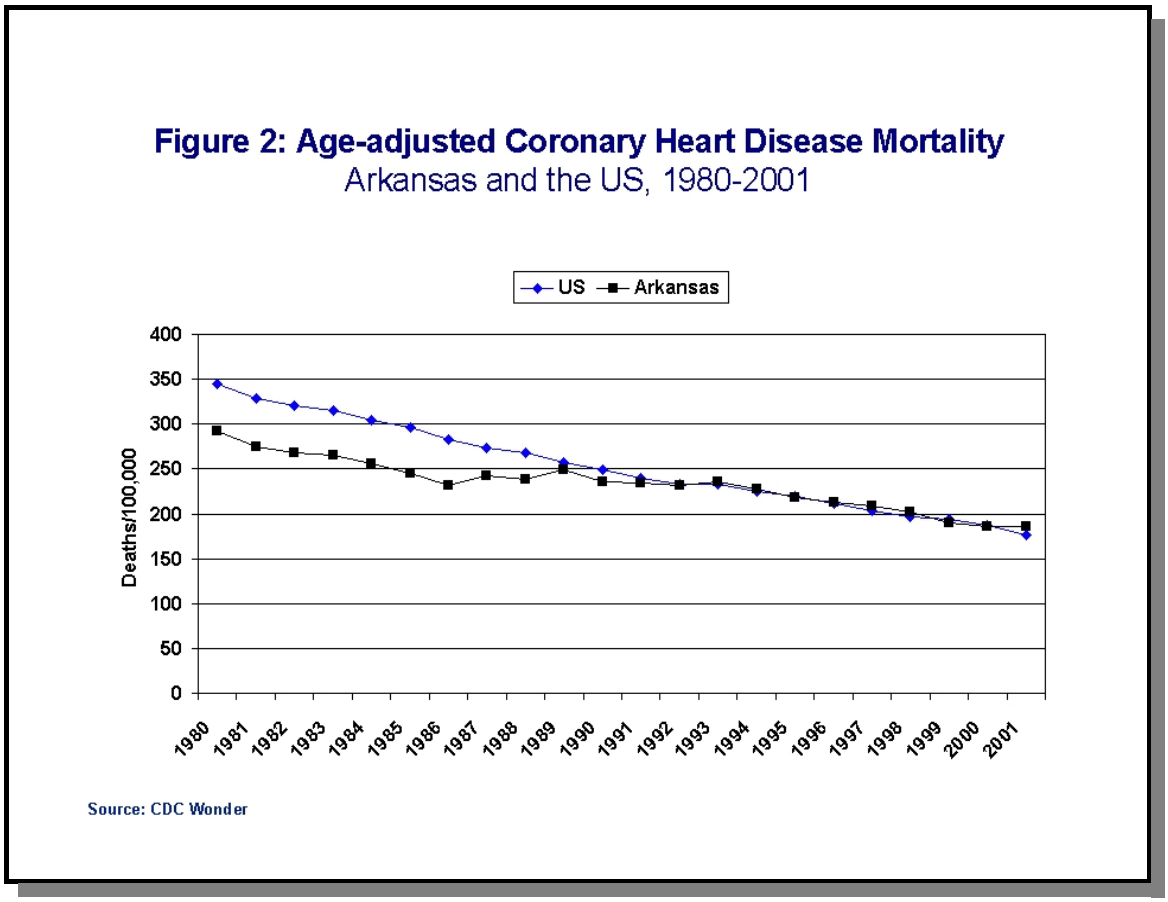
Mortality from Cardiovascular Diseases

Figure 1: Leading Causes of Death
Arkansas, 2002

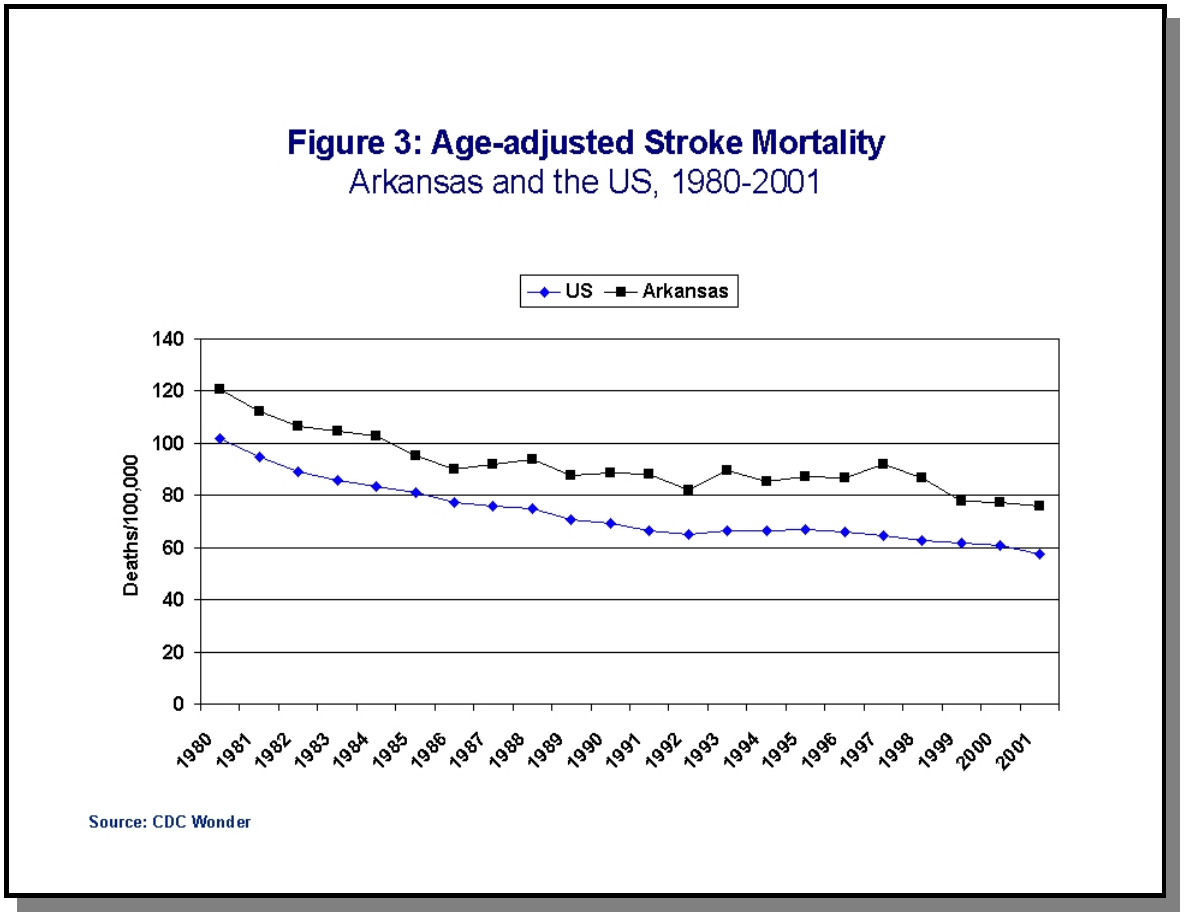


Source: National Center for Health Statistics (NCHS) Vital Statistics System.

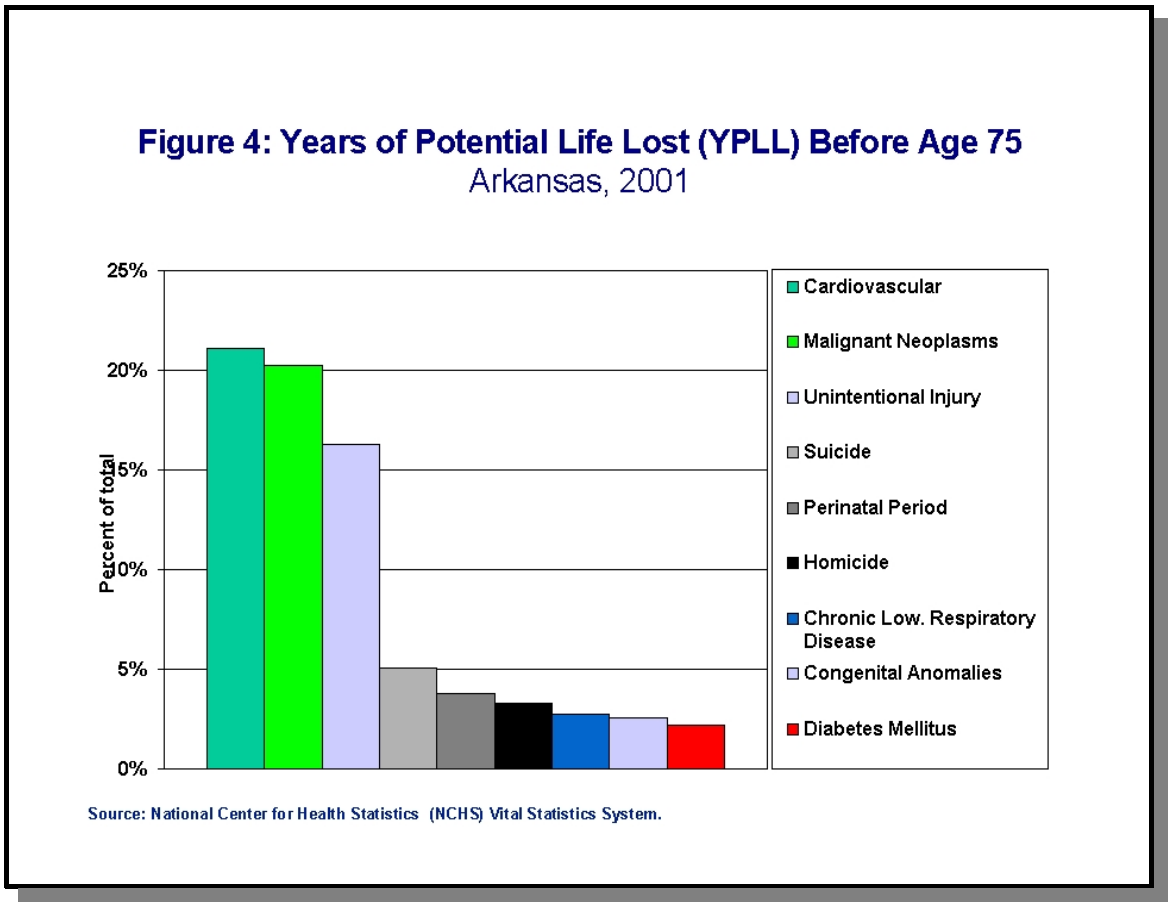
- In Arkansas, as in the rest of the US, heart disease and stroke together account for the largest proportion of deaths (36% in Arkansas in 2002).
- Heart disease is the number one leading cause of death in Arkansas, being responsible for 29% of all deaths in 2002.
- In 2002, there were 8,305 deaths due to heart disease in Arkansas.
- Stroke is the 3rd leading cause of death (7.8%).
- In 2002, there were 2,227 deaths due to stroke in Arkansas.
- Overall, of the top 6 leading causes of death in Arkansas in 2002, five are lifestyle-related chronic non-communicable diseases.



- In Arkansas and the US, during the period from 1980-2001, *age-adjusted* mortality rates from coronary heart disease (Figure 2) have slowly but steadily declined.
- During the 1980's coronary heart disease mortality rates remained lower in Arkansas than the national average.
- During the late 80's and 90's, however, the rate of decline in Arkansas slowed down, so that by 2001 the Arkansas mortality rate was just above that of the US.
- During the 1990's, the decline in Arkansas was about 22.5%–an average of about 2% per year.

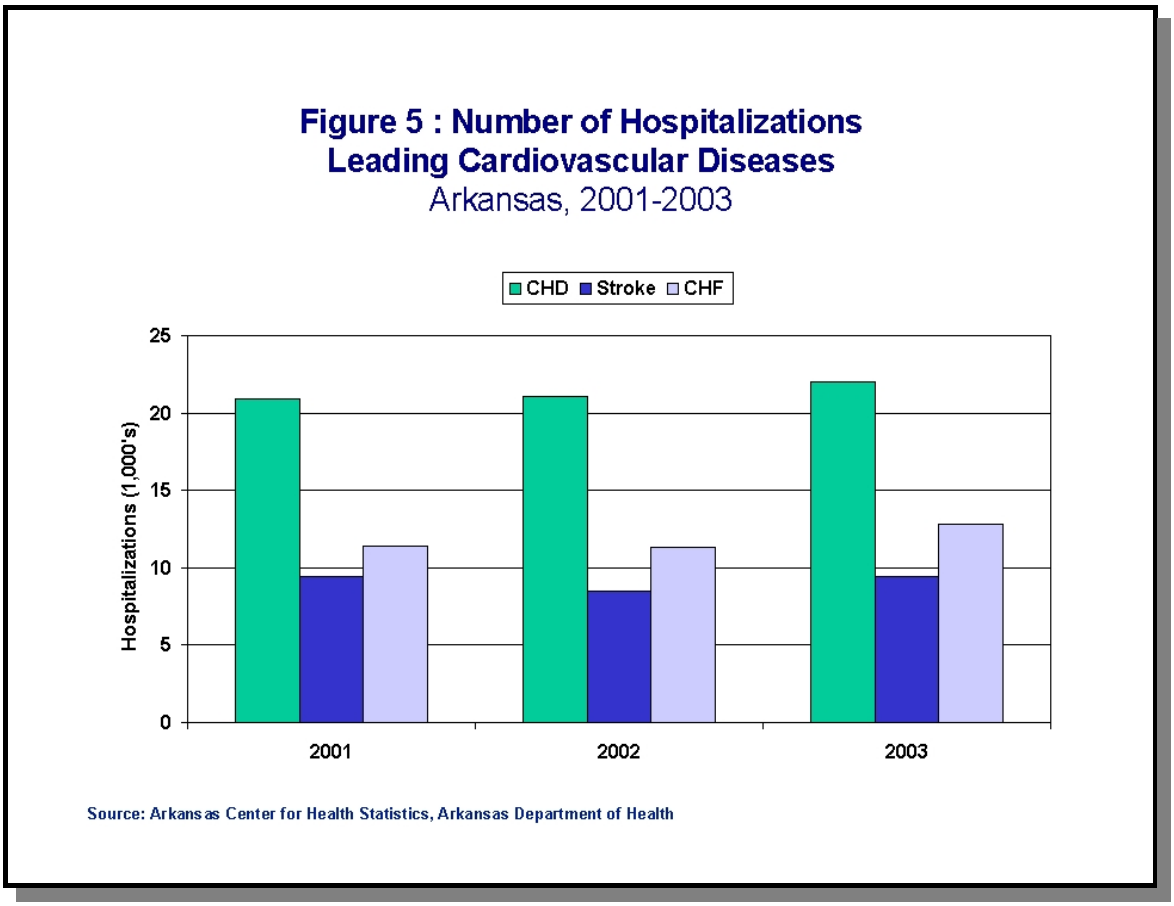


- Age adjusted stroke mortality rates (Figure 3) have also declined since 1980.
- This decline has slowed down both in Arkansas and the US during the 1990's (about 0.5% per year in Arkansas).
- Such declines in mortality rates can be due to a combination of decreased incidence and increased survival.
- Even with these declines, in 2001 Arkansas had the highest stroke mortality rate and the 15th highest coronary heart disease mortality rate in the nation.

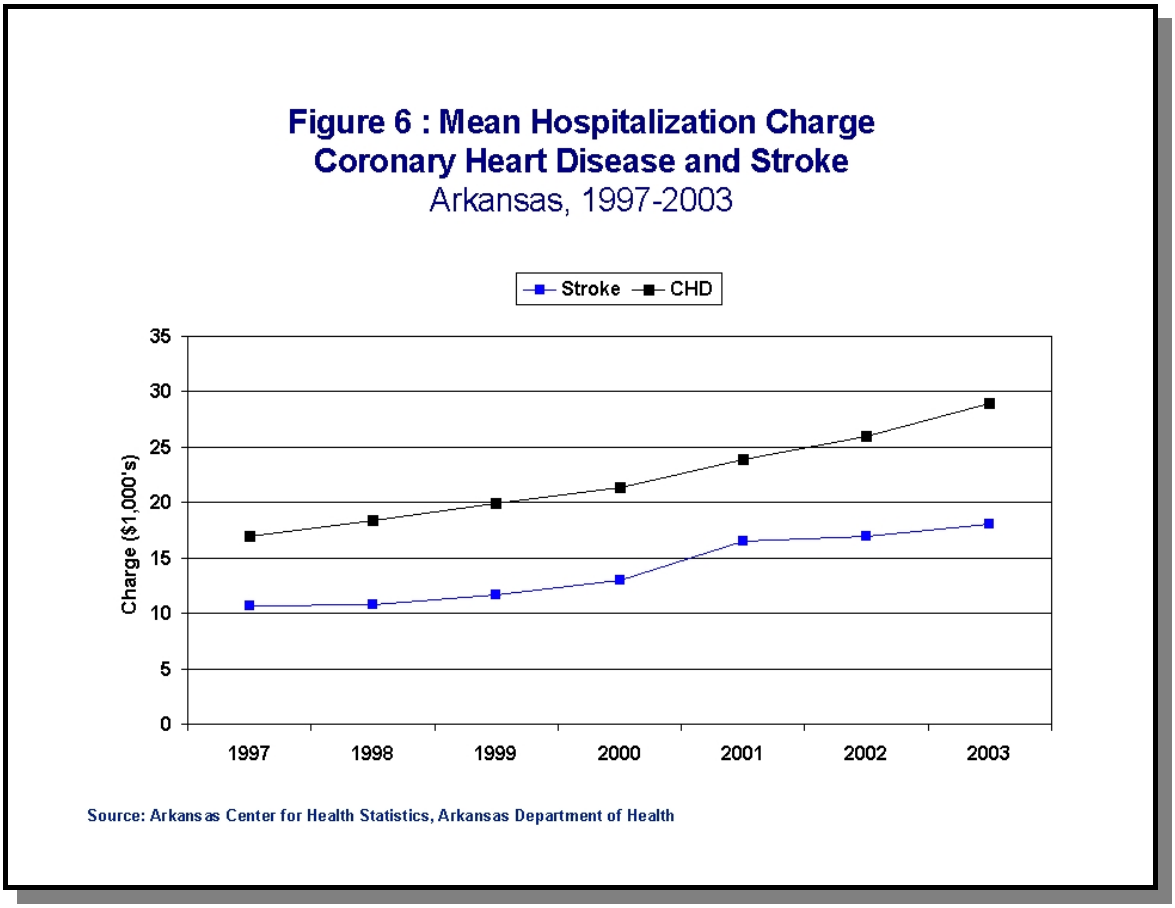


- Years of potential life lost (YPLL) due to specific diseases are good indicators of the burden of these diseases in a society.
- YPLL represent the total number of years of life lost before reaching life expectancy.
- In 2001, premature deaths in Arkansas resulted in a total loss of 234,385 years of life.
- Of these, 21% or about 49,400 years were lost due to cardiovascular diseases (coronary heart disease and stroke)–more than any other single cause classification.

Hospitalization



- An important and useful indicator of the burden of cardiovascular disease is the level of utilization of health care resources for each disease.
- According to discharge diagnoses, the number of hospitalizations in Arkansas for coronary heart disease, stroke and congestive heart failure are shown in Figure 5.
- Coronary heart disease hospitalizations have increased from 21,000 in 2001 to 22,000 in 2003 (a 5% increase).
- Similarly, during this same period, hospitalizations due to congestive heart failure have increased from 11,400 to 12,800, an increase of over 12%.
- Stroke-related hospitalizations have remained fairly constant between 2001 and 2002, at about 9,400.



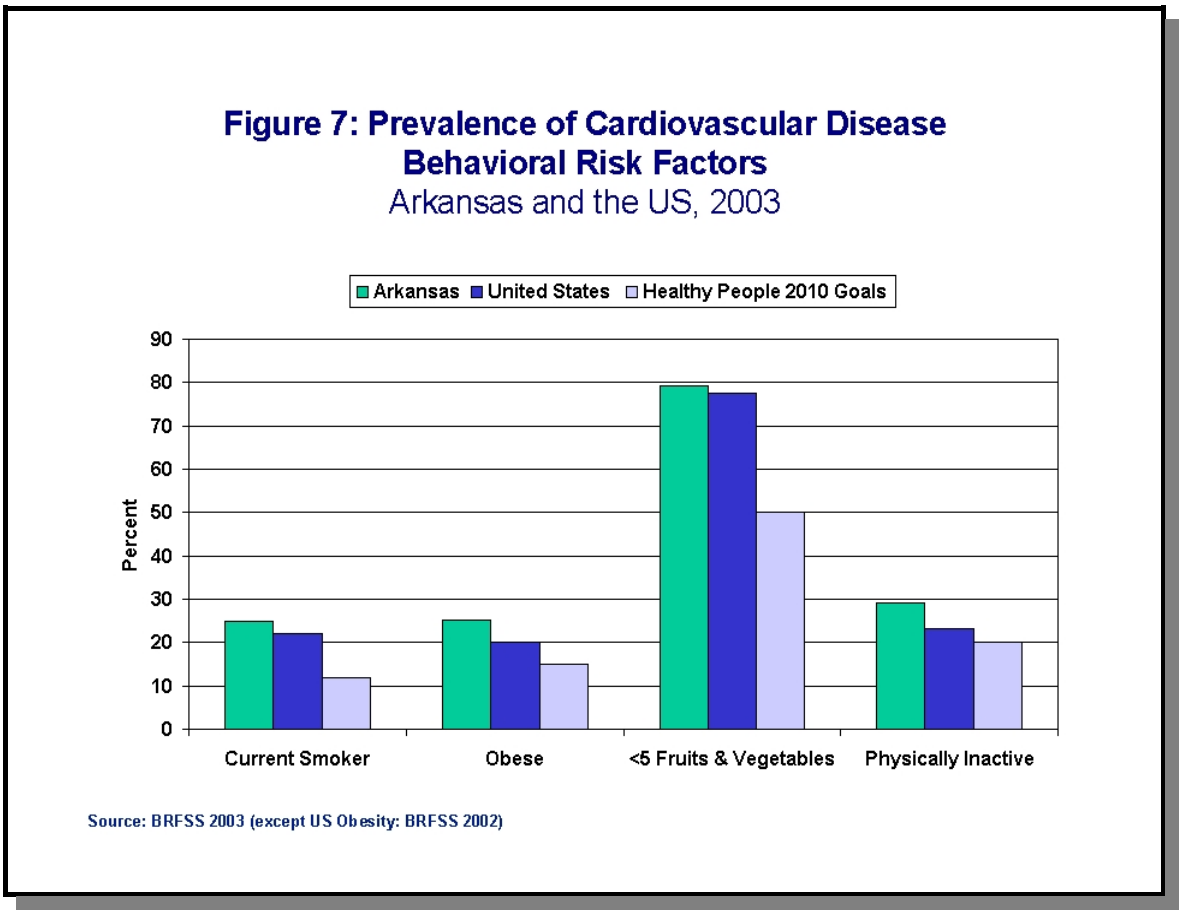
- While the number of hospitalizations are one indicator of health resource utilization, the cost of hospitalization gives additional information regarding the financial burden of disease.
- Average costs for coronary heart disease as well as stroke hospitalizations have increased dramatically over the past few years.
- The charge for hospitalization for an episode of coronary heart disease increased from $17,000 in 1997 to $29,000 in 2003, an increase of 70%.
- Similarly over the same period, for stroke hospitalization, the charge has increased from $10,700 to $18,100, also an increase of 70%.

Table 2: Hospitalizations for Coronary Heart Disease and Stroke. Arkansas, 2003.

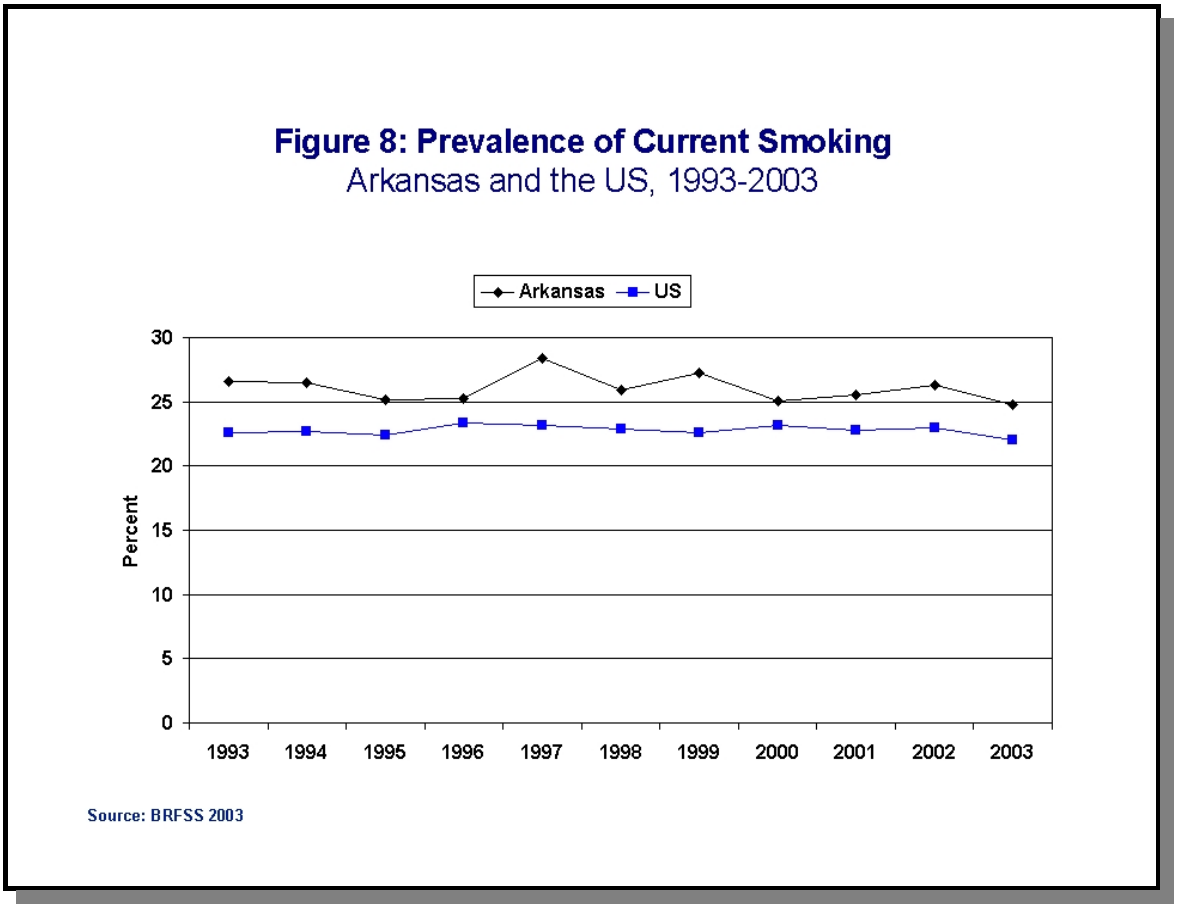
Discharged	CHD	Stroke
Total	21,983	9,392
Males	12,717	4,201
Females	9,266	5,191
Percentages		
0-44	5.9	3.7
45-64	40.1	23.9
65-84	46.4	55.8
85+	7.6	16.5
Males	57.8	44.7
0-44	6.6	3.6
45-64	46.1	28.0
65-84	42.3	57.7
85+	4.9	10.6
Females	42.2	55.3
0-44	4.9	3.8
45-64	31.9	20.7
65-84	51.9	54.3
85+	11.2	21.2
Total Charges	$637,298,281	$169,886,913
Total hospital days	94762	60833
Mean length of stay	4.3	6.5
Mean charge/day	$6341	$2607

- Table 2 presents more detail regarding patterns of hospitalization for coronary heart disease (CHD) and stroke.
- In 2003, among males, there were about 3 times as many hospitalizations for CHD than for stroke. Among females, also, there were more CHD hospitalizations.
- Overall, there were more CHD hospitalizations among males than females, but more stroke hospitalizations among females than males.
- For stroke, the majority of hospitalizations occurred in those 65 years and older, both among males (about 66%) and females (about 75%).
- For CHD, however, the age distribution is younger, especially among males, where the majority of cases occur in the 45-64 year old group.
- In females, CHD cases are distributed more among older groups than in males.
- These numbers indicated a greater burden of CHD and stroke among *older* females.
- Overall, hospitalizations for CHD and stroke cost over 807 million dollars in 2003 in Arkansas. Seventy-nine percent of this cost was due to coronary heart disease.

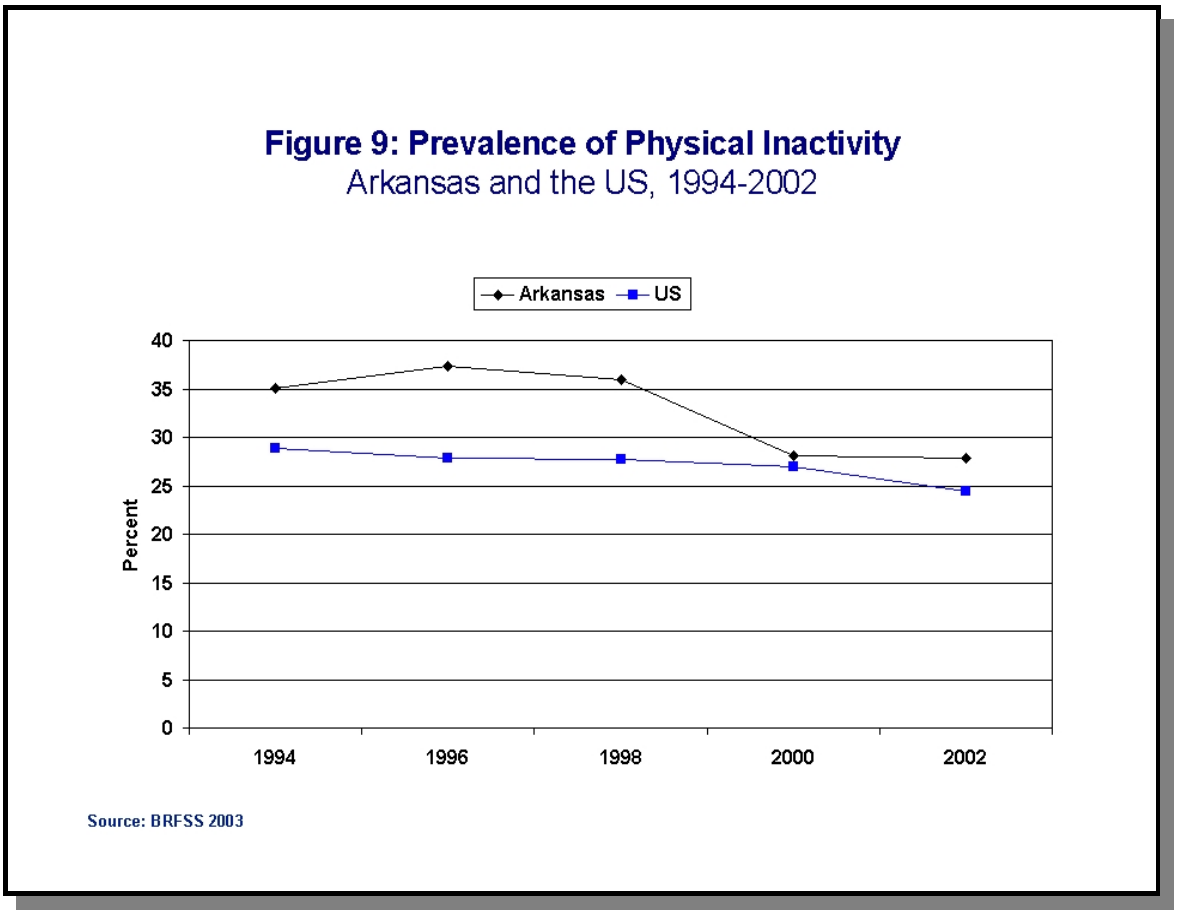
Major Risk Factors



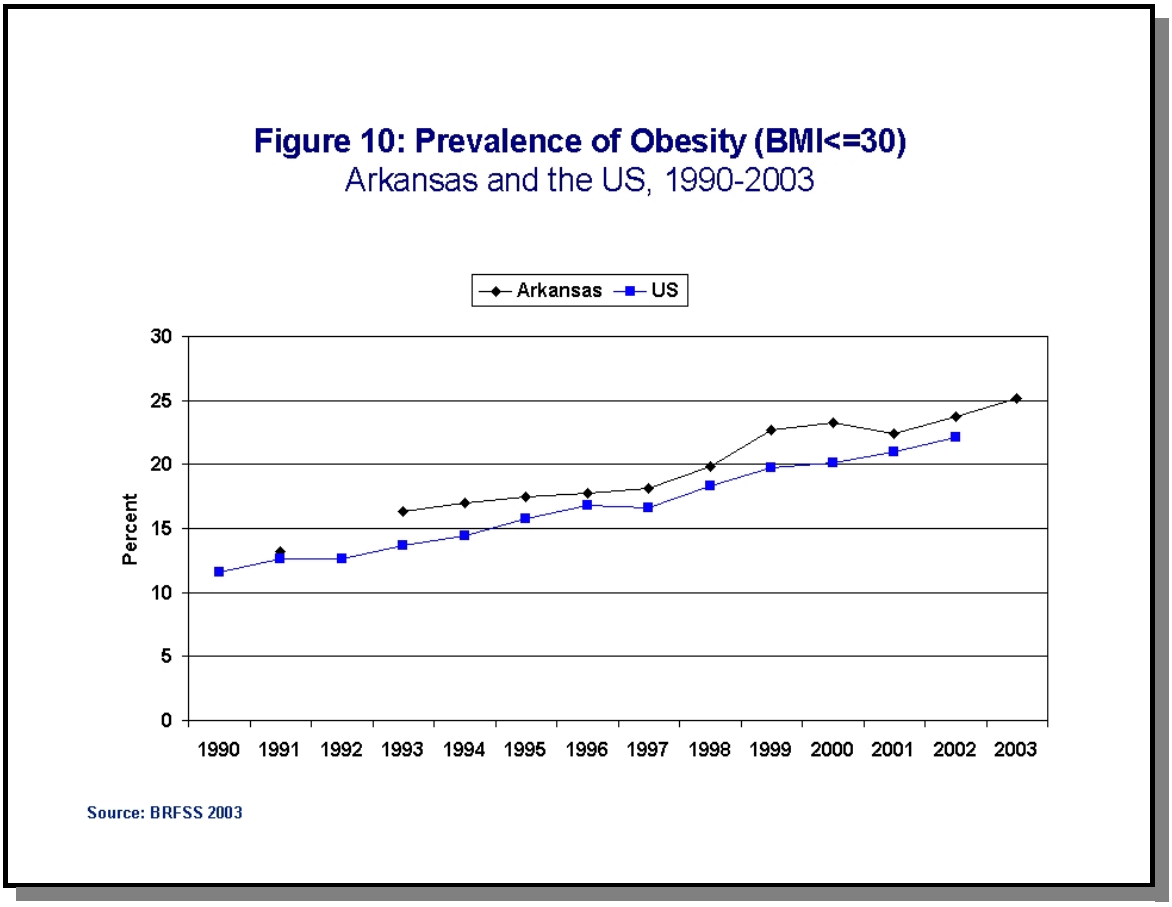
- Behavioral risk factors (smoking, obesity, low fruit and vegetable consumption and physical inactivity) are fairly common in Arkansas and the US (Figure 7).
- In 2003, 25% of Arkansans were smokers, 25% were obese (Body Mass Index >=30), 30% were physically inactive and almost 80% consumed less than 5 servings of fruits and vegetables per day.
- These percentages are higher than those in the US overall, and far above the Healthy People 2010 goals.



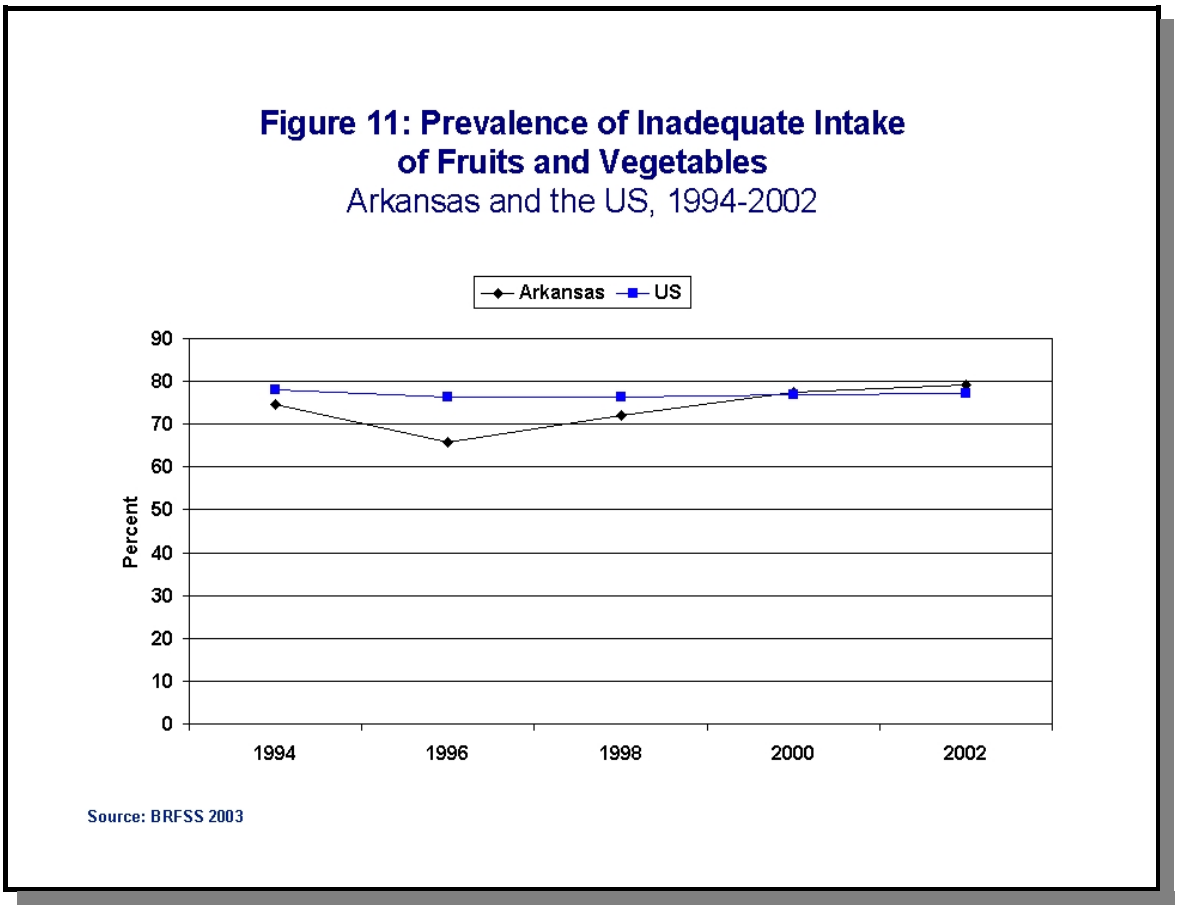
- It is also informative to look at trends over time in these behavioral risk factors.
- Smoking prevalence, both in Arkansas and the US, has shown very little change over the decade from 1993-2003 (Figure 8).
- On average during the period 1993-2003, in Arkansas, smoking prevalence has remained consistently higher than the national level by about 3.3 percentage points, or 14.4%.



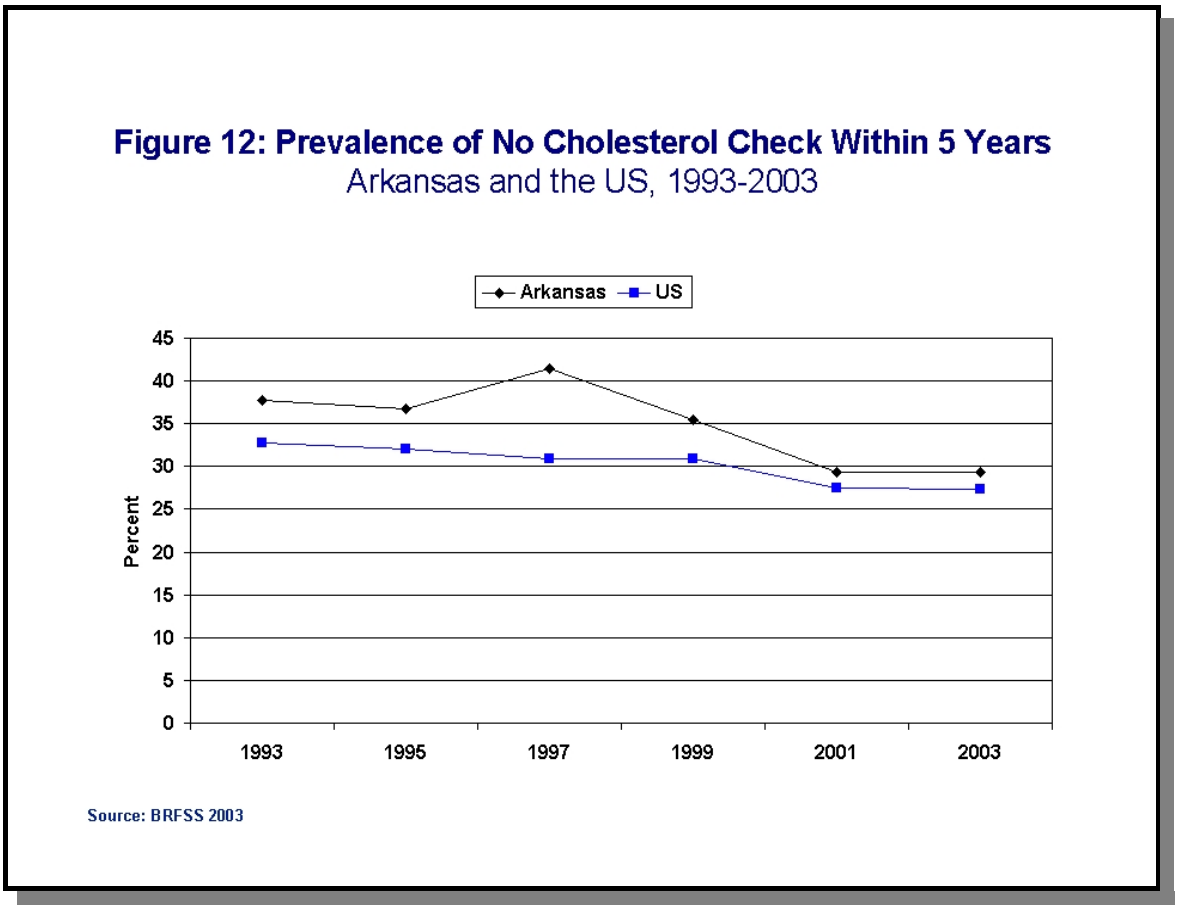
- Levels of physical inactivity (in response to the question on whether respondents have engaged in any leisure time physical activity over the past month) have improved somewhat in the past 5-6 years in Arkansas, approaching the national average (Figure 9).
- However, physical inactivity levels still remain at about 28% in 2002–the Healthy People 2010 goal is 20% or less.
- In addition, according to 2003 BRFSS data, about 55% of Arkansas adults do not meet recommended guidelines for moderate physical activity in their daily lives (data not shown).



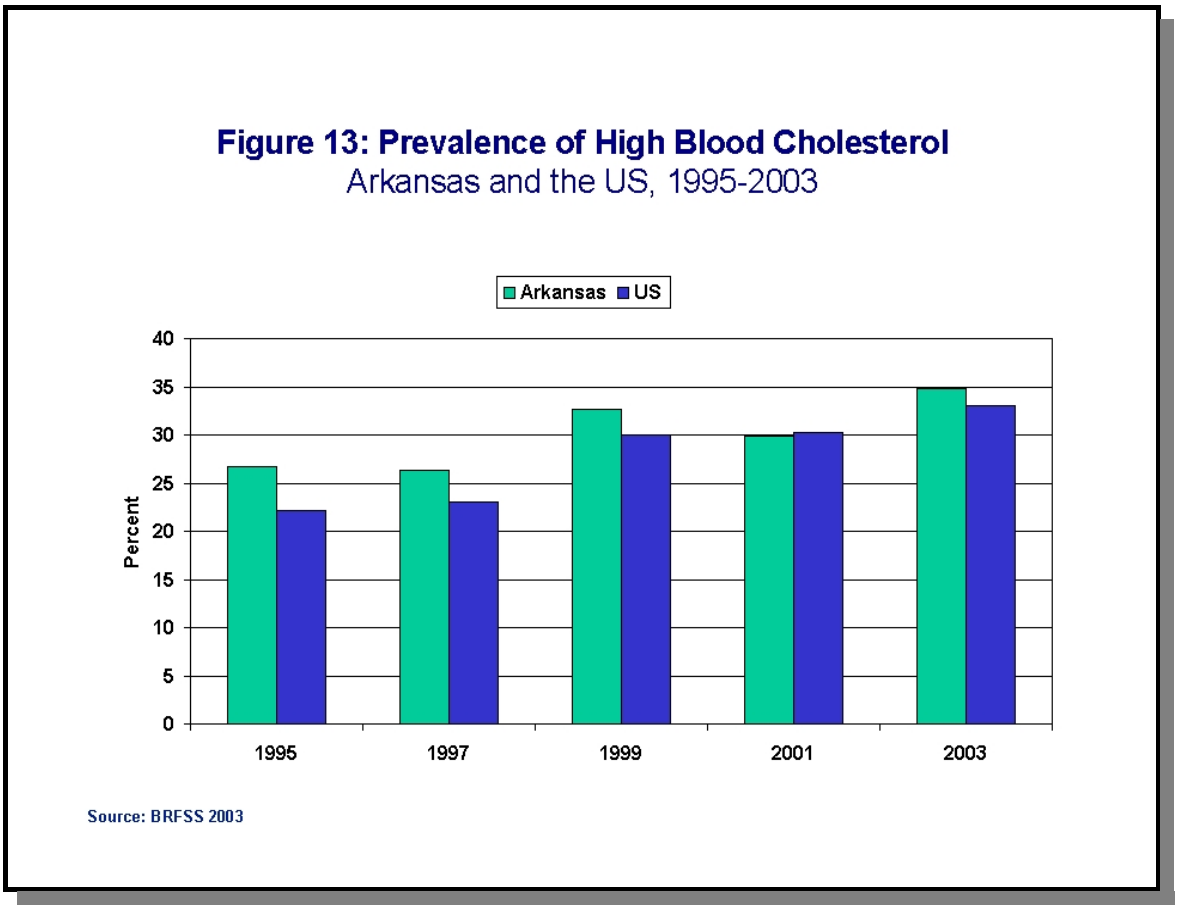
- Decreasing levels of physical inactivity notwithstanding (Figure 9), Arkansas, as the rest of the US, is experiencing a very rapid and sustained *increase* in levels of obesity (Figure 10).
- During the period from 1993-2003, prevalence of obesity has risen from 16.3% to 25.2%, a 55% increase. This is equivalent to a 5.5% per annum increase.
- Notably, during almost this same period (1993-2002), prevalence of *overweight* (a BMI between 25 and 29.9) in Arkansas has remained comparatively stable, increasing at an annual rate of only 0.8% (data not shown). This indicates that the influx of adults from normal weight (BMI<25) into overweight is about the same as the influx from overweight into obese.
- That is, it is not just an issue of the 'fat getting fatter', but one of transition from normal weight to overweight and obese, at a rate of about 5% per year.



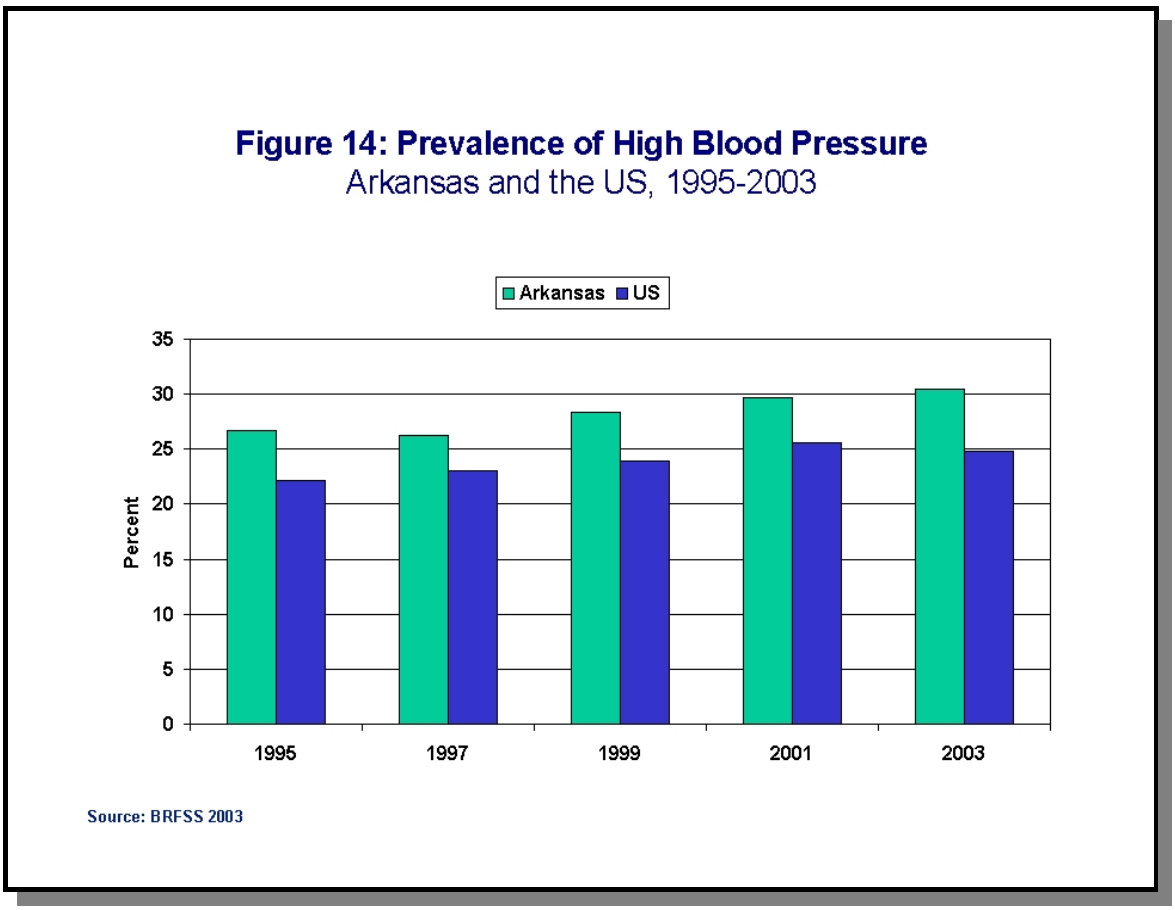
- Another important factor that has implications for almost all chronic non-communicable diseases, is the consumption of adequate amounts of fruits and vegetables.
- The recommended intake is at least 5 servings per day.
- The prevalence of *inadequate* intake of fruits and vegetables in Arkansas rose from 66% to 79% between 1996 and 2002, an increase of almost 20%.
- This increase in inadequate intake has, in 2002, put Arkansas above the median level of all other states.



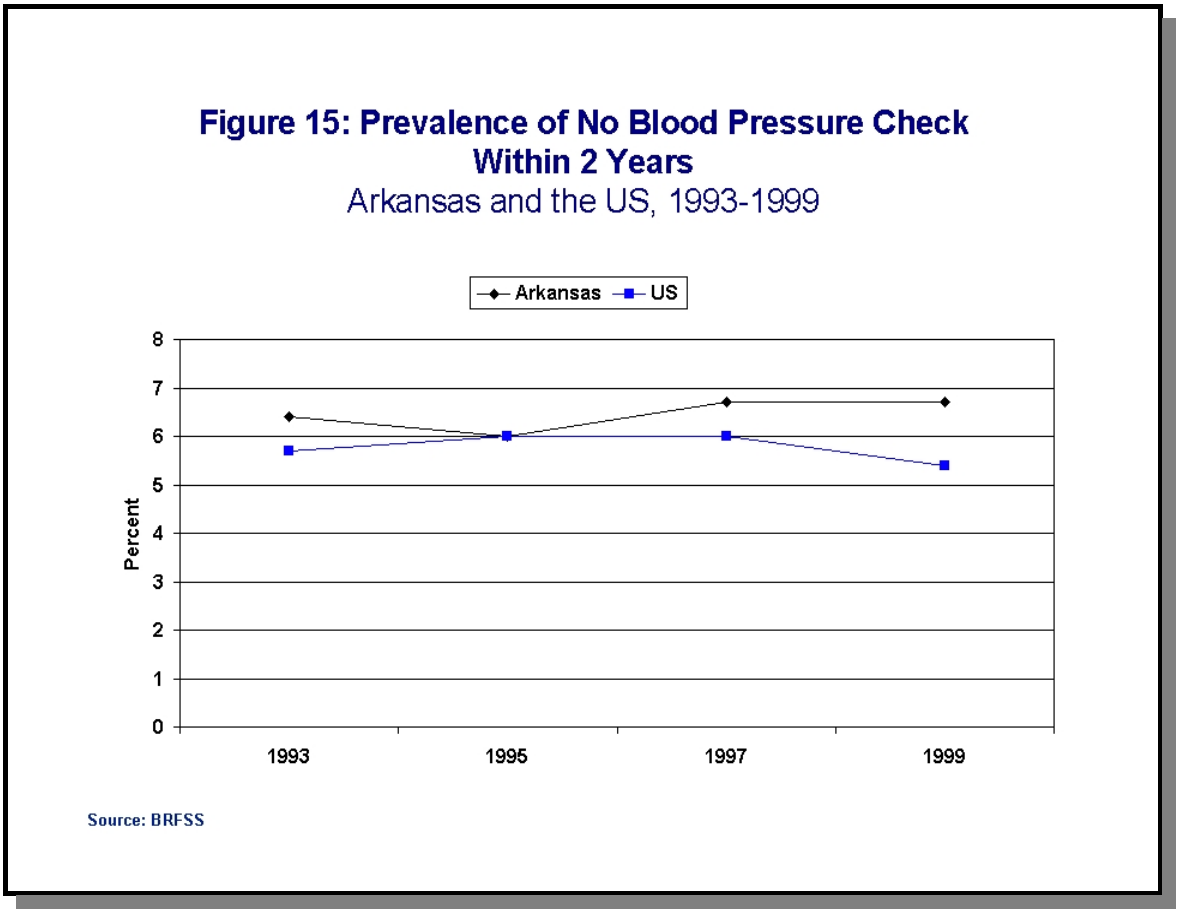
- Blood cholesterol level is a major risk factor for cardiovascular disease.
- It is recommended that all adults 20 years of age or older should have their blood cholesterol level checked at least once every 5 years.
- According to BRFSS data, in 2003 about 30% of Arkansas adults had not had their blood cholesterol level checked within the previous 5 years (Figure 12).
- However, this prevalence has been declining since 1997 when it was 42%.
- The prevalence in Arkansas, which was much higher than the US average in 1997, is now a lot closer to the latter.
- The Healthy People 2010 goal is to reduce the percentage of adults who have not had their cholesterol checked within the past 5 years to 20% or less.



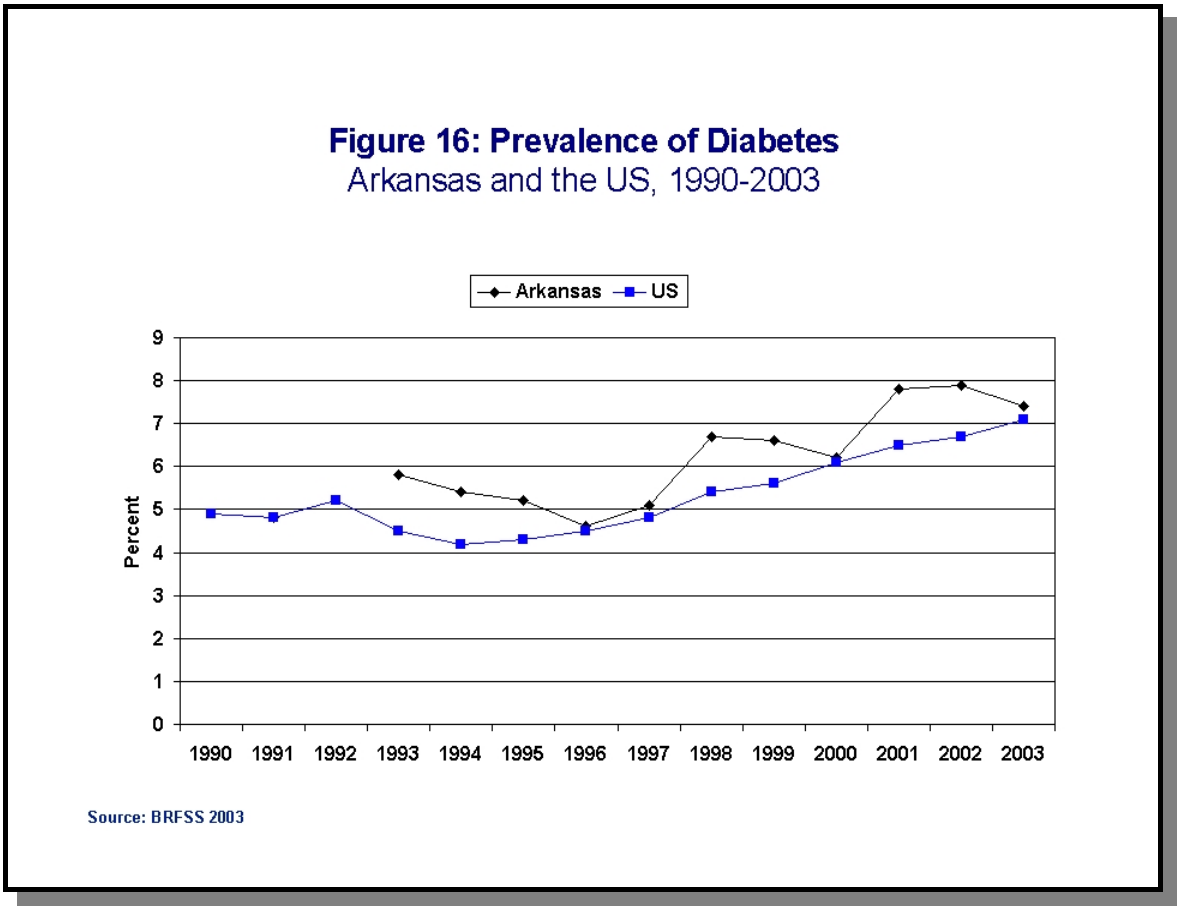
- Healthy People 2010 objectives also include the goal of reducing the prevalence of high blood cholesterol among adults to 17 percent.
- However, the self-reported prevalence of high blood cholesterol, according to the BRFSS, has been increasing in Arkansas since 1995 (Figure 13).
- In 2003, almost 35% of adults in Arkansas reported having been told that they have a high blood cholesterol level, an increase from about 27% in 1995.
- Undoubtedly, one reason for this increase is the increase in the prevalence of obesity in the state (see Figure 10).
- It must be noted, however, that at least part of this increase may be explained by a greater awareness of high blood cholesterol levels as more adults had their blood cholesterol level checked, as evidenced by data in Figure 12.



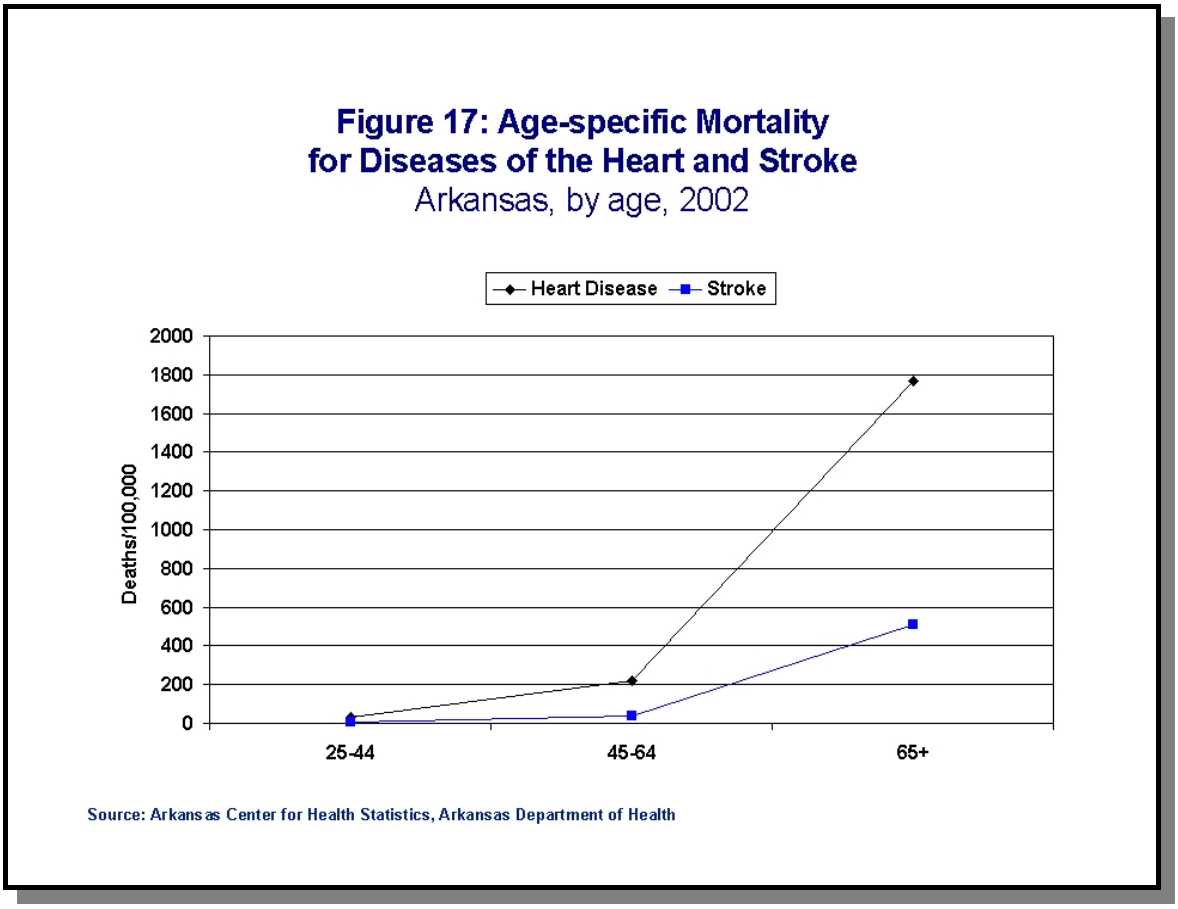
- Another important risk factor for cardiovascular diseases is high blood pressure.
- Data on the prevalence of high blood pressure in Arkansas and the US is shown in Figure 14.
- In 2003, in Arkansas, about 30% of adults reported having been told that they have high blood pressure–a percentage that has increased steadily since 1995.
- This compares to the national average of about 25% in 2003.
- The Healthy People 2010 goal for the US is to reduce this prevalence to 16% or less.



- In contrast to blood cholesterol checks (Figure 12) only a small percentage of adults, both in Arkansas and the US, report *not* having had their blood pressure checked within the past 2 years (Figure 15).
- In Arkansas, this proportion was fairly constant, at between 6% and 7% during the period 1993 to 1999.
- The Healthy People 2010 goal for the US is to reduce this prevalence to 5% or less.

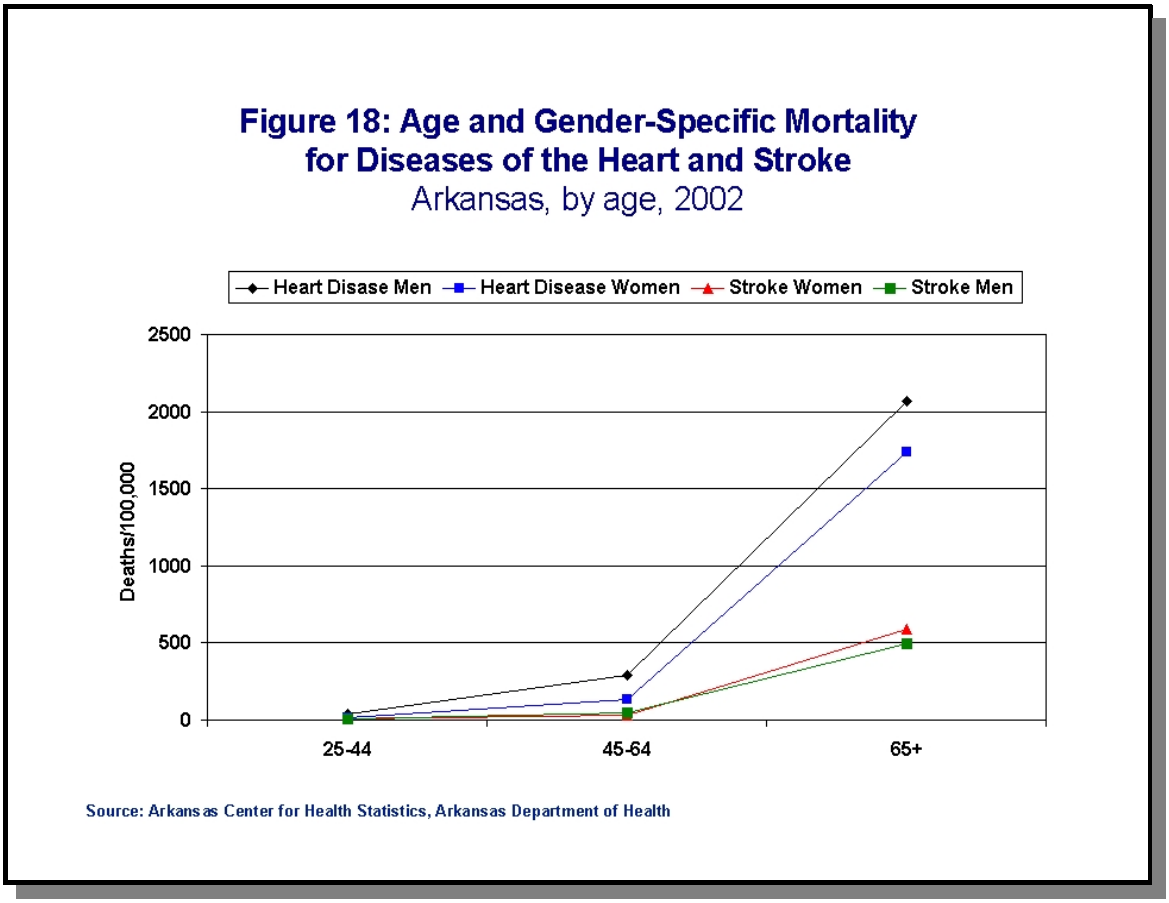


- Although a major chronic disease itself, Diabetes is also a significant risk factor for cardiovascular diseases.
- In Arkansas, the prevalence of diabetes (in response to the question “Have you ever been told by a doctor that you have diabetes”) has increased over the past decade, as it has in the US in general (Figure 16).
- Regression lines (not shown) for these trends indicate the annual increase in Arkansas (about 0.25% per year) to be slightly more rapid than in the US (0.18% per year).
- Obesity is a known and major risk factor for Diabetes, and is largely responsible for this increase.
- Part of the increase in prevalence may be due to more awareness as a number of Diabetes Programs were begun in Arkansas and other states in the mid-1990's.



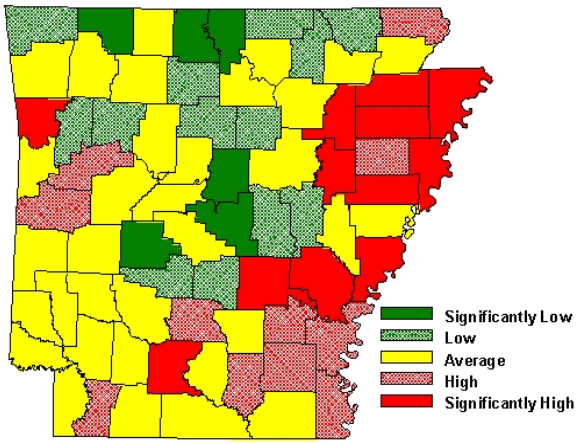
Disparities

- A large proportion of both heart disease and stroke mortality occur in older ages.
- Mortality due to these causes is several-fold higher among the elderly (aged 65+) than in younger ages (Figure 17).
- Age disparities in disease become particularly important as the older segments of a population increase in proportion, as is happening in Arkansas as well as the US–as Arkansas' population becomes older, a correspondingly greater portion of its human and financial resources will have to be spent on cardiovascular diseases.



- There are also gender disparities in cardiovascular mortality at each age category (figure 18).
- At each age, heart disease mortality is higher among men than women, the disparity increasing with increasing age.
- Stroke mortality is slightly higher among women in the older age category.

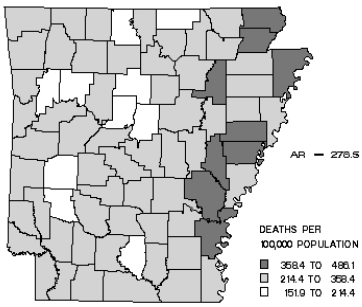
Map 2: County Rankings for Cardiovascular Disease Mortality
Arkansas Counties 2002 (compared to State average)



Source: Arkansas Center for Health Statistics, Arkansas Department of Health

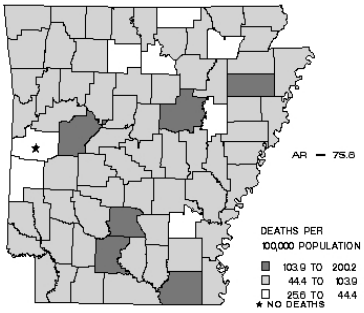
- One of the most noticeable disparities in Arkansas is related to geographic regions.
- The “Delta” region, along the eastern border with the Mississippi River shows higher rates of cardiovascular disease mortality than other parts of the state.
- Map 2 shows higher and significantly higher (red) rates of cardiovascular disease mortality in this region, compared to the state average (yellow).
- Green areas experience lower than average rates of cardiovascular disease mortality.
- Many factors can account for these geographic differences, including socio-economic factors, access to health care, ethnicity and urban/rural differences.
- Maps 3 and 4 indicate that heart disease mortality (compared to stroke mortality) accounts for a large portion of the higher cardiovascular disease mortality in the Delta region.
- This is at least partly due to the high proportion of African-Americans in this region–ethnic disparities for heart disease are more pronounced than for stroke mortality (see Tables 2 and 3).

Map 3: Age-Adjusted Heart Disease Mortality Rates
Arkansas Counties 2001



Source: Arkansas Center for Health Statistics, Arkansas Department of Health

Map 4: Age-Adjusted Stroke Mortality Rates
Arkansas Counties 2001



Source: Arkansas Center for Health Statistics, Arkansas Department of Health

Table 3: Ethnic-Gender-specific age-adjusted mortality rates for diseases of the heart. Arkansas, 1990-92 and 2000-02.

	Deaths/100,000		Change/100,000 over decade *(Percent Change)*
	1990-92	2000-02	
Black men	**486.7**	**412.5**	**-74.2** *(-15%)*
White men	**397.8**	**339.8**	**-58** *(-15%)*
Male Ethnic Difference	***88.9 (18%)***	***72.2 (17%)***	
Black women	**312.9**	**303.2**	**-9.7** *(-3%)*
White women	**237.9**	**218.9**	**-19** *(-8%)*
Female Ethnic Difference	***75 (24%)***	***84.3 (28%)***	

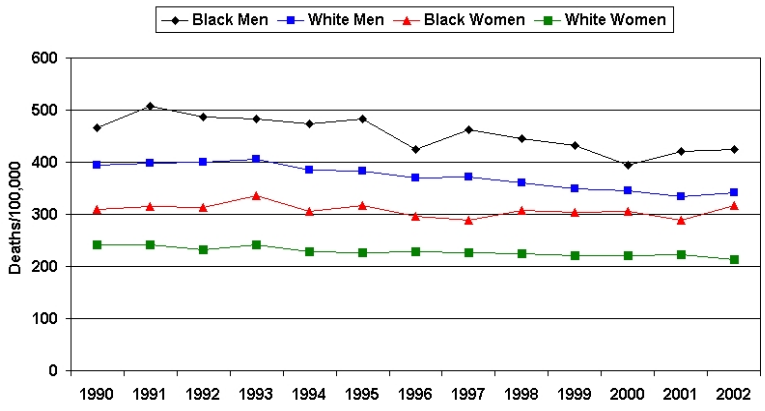
- Disparities by ethnicity and gender, both absolute and over time can also be shown for Arkansas.
- Differences in heart disease mortality at two time periods and over a decade for Arkansas are shown in Table 3 (and Figure 19).
- At each time period, black men and black women have higher mortality rates than their white counterparts, resulting in a difference of as many as 89 more deaths per year per 100,000 population among black men during the 1990-92 period.
- For all ethnic-gender groups, mortality rates have declined during the decade of the 90's (right column).
- These declines have been greater for men than for women, the lowest decline being among black women (only 3%).
- This has resulted in increasing disparity between black and white women over the decade, from a 24% difference in 1990-92 to 28% in 2000-02.

Table 4: Ethnic-Gender-specific age-adjusted mortality rates for stroke. Arkansas, 1990-92 and 2000-02.

	Deaths/100,000		Change/100,000 over decade *(Percent Change)*
	1990-92	2000-02	
Black men	**137.4**	**111.2**	**-26.2** *(-19%)*
White men	**83.8**	**69.9**	**-13.4** *(-16%)*
Male Ethnic Difference	***53.6*** *(39%)*	***41.3*** *(37%)*	
Black women	**115.3**	**96.1**	**-19.2** *(-17%)*
White women	**77.9**	**73.1**	**-4.8** *(-6%)*
Female Ethnic Difference	***37.4*** *(32%)*	***23*** *(24%)*	

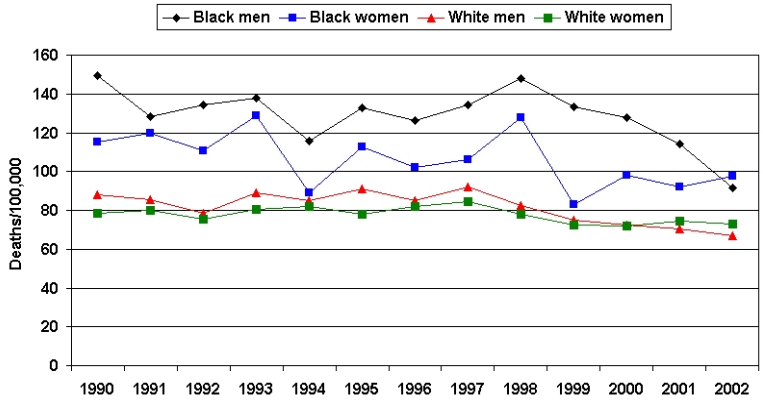
- Table 4 (and Figure 20) show gender and ethnic differences in stroke mortality at two time periods and over a decade for Arkansas.
- As with heart disease mortality (Table 3), at each time period, black men and black women have higher stroke mortality rates than their white counterparts.
- These ethnic disparities for stroke mortality are more pronounced than those for heart disease (Table 3).
- In the 1990-92 period, this resulted in 84 more deaths per year per 100,000 population among black men.
- For all ethnic-gender groups, stroke mortality rates have declined during the decade of the 90's (right column).
- These declines were almost equal (16-19%) among all groups, *except* for white women, who experienced a decline of only 6% during this same period.
- This has resulted in narrowing of the disparity between black and white women over the decade, from a 32% difference in 1990-92 to 24% in 2000-02.

Figure 19: Race and Gender-Specific Mortality for Diseases of the Heart
Arkansas, by age and ethnicity, 1990-2002

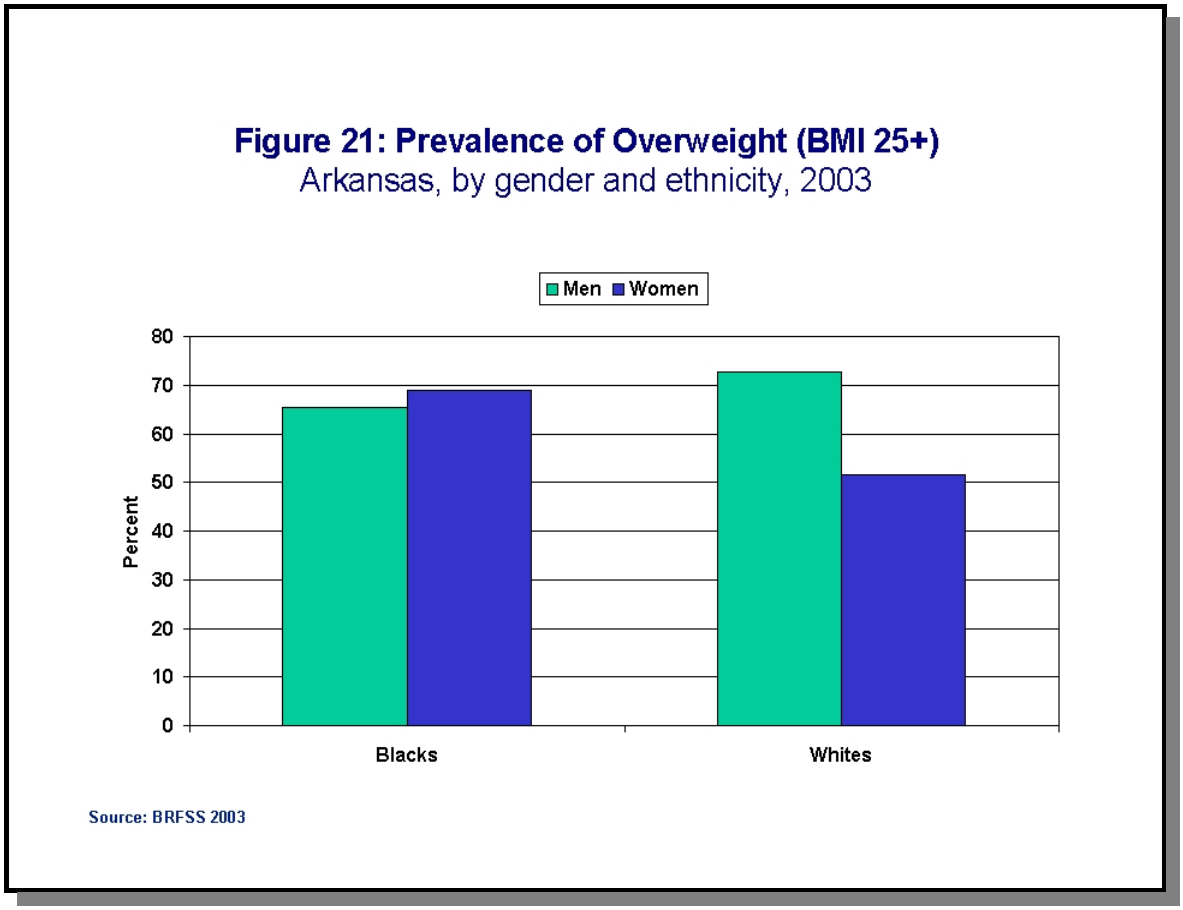


Source: Arkansas Center for Health Statistics, Arkansas Department of Health

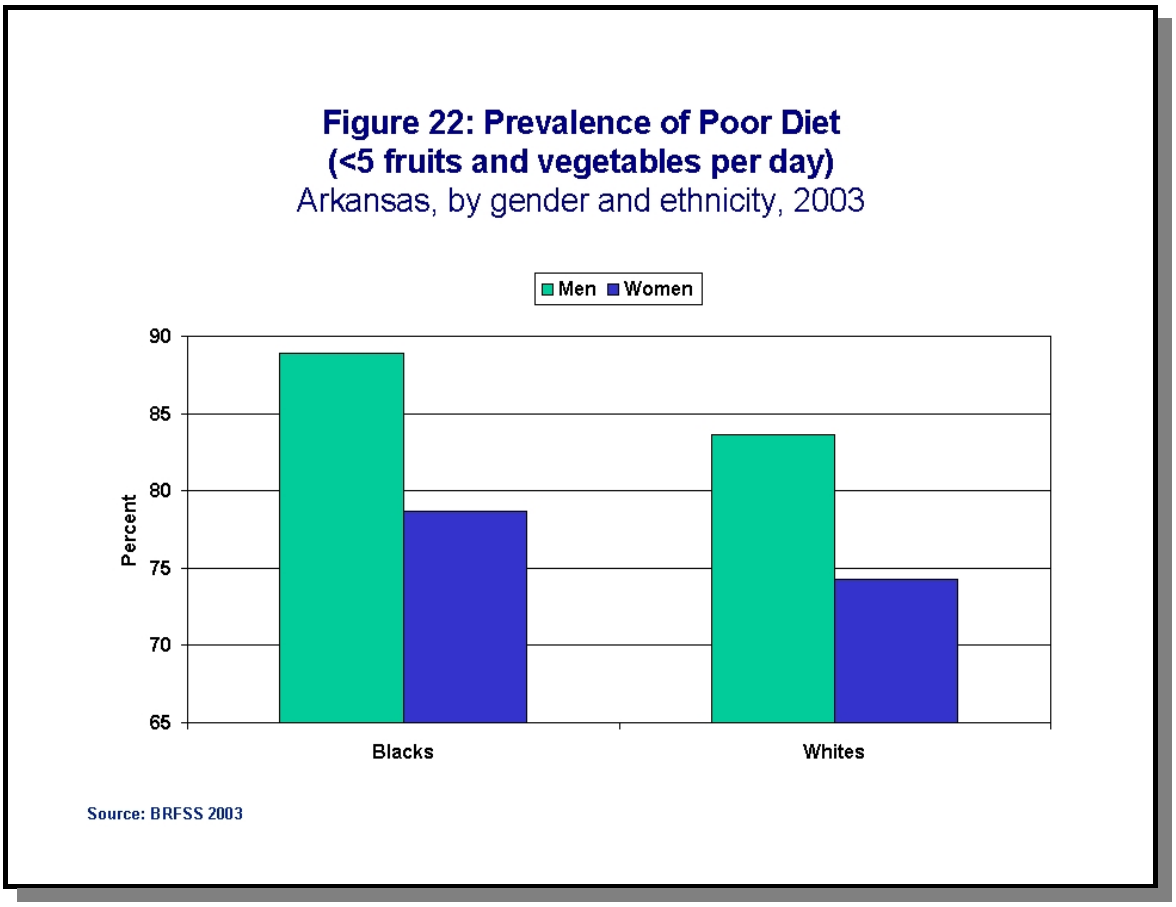
Figure 20: Race and Gender-Specific Mortality for Stroke
Arkansas, 1990-2002



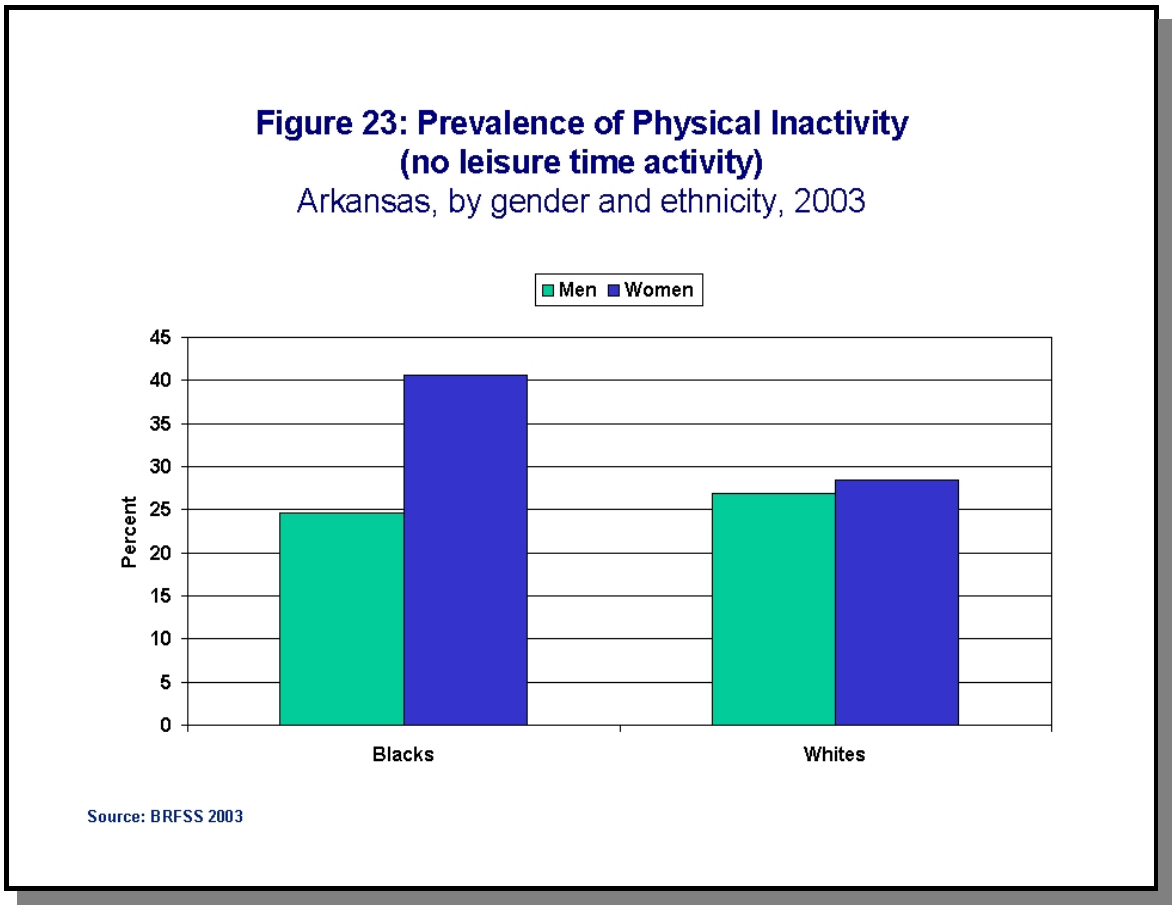
Source: Arkansas Center for Health Statistics, Arkansas Department of Health



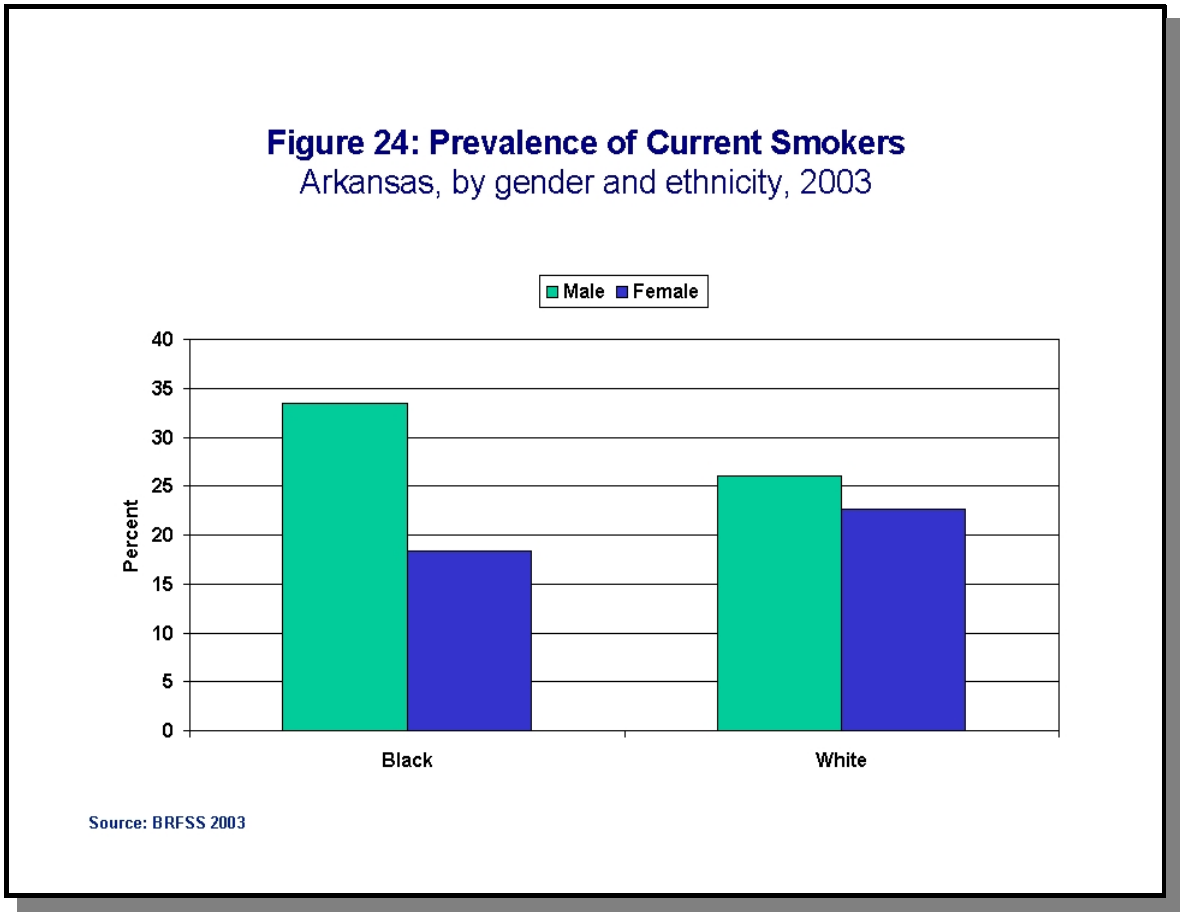
- Ethnic and gender differences are also notable with respect to *risk factors* for cardiovascular diseases.
- Among blacks, fairly equal proportions of men and women (66% and 69%, respectively) are overweight, with a Body Mass Index of 25 or more (Figure 21).
- Among whites however, a greater proportion of men (73%) than women (51%) are overweight.
- Black women are considerably more likely to be overweight than white women.



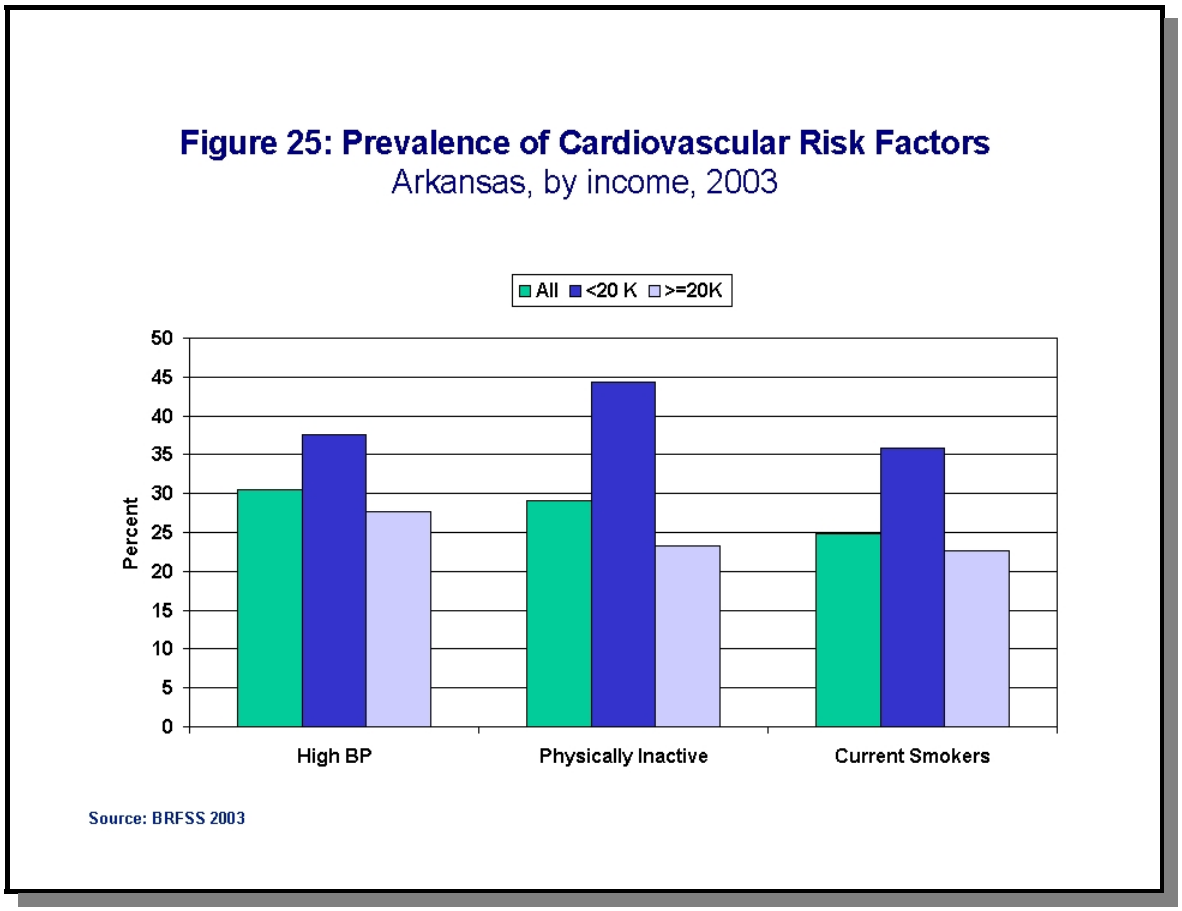
- Poor diet, in terms of consumption of less than 5 fruits and vegetables per day, is more common among men than women for both blacks and whites (Figure 22).
- Among both men and women, blacks have a higher prevalence of poor diet than whites.
- Among blacks, about 89% of men and 79% of women do not consume adequate amounts of fruits and vegetables.
- Among white males and females corresponding rates are about 84% and 74%, respectively.



- Physical activity is a very important aspect of lifestyle, with benefits for weight management, blood pressure and diabetes control, blood lipid profiles, as well as immune function and other chronic diseases.
- In Arkansas, physical inactivity is most prevalent among black women (Figure 23).
- About 40% of black women reported no leisure time physical activity in the month prior to interview.
- Among other ethnic and age groups, physical inactivity is prevalent at a rate of about 25-28%.



- As seen previously in Figure 7, overall about 25% of Arkansas adults are smokers.
- Disparities by ethnicity and gender are pronounced, with black males having the highest prevalence of smoking, at about 33% (Figure 24).
- Black females have the lowest rate at 18%.
- Among white males and females smoking prevalences are 26% and 23%, respectively.
- In view of the fact that smoking prevalence has not changed much over the past decade in Arkansas or the US (see Figure 8), and with the Healthy People 2010 goal of reducing this rate to 12%, much needs to be done in this respect.



- While factors such as gender, ethnicity and geographic region can be used to demonstrate health disparities, it is often economic factors, and thus access to health care that may explain a large proportion of these differences.
- Figure 25 shows disparities by income for selected risk factors for cardiovascular diseases.
- All three risk factors shown–high blood pressure, physical inactivity and smoking–are notably more prevalent among individuals from lower income (less than $20,000 per year) families.

Summary and Conclusions

Mortality rates from cardiovascular diseases (coronary heart disease and stroke) have declined in both the US and Arkansas over the past two decades. Despite these declines, both coronary heart disease and stoke mortality rates in Arkansas are currently higher than the US average. These relatively high mortality rates result in a significant loss of productive years of life.

Similarly, cardiovascular diseases have resulted in increasing numbers of hospitalizations over the past few years. The costs associated with hospitalization for each episode of coronary heart disease or stroke rose by an average of 12% per year between 1997 and 2003.

Behavioral risk factors for cardiovascular diseases are common in Arkansas. In some cases, such as obesity, inadequate fruit and vegetable consumption, the prevalences of these risk factors have increased steadily for a number of years. In addition, uncontrolled hypertension and high blood cholesterol remain significant problems.

Significant disparities exist among Arkansans with respect to the prevalence of cardiovascular diseases and their risk factors–generally, older, poorer, rural (particularly in the Delta region), and African-American residents have more risk factors, and are at greater risk of death from cardiovascular diseases in Arkansas.

Much remains to be done in stemming the tide of the epidemic of cardiovascular diseases. A number of issues need to be addressed. Lifestyle risk factors–smoking, physical inactivity, obesity, and nutrition–should be major targets of any program or campaign for the prevention of chronic diseases and their sequella.

Experience has shown that meaningful changes in these behaviors will only result from a multi-sectoral effort involving private and public entities to bring about the necessary changes in a sustainable manner. Even though healthy behaviors are personal issues, industry, government, school, worksite, family and faith-based support and involvement is needed to encourage and facilitate changes in individual activities aimed at cardiovascular health.

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