

THE BURDEN OF HEART DISEASE & STROKE

ARKANSAS | 2012



The Burden of Heart Disease & Stroke in Arkansas

December 2012

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Front cover photo features Richland Creek, Courtesy of Arkansas Department of Parks & Tourism.

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EXECUTIVE SUMMARY



Veterans Memorial at Lake Willastein

Coronary Heart Disease Mortality

- Heart disease is the largest single killer of Arkansans and Americans. In 2011, almost a fourth (23.1%) of all Arkansas deaths were due to heart disease.
- The largest contributor to heart disease is coronary heart disease (CHD), which killed 4,351 Arkansans in 2011. This equates to 14.9% of all deaths that year.
- The Arkansas age-adjusted CHD mortality rate decreased from 188.0 deaths per 100,000 in 1999 to 128.9 deaths per 100,000 in 2011, a statistically significant drop of 31.4%.
- In 2011, the age-adjusted CHD mortality rate for Arkansas black males (195.2 deaths per 100,000 population) was 16.9% greater than the rate for white males (166.9 deaths per 100,000), the group with the second highest mortality rate. The rate for black males was 84.8% higher than the rate for black females (105.6 per 100,000) and 107.0% higher than the rate for white females (94.3 per 100,000), the group with the lowest mortality rate.
- In 2011, 19.5% or approximately 49,000 years of potential life before age 75 were lost due to cardiovascular diseases (heart disease and stroke).

Stroke Mortality

- Arkansas ranked first in the nation for stroke mortality in 2010. Approximately 1,560 Arkansans died from the disease in 2011.
- In 2011, stroke was the 4th leading cause of death, behind heart disease, cancer, and chronic lower respiratory disease (emphysema and chronic bronchitis).
- Since 1999, the age-adjusted stroke mortality rate has been on the decline in general for both Arkansas and the nation; however, Arkansas still lags behind the national average.
- In general, black males have had higher age-adjusted stroke mortality rates compared to black females, white females, and white males; however, the gap has narrowed considerably during recent years.

Hospitalizations & Cost

- Like mortality, the hospitalization rates for CHD and stroke have declined over time.
- In 2011, the total hospital charges for CHD (primary diagnosis) in Arkansas were \$916 million. The hospital charges for stroke totaled \$253 million.
- Between 2000 and 2011, the average hospitalization charge for CHD increased 84.4%, and the average charge for stroke increased 47.6%.
- In 2011, more than half of all CHD and stroke hospitalizations were among persons ages 65 and older.
- Almost two-thirds (65.3%) of CHD hospitalizations and 72.7% of stroke hospitalizations were covered by government funds (i.e. Medicaid or Medicare) as the first source of payment.

Emergency Response

- In 2011, more than 90% of Arkansas adults ages 18 and older recognized chest pain or discomfort, pain or discomfort in the arm or shoulder, and shortness of breath as a sign or symptom of having a heart attack. Sixty-six percent correctly identified pain or discomfort in the jaw, neck, or back as a heart attack symptom. Seventy-one percent correctly identified feeling weak, lightheaded or faint as a heart attack symptom.
- For stroke, more than 95% of Arkansas adults recognized sudden confusion or trouble speaking and sudden numbness or weakness of the face, arm, or leg as a sign or symptom of having a stroke.
- Approximately 85% of Arkansans said that they would call 9-1-1 as a first response if they thought someone was having a heart attack or stroke.
- More than half of heart attack (53.8%) and stroke (50.3%) decedents died before admission to the hospital, highlighting the need for access to quality emergency medical services around the state and education of common heart attack and stroke signs and symptoms.

Modifiable Risk Factors

- Self-reported data among Arkansas adults indicate that the prevalence of five of the seven major modifiable risk factors for heart disease and stroke have increased over the last five to ten years in the state: high blood pressure, high blood cholesterol, diabetes, overweight and obesity, and inadequate consumption of fruits and vegetables. The prevalence for smoking and physical inactivity decreased during the last decade, but neither decline was statistically significant.
- For all major risk factors, the Arkansas self-reported prevalence was greater than that for the U.S.
- Racial disparities exist for a number of modifiable risk factors. Black Arkansas adults reported higher prevalence than whites for several risk factors (high blood pressure, diabetes, and overweight and obesity).
- For the most part, males reported having higher prevalence than females for all risk factors, except for high blood pressure and physical inactivity.



INTRODUCTION

Cardiovascular diseases (CVD) are major causes of death and disability in Arkansas and in the nation and are defined as diseases of the heart and blood vessels.¹ The most common forms of cardiovascular disease include heart disease and stroke, the first and fourth leading causes of death in the nation and in Arkansas.

Heart disease encompasses several diseases, including coronary heart disease, rheumatic heart disease, hypertensive heart disease, heart failure, and other diseases of the heart. Coronary heart disease, also known as ischemic heart disease or coronary artery disease, is the main contributor to heart disease deaths. The disease is caused by a narrowing or hardening of the coronary arteries (atherosclerosis) which can lead to reduced blood flow to the heart. Complications are heart attack, heart failure, and arrhythmias.

Stroke – sometimes called cerebrovascular disease or brain attack – occurs when a blood clot or other particle blocks a cerebral artery (ischemic stroke) or a blood vessel in the brain ruptures (hemorrhagic stroke). A stroke can lead to death or loss of muscle or mental function, vision, sensation or speech. A transient ischemic attack (TIA), or “mini-stroke”, is a temporary stroke-like event caused by a temporarily blocked artery leading to or within the brain. TIAs can be an important indicator for a future stroke.

Heart disease and stroke have several modifiable risk factors including high blood pressure, elevated blood cholesterol, cigarette smoking, inadequate consumption of fruits and vegetables, overweight and obesity, diabetes, and physical inactivity. Risk factors that cannot be controlled are age, gender, race, and family or personal history.

The purpose of this report is to document Arkansas’ cardiovascular disease burden in terms of morbidity, mortality, cost, and disparities. This information highlights opportunities to direct public health efforts and use of valuable resources from national, state, and local health agencies, the community, and other stakeholders.

For additional copies of this report or more information, contact:

Heart Disease and Stroke Prevention Program

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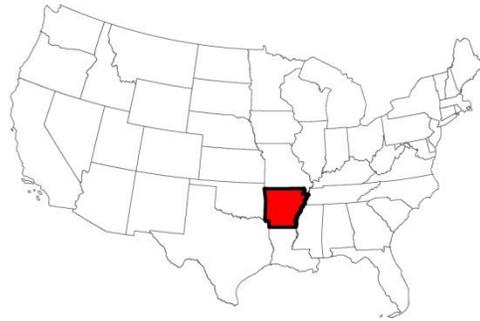
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DEMOGRAPHICS

In 2011, Arkansas had a population of 2,937,979 people, according to the latest U.S. Census Bureau figures² (Appendix A). Similar to the rest of the nation, women make up approximately half (50.9%) of the Arkansas population and whites comprise the majority (80.1%) of the population.³ Arkansas has a larger proportion of blacks (15.6%) compared to the United States (13.1%). Another point of comparison is the growing Hispanic or Latino population. Hispanics or Latinos comprise 6.6% of the population. Although this percentage is small compared to the average national percentage (16.7%), this segment of the population increased 122.5% from 2000 (87,683)⁴ to 2011 (195,075),² after having increased 337% during the previous 10-year period.⁵ Approximately a quarter (24.2%) of the state's population is under the age of 18, which is in line with the rest of the country (23.7%). Persons aged 65 and older constitute 14.6% of the state's population (U.S.: 13.3%).

According to the 2010 American Community Survey, more than eighty percent (82.9%) of the Arkansas population 25 years and older graduated from high school and 19.5% possess a bachelor's degree or higher, both of which are lower than the national average (85.6% and 28.2%, respectively). Socioeconomically, Arkansas also falls below the national rate. Arkansas median household income is \$38,307 while the nation's median household income is \$50,046. Almost one-fifth (18.8%) of Arkansans live below the poverty level, a value that is greater than the national average (15.3%).

Arkansas had a population density of 56 persons per square mile in 2010.² Using the county-based metropolitan/non-metropolitan definitions, 63 of the 75 counties are classified as non-metropolitan (rural) in the 2000 census.⁶ In 2009, this translated to approximately half (51%) of the state's population residing in non-metropolitan counties compared to 20% of the nation overall living in non-metropolitan counties.



*Photos courtesy of the Arkansas Department of Parks & Tourism (left to right):
Pine Bluff Farmers Market, Cossatot River, Eudora*

CORONARY HEART DISEASE MORTALITY





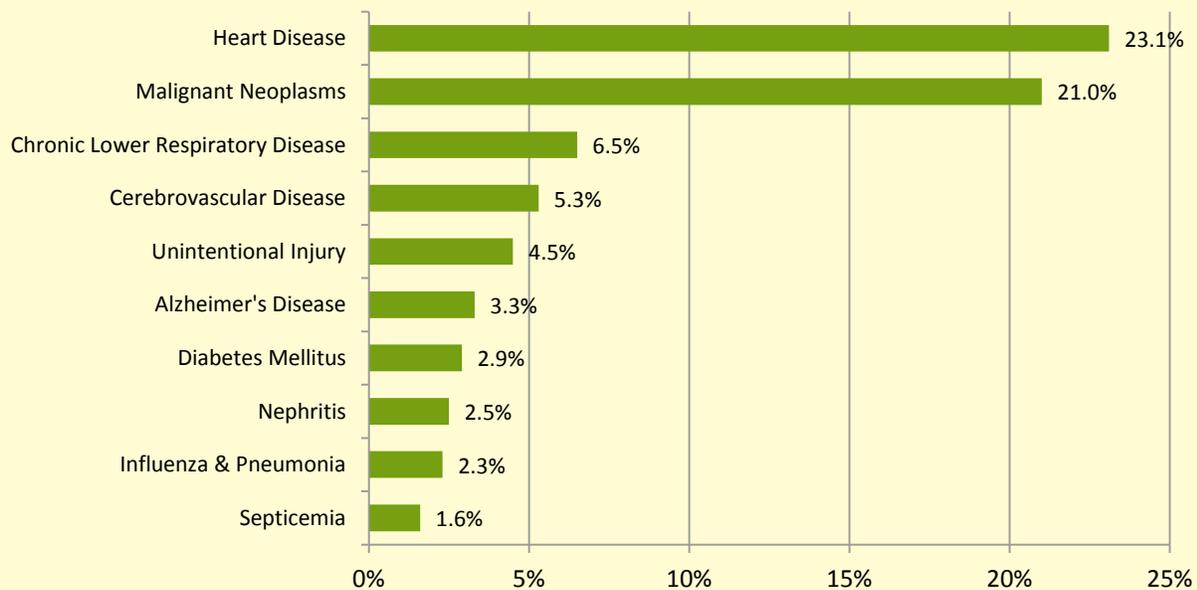
CORONARY HEART DISEASE MORTALITY

ARKANSAS RANKS #5 IN THE NATION

Heart disease is the leading cause of death and disability for Americans. The term heart disease describes several diseases, including coronary heart disease, rheumatic heart disease, hypertensive heart disease, heart failure, and other diseases of the heart.

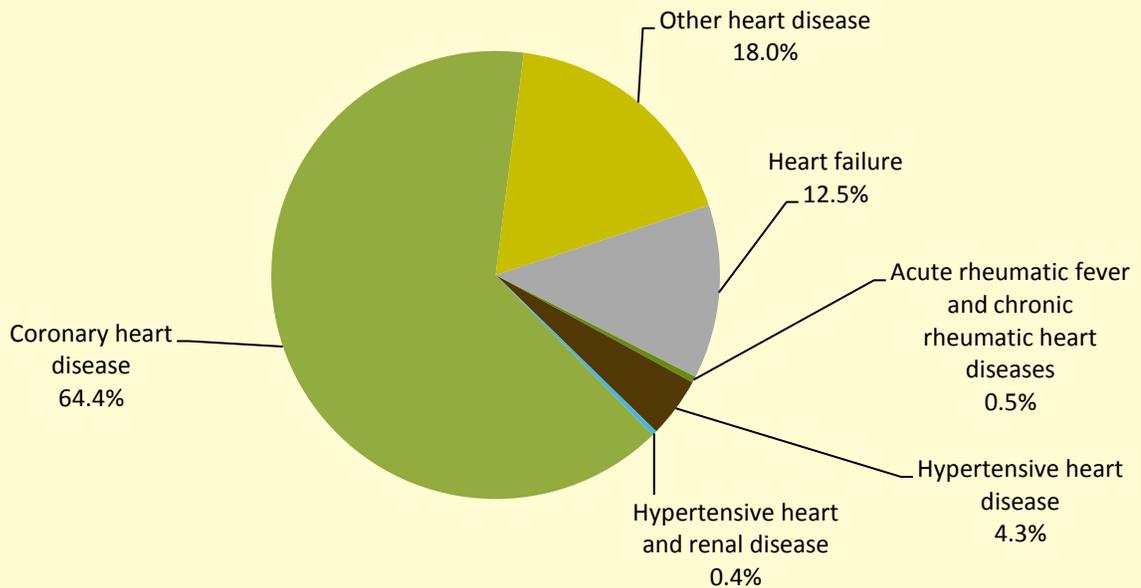
- In 2011, heart disease and stroke accounted for more than one out of every four deaths (28.4%), or 8,318 deaths, in Arkansas.⁷
- Heart disease is the largest single killer of Arkansas males and females. Almost a fourth of all Arkansas deaths (23.1%) were due to heart disease alone in 2011.

Figure 1. Leading Causes of Death, Arkansas, 2011



Source: Arkansas Health Statistics Branch

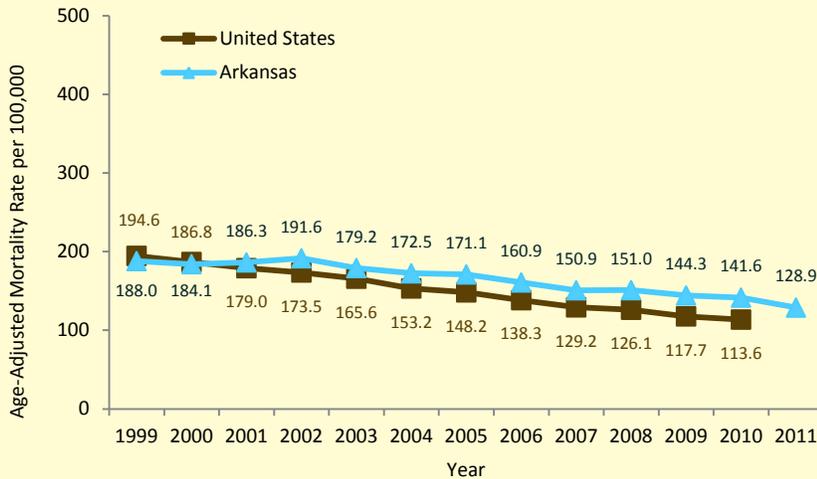
Figure 2. Distribution of Heart Disease Deaths, Arkansas, 2011



Source: Arkansas Health Statistics Branch

- The largest contributor to heart disease is coronary heart disease (CHD), otherwise known as ischemic heart disease (IHD) or coronary artery disease (CAD).
- Sixty-four percent (64.4%) of all heart disease deaths were due to coronary heart disease in 2011. This equates to 4,351 deaths (14.9%) out of 29,229 deaths that year.
 - One type of CHD is acute myocardial infarction or heart attack. In 2011, 2,432 Arkansans died of a heart attack.
- After coronary heart disease, heart failure was the second leading cause of heart disease deaths in the state, killing 847 Arkansans in 2011.

**Figure 3. Coronary Heart Disease Mortality Rates
Arkansas and United States, 1999-2011**



Note: U.S. 2011 data are not currently available.
Sources: Arkansas Health Statistics Branch and CDC WONDER

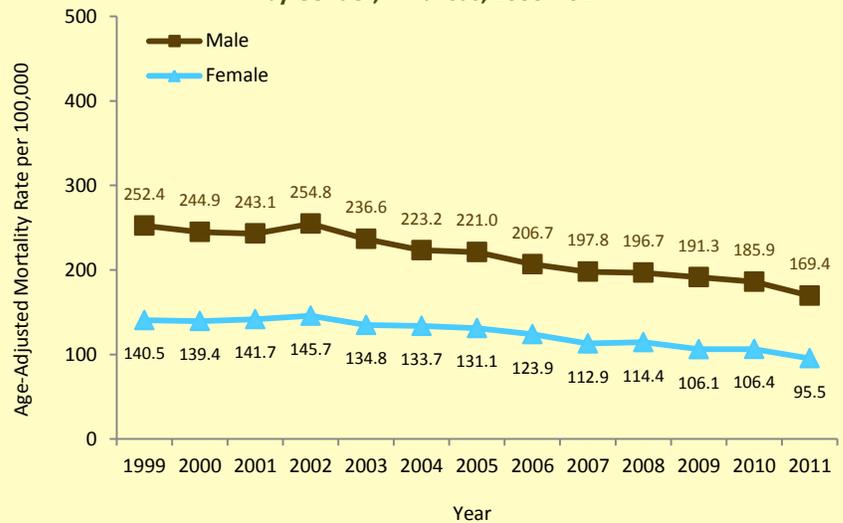
Trends over Time

- The Arkansas age-adjusted CHD mortality rate decreased from 188.0 deaths per 100,000 in 1999 to 128.9 deaths per 100,000 in 2011, a statistically significant drop of 31.4%.
- The age-adjusted CHD mortality rate for Arkansas has exceeded the national rate since 2001. In 2010, Arkansas' rate was 24.6% greater than the U.S. rate.

Men and Women

- Between 1999 and 2011, the age-adjusted CHD mortality rates for Arkansas males were consistently higher than that for their female counterparts. In 2011, the death rate for males was 77.5% greater than the death rate for females. This difference was statistically significant.
- CHD mortality rates for males and females decreased by almost one-third since 1999 (males: 32.9%, females: 32.0%). Both differences were statistically significant.

**Figure 4. Coronary Heart Disease Mortality Rates
by Gender, Arkansas, 1999-2011**

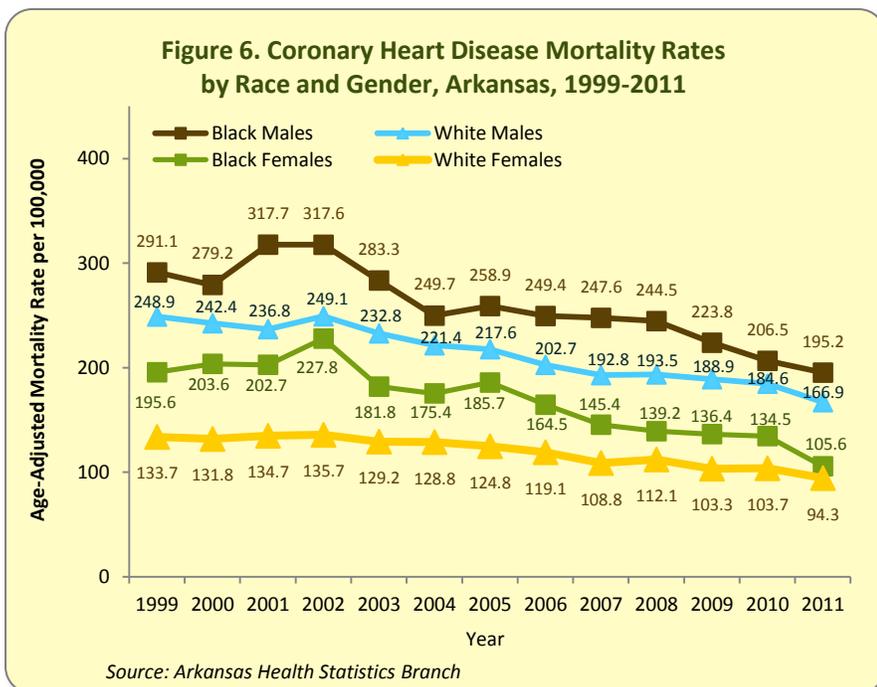
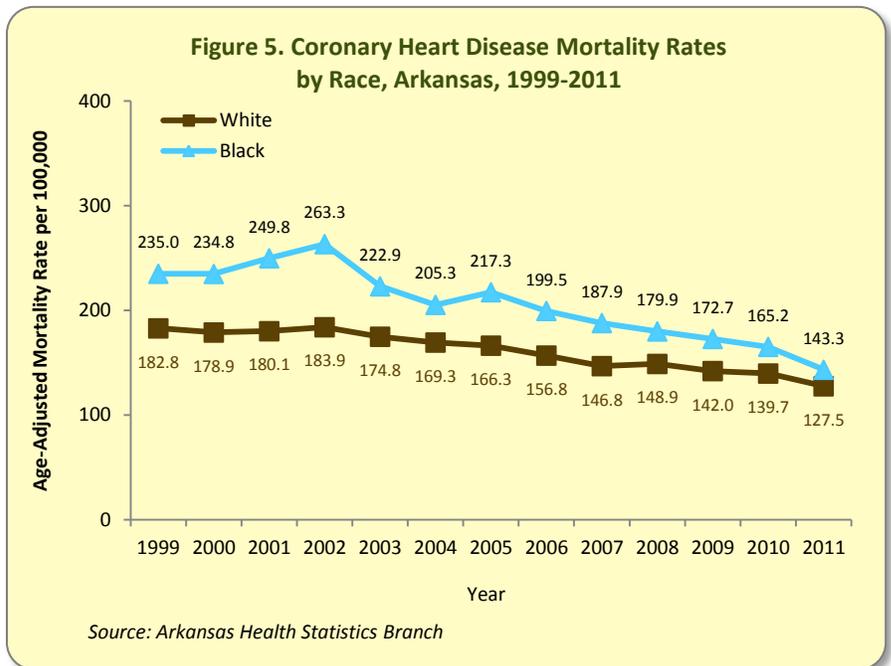


Source: Arkansas Health Statistics Branch

Racial Groups

➤ For every year between 1999 and 2011, black Arkansans had a higher age-adjusted CHD mortality rate compared to white Arkansans. In 2011, the mortality rate for blacks was 143.3 deaths per 100,000 compared to 127.5 deaths per 100,000 for whites. This difference was not statistically significant.

➤ Overall, CHD mortality rates decreased among both blacks and whites during this time period. The difference in mortality rates between 1999 and 2011 was statistically significant for both blacks and whites. However, the decline was larger among blacks (39.0%) compared to whites (30.3%). The disparity between whites and blacks also decreased over time.

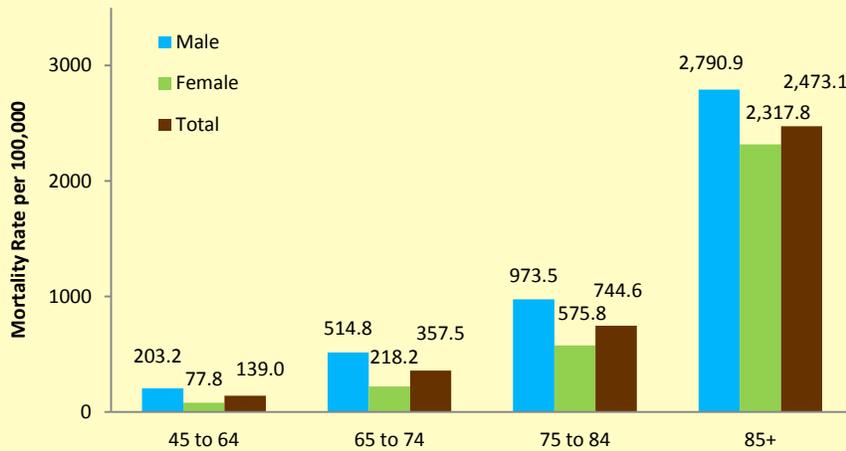


Race and Gender

➤ When examining race and gender differences, black males persistently had the highest CHD mortality rates between 1999 and 2011.

➤ In 2011, the CHD mortality rate for Arkansas black males (195.2 deaths per 100,000) was 16.9% greater than that for white males (166.9 deaths per 100,000), the group with the second highest mortality rate. The rate for black males was 84.8% higher than the rate for black females (105.6 per 100,000) and 107.0% higher than the rate for white females (94.3 per 100,000), the group with the lowest mortality rate.

Figure 7. Coronary Heart Disease Mortality Rates by Age and Gender, Arkansas, 2011



Source: Arkansas Health Statistics Branch

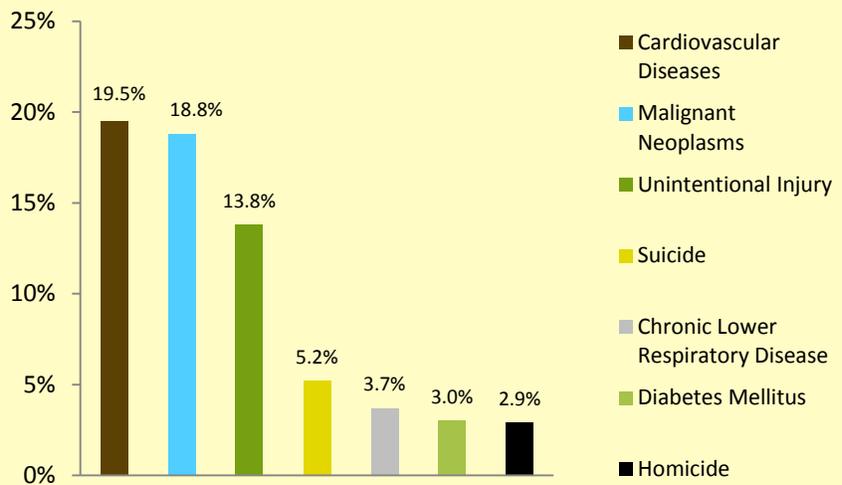
Age

- As age increases, the risk of dying from CHD increases dramatically. Almost three-fourths (73.1%) of people who die of CHD are above the age of 64.
- Men have a higher CHD mortality rate compared to women across all age categories.

Years of Potential Life Lost (YPLL)

- YPLL represent the total number of years of potential life lost before reaching life expectancy.
- In 2011, 19.5% of the total years of potential life lost before age 75 were due to cardiovascular diseases (heart disease and stroke). This equals to 48,763 years of potential life lost.

Figure 8. Percent of Total Years of Potential Life Lost (YPLL) before Age 75 among Select Diseases, Arkansas, 2011



Source: Arkansas Health Statistics Branch

Table 1. Coronary Heart Disease Mortality by Demographic Characteristics, Arkansas, 2011.

	Number of Deaths	Total Population	Crude Death Rate*	95% CI**	Age-Adjusted Death Rate*	95% CI**
Total	4,351	2,937,979	148.1	(143.7 - 152.6)	128.9	(125.0 - 132.8)
Gender						
Male	2,455	1,442,779	170.2	(163.5 - 177.0)	169.4	(162.6 - 176.4)
Female	1,896	1,495,200	126.8	(121.2 - 132.7)	95.5	(91.1 - 99.9)
Age Group						
< 25	***	1,038,123	***	***	N/A	N/A
25 - 34	19	398,311	5.0****	3.0 - 7.8****	N/A	N/A
35 - 44	78	477,754	21.4	16.9 - 26.8	N/A	N/A
45 - 54	380	396,139	94.2	84.9 - 104.1	N/A	N/A
55 - 64	686	256,330	188.7	174.8 - 203.3	N/A	N/A
65 - 74	859	194,015	357.5	334.0 - 382.3	N/A	N/A
75 - 84	1,011	131,745	744.6	699.4 - 791.9	N/A	N/A
85+	1,312	45,562	2473.1	2341.1 - 2610.6	N/A	N/A
Race						
White	3,798	2,386,839	159.1	(154.1 - 164.3)	127.5	(123.4 - 131.6)
Black	518	471,035	110.0	(100.7 - 119.9)	143.3	(130.9 - 156.6)
Asian or PI	21	49,347	42.6	(26.3 - 65.1)	91.7	(52.6 - 144.8)
AI or AN	14	30,758	45.5****	(24.9 - 76.4)****	90.9****	(46.8 - 158.7)****
Ethnicity						
Hispanic	20	195,075	10.3	(6.3 - 15.8)	38.1	(20.9 - 63.4)
Non-Hispanic	4,331	2,742,904	157.9	(153.2 - 162.7)	130.5	(126.6 - 134.5)

* Rate per 100,000 population. Age-adjusted rates are adjusted to the 2000 U.S. standard population.

** 95% Confidence Interval

*** Data are suppressed due to confidentiality constraints.

**** Rates are marked as "unreliable" when the death count is less than 20.

N/A = Not applicable

PI = Pacific Islander

AI or AN = American Indian or Alaska Native

Source: Arkansas Health Statistics Branch



Table 2. Number of CHD Deaths and Age-Adjusted Mortality Rates by State Rank, 2010

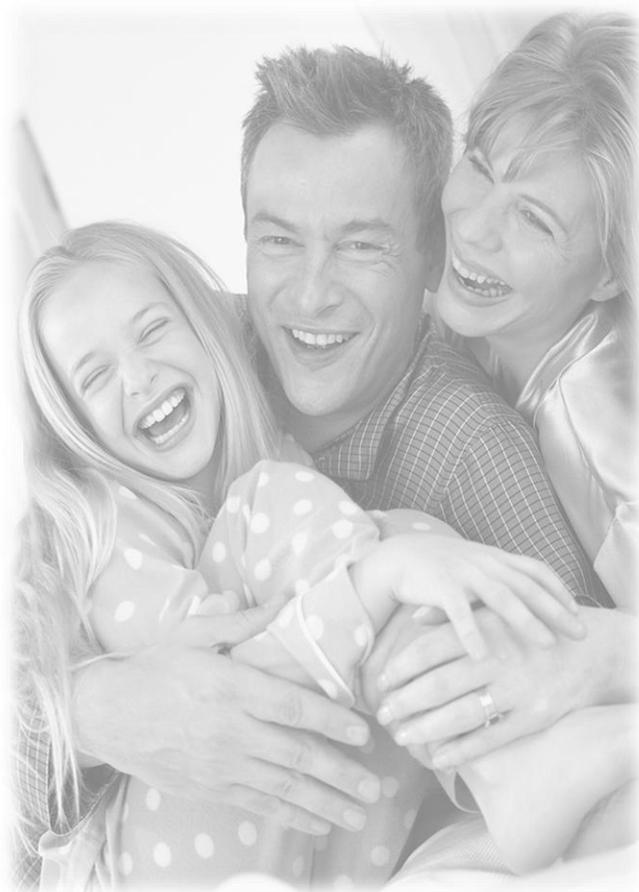
Rank	Area	# Deaths	Rate
1	District of Columbia	913	155.6
2	Tennessee	10,330	153.3
3	Oklahoma	6,147	152.6
4	New York	33,281	147.8
5	Arkansas	4,725	143.9
6	Michigan	15,502	135.6
7	Missouri	9,254	134.6
8	West Virginia	3,125	134.3
9	Iowa	5,013	126.5
10	Louisiana	5,654	124.4
11	Kentucky	5,739	124.1
12	Ohio	16,766	123.2
13	Rhode Island	1,696	122.3
14	Mississippi	3,688	121.6
15	Maryland	7,240	121.2
16	New Jersey	12,184	118.5
17	South Dakota	1,206	116.5
18	Indiana	8,115	116.1
19	Pennsylvania	19,543	116.0
20	Texas	23,868	112.5
21	Delaware	1,139	112.0
22	Florida	28,734	111.2
23	Illinois	15,263	111.1
24	California	39,663	109.8
25	South Carolina	5,346	108.0
26	Alabama	5,557	107.5
27	North Carolina	10,552	107.1
28	North Dakota	924	106.1
29	Arizona	7,189	105.5
30	New Mexico	2,232	104.0
31	Vermont	789	103.4
32	Wisconsin	6,763	101.2
33	Nevada	2,463	100.6
34	Washington	7,013	100.3
35	Wyoming	558	97.7
36	Virginia	7,759	97.0
37	Kansas	3,162	96.9
38	New Hampshire	1,439	95.7
39	Idaho	1,491	95.2
40	Maine	1,600	91.8
41	Massachusetts	7,310	91.5
42	Georgia	7,507	89.7
43	Connecticut	4,076	89.1
44	Montana	1,039	86.7
45	Nebraska	1,848	85.3
46	Alaska	386	81.8
47	Colorado	3,587	78.8
48	Oregon	3,521	78.7
49	Utah	1,442	71.4
50	Hawaii	1,172	71.1
51	Minnesota	4,046	67.8
N/A	United States	379,559	113.6

Arkansas Ranking

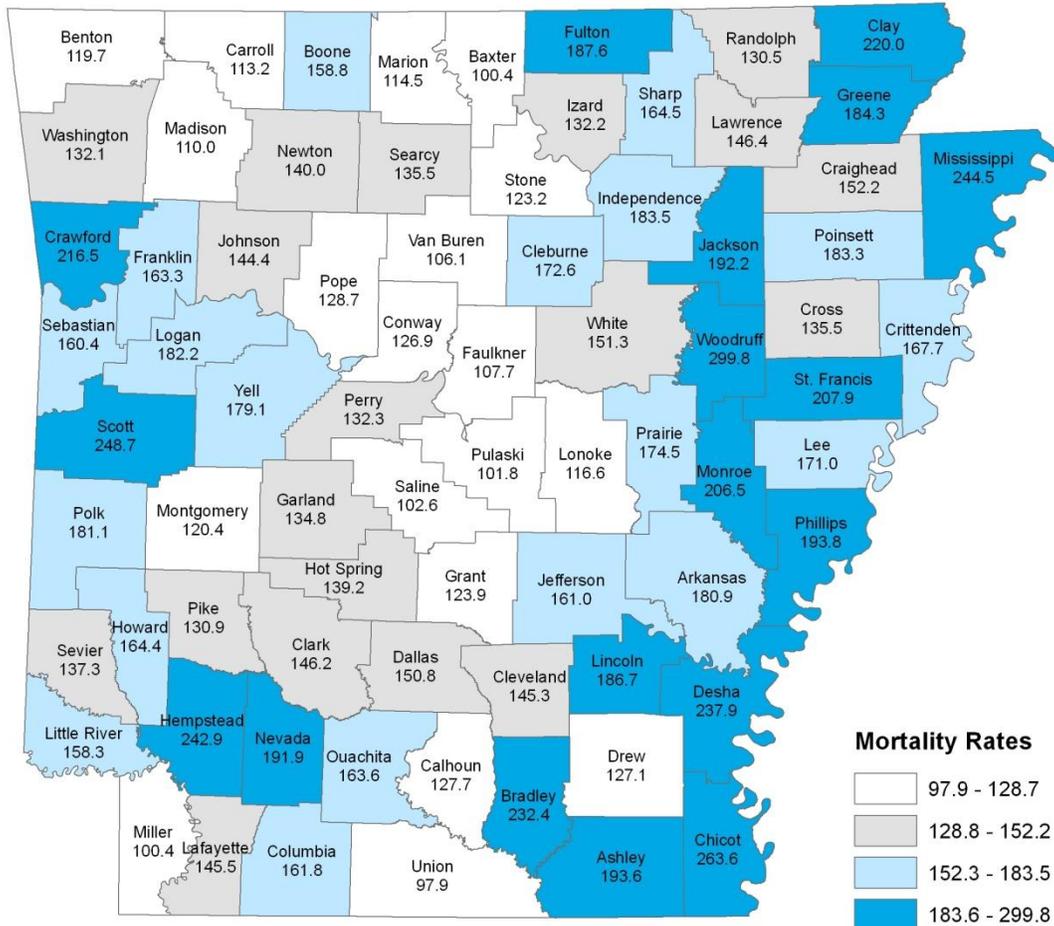
➤ In 2010, the latest year for which national data are available, Arkansas ranked 5th in the nation for deaths due to coronary heart disease.

➤ Coronary heart disease claimed a total of 379,559 American lives, of which 4,725 were among Arkansans.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. CDC WONDER On-line Database.



Map 1. Coronary Heart Disease Mortality Rates by County Arkansas, 2007-2011



* State rate is 143.2 deaths per 100,000.

Note: Rates are age-adjusted to the 2000 U.S. standard population.
Classification method: Quantile
Data source: Arkansas Health Statistics Branch

STROKE MORTALITY



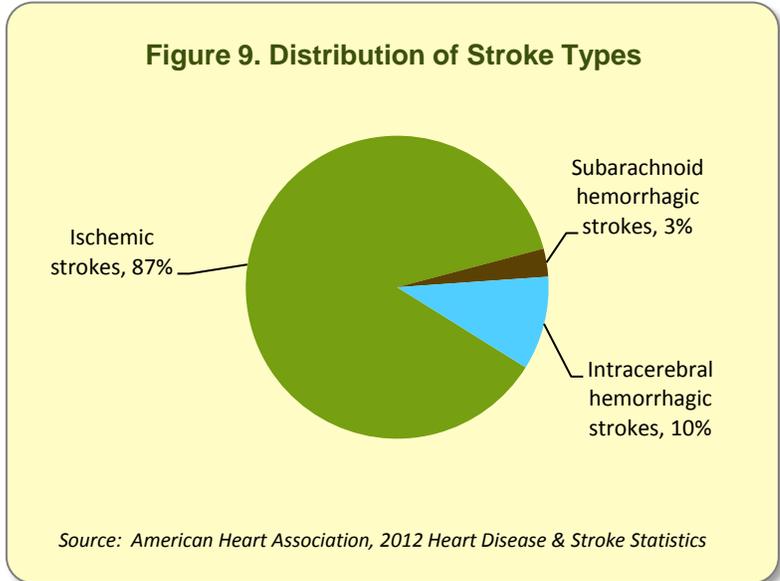


STROKE MORTALITY

ARKANSAS RANKS #1 IN THE NATION

In 2010, the latest year for which mortality data are available on a national level, Arkansas ranked first in the nation for stroke mortality, followed by Alabama and Mississippi (Table 4). In both Arkansas and in the nation, stroke was the 4th leading cause of death, behind heart disease, cancer, and chronic lower respiratory disease. Also known as cerebrovascular disease or a brain attack, stroke can cause death or severe disability, such as paralysis, speech difficulties, and emotional problems. On average, someone in the United States has a stroke every 40 seconds and someone dies of a stroke every four minutes.⁸ Arkansas is one of eight states forming the “stroke belt”, a southeastern portion of the United States recognized for its high stroke rates.

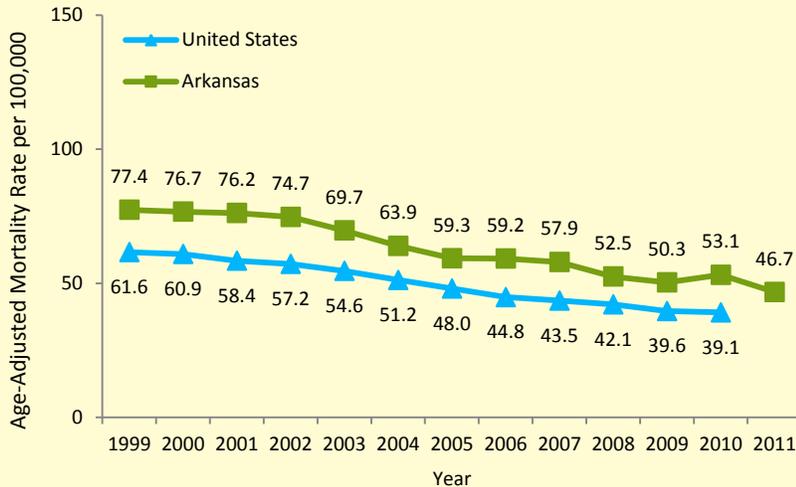
There are two main stroke categories: ischemic strokes and hemorrhagic strokes. Ischemic stroke occurs when the blood vessel supplying oxygen and nutrients to the brain is obstructed by a blood clot or other blockage. The clot may form in the artery due to atherosclerosis (cerebral thrombosis) or it may form away from the brain, travel through the bloodstream and lodge in an artery leading to or in the brain (cerebral embolism). Ischemic strokes account for 87% of all stroke cases.⁸ Hemorrhagic strokes are caused by rupturing of a weakened blood vessel in or around the brain (subarachnoid hemorrhage stroke and intracerebral hemorrhage stroke) and account for 13% of stroke cases. This kind of stroke has a much higher fatality rate than strokes caused by clots.



Approximately 795,000 Americans experience a stroke each year. Of these, 610,000 are first attacks and 185,000 are recurrent attacks.

A transient ischemic attack (TIA) produces stroke-like symptoms but no lasting damage. About 15% of all strokes are preceded by a TIA. The short-term risk of having a stroke after a TIA is substantial and can be as high as 10% at 2 days and as high as 17% at 90 days.⁸

**Figure 10. Stroke Mortality Rates
Arkansas and United States, 1999-2011**



Note: 2011 U.S. data are not currently available.

Sources: Arkansas Health Statistics Branch and CDC WONDER

Trends over Time

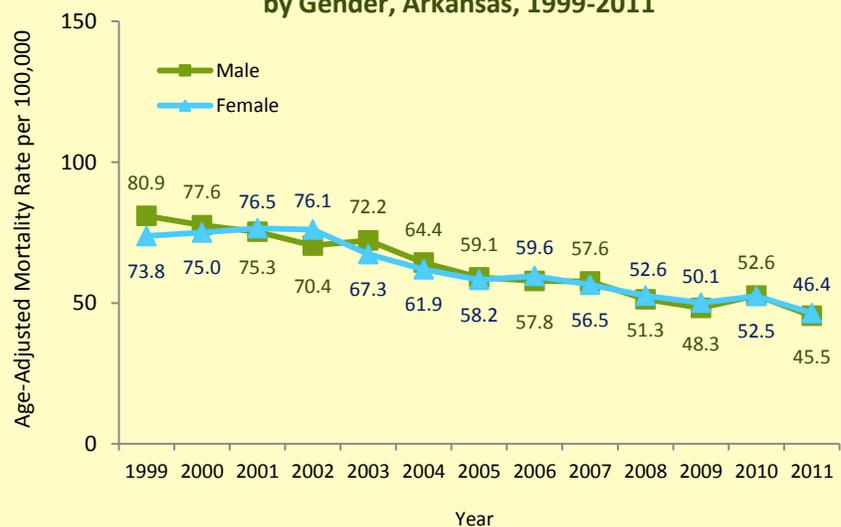
➤ Since 1999, the age-adjusted stroke mortality rate has been on the decline for both Arkansas and the country. Arkansas rates have consistently been higher than the national rates.

➤ Arkansas did not meet the Healthy People 2010 objective of reducing stroke deaths to 48 deaths per 100,000 population by 2010; however, the Arkansas stroke mortality rate dropped to 46.7 deaths per 100,000 in 2011.

Men and Women

➤ For both Arkansas men and women, the age-adjusted mortality rate for stroke decreased over time. In 2011, the mortality rate for men was 45.5 deaths per 100,000 while the mortality rate for women was 46.4 deaths per 100,000.

**Figure 11. Stroke Mortality Rates
by Gender, Arkansas, 1999-2011**

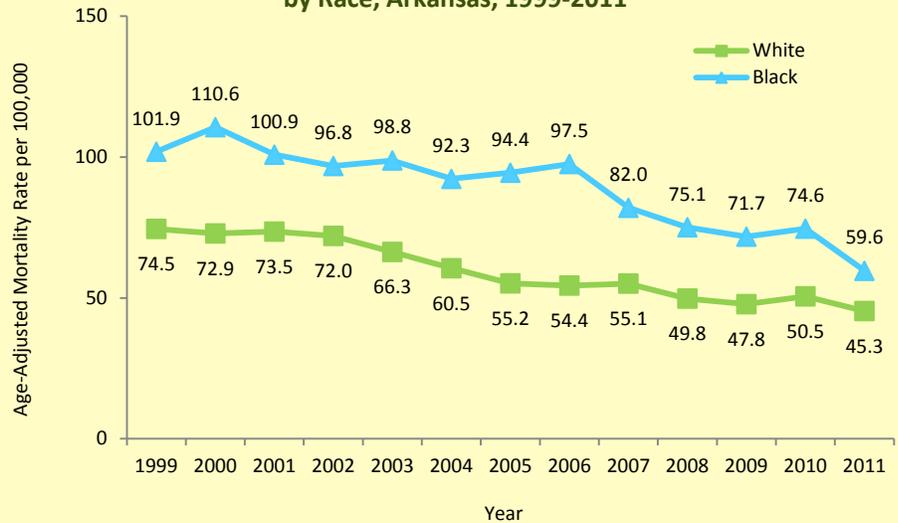


Source: Arkansas Health Statistics Branch

Racial Groups

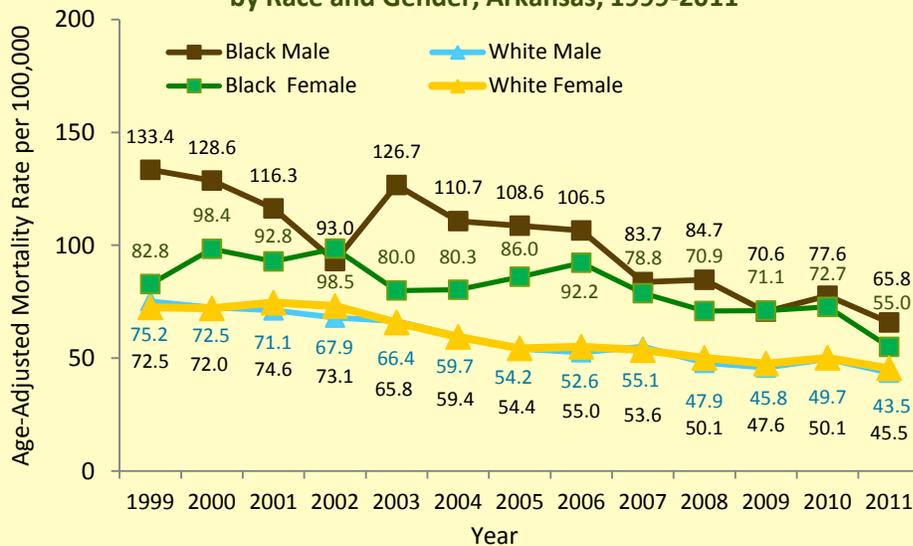
- Overall, the age-adjusted stroke mortality rates fell 39.2% for white Arkansans and 41.5% for black Arkansans between 1999 and 2011.
- Similar to coronary heart disease, the age-adjusted stroke mortality rates for black Arkansans were consistently higher than that for white Arkansans. In 2011, the mortality rate for blacks was 31.6% higher than the mortality rate for whites, a statistically significant difference.

Figure 12. Stroke Mortality Rates by Race, Arkansas, 1999-2011



Source: Arkansas Health Statistics Branch

Figure 13. Stroke Mortality Rates by Race and Gender, Arkansas, 1999-2011

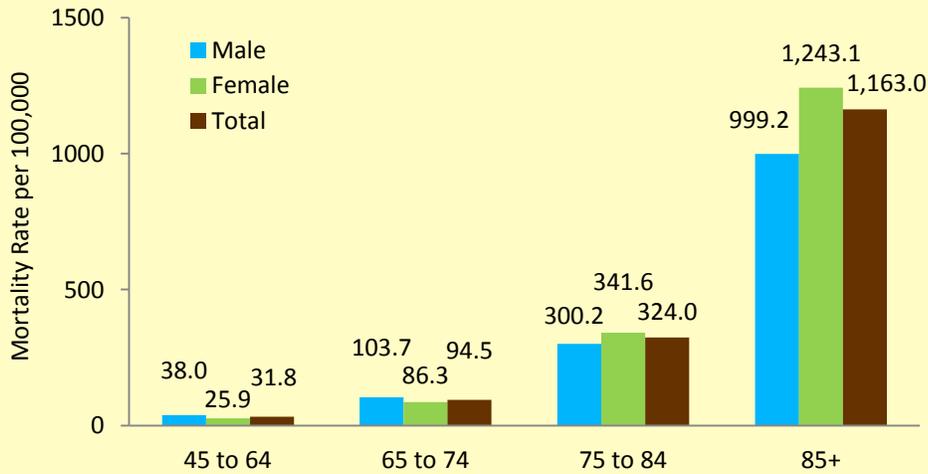


Source: Arkansas Health Statistics Branch

Race and Gender

- In general, black males have had higher age-adjusted stroke mortality rates compared to black females, white females, and white males; however, the gap has narrowed considerably during recent years.
- The difference in stroke mortality rates from 1999 to 2011 was significant for all race-gender groups.

Figure 14. Stroke Mortality Rates by Age and Gender, Arkansas, 2011



Source: Arkansas Health Statistics Branch

Age

- A person's risk of dying from stroke increases as age increases, particularly after the age of 64. More than three-fourths (82.5%) of all stroke deaths in 2011 occurred among persons age 65 and older.
- Between the ages of 45 and 74, males have a higher risk of stroke mortality. However, after the age of 74, females have a higher risk of dying from a stroke.

Table 3. Stroke Mortality by Demographic Characteristics, Arkansas, 2011.

	Number of Deaths	Total Population	Crude Death Rate*	95% CI**	Age-Adjusted Death Rate*	95% CI**
Total	1,557	2,937,979	53.0	(50.4 – 55.7)	46.7	(44.4 – 49.0)
Gender						
Male	627	1,442,779	43.5	(40.1 – 47.0)	45.5	(41.9 – 49.2)
Female	930	1,495,200	62.2	(58.3 – 66.3)	46.4	(43.4 – 49.5)
Age Group						
< 25	***	1,038,123	***	***	N/A	N/A
25 - 34	***	398,311	***	***	N/A	N/A
35 - 44	17	477,754	4.7****	(2.7 – 7.5)****	N/A	N/A
45 - 54	86	396,139	21.3	(17.1 – 26.3)	N/A	N/A
55 - 64	158	256,330	43.5	(36.9 – 50.8)	N/A	N/A
65 - 74	227	194,015	94.5	(82.6 – 107.6)	N/A	N/A
75 - 84	440	131,745	324.0	(294.5 – 355.8)	N/A	N/A
85+	617	45,562	1163.0	(1073.1 – 1258.5)	N/A	N/A
Race						
White	1,342	2,386,839	56.2	(53.3 – 59.3)	45.3	(42.9 – 47.8)
Black	205	471,035	43.5	(37.8 – 49.9)	59.6	(51.5 – 68.6)
Asian or PI	***	49,347	***	***	***	***
AI or AN	***	30,758	***	***	***	***
Ethnicity						
Hispanic	17	195,075	8.7****	(5.1 – 14.0)****	31.0****	(15.8 – 54.0)****
Non-Hispanic	1,540	2,742,904	56.1	(53.4 – 59.0)	46.8	(44.5 – 49.2)

* Rate per 100,000 population. Age-adjusted rates are adjusted to the 2000 U.S. standard population.

** 95% Confidence Interval.

*** Data are suppressed due to confidentiality constraints.

**** Rates are marked as “unreliable” when the death count is less than 20.

N/A = Not applicable

PI = Pacific Islander

AI or AN = American Indian or Alaskan Native

Source: Arkansas Health Statistics Branch



Table 4. Number of Stroke Deaths and Age-Adjusted Mortality Rates by State Rank, 2010

Rank	Area	# Deaths	Rate
1	Arkansas	1,741	53.8
2	Alabama	2,619	51.6
3	Mississippi	1,520	51.2
4	Oklahoma	1,980	50
5	Tennessee	3,205	48.7
6	South Carolina	2,293	47.9
7	West Virginia	1,104	47.8
8	Georgia	3,762	46.3
9	Louisiana	1,977	44.9
10	North Carolina	4,298	44.7
11	Indiana	3,082	44.5
12	Texas	9,180	44.4
13	Kentucky	1,992	44.1
14	Missouri	3,001	44
15	North Dakota	382	42.9
16	Ohio	5,755	42.6
17	Virginia	3,293	42.1
18	Idaho	642	42
19	Montana	494	41.8
20	Kansas	1,370	41.2
21	Alaska	167	40.9
22	Delaware	407	40.7
23	Nebraska	876	40.5
24	Oregon	1,793	40.1
25	South Dakota	416	39.9
26	Michigan	4,474	39.5
27	Pennsylvania	6,701	39.3
28	Illinois	5,349	39.2
29	Maryland	2,279	38.8
30	Wisconsin	2,609	38.7
31	New Mexico	806	38.4
32	California	13,662	38.1
33	Iowa	1,537	38
34	Wyoming	204	37.2
35	Utah	739	37.1
36	Washington	2,548	37
37	Colorado	1,607	36.1
37	Minnesota	2,167	36.1
39	Hawaii	605	35.8
40	Vermont	265	35.3
41	Maine	602	34.5
42	New Hampshire	500	33.5
43	New Jersey	3,402	33.3
43	Nevada	796	33.3
45	Florida	8,432	32.8
46	District of Columbia	196	32.7
47	Arizona	2,138	31.9
48	Rhode Island	431	31.4
49	Massachusetts	2,516	31.3
50	Connecticut	1,349	29.4
51	New York	6,213	27.9
N/A	United States	129,476	39.1

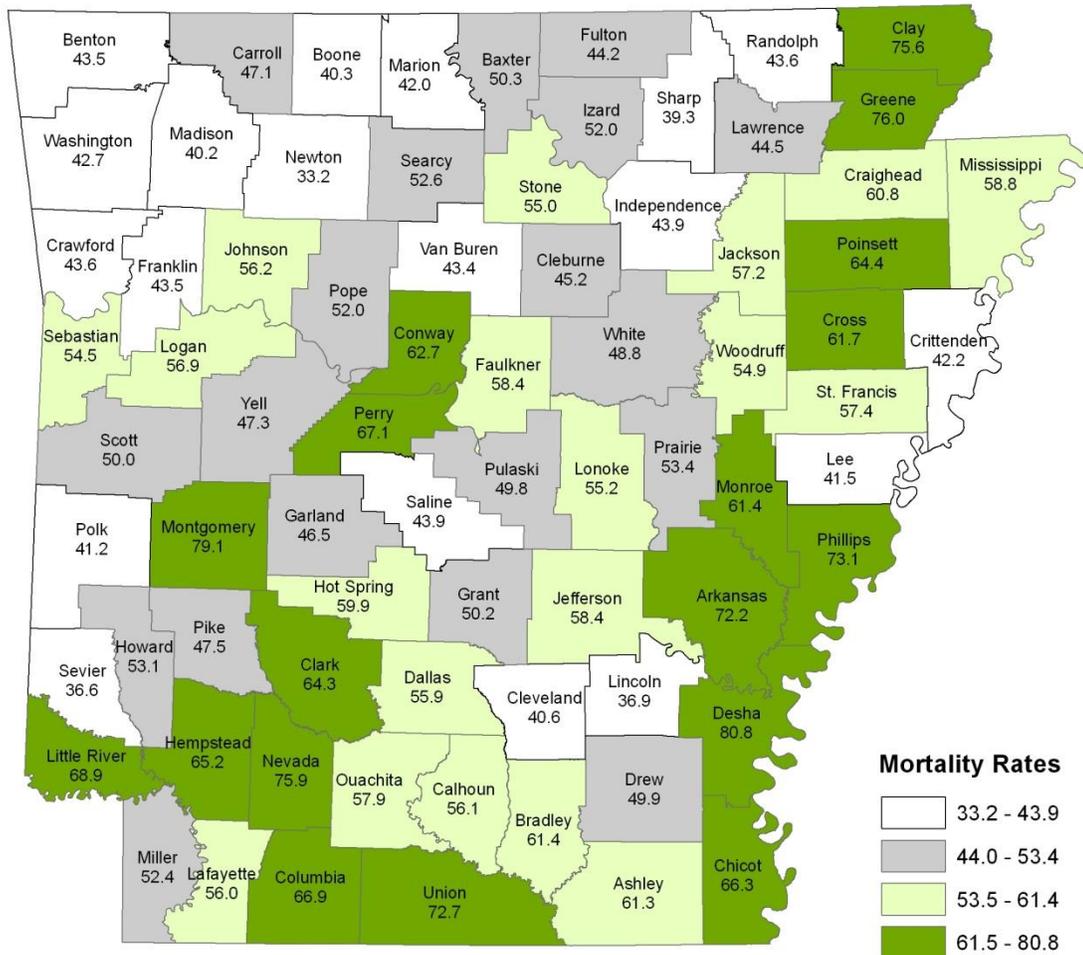
Arkansas Ranking

- The latest national data showed that in 2010, Arkansas ranked 1st in the nation for deaths due to stroke. The age-adjusted stroke mortality rate was 53.8 deaths per 100,000. The age-adjusted stroke mortality rate for the country was 39.1 deaths per 100,000.
- More than 1,700 Arkansans died due to stroke, contributing to a total of 129,476 stroke deaths in the United States in 2010.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. CDC WONDER On-line Database.



Map 2. Stroke Mortality Rates by County Arkansas, 2007-2011



* State rate is 52.0 deaths per 100,000.

Note: Rates are age-adjusted to the 2000 U.S. standard population.
Classification method: Quantile
Source: Arkansas Health Statistics Branch

HOSPITALIZATIONS & COST



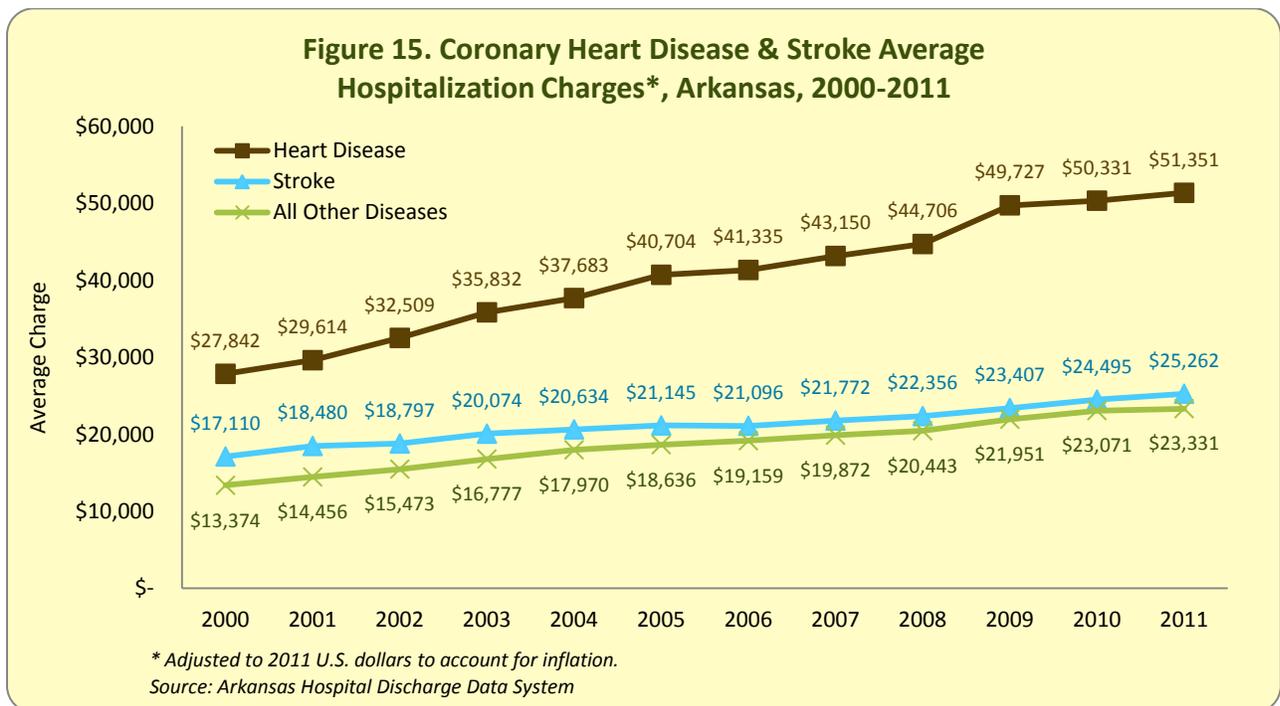


HOSPITALIZATIONS & COST

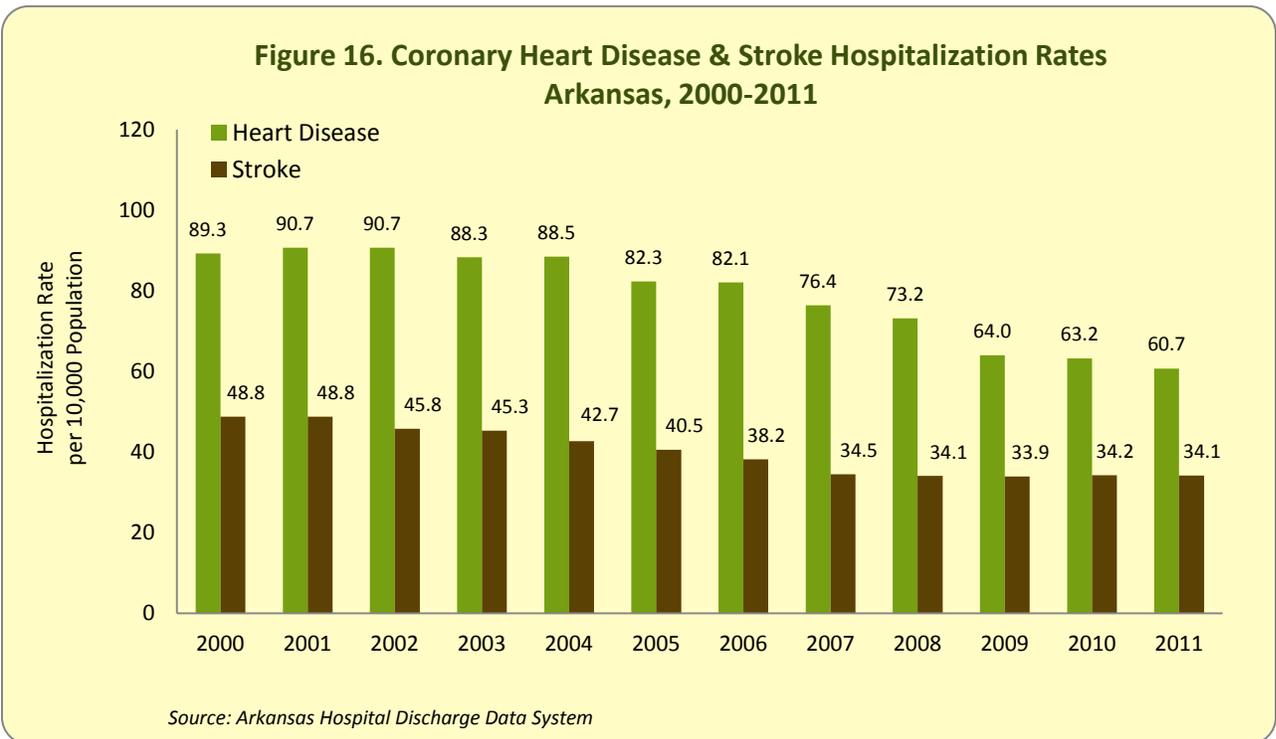
INDICATORS OF THE ECONOMIC BURDEN OF HEART DISEASE & STROKE

The economic burden of heart disease and stroke can be partly assessed through hospitalizations and associated costs. Persons who have experienced cardiac arrest, stroke, or TIA are at a higher risk of having a recurrence and being re-hospitalized.⁸ In 2011, the total hospital charges with a primary diagnosis of coronary heart disease (CHD) in Arkansas were \$916 million.⁹ The hospital charges for stroke totaled \$253 million. Hospital charges do not necessarily equate to the actual payment amount. However, hospital charges can be used as indicators for trends in cost and service utilization in various subpopulations.

Nationally, the estimated direct and indirect 2010 cost (not charges) of CHD is \$108.9 billion,¹⁰ which includes the cost of health care services, medications, and lost productivity. The estimated direct and indirect cost of stroke in the United States is \$53.9 billion.



- Between 2000 and 2011, the average hospitalization charge for CHD increased 84.4%, and the average charge for stroke increased 47.6% (2000 figures are adjusted to 2011 U.S. dollars).
- In 2011, the average hospitalization charge for CHD was \$51,351. For stroke, the average charge was \$25,262, which was close to the average charge for all other diseases combined (\$23,331).



- The hospitalization rate for CHD declined by 32.0% from 89.3 per 10,000 in 2000 to 60.7 per 10,000 in 2011.
- The stroke hospitalization rate declined by 30.1% from 48.8 per 10,000 in 2000 to 34.1 per 10,000 in 2011.

Table 5. Coronary Heart Disease and Stroke Hospitalizations by Demographic Characteristics, Arkansas, 2011

	Coronary Heart Disease		Stroke	
	Number of Hospitalizations	Distribution	Number of Hospitalizations	Distribution
Total	17,842	100.0%	10,030	100.0%
Gender				
Male	10,919	61.2%	4,627	46.1%
Female	6,923	38.8%	5,403	53.9%
Age Group				
0-24	7	<0.1%	53	0.5%
25-44	816	4.6%	427	4.3%
45-64	7,298	40.9%	2,899	28.9%
65-74	5,043	28.3%	2,427	24.2%
75-84	3,385	19.0%	2,614	26.1%
85+	1,293	7.2%	1,610	16.1%
Race				
White	15,933	89.3%	8,384	83.6%
Black	1,626	9.1%	1,458	14.5%
AI or AN*	36	0.2%	16	0.2%
Asian or Pacific Islander	37	0.2%	23	0.2%
Other	207	1.2%	148	1.5%
Ethnicity				
Hispanic	153	0.9%	121	1.2%
Non-Hispanic	17,687	99.1%	9,905	98.8%
First Source of Payment				
Private	3,908	21.9%	1,601	16.0%
Medicaid	897	5.0%	514	5.1%
Medicare	10,759	60.3%	6,781	67.6%
Other/Unknown	2,278	12.8%	1,134	11.3%
Total Charges	\$916,205,264		\$253,379,113	
Average Charge/Hospitalization	\$51,351		\$25,262	
Total Hospital Days	72,428		43,193	
Average Length of Stay (Days)	4.1		4.3	

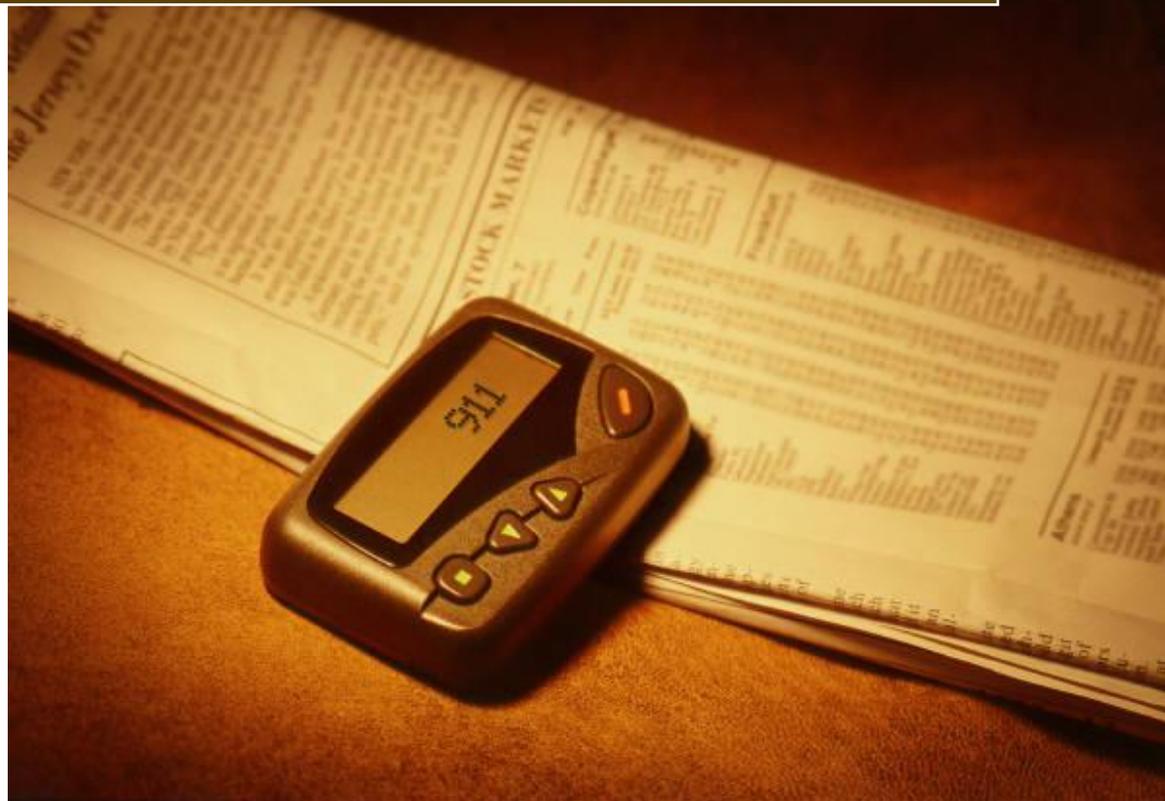
Note: Sum for each category may not equal to the total number of hospitalizations due to missing data

* AI or AN = American Indian or Alaskan Native

Source: Hospital Discharge Data System, Arkansas Department of Health

- In 2011, there were a total of 17,842 CHD hospitalizations. Sixty-one percent were among men and more than half (54.5%) were among persons ages 65 and older.
- For stroke, a higher percentage of hospitalizations were among women (53.9%). Like coronary heart disease, a higher percent of hospitalizations for stroke (66.4%) occurred in persons ages 65 and older.
- In 2011, 65.3% of CHD hospitalizations and 72.7% of stroke hospitalizations were covered by government funds (i.e. Medicaid or Medicare) as the first source of payment.

EMERGENCY RESPONSE





EMERGENCY RESPONSE

RECOGNIZING SIGNS OF A HEART ATTACK AND STROKE & CALLING 9-1-1

When a heart attack occurs, the blood supply to the heart muscle is cut off. Consequently, the heart muscle cells are not able to receive oxygen and begin to die. The longer it takes for a person to receive treatment to restore the blood flow, the greater the damage to the heart.

In the case of a stroke, a clot blocks the blood supply to an area in the brain, or a blood vessel in or around the brain hemorrhages. When this occurs, parts of the brain become damaged or die. One major advancement in the treatment of ischemic strokes is the administration of tissue plasminogen activator or tPA within 4.5 hours or less after the onset of stroke symptoms.^{11, 12} The risk of death and long-term disability from stroke can be reduced with timely treatment through emergency medical services (EMS) and pre-notification to acute hospital care teams. Therefore, when a person is suspected of having a heart attack or stroke, it is essential that a 9-1-1 call be made immediately.

Signs & Symptoms of a Heart Attack and Stroke

Common Symptoms of a Heart Attack

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

Common Symptoms of a Stroke

- Sudden confusion or trouble speaking or understanding others
- Sudden numbness or weakness of face, arm, or leg
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, or loss of balance or coordination
- Severe headache with no known cause

Table 6. Percent of Adults Recognizing Common Signs and Symptoms of a Heart Attack and Stroke, Arkansas, 2011.

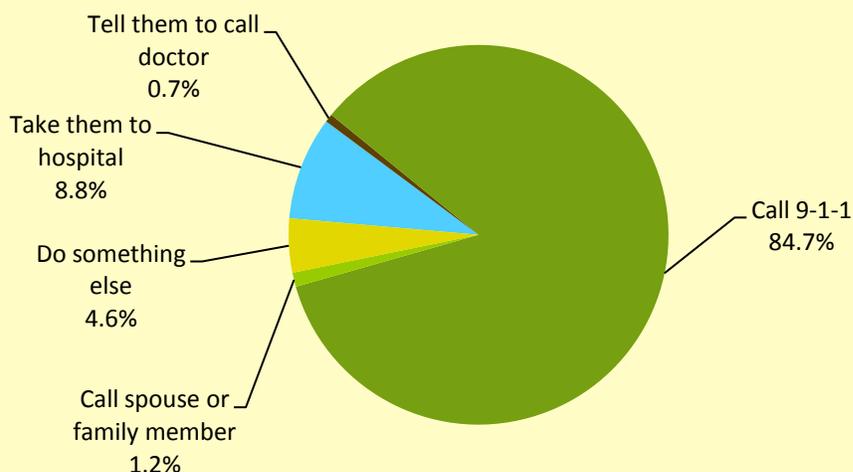
	Signs and Symptoms	Percent (%)
Heart Attack	Pain or discomfort in the jaw, neck, or back	66.2
	Feeling weak, lightheaded, or faint	70.5
	Chest pain or discomfort	94.8
	Pain or discomfort in the arms or shoulder	91.5
	Shortness of breath	90.2
Stroke	Sudden confusion or trouble speaking	95.5
	Sudden numbness or weakness of face, arm, or leg, especially on one side	97.0
	Sudden trouble seeing in one or both eyes	87.6
	Sudden trouble walking, dizziness, or loss of balance	93.4
	Severe headache with no known cause	77.9

Source: Behavioral Risk Factor Surveillance System (BRFSS), CDC

➤ In 2011, more than 90% of Arkansas adults ages 18 and older recognized chest pain or discomfort (94.8%), pain or discomfort in the arms or shoulder (91.5%), and shortness of breath (90.2%) as a sign or symptom of having a heart attack. Sixty-six percent correctly identified pain or discomfort in the jaw, neck, or back as a symptom, and 70.5% correctly identified feeling weak, lightheaded or faint as a symptom.

➤ For stroke, more than 95% of Arkansas adults recognized sudden confusion or trouble speaking (95.5%) and sudden numbness or weakness of the face, arm, or leg (97.0%) as a sign or symptom of having a stroke.

Figure 17. Percent Distribution of First Actions to a Heart Attack or Stroke, Arkansas, 2011

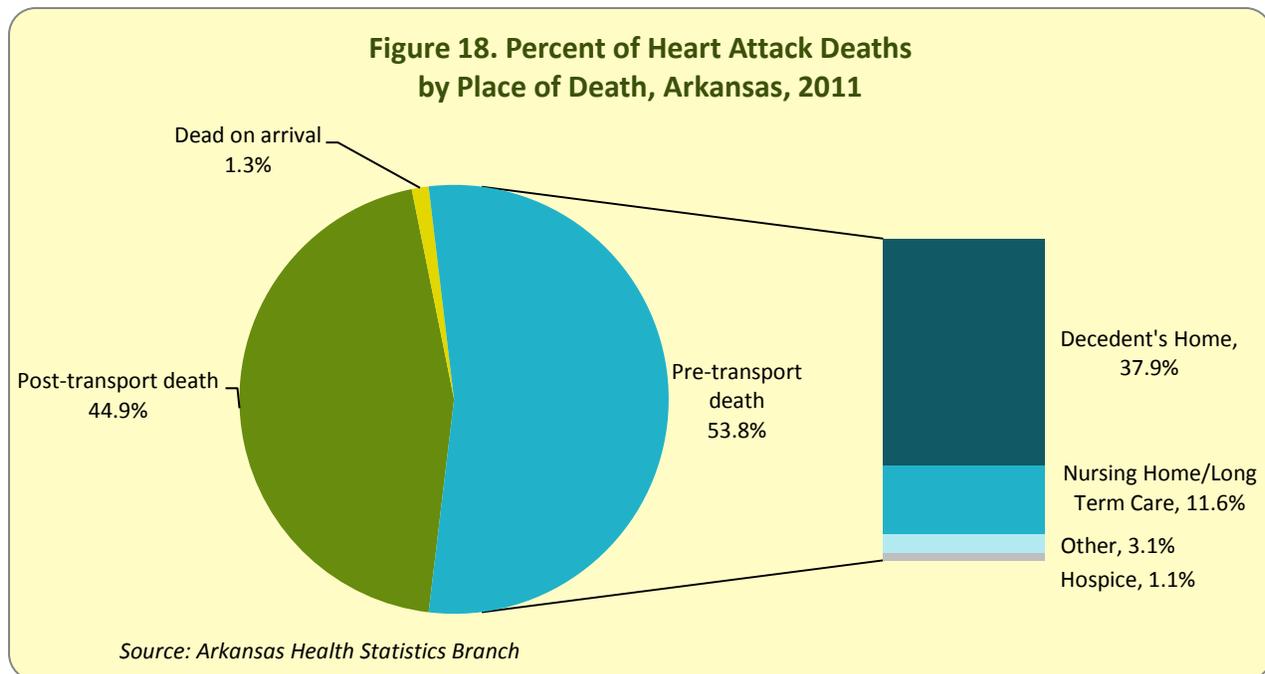


Source: Behavioral Risk Factor Surveillance System (BRFSS), CDC

➤ Approximately 85% of Arkansans said that they would call 9-1-1 as a first response if they thought someone was having a heart attack or stroke.

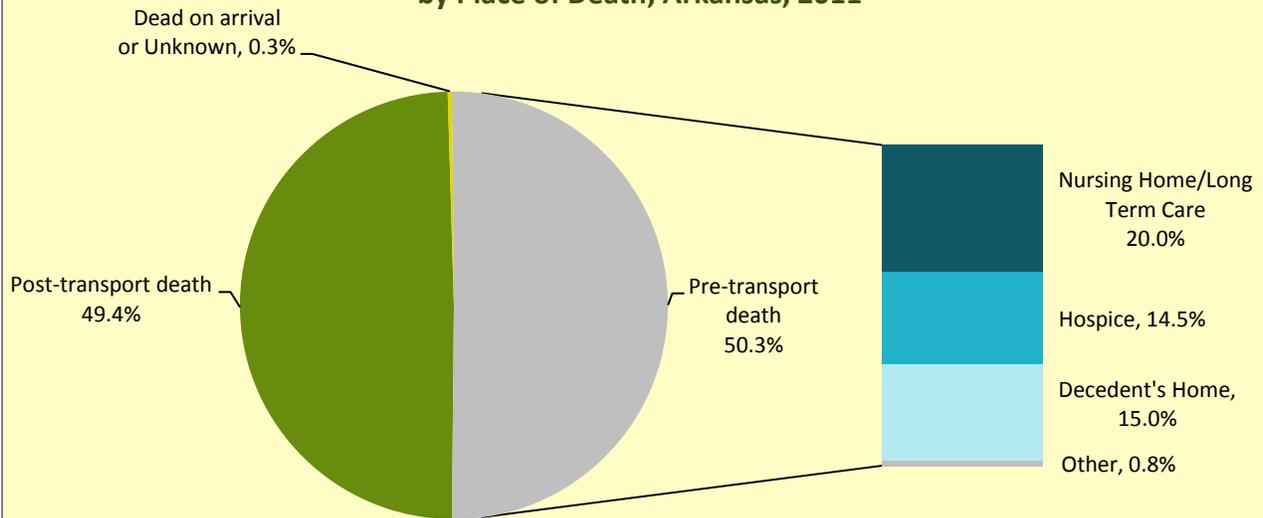
Pre-Hospital Transport Deaths

Calling 9-1-1 immediately can save time, enabling the patient to receive life-saving treatment. Emergency medical services (EMS) staff can begin early assessment and pre-hospital care upon arrival and during transport. Furthermore, pre-hospital notification can promote rapid diagnosis and treatment to minimize the damage caused by a heart attack or stroke.¹ Nationally, almost half of all heart attack and stroke deaths occur before transport to the hospital.^{13, 14, 15}



- In 2011, more than half (53.8%) of heart attack victims died before admission to the hospital. A substantial proportion of pre-hospital transport heart attack deaths (death pronounced in a nursing home, at home, or other place¹⁶) occurred at the victim's home (70.5%) or at a nursing home or other long-term care facility (21.6%) (data not shown).
- Approximately 45% of heart attack deaths among Arkansas residents occurred post-transport to a hospital. More than half (55.1%) of these occurred in outpatient care or in the emergency room; the remaining 44.9% occurred in inpatient care (data not shown).

Figure 19. Percent of Stroke Deaths by Place of Death, Arkansas, 2011



Source: Arkansas Health Statistics Branch

- In 2011, 50.3% of stroke deaths in Arkansas occurred before the patient arrived at a hospital. Compared to heart attack deaths, a higher proportion (20.0%) of stroke deaths occurred at nursing homes or other long-term care institutions. More than a quarter of deaths occurred in the victim's home (15.0%) or a hospice (14.5%).
- Half (49.4%) of stroke deaths occurred after arriving at a hospital. The majority (91.5%) of post-hospital transport deaths occurred in inpatient care. Only 8.5% of post-hospital transport deaths occurred in outpatient care or in the emergency room (data not shown).



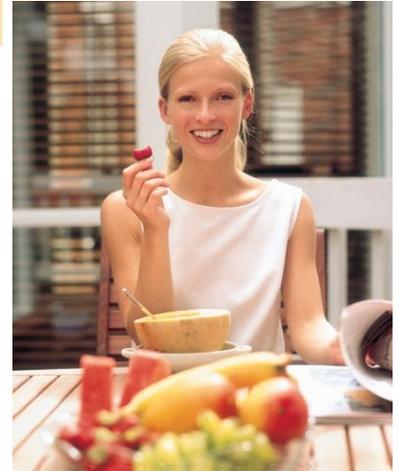
Approximately half of Arkansas heart attack and stroke deaths occur before the patient arrives at a hospital.

MODIFIABLE RISK FACTORS



MODIFIABLE RISK FACTORS

REDUCING RISK OF HEART DISEASE AND STROKE



Several traits and lifestyle habits increase a person's risk of developing coronary heart disease or having a stroke. These are called risk factors. Although some risk factors such as age, gender and heredity cannot be changed, others can be modified, treated or controlled. The more risk factors a person has, the greater their risk of cardiovascular disease. Similarly, the higher the risk factor level, the higher the risk of the disease.

Modifiable Risk Factors

- High blood pressure
- High blood cholesterol
- Smoking / tobacco use
 - Diabetes
- Overweight & obesity
 - Physical inactivity
- Inadequate intake of fruits and vegetables

Non-Modifiable Risk Factors

- Age – the risk for coronary heart disease and stroke mortality increases as age increases. The vast majority of coronary heart disease and stroke deaths in Arkansas occur among adults age 65 and older.
- Gender – men have a greater risk of having a heart attack and stroke than women do and attacks occur earlier in life. Use of birth control pills and pregnancy pose a slight increase in stroke risks for women.
- Heredity – children whose parents have heart disease or have had a stroke are more likely to develop the disease or have a stroke themselves.

Modifiable Risk Factors

- Some modifiable risk factors include: high blood pressure, high cholesterol, smoking, diabetes, obesity, physical inactivity, and inadequate nutrition.¹

High Blood Pressure

High blood pressure is the most important risk factor for stroke and a major risk factor for heart disease. It is also the second leading cause of preventable deaths in the United States.¹⁷ High blood pressure, or hypertension, is defined as having a blood pressure measurement that is persistently 140/90 mm Hg or higher. A person with high blood pressure will have a much higher risk of heart disease and stroke when they have one or more additional risk factors such as obesity, smoking, high blood cholesterol, or diabetes. Methods to prevent or control high blood pressure include eating a proper diet, restricting dietary sodium consumption, losing weight, exercising regularly, and following a medication regimen.^{1,18,19,20,21,22,23}



Trends in Prevalence of Self-Reported High Blood Pressure

➤ Data from the Arkansas Behavioral Risk Factor Surveillance System (BRFSS) survey showed that the percent of Arkansas adults who said that they had been told by a doctor, nurse or other health professional that they had high blood pressure increased significantly from 26.7% in 1995 to 34.4% in 2009, an upward trend also seen in the United States. In 2011, 35.8% of adults reported having high blood pressure (not comparable to prior years of data due to change in survey methodology and the inclusion of cell phones. 2011 data should be considered a new baseline).

➤ Neither the state nor the nation met the Healthy People 2010 goal of 14% prevalence or less.

Disparities in Prevalence of Self-Reported High Blood Pressure

➤ In 2011, the prevalence of self-reported high blood pressure was similar between males (35.2%) and females (36.3%).

Sodium Consumption & High Blood Pressure

High sodium consumption has been linked to increased risk for high blood pressure, stroke, heart failure, renal disease, osteoporosis, and gastric cancer.²³

Seventy-seven percent of dietary sodium comes from packaged, processed, store-bought, and restaurant foods; only a small amount is added during cooking (5%) or at the table while eating (6%).¹⁸ Current dietary guidelines for Americans recommend that healthy adults consume 2,300 mg of sodium or less per day (equal to approximately 1 tsp of salt). Persons who are 40 years of age or older, black, or currently have high blood pressure should consume no more than 1,500 mg of sodium per day (or 2/3 tsp).¹⁹ A recent CDC report shows that 2 out of 3 (69%) adults in the United States can be categorized as being at high-risk for sodium-related health problems.²⁰

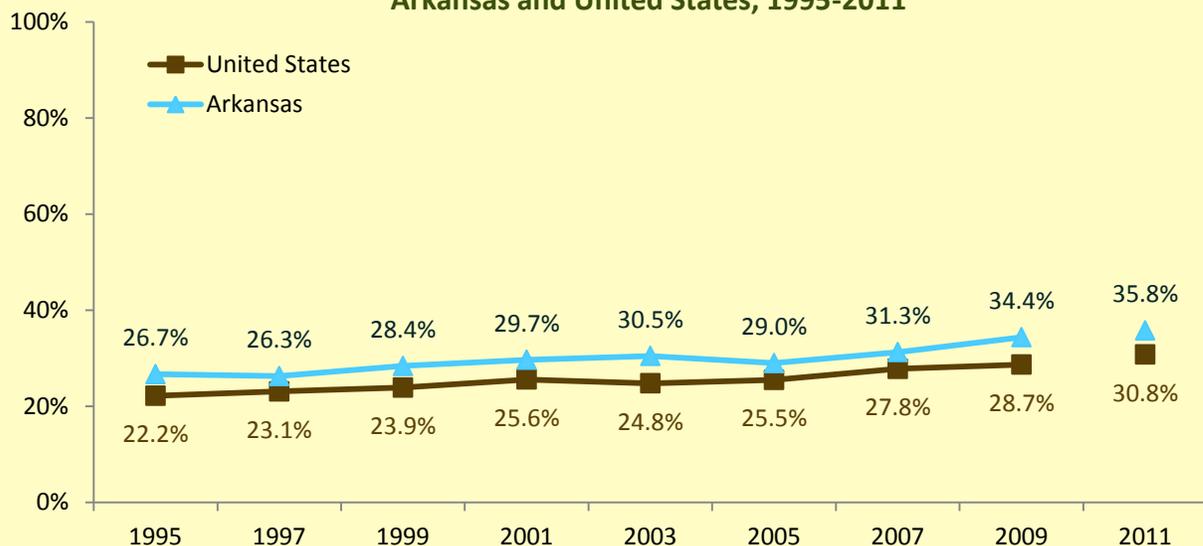
The average daily sodium intake in 2007-2008 for persons ages ≥ 2 years was 3,330 mg.²³ In Arkansas, data show the average daily sodium intake among adults is 3,233 mg.²¹

Primary Sources of Sodium in the Average U.S. Diet



http://www.heart.org/idc/groups/heart-public/@wcm/@adv/documents/downloadable/ucm_304869.pdf

Figure 20. Prevalence of Self-Reported High Blood Pressure among Adults Arkansas and United States, 1995-2011

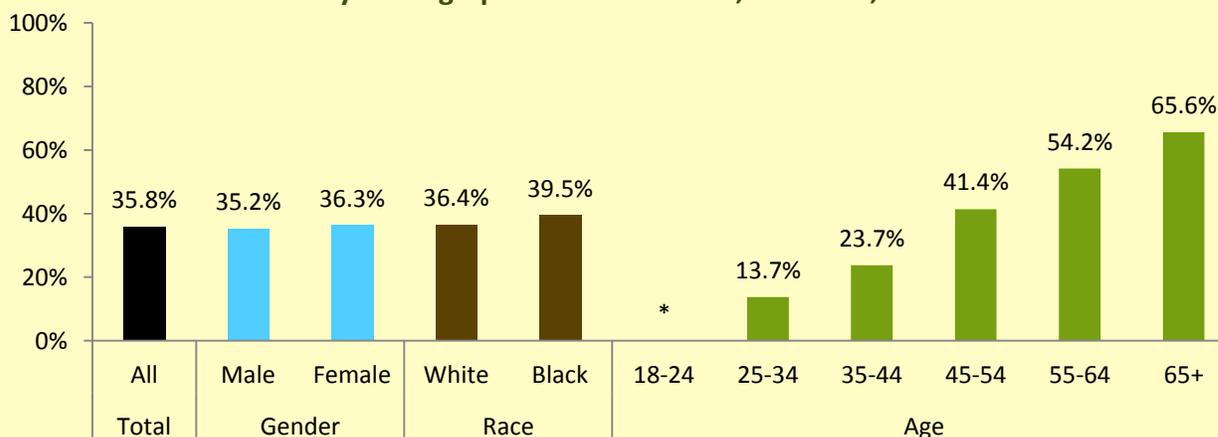


Source: Behavioral Risk Factor Surveillance System, CDC

Notes: 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C. This question is asked every odd year.

- Black Arkansans (39.5%) reported a higher prevalence of high blood pressure compared to white Arkansans (36.4%). The difference was not statistically significant.
 - Pre-hypertension is a major risk factor for high blood pressure. A recent study showed that conversion from pre-hypertension to high blood pressure is accelerated in blacks, which suggests that effective intervention targeting blacks to lower the prevalence of pre-hypertension could reduce racial disparities in high blood pressure.²⁴
- The percent of adults reporting high blood pressure increased as age increased.

Figure 21. Prevalence of Self-Reported High Blood Pressure among Adults by Demographic Characteristics, Arkansas, 2011



* Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell.

Source: Behavioral Risk Factor Surveillance System, CDC

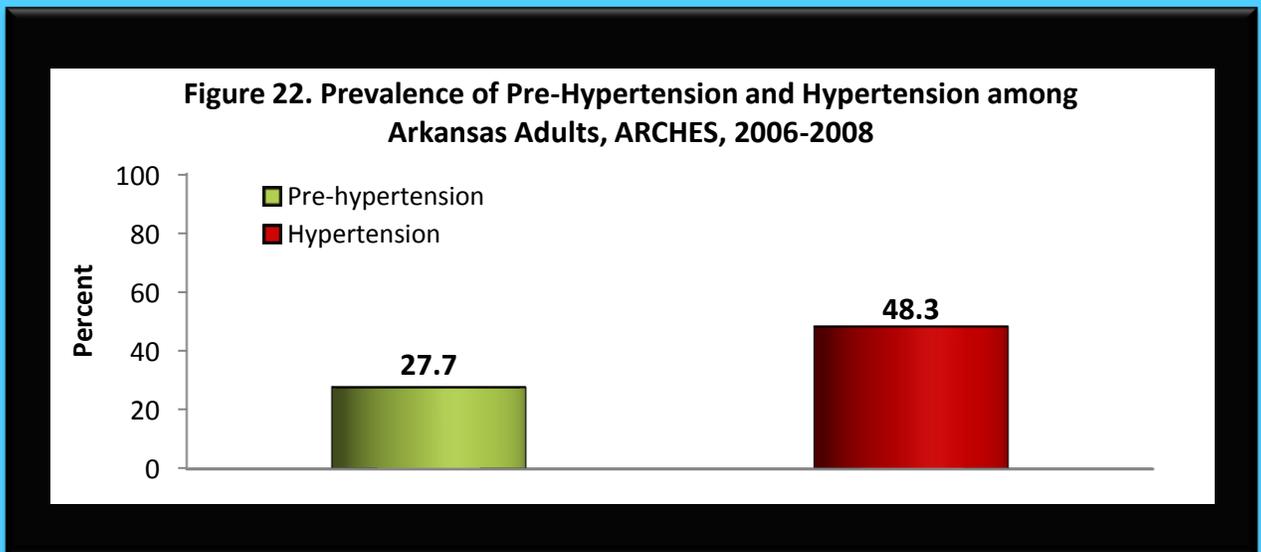
Arkansas Cardiovascular Health Examination Survey (ARCHES)

PURPOSE: In 2005, Arkansas was one of four states in the U.S. to be funded by the Centers for Disease Control and Prevention (CDC) to conduct a state-level health examination survey. The purpose of the Arkansas Cardiovascular Health Examination Survey (ARCHES) was to collect state-level cardiovascular health outcomes, health behaviors, and nutrition data to guide public health efforts in the state and to monitor the state's progress towards meeting Healthy People blood pressure and cholesterol objectives.

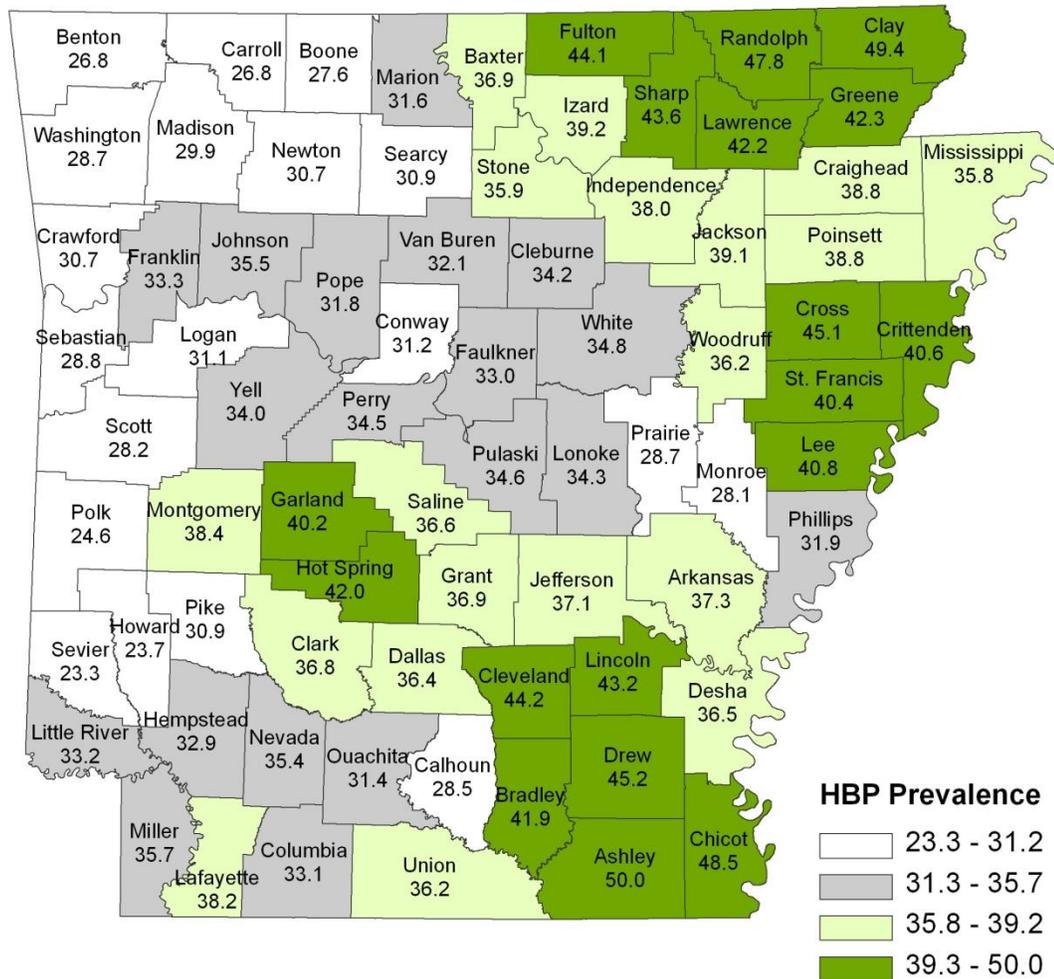
METHODS: Data collection took place mid-2006 to early 2008 throughout the state²². ARCHES utilized a three-stage clustered sample design, which over-sampled blacks. Trained interviewers visited participants' homes and administered a cardiovascular health questionnaire, collected anthropometric measurements and blood and urine samples, measured blood pressure, and distributed a dietary intake questionnaire to be completed and mailed in by the participants. The cardiovascular health questionnaire collected data similar to those collected by the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health and Nutrition Examination Survey (NHANES).

IMPORTANT FINDINGS: ARCHES showed that the true measured prevalence of high blood pressure among Arkansas adults was 48.3%, which is much higher than the 2007 self-reported BRFSS estimate (31.3%). Like BRFSS, ARCHES showed that black Arkansans were more likely to have high blood pressure than white Arkansans. Prevalence of pre-hypertension was 27.7% and was greater among whites compared to blacks.

Only 75.0% of persons with high blood pressure were aware of their hypertensive status and two-thirds (66.8%) were on treatment for their high blood pressure. Almost 60% of those being treated had controlled high blood pressure. Among all Arkansas adults with high blood pressure (whether aware or not), only 39.6% had the condition under control.



Map 3. Prevalence of Self-Reported High Blood Pressure Among Adults Ages 18 and Older, by County Arkansas, 2009*



* State prevalence is 34.4%.

BRFSS Question: Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?
Classification Method: Quantile

Data Source: Arkansas Behavioral Risk Factor Surveillance System (BRFSS), 2009

* 2011 BRFSS county estimates were not available at the time of this publication.

High Blood Cholesterol

The risk of coronary heart disease and stroke rises as blood cholesterol levels increase. This risk is even greater when other risk factors such as high blood pressure and smoking are present. Cholesterol can build up along the artery walls causing plaque to form, a process called atherosclerosis. High blood cholesterol is defined as having total cholesterol at or above 240 mg/dL. Borderline high cholesterol levels are between 200-239 mg/dL. A person with high blood cholesterol has more than twice the risk of heart disease compared to a person with cholesterol levels below 200 mg/dL. It has been estimated that a 10 percent decrease in total cholesterol levels (population-wide) could result in a 30 percent reduction in the incidence of coronary heart disease.²⁵

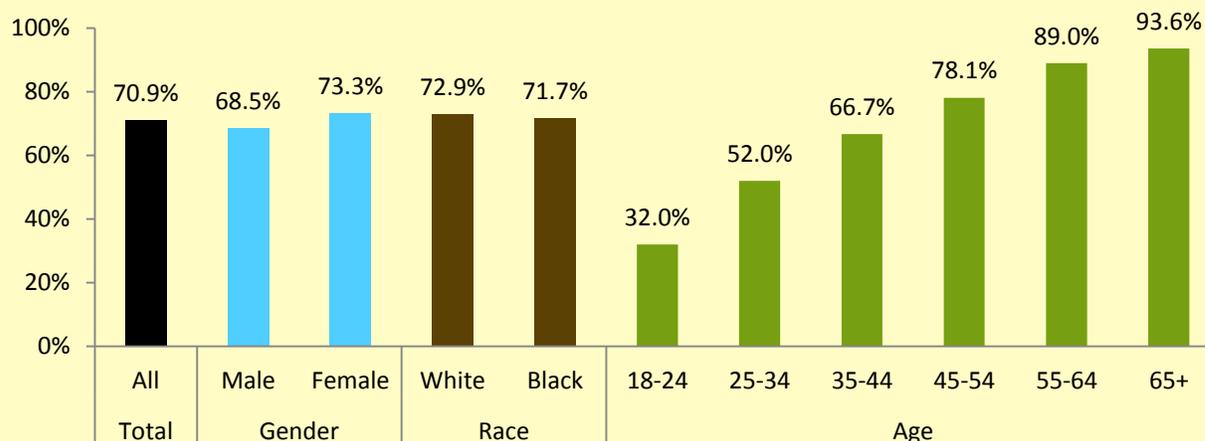
Screening for High Blood Cholesterol

The National Heart, Lung, and Blood Institute (NHLBI) recommends that everyone ages 20 and older have their cholesterol measured at least once every five years to determine their total cholesterol, low density-lipoproteins or LDL (“bad”) cholesterol, high density-lipoproteins or HDL (“good”) cholesterol, and triglycerides levels.

DESIRABLE CHOLESTEROL LEVELS	
Total cholesterol	Less than 200 mg/dL
LDL (“bad” cholesterol)	Less than 100 mg/dL
HDL (“good” cholesterol)	60 mg/dL or higher
Triglycerides	Less than 150 mg/dL

- According to the latest BRFSS survey data, the percent of Arkansas adults ages 18 and older who reported having had their blood cholesterol checked within the last five years generally increased from 63.2% in 1995 to 74.2% in 2009, a trend also seen in the country (trend data not shown). The difference between 1995 and 2009 in Arkansas was statistically significant.
- In 2011, 70.9% of Arkansas adults said that they had had their blood cholesterol checked within the last five years (not comparable to previous years’ data). The percent of adults following national screening guidelines did not vary significantly by gender or race. The percent of persons in compliance increased as age increased.
- One in four adults (25.3%) said they had never had their cholesterol checked (data not shown).
- The Arkansas Cardiovascular Health Examination Survey (ARCHES), an Arkansas survey conducted between 2006 and 2008, showed that 69.6% of Arkansas adults reported having had their blood cholesterol checked within the past five years (data not shown).

Figure 23. Percent of Adults who Reported Having Had Their Blood Cholesterol Checked within the Past Five Years, Arkansas, 2011



Source: Behavioral Risk Factor Surveillance System, CDC

Trends in Prevalence of Self-Reported High Blood Cholesterol

- In 2011, 40.4% of Arkansas adults who had ever had their blood cholesterol checked reported having been told by a health professional that they had high cholesterol. Arkansas' prevalence was greater than the national prevalence (38.4%). The Healthy People 2010 target for high blood cholesterol prevalence was 17% or less.
- The prevalence of self-reported high blood cholesterol in the state and in the U.S. increased over time. For Arkansas, the difference between 1995 (28.8%) and 2009 (38.7%) was statistically significant (2011 data are not comparable to previous years).
- ARCHES data from 2006-2008 showed that 12.1% of Arkansas adults ages 20 and older had high total blood cholesterol levels greater than or equal to 240 mg/dL. The mean total blood cholesterol level among Arkansas adults ages 20 and older was 196.6 mg/dL (data not shown).

Figure 24. Prevalence of Self-Reported High Blood Cholesterol among Adults Arkansas and United States, 1995-2011



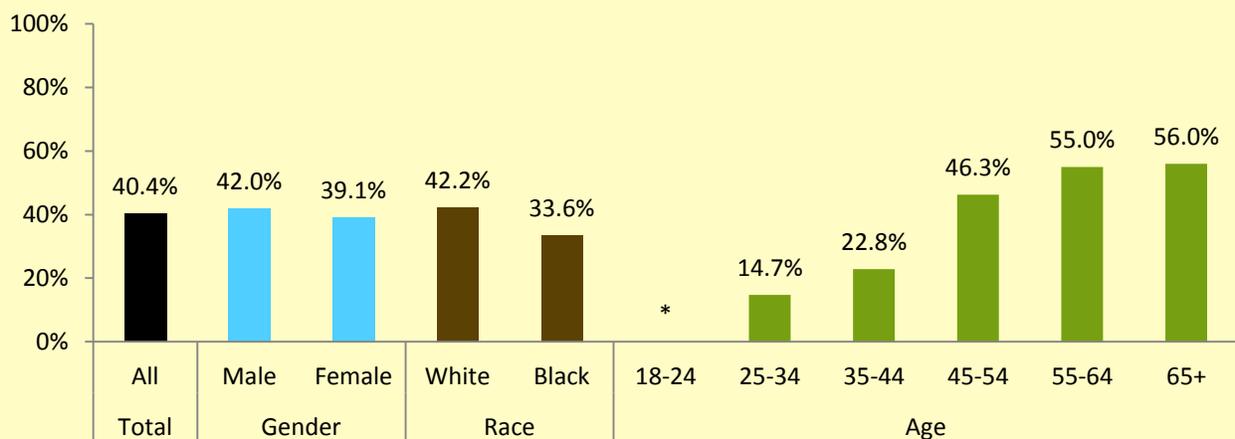
Source: Behavioral Risk Factor Surveillance System, CDC

Notes: 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C. This question is asked every odd year.

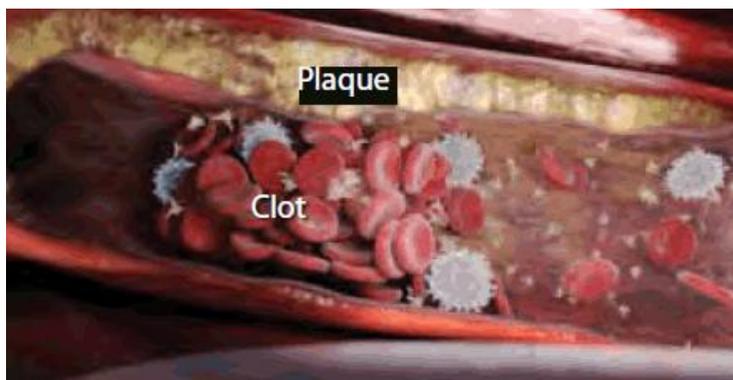
Disparities in Prevalence of Self-Reported High Blood Cholesterol

- In 2011, a higher proportion of Arkansas males (42.0%) reported being diagnosed with high blood cholesterol compared to females (39.1%). White adults (42.2%) reported a higher prevalence of high blood cholesterol compared to their black counterparts (33.6%). The difference was not statistically significant for either gender or race.
- The prevalence of self-reported high blood cholesterol increased as age increased.

Figure 25. Prevalence of Self-Reported High Blood Cholesterol among Adults by Demographic Characteristics, Arkansas, 2011



* Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell.
 Source: Behavioral Risk Factor Surveillance System, CDC



Plaque narrows vessels so less blood can flow through. When a clot forms in one of these narrow places in an artery around the heart, your heart muscle becomes starved for the oxygen it needs.

Excerpt and image from "A Report of the Surgeon General: How Tobacco Smoke Causes Disease: What It Means to You".²⁶

Smoking/Tobacco Use

Smoking is the number one preventable cause of premature death in the United States.¹⁷ Smokers' risk of having a heart attack is more than twice that for nonsmokers.¹ Smokers who have a heart attack are more likely to die and die suddenly (within an hour) compared to nonsmokers. Cigarette smoking approximately doubles a person's risk of having a stroke. Long-term exposure to secondhand smoke can raise the risk of developing heart disease by 25% to 30% in non-smokers.

Smoking promotes coronary heart disease and stroke in several ways:

- Carbon monoxide in tobacco smoke reduce the amount of oxygen in the blood.
- Tobacco smoke can cause blood clots to form.
- Smoke reduces HDL ("good") cholesterol and increases triglyceride levels in the bloodstream.
- Short exposure to secondhand smoke can cause blood platelets to become stickier, damage blood vessel walls and form clots, thus increasing a person's risk for having a heart attack.²⁶

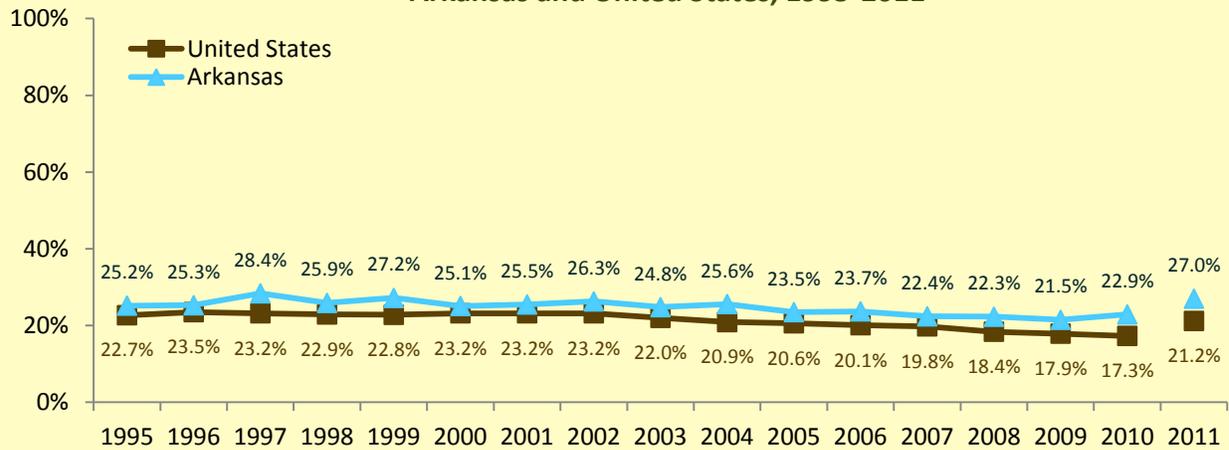


Image from www.healthrisksofsmoking.com.

Trends in Prevalence of Self-Reported Smoking

- The percent of current smokers (defined as adults who reported having smoked at least 100 cigarettes in their lifetime and are currently smoking every day or some days) declined 9.1% in Arkansas during the last 15 years from 1995 to 2010.
- The smoking prevalence in Arkansas was consistently higher than the smoking prevalence in the U.S. In 2010, Arkansas' tobacco use prevalence among adults was 22.9%. The Healthy People 2010 goal for reducing tobacco use among adults age 18 and older is 12%.²⁷
- In 2011, 27.0% of Arkansas adults reported that they were current smokers, which was higher than the prevalence of current smokers in the nation (21.2%; 2011 data are not comparable to previous years of BRFSS data).

**Figure 26. Prevalence of Self-Reported Current Smokers among Adults
Arkansas and United States, 1995-2011**



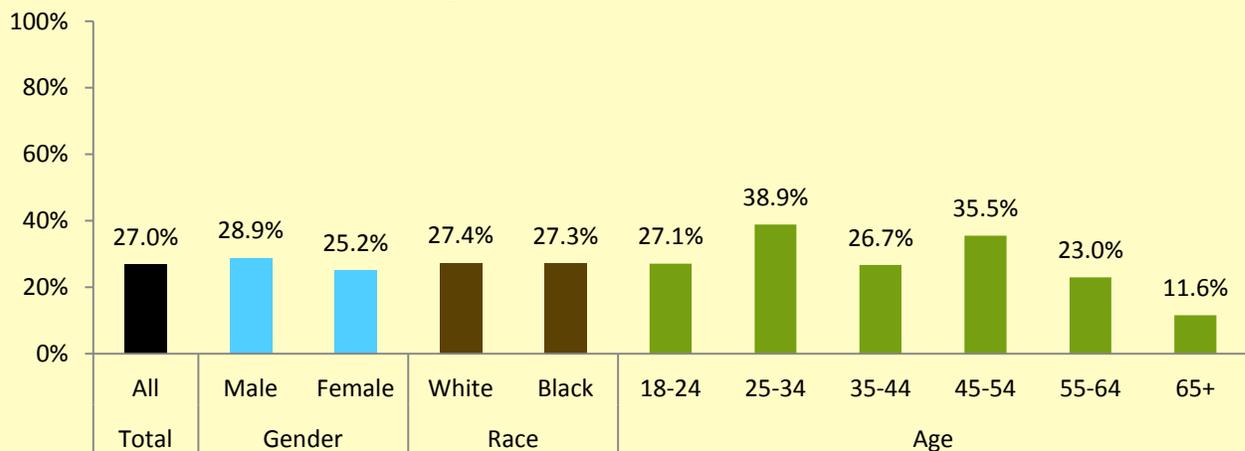
Source: Behavioral Risk Factor Surveillance System, CDC

Notes: 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C.

Disparities in Prevalence of Self-Reported Smoking

- In 2011, males (28.9%) reported higher prevalence of smoking compared to females (25.2%); however, adult smoking prevalence did not vary significantly by gender or by race.
- Self-reported smoking prevalence was highest among adults ages 25-34 years (38.9%).

**Figure 27. Prevalence of Self-Reported Current Smokers among Adults
by Demographic Characteristics, Arkansas, 2011**



Source: Behavioral Risk Factor Surveillance System, CDC

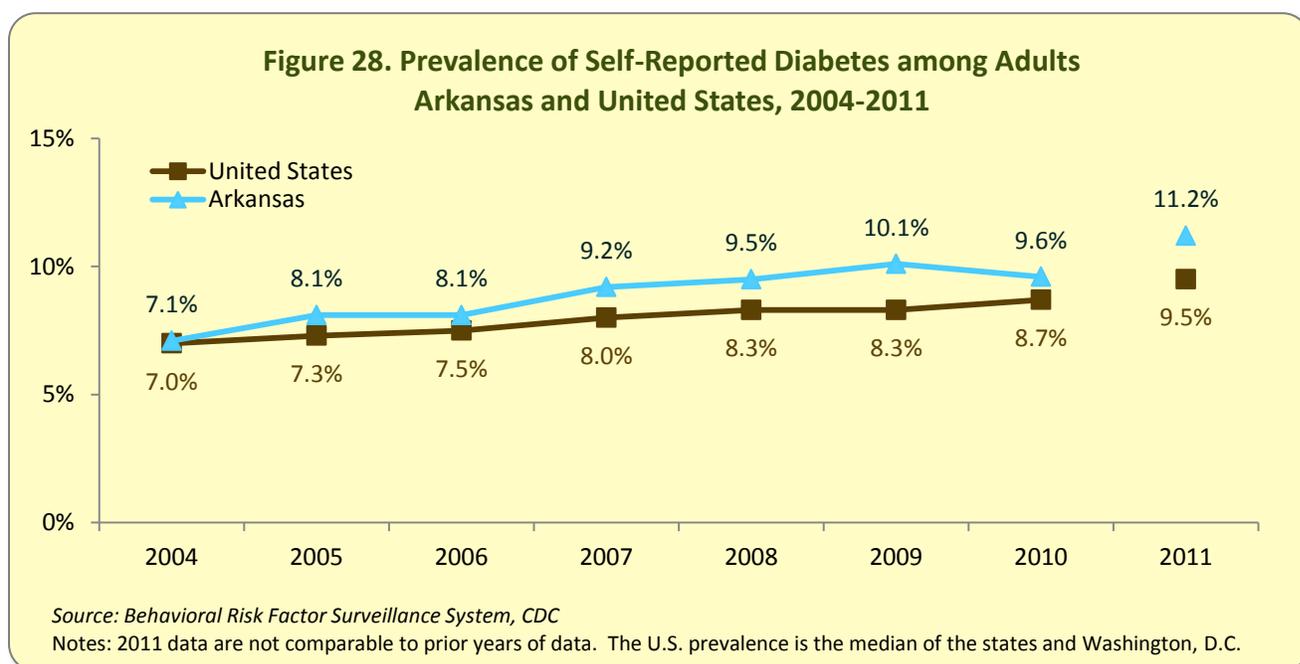
Diabetes

Diabetes is a disease in which the blood glucose levels are abnormally high due to cellular resistance to insulin, insufficient production of insulin, or both. Over time, high levels of blood glucose can lead to increased deposits of fatty materials on blood vessel walls, which can in turn lead to clogging and hardening of blood vessels (atherosclerosis). People with diabetes are twice as likely to develop heart disease or stroke compared to non-diabetics. They can also develop heart disease or stroke at an earlier age. People with diabetes who have had a heart attack have a higher chance of having a second heart attack. Furthermore, heart attacks among diabetics are more serious and more likely to lead to death.²⁸

An estimated 25.8 million Americans are affected with this condition, one-third of whom go undiagnosed.²⁹ The National Center for Health Statistics cited diabetes as the seventh leading cause of death in 2010.³⁰ While diabetes itself increases a person's risk of stroke, it is also associated with other heart disease and stroke risk factors such as high blood pressure, high cholesterol, and overweight, thereby increasing a person's risk even greater for cardiovascular disease.¹

Trends in Prevalence of Self-Reported Diabetes

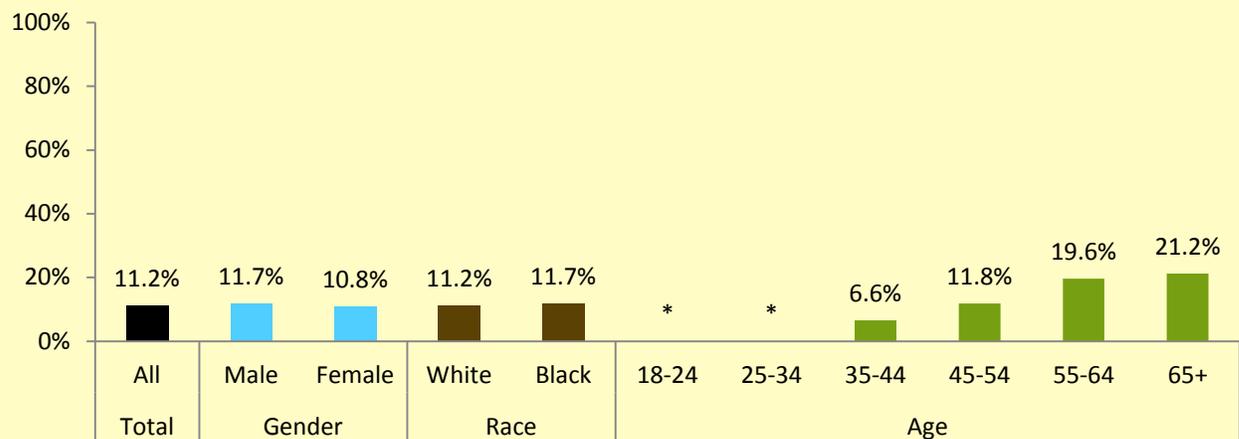
- The percent of Arkansas adults who reported having been told by a doctor that they had diabetes increased from 7.1% in 2004 to 9.6% in 2010, a statistically significant difference. Although a similar trend was seen in the U.S. for the same time period, the increase in diabetes prevalence in Arkansas was greater (35.2%) than that in the U.S. (24.3%).
- In 2011, the percent of adults with diabetes was greater in Arkansas (11.2%) than that in the U.S. overall (9.5%). 2011 data are not comparable to data from previous years.



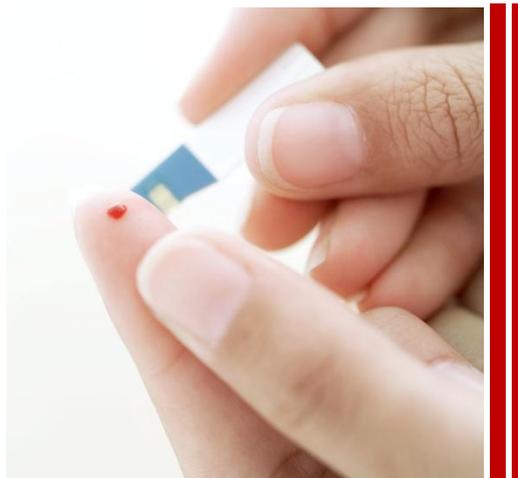
Disparities in Prevalence of Self-Reported Diabetes

- In 2011, the prevalence of diabetes among Arkansas adult males (11.7%) was slightly higher than that for adult females (10.8%).
- There was no notable difference in the diabetes prevalence among blacks (11.7%) and whites (11.2%).
- Diabetes prevalence was highest among Arkansas adults ages 65 and older (21.2%).

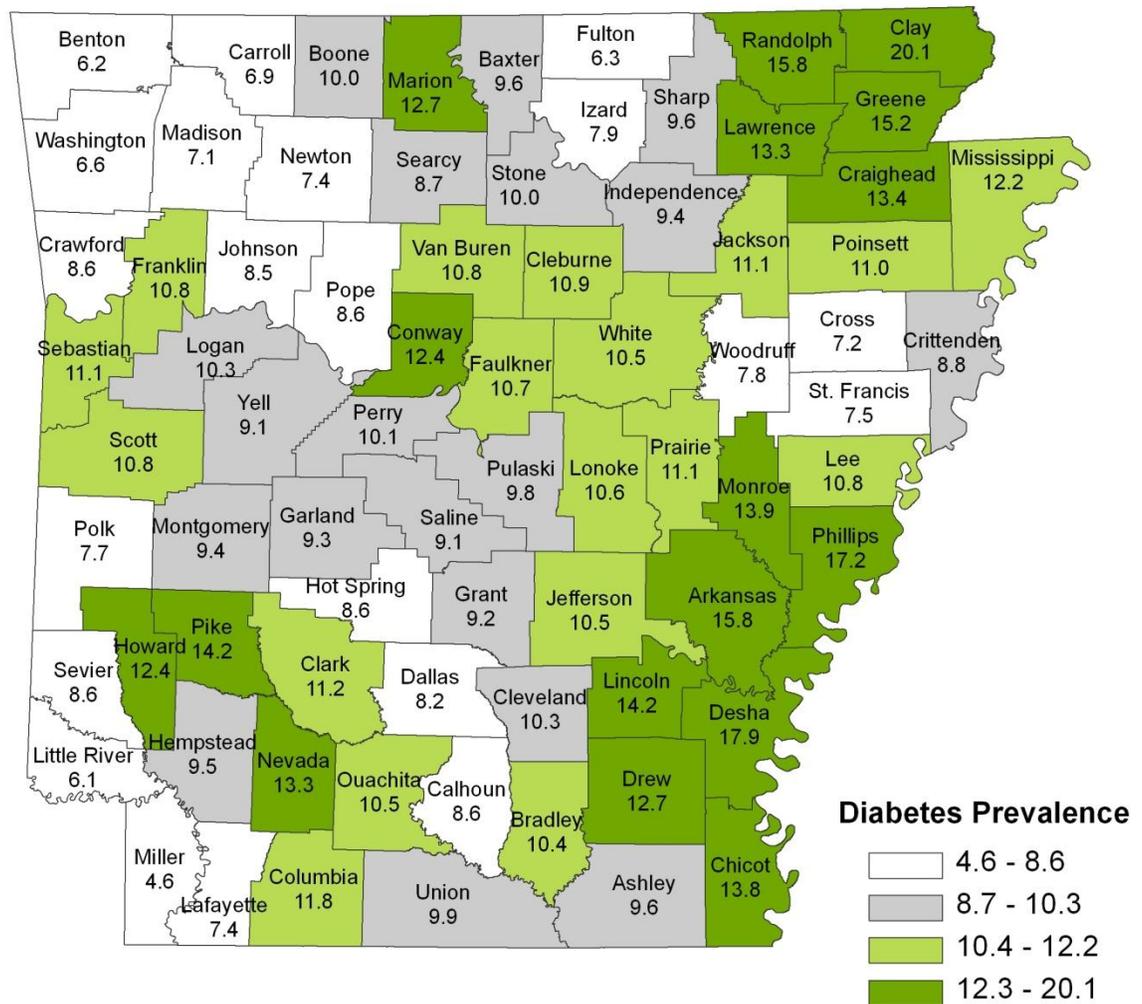
Figure 29. Prevalence of Self-Reported Diabetes among Adults by Demographic Characteristics, Arkansas, 2011



* Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell.
 Source: Behavioral Risk Factor Surveillance System, CDC



Map 6. Prevalence of Self-Reported Diabetes Among Adults Ages 18 and Older, by County Arkansas, 2010*



* State prevalence is 9.6%.

BRFSS Question: Have you ever been told by a doctor that you have diabetes?
Classification Method: Quantile

Data Source: Arkansas Behavioral Risk Factor Surveillance System (BRFSS), 2010

* 2011 BRFSS county estimates were not available at the time of this publication.

Overweight and Obesity (BMI ≥ 25.0)

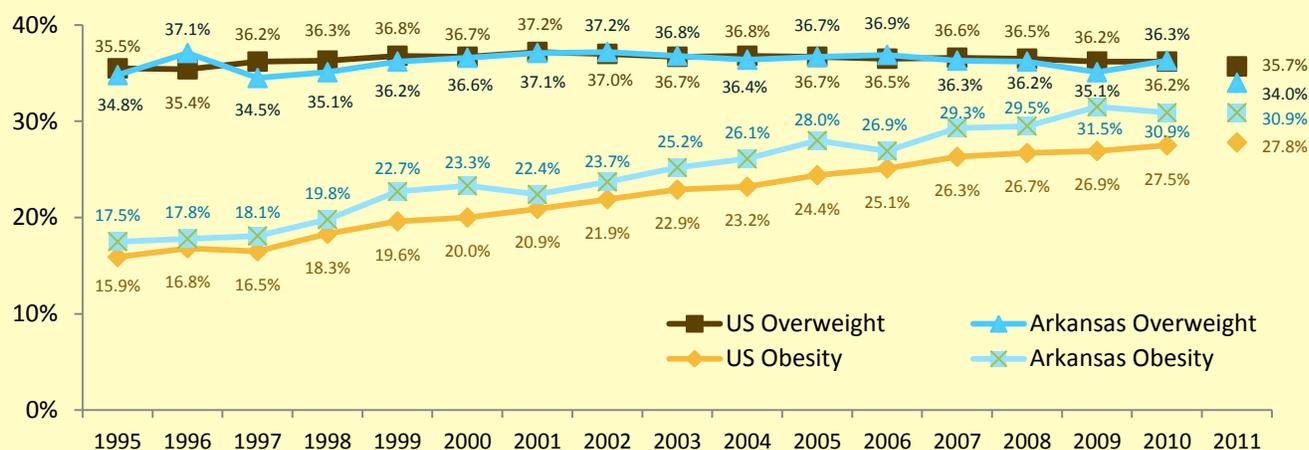
People who have excess body fat, particularly in the waist area, are at a higher risk of developing health problems, including high blood pressure, high blood cholesterol, type 2 diabetes, coronary heart disease, stroke, certain types of cancer (endometrial, breast, and colon), sleep apnea and other respiratory problems, osteoarthritis, liver and gallbladder disease, and gynecological problems (abnormal menses, infertility).^{1, 31, 32}

For adults, overweight and obesity are measured by body mass index (BMI). BMI measures a person's body weight relative to height and correlates highly with body fat in most people. It is calculated by dividing a person's weight (in kg) by their height (in meters) squared. A healthy BMI ranges from 18.5 to 24.9. Overweight is defined as a BMI of 25.0-29.9 and obesity is defined as a BMI of 30.0 or greater.

Trends in Prevalence of Self-Reported Overweight and Obesity

- The self-reported prevalence of overweight and obesity (BMI ≥ 25.0) has increased steadily from 1995 to 2010 in both the U.S. and in Arkansas. The difference in Arkansas was statistically significant.
- In Arkansas, there was a slight increase in overweight prevalence (BMI=25.0-29.9) from 34.8% in 1995 to 36.3% in 2010, but the difference was not statistically significant. The self-reported prevalence of obesity (BMI ≥ 30.0) in Arkansas almost doubled between 1995 (17.5%) and 2010 (30.9%), a statistically significant difference. No state has met the Healthy People 2010 goal of lowering obesity prevalence to 15%.
- In 2011 (not comparable to data from previous years), almost two-thirds (64.9%) of Arkansas adults were overweight or obese. One-third (34.0%) of Arkansas adults reported being overweight and 30.9% reported being obese.

Figure 30. Prevalence of Self-Reported Overweight and Obesity (BMI ≥ 25.0) among Adults, Arkansas and United States, 1995-2011



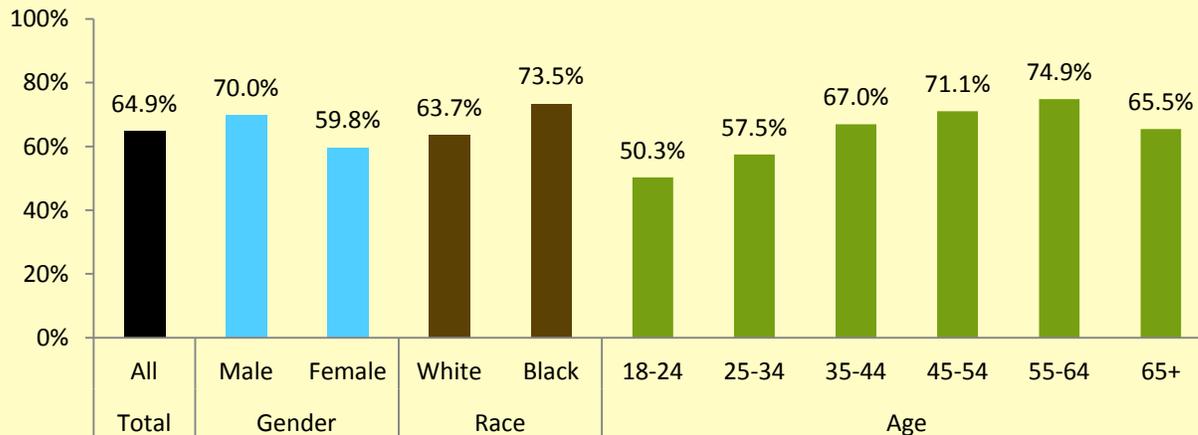
Source: Behavioral Risk Factor Surveillance System, CDC

Notes: 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C.

Disparities in Prevalence of Self-Reported Overweight and Obesity

- Gender and racial disparities exist for self-reported overweight and obesity prevalence. Men reported a prevalence of 70.0% while women reported a prevalence of 59.8%. The difference in overweight prevalence between men (39.3%) and women (28.6%) was statistically significant, but the difference in obesity prevalence was not (male: 30.7%, female: 31.2%).
- Black Arkansas adults (73.5%) reported higher overweight and obesity prevalence compared to white Arkansas adults (63.7%). There was no statistically significant difference by race for overweight (blacks: 35.4%, whites: 32.7%) and obesity prevalence (blacks: 38.1%, whites: 31.0%) individually (data not shown).

Figure 31. Prevalence of Self-Reported Overweight and Obesity among Adults by Demographic Characteristics, Arkansas, 2011



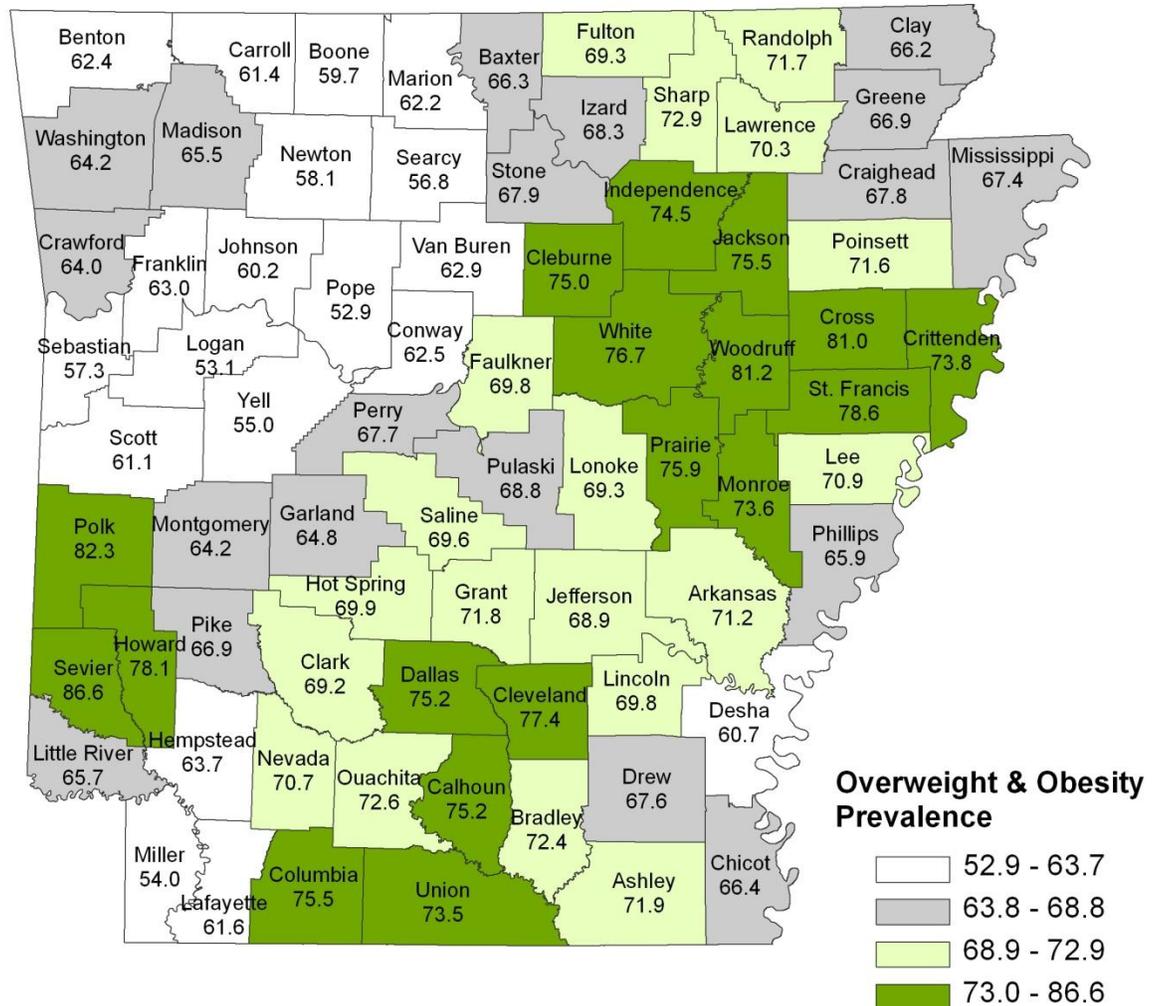
Source: Behavioral Risk Factor Surveillance System, CDC

TO ADDRESS THE EPIDEMIC OF OVERWEIGHT AND OBESITY, THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) HAS IDENTIFIED OBESITY, NUTRITION, AND PHYSICAL ACTIVITY AS WINNABLE BATTLES.

*THOMAS R. FRIEDEN, MD, MPH
DIRECTOR, CENTERS FOR DISEASE CONTROL AND PREVENTION**

* http://www.cdc.gov/WinnableBattles/Obesity/pdf/Obesity_WB_Letter.pdf

Map 7. Prevalence of Self-Reported Overweight and Obesity Among Adults Ages 18 and Older, by County Arkansas, 2010*



* State prevalence is 67.2%.

BRFSS Questions: About how much do you weigh without shoes? About how tall are you without shoes?

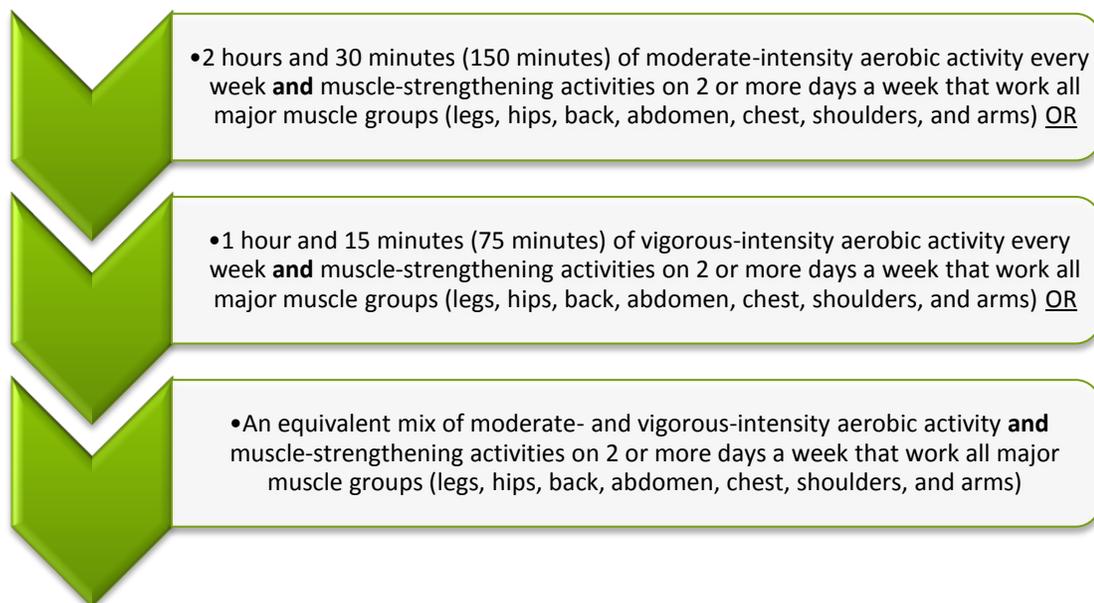
Classification Method: Quantile

Data Source: Arkansas Behavioral Risk Factor Surveillance System (BRFSS), 2010

* 2011 BRFSS county estimates were not available at the time of this publication.

Physical Inactivity

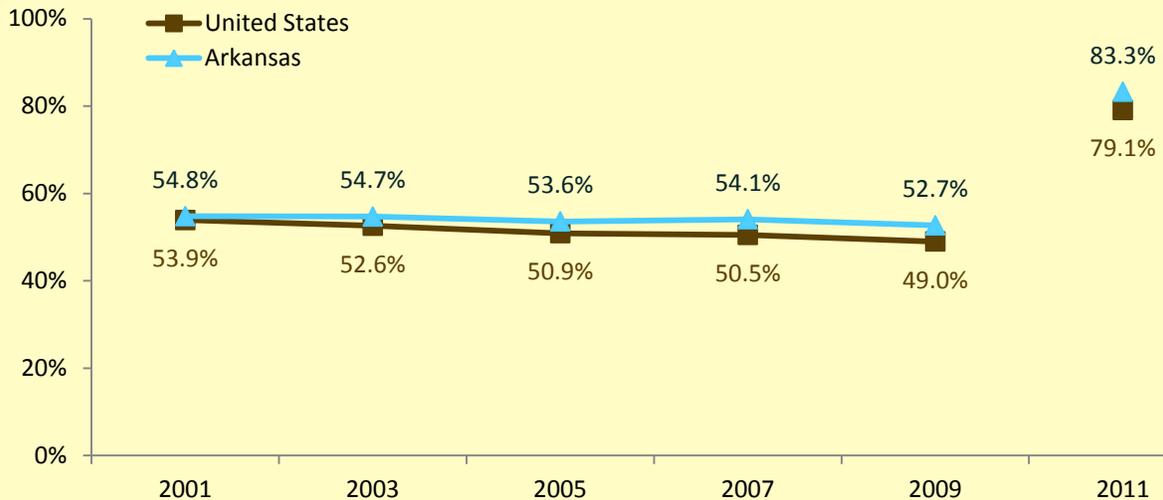
Physical inactivity is a risk factor for coronary heart disease. Regular moderate-to-vigorous exercise can help control blood cholesterol, obesity, and diabetes, and can help lower blood pressure in some people.¹ Recommendations from the *2008 Physical Activity Guidelines for Americans* are as follows:³³



Trends in Prevalence of Self-Reported Physical Inactivity

- In 1995, the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) published physical activity recommendations for public health. The CDC/ACSM guidelines recommended that adults accumulate at least 30 minutes a day of moderate-intensity physical activity on most, preferably all, days per week. For surveillance purposes, CDC specified that “most” days per week was five days. In 2008, the U.S. Department of Health & Human Services released the *2008 Physical Activity Guidelines for Americans*. The new 2008 guidelines are more flexible and allow a person to accumulate 150 minutes in various ways, rather than specifically 30 minutes on five days a week.
- Arkansas and the U.S. overall have made little progress in reducing levels of physical inactivity during the last decade, using the CDC/ACSM guidelines.
- The proportion of Arkansas adults reporting physical inactivity in 2011 was 83.3%, using the 2008 recommendations (2011 data are not comparable to previous years of data).

**Figure 32. Prevalence of Self-Reported Physical Inactivity among Adults
Arkansas and United States, 2001-2011**



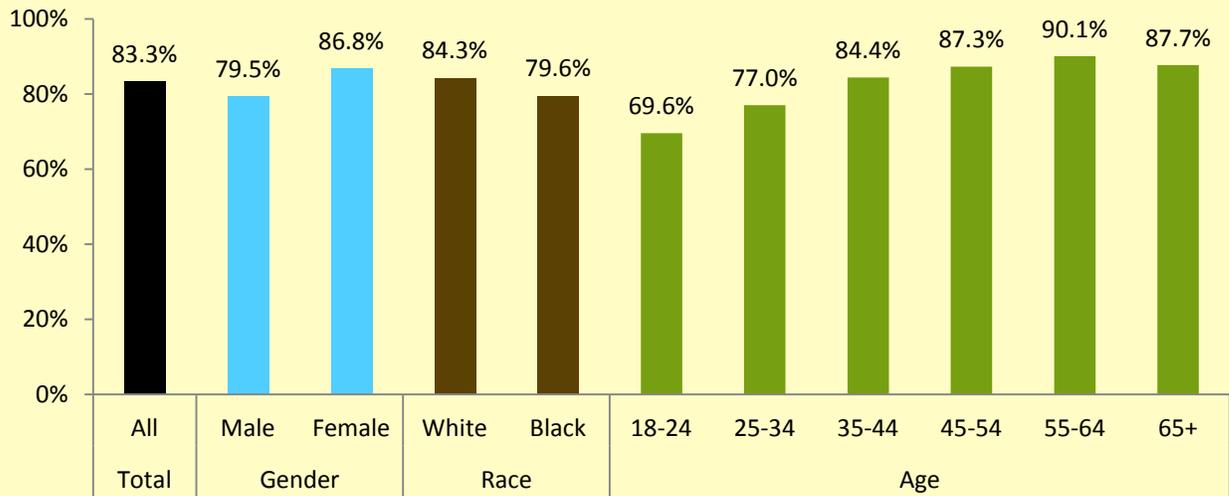
Source: Behavioral Risk Factor Surveillance System, CDC

Notes: Data from 2001 to 2009 represent the percent of adults who did not meet the 1995 physical activity guidelines. 2011 data represent the percent of adults who did not meet the 2008 Physical Activity Guidelines for Americans. 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C. The physical activity module is asked every odd year.

Disparities in Prevalence of Self-Reported Physical Inactivity

- A higher percent of Arkansas adult females (86.8%) reported being physically inactive compared to adult males (79.5%). The difference was statistically significant.
- White Arkansans (84.3%) were more likely to report being physically inactive compared to black Arkansans (79.6%), but the difference was not statistically significant.
- Overall, physical inactivity prevalence increased as age increased. Approximately 87.7% of Arkansans ages 65 and older did not meet recommended physical activity guidelines.

Figure 33. Prevalence of Self-Reported Physical Inactivity among Adults by Demographic Characteristics, Arkansas, 2011

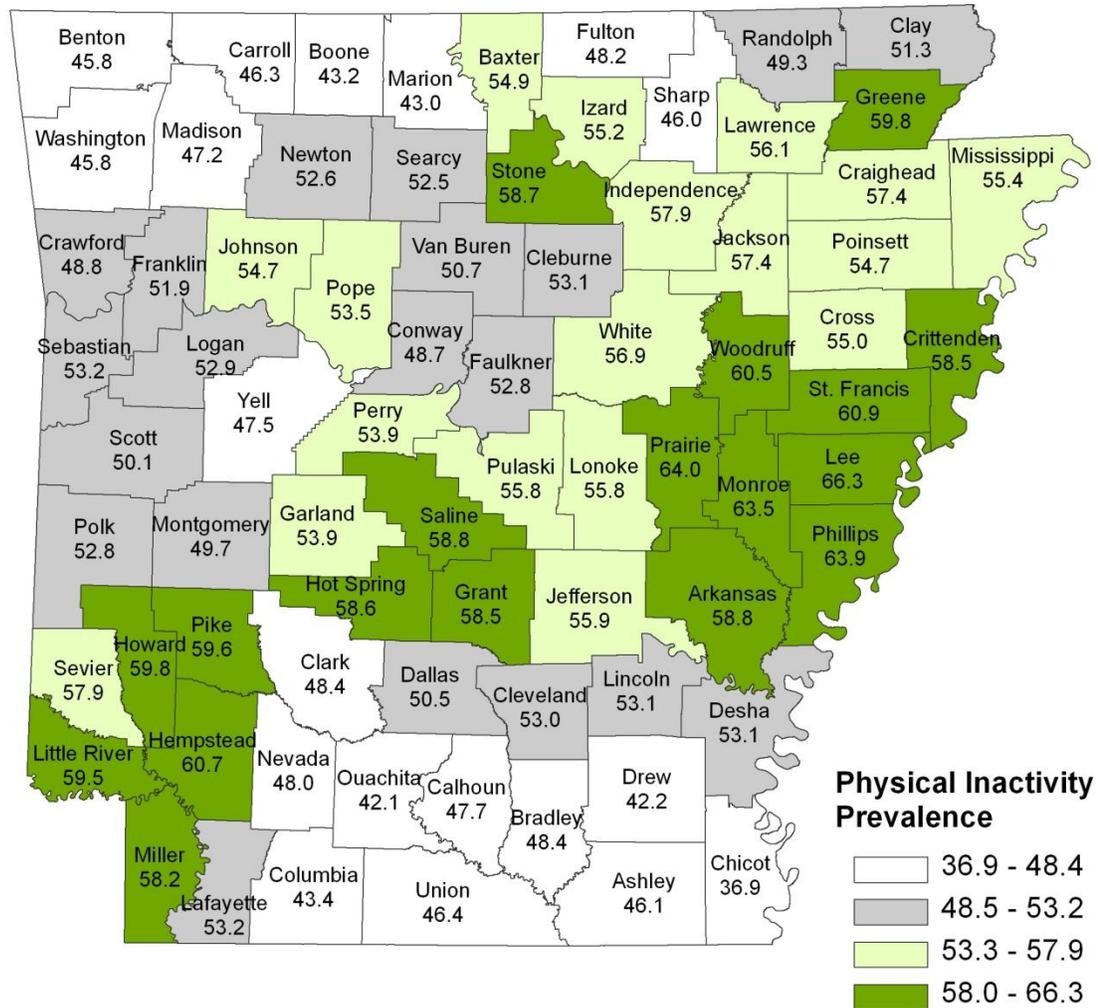


Source: Behavioral Risk Factor Surveillance System, CDC

Notes: Data represent the percent of adults in each group who did not meet the 2008 Physical Activity Guidelines for Americans.



Map 8. Prevalence of Self-Reported Physical Inactivity Among Adults Ages 18 and Older, by County Arkansas, 2009*



* State prevalence is 52.7%.

Physical Activity Recommendation: 30 or more minutes of moderate physical activity 5 or more days per week or vigorous physical activity for 20 or more minutes 3 or more days per week

Classification Method: Quantile

Data Source: Arkansas Behavioral Risk Factor Surveillance System (BRFSS), 2009

* 2011 BRFSS county estimates were not available at the time of this publication.

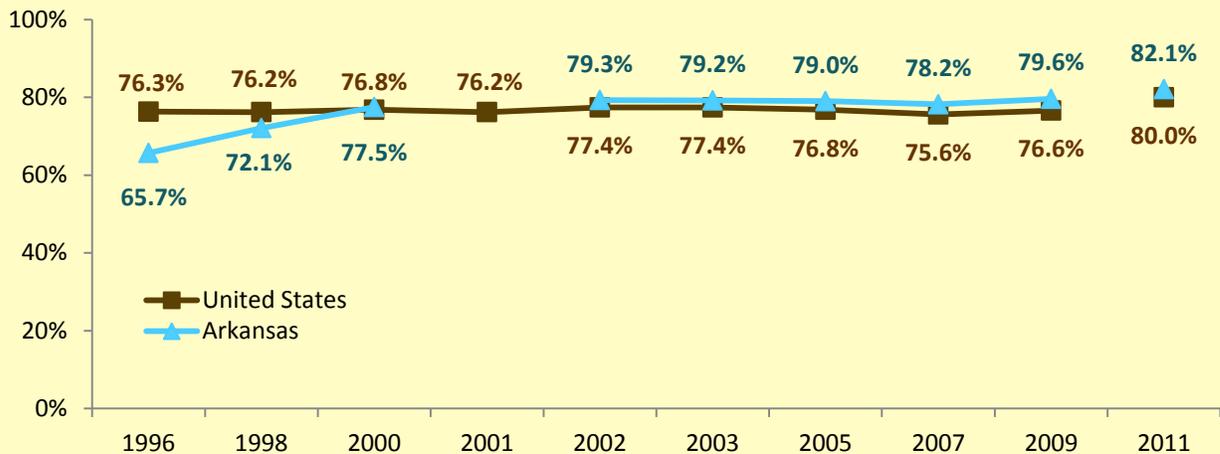
Inadequate Intake of Fruits and Vegetables

Eating a healthy diet (foods low in saturated fat, cholesterol, and sodium, and foods high in fiber), including fruits and vegetables, can lower a person's risk for heart disease and stroke.³⁴ National guidelines recommend five or more servings of fruits and vegetables for Americans per day.³⁵

Trends in Prevalence of Self-Reported Inadequate Intake of Fruits and Vegetables

- Inadequate consumption of fruits and vegetables increased significantly in Arkansas during the last 15 years (1996: 65.7%, 2009: 79.6%), whereas in the country overall, the prevalence was largely unwavering (1996: 76.3%, 2009: 76.6%). Arkansas' self-reported prevalence surpassed the U.S. prevalence in 2000 and in general, has increased very modestly since then.
- In 2011, 80.0% of U.S. adults reported not consuming the recommended five servings of fruits and vegetables a day, compared to 82.1% of Arkansas adults (2011 data are not comparable to previous years of data).

Figure 34. Prevalence of Self-Reported Inadequate Intake of Fruits and Vegetables* among Adults, Arkansas and United States, 1996-2011



* Inadequate intake is defined as consuming fruits and vegetables less than 5 times per day.

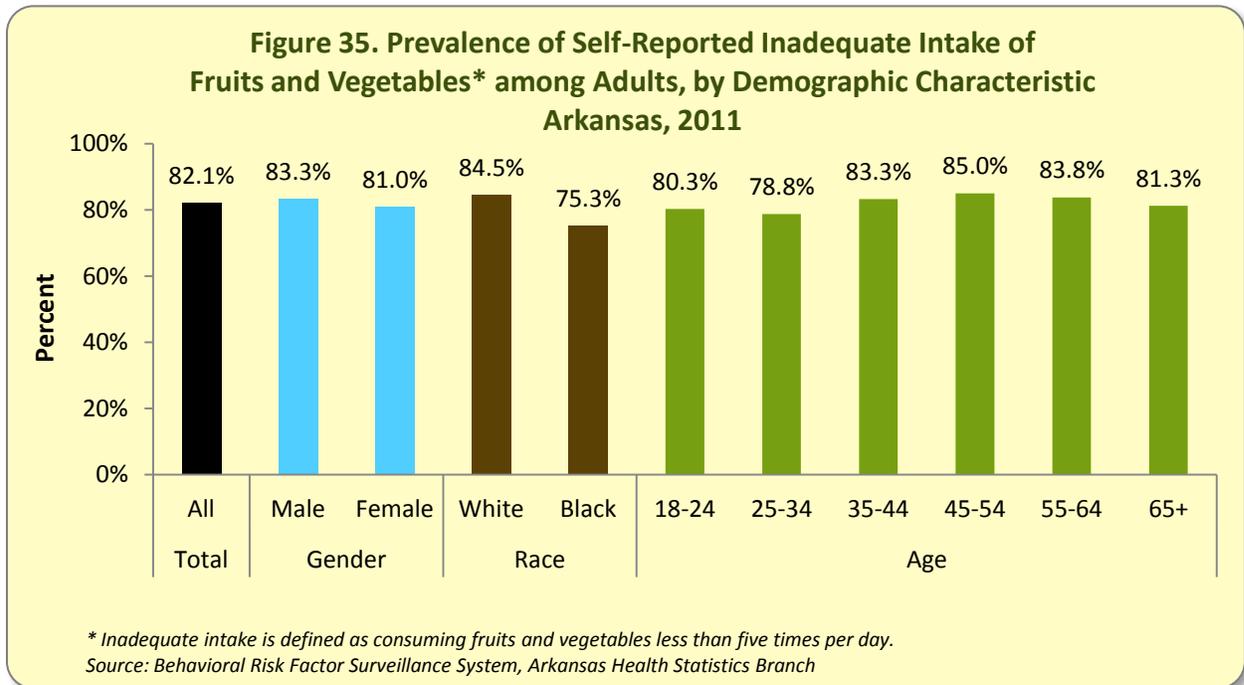
Source: Behavioral Risk Factor Surveillance System, CDC and Arkansas Department of Health

Notes: 2011 data are not comparable to prior years of data. The U.S. prevalence is the median of the states and Washington, D.C. The fruits and vegetable module is asked every odd year. Arkansas did not include the fruits and vegetables module in 2001.



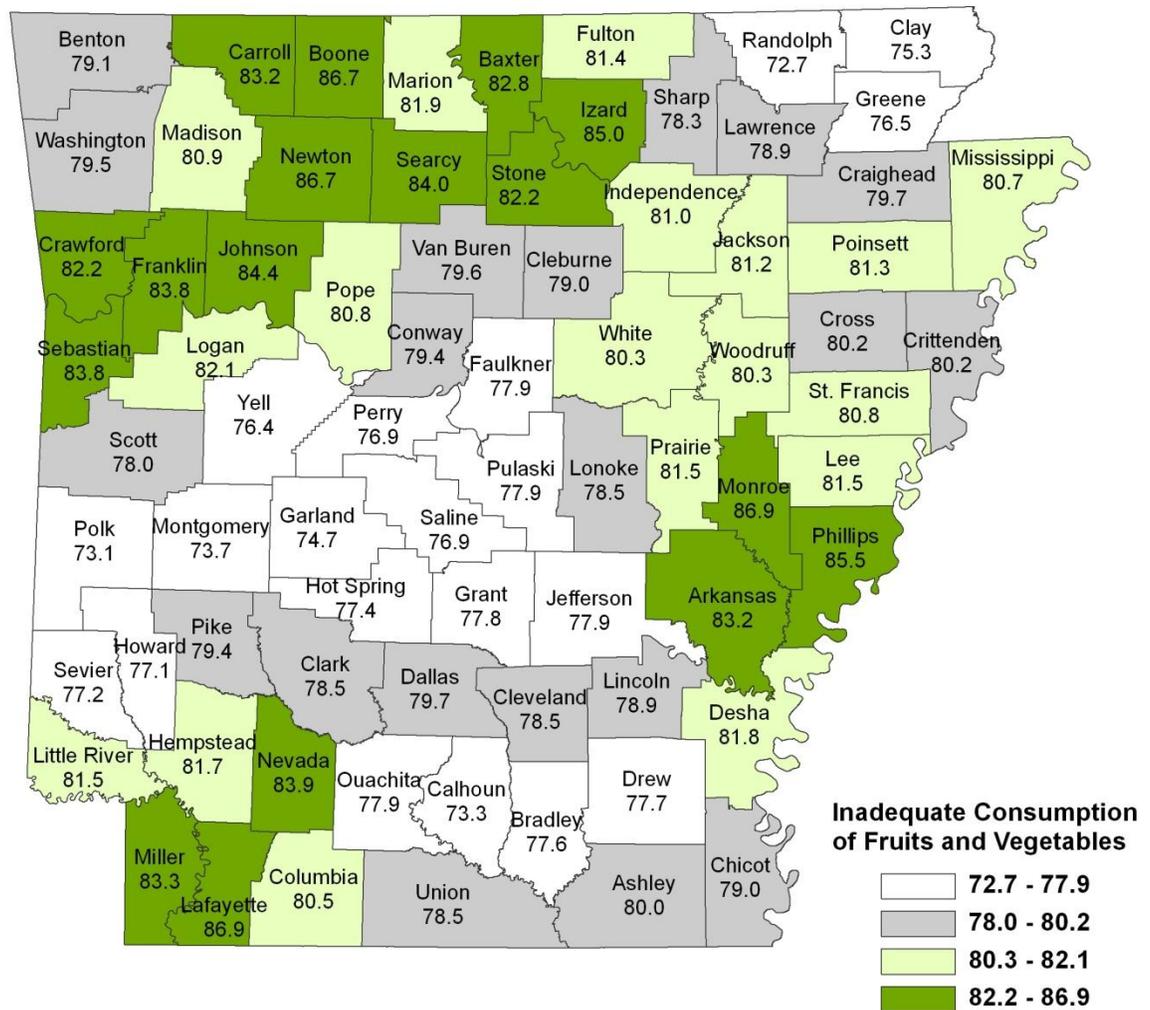
Disparities in Prevalence of Self-Reported Inadequate Intake of Fruits and Vegetables

- In 2011, the level of self-reported inadequate consumption of fruits and vegetables was higher among Arkansas males (83.3%) compared to Arkansas females (81.0%); however, the difference was not statistically significant.
- White Arkansans (84.5%) reported a significantly higher prevalence of inadequate fruits and vegetables intake compared to black Arkansans (75.3%).



Map 9. Prevalence of Self-Reported Inadequate Fruits & Vegetables Consumption among Adults Ages 18 and Older, by County

Arkansas, 2009*



* State prevalence is 79.6%.

Recommendation: Consume 5 or more servings of fruits and vegetables per day.
Classification Method: Quantile

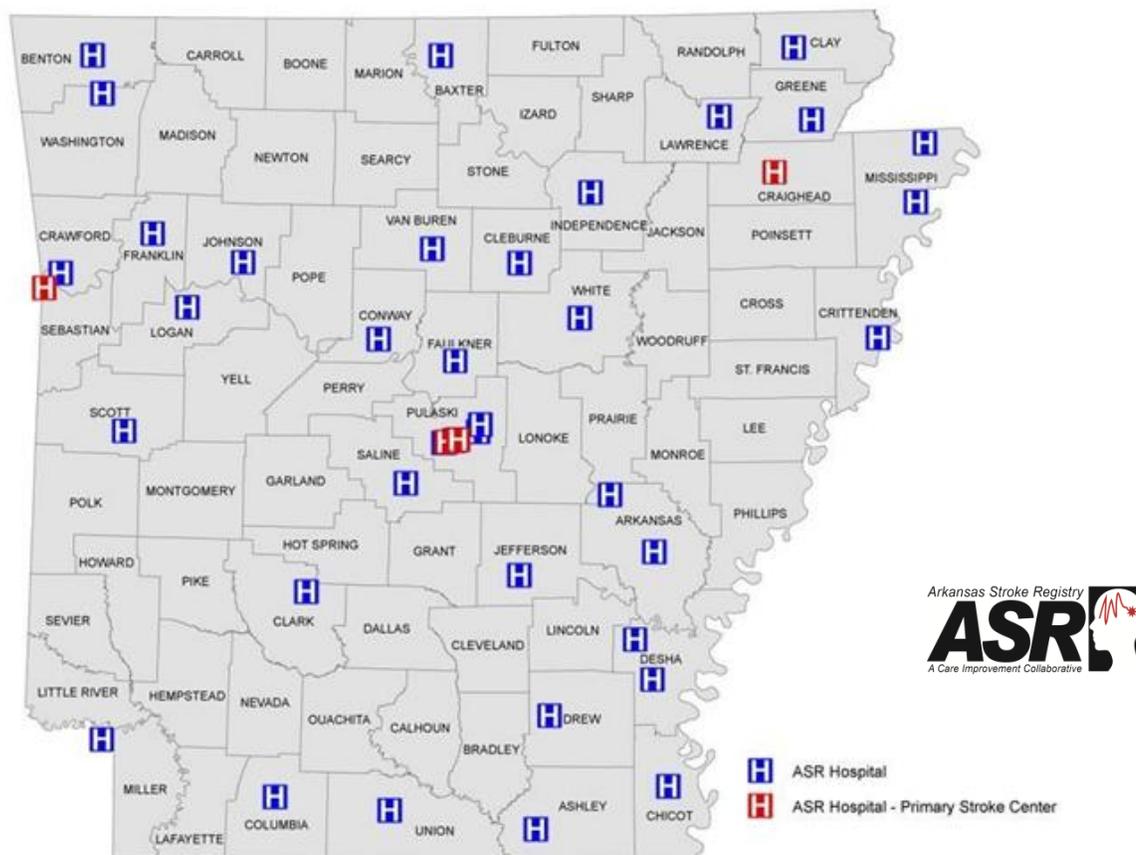
Data Source: Arkansas Behavioral Risk Factor Surveillance System (BRFSS), 2009

* 2011 BRFSS county estimates were not available at the time of this publication.

MAPS OF HOSPITALS & HEART DISEASE SPECIALISTS



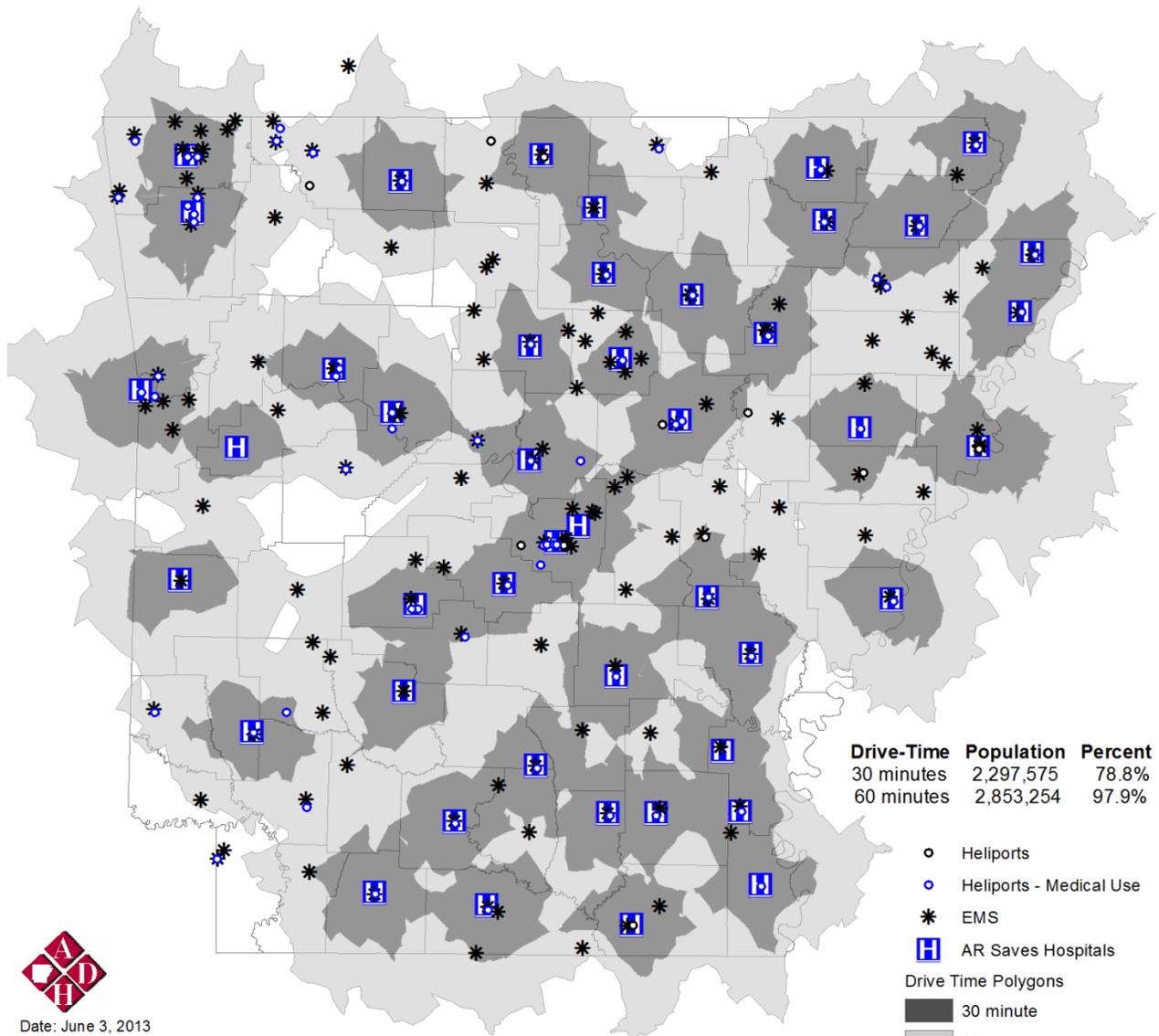
Map 10. Arkansas Stroke Registry: 41 Member Hospitals Arkansas, 2012



County	Facility
Pulaski	Arkansas Heart Hospital
Greene	Arkansas Methodist Medical Center
Ashley	Ashley County Medical Center
Clark	Baptist Health Medical Center – Arkadelphia
Cleburne	Baptist Health Medical Center - Heber Springs
Pulaski	Baptist Health Medical Center - Little Rock
Pulaski	Baptist Health Medical Center - NLR
Arkansas	Baptist Health Medical Center - Stuttgart
Baxter	Baxter Regional Medical Center
Chicot	Chicot Memorial Medical Center
Bowie, TX	CHRISTUS St. Michael Health System
Faulkner	Conway Regional Medical Center
Crittenden	Crittenden Regional Hospital
Desha	Delta Memorial Hospital
Arkansas	DeWitt Hospital
Drew	Drew Memorial Hospital
Mississippi	Great River Medical Center
Jefferson	Jefferson Regional Medical Center
Johnson	Johnson Regional Medical Center
Lawrence	Lawrence Memorial Hospital
Columbia	Magnolia Regional Medical Center
Desha	McGehee Hospital
Union	Medical Center of South Arkansas
Scott	Mercy Hospital Scott County
Franklin	Mercy Ozark
Logan	North Logan Mercy Hospital
Benton	Northwest Medical Center - Bentonville
Washington	Northwest Medical Center – Springdale
Van Buren	Ozark Health Medical Center
Clay	Piggott Community Hospital
Saline	Saline Memorial Hospital
Mississippi	SMC Regional Medical Center
Sebastian	Sparks Health System
Craighead	St. Bernards Medical Center
Pulaski	St. Vincent Infirmiry Medical Center
Pulaski	St. Vincent Medical Center / North
Conway	St. Vincent Morrilton
Crawford	Summit Medical Center
Pulaski	UAMS Medical Center
White	White County Medical Center
Independence	White River Medical Center

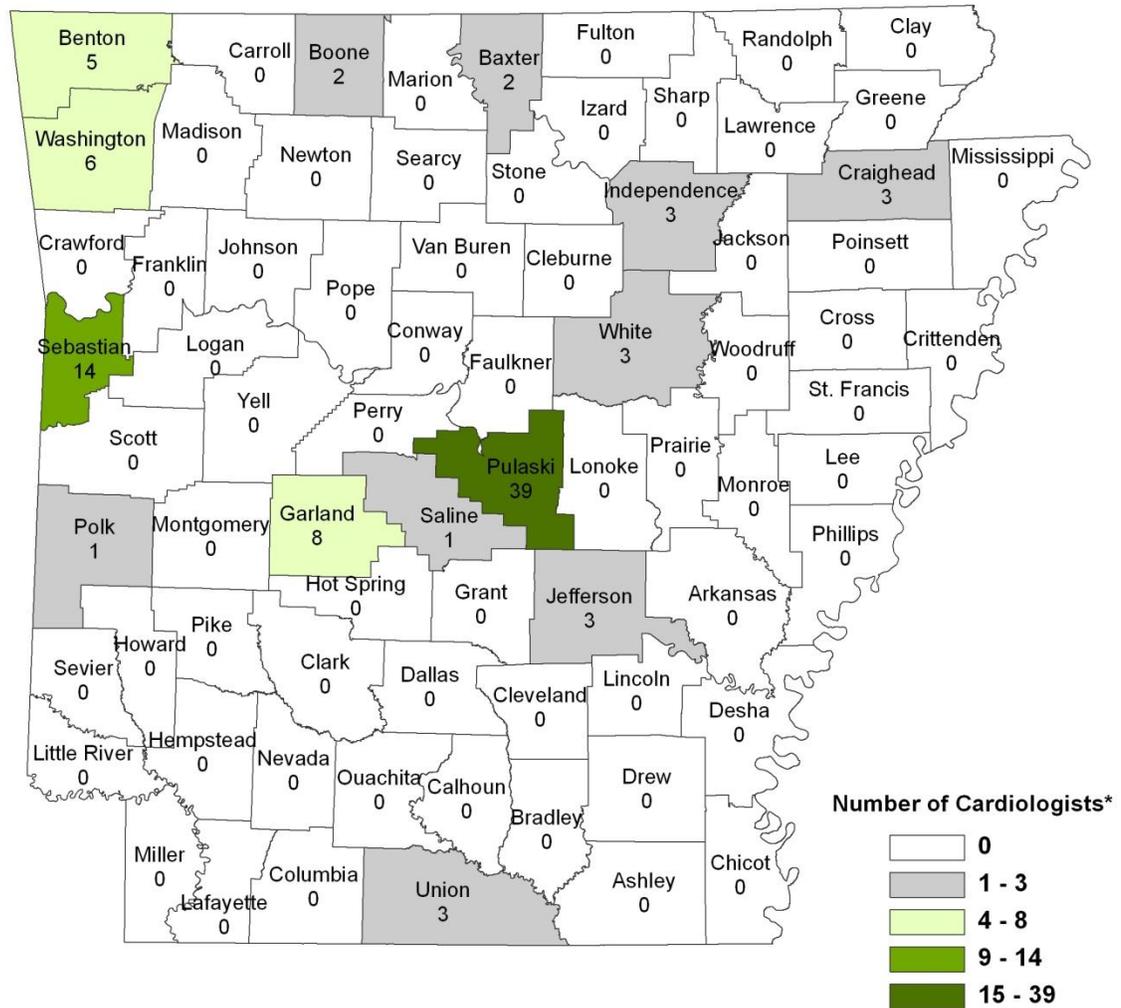
The Arkansas Department of Health (ADH) and the American Heart Association (AHA) are committed to working with Arkansas hospitals to improve the quality of acute stroke treatment and care. The Arkansas Stroke Registry (ASR) collects stroke data concerning emergency transport, clinical evaluation, diagnosis, and treatment of adult patients presenting to hospitals.

Map 11. 30 & 60 Minute Drive Times from Arkansas Stroke Assistance through Virtual Emergency Support (AR SAVES) Telemedicine Sites, Heliports, and Emergency Medical Services (EMS) Facilities



Date: June 3, 2013
 Source: Arkansas Department of Health
 Map created by: Amanda Worrell, GISP

Map 12. Number of Cardiologists, by County Arkansas, 2011



* The total number of cardiologists in the state was 93.

Cardiologists Data Source: Health Professions Manpower Assessment, Arkansas Department of Health

Data Sources & Technical Notes

A number of data sources were used to compile this report. A brief description of each major data source is provided below along with technical notes. Differences between subpopulations were deemed statistically significant at the alpha=0.05 level, which was determined using the 95% confidence intervals.

Mortality

The Centers for Disease Control and Prevention’s Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) is an online query system (www.wonder.cdc.gov) which provides a wide array of public health information. The Underlying Cause of Death Detailed Mortality File was used to acquire U.S. data for years 1999-2010. The most recent year of data available for state ranking is 2010. The Arkansas Health Statistics Branch’s online query system (<http://www.healthy.arkansas.gov/programsServices/healthStatistics/Pages/Statistics.aspx>) was used to calculate Arkansas mortality statistics, with the exception of the leading causes of death and years of potential life lost which were obtained through special request from the Arkansas Health Statistics Branch. The latest year of data available through the Arkansas Health Statistics Branch is 2011. Data for years 2008 through 2011 are considered provisional data and may be subject to change. All mortality rates were age-adjusted to the 2000 U.S. standard population, unless otherwise noted (ex: crude mortality rates or age-specific mortality rates). The International Classification of Diseases 10th Revision (ICD-10) codes used throughout this report appear in the table below:

Cause of Death	ICD-10 Codes
Diseases of the heart (heart disease)	I00-I09,I11,I13,I20-I51
Rheumatic fever/heart disease	I00-I09
Hypertensive heart disease	I11
Hypertensive heart and renal disease	I13
Coronary heart disease (ischemic heart disease)	I20-I25
Acute myocardial infarction	I21-I22

Cause of Death	ICD-10 Codes
Heart failure	I50
Other forms of heart disease	I26-I49,I51
Stroke (cerebrovascular disease)	I60-I69

Hospitalizations & Cost

The Hospital Discharge Data System of the Arkansas Health Statistics Branch, Arkansas Department of Health, collects data on all inpatient discharges in the state of Arkansas. Hospital Discharge Public Use Data Files were obtained from the Hospital Discharge Data System Section for years 2000 through 2011 and were analyzed using SAS version 9.3. Data in this report are based on the principal ICD-9 diagnosis code. These data contain discharge information for Arkansas hospitals only; information regarding Arkansans who were hospitalized out of state were not collected. Charges do not reflect actual payment. Population estimates used to calculate hospitalization rates are from the U.S. Census Bureau. Hospitalization total charges and average charges were adjusted to 2011 U.S. dollars to account for inflation. The International Classification of Diseases 9th Revision (ICD-9) codes used throughout this report appear in the table below:

Cause of Death	ICD-9 Codes
Coronary heart disease (ischemic heart disease)	410-414, 429.2
Stroke (cerebrovascular disease)	430-438

Awareness of Signs & Symptoms and Risk Factors

The Behavioral Risk Factor Surveillance System (BRFSS) is a standardized, random telephone health survey conducted by each of the 50 states, Washington, D.C., and three U.S. territories under the guidance of the Centers for Disease Control and Prevention (CDC). The survey collects information on health conditions and personal health behaviors among adults ages 18 years and older. National BRFSS estimates are the median of the states and Washington, D.C. BRFSS data are estimates based on self-reported data and should therefore be interpreted with caution. Respondents may have difficulty recalling events, understanding or interpreting questions, or responding truthfully to questions such as height, weight, and health behaviors.³⁶ Observed trends may be due to an increase or decrease in awareness and screening (i.e. the increasing trend for hypertension prevalence may be partly explained by an increasing awareness of the condition and increased screening rather than actual prevalence). Beginning in 2011, CDC implemented two major changes in methodology: (1) the inclusion of households that have a cellular telephone but not a landline telephone and (2) an improved methodology in statistical weighting to account for differences in respondents and the target population. Because of these two major changes, 2011 data are **not** comparable to previous years of data and should be considered a new baseline.

Questions assessing the prevalence of diseases such as coronary heart disease and stroke are asked among survivors and do not take into account events that resulted in death. Core modules are included on the survey every year or on rotating odd and even years, depending on the module. Questions for coronary heart disease, stroke, tobacco use, diabetes, and BMI are asked every year; the most recent year of data for these topics is 2011. Questions for high blood pressure, high blood

cholesterol, physical activity, and consumption of fruits and vegetables are included on the questionnaire on odd years; the most recent year of data for these topics is also 2011. The optional Heart Attack and Stroke Signs and Symptoms Module was included on the Arkansas questionnaire in 2011.

The Arkansas Health Statistics Branch develops county-level BRFSS estimates from the state survey data for single years. County estimates are calculated by combining data from adjacent counties. These data are then weighted to match the age, race, and gender distribution of the county for which the estimates are being generated. The latest year for which county-level BRFSS estimates are available is 2010.

The Arkansas Cardiovascular Health Examination Survey (ARCHES) is a state-level health and nutrition examination survey which examined hypertension and other chronic diseases, risk factors, health care utilization and medication use. In addition to interviews by trained staff, the survey also collected blood and urine samples, as well as measured data on blood pressure, height, weight, and abdominal circumference. ARCHES was conducted on a representative sample of approximately 1,400 adults across Arkansas between mid-2006 and early 2008.

Health Professionals

The Health Professions Manpower Assessment, maintained by the Arkansas Health Statistics Branch, is the primary source of data on Arkansas' healthcare workforce. Data are collected on an annual basis from professional licensing boards. The most recent year of data available is 2011.

Appendices

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Appendix A. Arkansas and U.S. Demographics, 2010 and 2011

	Arkansas		United States	
	Number	Percent	Number	Percent
Total population (2011)	2,937,979	100.0%	311,591,917	100.0%
Males	1,442,779	49.1%	153,290,819	49.2%
Females	1,495,200	50.9%	158,301,098	50.8%
Age distribution (2011)				
Under 18 years of age	710,474	24.2%	73,934,272	23.7%
Ages 18-44	1,031,295	35.1%	113,483,161	36.4%
Ages 45-64	767,111	26.1%	82,780,343	26.6%
Ages 65 and older	429,099	14.6%	41,394,141	13.3%
Racial distribution (2011)				
Whites	2,354,196	80.1%	243,470,497	78.1%
Blacks or African Americans	457,736	15.6%	40,750,746	13.1%
Asian	39,525	1.3%	15,578,383	5.0%
American Indian/Native American	27,581	0.9%	3,814,772	1.2%
Native Hawaiian and Other Pacific Islander	6,853	0.2%	692,091	0.2%
Two or More Races	52,088	1.8%	7,285,428	2.3%
Ethnic distribution (2011)				
Hispanic origin	195,075	6.6%	52,045,277	16.7%
Non-Hispanic origin	2,742,904	93.4%	259,546,640	83.3%
Median household income (2010)				
	\$38,307	N/A	\$50,046	N/A
Educational attainment, percent (2010)				
High school graduates, persons ages 25+	N/A	82.9%	N/A	85.6%
Bachelor's degree or higher, persons ages 25+	N/A	19.5%	N/A	28.2%
Persons below the poverty level, percent (2010)				
	N/A	18.8%	N/A	15.3%

N/A = the estimate is not applicable

Sources: 2011 U.S. Census Bureau estimates and 2010 American Community Survey (American FactFinder)

Appendix B. Coronary Heart Disease Deaths, by County, Arkansas, 2007- 2011

County	Total		Male		Female	
	Deaths	Rate ¹	Deaths	Rate ¹	Deaths	Rate ¹
State	23,651	143.2	13,061	188.0	10,590	107.0
Arkansas	230	180.9	124	251.7	106	130.3
Ashley	260	193.6	155	274.1	105	131.6
Baxter	398	100.4	254	145.6	144	62.5
Benton	1,270	119.7	684	142.4	586	98.9
Boone	420	158.8	240	223.7	180	108.9
Bradley	192	232.4	92	285.1	100	187.6
Calhoun	45	127.7	25	183.2	20	89.6
Carroll	206	113.2	116	141.7	90	85.7
Chicot	220	263.6	118	385.1	102	189.5
Clark	199	146.2	104	198.2	95	106.6
Clay	267	220.0	140	289.1	127	162.5
Cleburne	357	172.6	183	203.1	174	143.2
Cleveland	75	145.3	37	159.8	38	129.6
Columbia	266	161.8	144	232.6	122	110.3
Conway	165	126.9	96	167.0	69	93.1
Craighead	714	152.2	405	211.1	309	107.6
Crawford	643	216.5	333	251.1	310	183.2
Crittenden	387	167.7	200	209.6	187	136.6
Cross	150	135.5	94	210.3	56	82.0
Dallas	80	150.8	45	202.1	35	107.6
Desha	186	237.9	94	286.2	92	194.1
Drew	133	127.1	69	153.5	64	103.9
Faulkner	489	107.7	285	146.0	204	76.9
Franklin	196	163.3	123	233.7	73	101.6
Fulton	177	187.6	96	233.0	81	147.9
Garland	1,035	134.8	592	179.5	443	98.1
Grant	117	123.9	57	136.1	60	111.3
Greene	417	184.3	217	238.4	200	142.0
Hempstead	320	242.9	165	314.9	155	187.9
Hot Spring	279	139.2	178	205.1	101	87.7
Howard	145	164.4	68	191.6	77	143.1
Independence	398	183.5	203	226.0	195	149.7
Izard	144	132.2	82	168.3	62	97.5
Jackson	201	192.2	93	215.7	108	171.5
Jefferson	704	161.0	374	207.2	330	124.4
Johnson	211	144.4	103	163.0	108	122.5
Lafayette	79	145.5	42	184.7	37	109.5
Lawrence	178	146.4	93	194.3	85	110.9
Lee	107	171.0	69	243.0	38	116.5

County	Total		Male		Female	
	Deaths	Rate ¹	Deaths	Rate ¹	Deaths	Rate ¹
Lincoln	139	186.7	72	218.9	67	148.4
Little River	133	158.3	74	209.5	59	113.9
Logan	270	182.2	152	234.3	118	138.9
Lonoke	349	116.6	194	150.6	155	89.7
Madison	111	110.0	66	149.3	45	74.3
Marion	161	114.5	102	155.2	59	76.6
Miller	250	100.4	160	155.3	90	60.7
Mississippi	564	244.5	309	326.9	255	182.8
Monroe	127	206.5	81	340.8	46	118.9
Montgomery	85	120.4	50	152.1	35	89.6
Nevada	121	191.9	55	218.2	66	166.9
Newton	84	140.0	42	160.7	42	122.5
Ouachita	285	163.6	160	221.6	125	117.0
Perry	88	132.3	58	197.7	30	77.1
Phillips	238	193.8	125	261.7	113	146.2
Pike	100	130.9	63	196.5	37	76.7
Poinsett	267	183.3	166	278.0	101	115.4
Polk	257	181.1	139	230.8	118	140.0
Pope	421	128.7	242	172.3	179	93.0
Prairie	114	174.5	61	212.5	53	140.2
Pulaski	2,034	101.8	1,106	140.4	928	74.7
Randolph	167	130.5	87	167.1	80	99.4
St. Francis	286	207.9	141	241.6	145	174.5
Saline	540	102.6	336	142.3	204	69.3
Scott	170	248.7	85	275.2	85	215.2
Searcy	88	135.5	56	194.0	32	86.9
Sebastian	1,096	160.4	569	203.9	527	125.8
Sevier	114	137.3	61	168.4	53	104.2
Sharp	237	164.5	132	215.2	105	120.6
Stone	117	123.2	61	136.1	56	110.1
Union	267	97.9	159	148.8	108	64.1
Van Buren	149	106.1	95	153.7	54	62.3
Washington	1,101	132.1	616	176.2	485	98.2
White	659	151.3	375	207.3	284	106.5
Woodruff	152	299.8	81	426.9	71	215.7
Yell	238	179.1	129	244.4	109	128.1

¹ Rates are per 100,000 population and are age-adjusted to the 2000 U.S. Standard Population.

Source: Arkansas Health Statistics Branch, Arkansas Department of Health

Appendix C. Stroke Deaths, by County, Arkansas, 2007- 2011

County	Total		Male		Female	
	Deaths	Rate ¹	Deaths	Rate ¹	Deaths	Rate ¹
State	8,552	52.0	3,409	50.9	5,143	51.5
Arkansas	90	72.2	38	75.2	52	71.8
Ashley	83	61.3	23	46.2	60	71.5
Baxter	208	50.3	92	51.8	116	48.2
Benton	457	43.5	190	41.1	267	45.0
Boone	105	40.3	42	38.8	63	40.9
Bradley	50	61.4	20	62.5*	30	59.2
Calhoun	21	56.1	**	**	11	47.8*
Carroll	85	47.1	34	43.4	51	48.4
Chicot	51	66.3	20	64.2*	31	68.6
Clark	88	64.3	37	74.0	51	55.8
Clay	95	75.6	33	70.5	62	80.4
Cleburne	95	45.2	42	47.2	53	41.3
Cleveland	21	40.6	**	**	13	44.3*
Columbia	108	66.9	40	66.7	68	64.4
Conway	84	62.7	31	58.5	53	64.9
Craighead	284	60.8	94	49.7	190	65.1
Crawford	125	43.6	56	44.8	69	41.7
Crittenden	94	42.2	32	36.0	62	45.9
Cross	67	61.7	22	47.8	45	67.4
Dallas	33	55.9	**	**	25	68.5
Desha	67	80.8	30	92.0	37	71.9
Drew	52	49.9	26	59.9	26	39.4
Faulkner	258	58.4	103	56.6	155	58.3
Franklin	57	43.5	24	47.4	33	40.6
Fulton	43	44.2	13	32.7*	30	51.2
Garland	365	46.5	148	45.0	217	46.3
Grant	47	50.2	23	54.5	24	43.2
Greene	172	76.0	62	66.7	110	78.9
Hempstead	87	65.2	34	69.0	53	63.1
Hot Spring	118	59.9	44	51.6	74	62.5
Howard	47	53.1	16	46.8*	31	56.3
Independence	95	43.9	37	42.2	58	44.3
Izard	56	52.0	25	52.2	31	48.7
Jackson	60	57.2	22	50.9	38	58.0
Jefferson	256	58.4	105	59.5	151	56.1
Johnson	81	56.2	36	61.1	45	51.1
Lafayette	29	56.0	**	**	20	66.4*
Lawrence	56	44.5	27	55.3	29	34.4
Lee	27	41.5	12	39.4*	15	41.2*

County	Total		Male		Female	
	Deaths	Rate ¹	Deaths	Rate ¹	Deaths	Rate ¹
Lincoln	27	36.9	12	36.5*	15	37.3*
Little River	55	68.9	15	49.0*	40	82.2
Logan	85	56.9	41	65.4	44	48.8
Lonoke	159	55.2	63	53.3	96	54.8
Madison	39	40.2	20	46.1*	19	34.5*
Marion	56	42.0	24	39.2	32	44.3
Miller	131	52.4	53	53.3	78	51.0
Mississippi	137	58.8	56	58.3	81	57.1
Monroe	37	61.4	15	64.6*	22	58.1
Montgomery	56	79.1	16	49.2*	40	98.5
Nevada	48	75.9	15	59.8*	33	82.8
Newton	20	33.2*	10	40.2*	10	28.3*
Ouachita	99	57.9	36	50.9	63	61.9
Perry	44	67.1	23	81.9	21	53.4
Phillips	92	73.1	45	91.8	47	60.4
Pike	39	47.5	18	53.6*	21	39.0
Poinsett	92	64.4	44	81.1	48	55.9
Polk	61	41.2	30	48.8	31	37.1
Pope	172	52.0	62	46.9	110	56.0
Prairie	37	53.4	18	64.2*	19	45.1*
Pulaski	975	49.8	375	51.2	600	47.9
Randolph	58	43.6	29	53.4	29	34.7
St. Francis	79	57.4	33	58.0	46	56.3
Saline	226	43.9	98	42.4	128	43.8
Scott	34	50.0	12	43.5*	22	54.3
Searcy	33	52.6	16	62.9*	17	44.4*
Sebastian	369	54.5	145	55.0	224	53.5
Sevier	31	36.6	16	47.4*	15	29.3*
Sharp	59	39.3	25	38.5	34	39.4
Stone	51	55.0	16	36.3*	35	70.1
Union	208	72.7	77	73.4	131	74.1
Van Buren	67	43.4	25	38.6	42	45.9
Washington	349	42.7	140	42.3	209	42.0
White	212	48.8	82	46.5	130	48.9
Woodruff	28	54.9	12	64.5*	16	47.6*
Yell	63	47.3	21	39.9	42	48.5

¹ Rates are per 100,000 population and are age-adjusted to the 2000 U.S. Standard Population.

* Death rates are unreliable when there are 20 or fewer stroke deaths.

** Data are suppressed when there are less than 10 stroke deaths.

Source: Arkansas Health Statistics Branch, Arkansas Department of Health

Appendix D. Selected Healthy People 2010 Objectives and Arkansas Data

Objective Number	Topic Area/Objectives	2010 Target Goal	Data Source	Arkansas Data and Year	HP2010 Objective Met?
12-1	Reduce coronary heart disease deaths	166 deaths per 100,000 population	Arkansas Health Statistics Branch (ICD-10 codes: I20-I25)	141.6 deaths per 100,000 population (2010 data)	Yes
12-7	Reduce stroke deaths	48 deaths per 100,000 population	Arkansas Health Statistics Branch (ICD-10 codes: I60-I69)	53.1 deaths per 100,000 population (2010 data)	No
12-9	Reduce the proportion of adults with high blood pressure	16%	Arkansas Cardiovascular Health Examination Survey	48.3% (2007 data)	No
12-10	Increase the proportion of adults with high blood pressure whose blood pressure is under control.	50%	Arkansas Cardiovascular Health Examination Survey	30.0% (2007 data)	No
12-11	Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, or reducing sodium intake) to help control their blood pressure.	95%	BRFSS, Health Statistics Branch	84.9%* (2009 data)	No
12-13	Reduce the mean total blood cholesterol levels among adults.	199 mg/dL (mean)	Arkansas Cardiovascular Health Examination Survey	196.6 mg/dL (2007 data)	Yes
12-14	Reduce the proportion of adults with high total blood cholesterol levels.	17%	Arkansas Cardiovascular Health Examination Survey	12.1% with high total cholesterol level \geq 240 mg/dL (2007 data)	Yes
12-15	Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.	80%	Arkansas Cardiovascular Health Examination Survey	69.6% (2007 data)	No

* *Note: Action is defined as taking at least one of the following actions to control HBP: eat better, reduce salt intake, reduce alcohol intake, or exercising. This module was last included on the BRFSS questionnaire in 2009.*

Appendix E. National and Arkansas Healthy People 2020 Objectives and Goals for Heart Disease and Stroke

Number	Healthy People 2020 Objectives	Arkansas Baseline Data*	Arkansas 2020 Target Goal	National 2020 Target Goal
HDS 1	(Developmental) Increase overall cardiovascular health in the U.S. population.	Not Available	Not Available	Not Available
HDS 2	Reduce coronary heart disease deaths.	149.9 deaths per 100,000 in 2007	119.9 deaths/100,000 Target setting method: 10% improvement	100.8 deaths/100,000 Target setting method: Projection (20% improvement).
HDS 3	Reduce stroke deaths.	57.3 deaths per 100,000 in 2007	51.6 deaths/100,000 Target setting method: 10% improvement	33.8 deaths/100,000 Target setting method: Projection (20% improvement).
HDS 4	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 normal or high.	94.9%	Not Available	94.9% Target setting method: 2 percentage point improvement
HDS 5	Reduce the proportion of persons in the population with hypertension. 5.1 Reduce the proportion of adults with hypertension. 5.2 Reduce the proportion of children and adolescents with hypertension.	(5.1) 48.3% (5.2) Not Available Source: 2007 ARCHES	Potential objective. Currently no data, but an opportunity for data collection in the future.	(5.1) 26.9% Target setting method: 10% improvement. (5.2) 3.2% Target setting method: 10% improvement.
HDS 6	Increase the proportion of adults who have their blood cholesterol checked within the preceding 5 years.	69.6% Source: 2007 ARCHES	76.9% Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	82.1% Target setting method: 10% improvement.
HDS 7	Reduce the proportion of adults with high total blood cholesterol levels.	12.1% Source: 2007 ARCHES Note: High total cholesterol level ≥ 240	10.9% Target setting method: 10% Improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	13.5% Target setting method: 10% improvement

Number	Healthy People 2020 Objectives	Arkansas Baseline Data	Arkansas 2020 Target Goal	National 2020 Target Goal
HDS 8	Reduce the mean total blood cholesterol levels among adults.	196.6 mg/dL Source: 2007 ARCHES	176.9 mg/dL Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	177.9 mg/dL (mean) Target setting method: 10% improvement.
HDS 9	Increase the proportion of adults with pre-hypertension who meet the recommended guidelines for: 9.1 (Developmental) Body mass index (BMI) 9.2 (Developmental) Saturated fat consumption 9.3 (Developmental) Sodium intake 9.4 (Developmental) Physical activity 9.5 (Developmental) Moderate alcohol consumption	(9.1) 20.7% (9.2) 27.2% (9.3) 28.8% (9.4) not available (9.5) not available Source: 2007 ARCHES	(9.1) 22.8% (9.2) 29.9% (9.3) 31.7% (9.4) not available (9.5) not available Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 10	Increase the proportion of adults with hypertension who meet the recommended guidelines for: 10.1 (Developmental) BMI 10.2 (Developmental) Saturated fat consumption 10.3 (Developmental) Sodium intake 10.4 (Developmental) Physical activity 10.5 (Developmental) Moderate alcohol consumption	(10.1) 9.9% (10.2) 22.5% (10.3) 27.2% (10.4) not available (10.5) not available Source: 2007 ARCHES	(10.1) 10.9% (10.2) 24.7% (10.3) 29.9% (10.4) not available (10.5) not available Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 11	(Developmental) Increase the proportion of adults with hypertension who are taking the prescribed medications to lower their blood pressure.	Not available	Potential objective. Currently no data, but an opportunity for data collection in the future.	77.4% Target setting method: 10% improvement.
HDS 12	Increase the proportion of adults with high blood pressure whose blood pressure is under control.	39.4% Source: 2007 ARCHES	43.3% Potential objective. Currently no data, but an opportunity for data collection in the future.	61.2% Target setting method: Projection (40% improvement).

Number	Healthy People 2020 Objectives	Arkansas Baseline Data	Arkansas 2020 Target Goal	National 2020 Target Goal
HDS 13	(Developmental) Increase the proportion of adults with elevated LDL cholesterol who have been advised by a health care provider regarding cholesterol-lowering management including lifestyle changes, and, if indicated, medication. 13.1 (Developmental) Cholesterol-lowering diet 13.2 (Developmental) Physical activity 13.3 (Developmental) Weight control 13.4 (Developmental) Prescribed drug therapy	Not Available	Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 14	(Developmental) Increase the proportion of adults with elevated LDL-cholesterol who adhere to the prescribed LDL-cholesterol lowering management lifestyle changes and, if indicated, medication. 14.1 Cholesterol-lowering diet 14.2 Physical activity 14.3 Weight control 14.4 Prescribed drug therapy	Not Available	Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 15	(Developmental) Increase aspirin use as recommended among adults with no history of cardiovascular disease. 15.1 Women aged 55 to 79 years 15.2 Men aged 45 to 79 years	Not Available	Not Available	Not Available
HDS 16	Increase the proportion of adults aged 20 years and older who are aware of, and respond to, early warning symptoms and signs of a heart attack.	11.4% Source: 2007 BRFSS	13.7% Target setting method: 10% improvement	43.1% Target setting method: 10% improvement.
HDS 17	Increase the proportion of adults aged 20 years and older who are aware of and respond to early warning signs of a stroke.	17.1% Source: 2007 BRFSS	20.5% Target setting method: 10% improvement trend Trends 2003=14.9% 2007=17.1% 14.8%↑	Not Available

Number	Healthy People 2020 Objectives	Arkansas Baseline Data	Arkansas 2020 Target Goal	National 2020 Target Goal
HDS 18	(Developmental) Increase the proportion of out-of-hospital cardiac arrests in which appropriate bystander and emergency medical services (EMS) were administered.	Not Available	Not Available	Not Available
HDS 19	Increase the proportion of eligible patients with heart attacks or stroke who receive timely artery-opening therapy as specified by current guidelines.	Not Available. Being developed by Arkansas Stroke Registry.	15.1% Target Setting method: 10% improvement	75.1% Target setting method: 10% improvement. 97.5% Target setting method: 10% improvement.
HDS 20	(Developmental) Increase the proportion of adults with coronary heart disease or stroke who have their low-density lipoprotein (LDL) cholesterol level at or below recommended levels. 20.1 (Developmental) Increase the proportion of adults with coronary heart disease who have their low-density lipoprotein (LDL)-cholesterol at or below recommended levels. 20.2 (Developmental) Increase the proportion of adults who have had a stroke who have their low density lipoprotein (LDL)-cholesterol at or below recommended levels.	(20.1) 46.8% (20.2) 44.4% Source: ARCHES 2007	(20.1) 51.5% (20.2) 48.8% Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 21	(Developmental) Increase the proportion of adults with a history of cardiovascular disease who are using aspirin or anti-platelet therapy to prevent recurrent cardiovascular events.	60.5% use aspirin Source: ARCHES 2007	66.5% Target setting method: 10% improvement. Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 22	(Developmental) Increase the proportion of adult heart attack survivors who are referred to a cardiac rehabilitation program at discharge.	18.9% Source: ARCHES 2007	37.8% Target setting method: Doubling. Potential objective.	Not Available

Number	Healthy People 2020 Objectives	Arkansas Baseline Data	Arkansas 2020 Target Goal	National 2020 Target Goal
HDS 23	(Developmental) Increase the proportion of adult stroke survivors who are referred to a stroke rehabilitation program at discharge.	23.6% Source: ARCHES 2007	47.2% Target setting method: Doubling. Potential objective. Currently no data, but an opportunity for data collection in the future.	Not Available
HDS 24	(Developmental) Reduce hospitalizations of older adults with heart failure as the principle diagnosis.	21.5 HF hospitalizations per 1,000 Arkansas adults ages 65+ Trend: 2004=26.1 hosp. per 1,000 2005=24.9 hosp. per 1,000 2006=24.4 hosp. per 1,000 2007=22.2 hosp. per 1,000 2008=21.5 hosp. per 1,000 17.9%↓	19.4 hospitalizations/1,000 adults ages 65+ Target setting method: 10% improvement	Target: 8.8 hospitalizations per 1,000 population. Target: 20.2 hospitalizations per 1,000 population. Target: 38.6 Hospitalizations per 1,000 population. Target setting method: 10% improvement.

Acronyms: LDL = low-density lipoprotein
ARCHES = Arkansas Cardiovascular Health Examination Survey
BRFSS = Behavioral Risk Factor Surveillance System
HF = heart failure
Hosp. = hospitalization

* Arkansas baseline data are taken from the *Healthy People 2010: Arkansas Chronic Disease Framework for Action* and may not match with data presented in this report. Data in this report are the most recent available at the time of publication and may utilize newer released case counts and population estimates.

Source: *Healthy People 2020: Arkansas's Chronic Disease Framework for Action*.
Retrieved from <http://www.healthy.arkansas.gov/programsServices/chronicDisease/Initiatives/Pages/HealthyPeople2020.aspx> and <http://www.healthy.arkansas.gov/programsServices/chronicDisease/Initiatives/Documents/HP2020/ARHP2020objectivesObjectives.pdf>.

Glossary

Age-adjustment — A statistical adjustment that allows for the comparison of two or more populations at one point in time or one population at two or more points in time. Using the direct method, age-adjustment is the application of observed age-specific rates to a standard age distribution to eliminate differences in crude rates in populations of interest that result from differences in the populations' age distributions. For example, a county with an older population will have a higher crude death rate due to cardiovascular disease, even though its risk factor levels and age-specific rates may be the same as those in other counties. This is because the risk of death due to cardiovascular disease increases as age increases. One might incorrectly attribute the higher cardiovascular disease rate to some characteristic of the county other than age. Age-adjustment controls for the influence that different population age distributions might have on health event rates. This method can be used when comparing rates across geographic areas or across several years for the same area. The age-adjusted rate is hypothetical and is useful only for comparing populations.

Angina pectoris — Medical term for chest pain or discomfort due to coronary heart disease. A condition in which the heart muscle doesn't get enough blood, resulting in chest pain.

Arrhythmia — An abnormal rhythm of the heart in which the heart can beat too slowly, too fast, or irregularly.

Atherosclerosis — A form of arteriosclerosis in which the inner layers of artery walls become thick and irregular due to deposits of fat, cholesterol and other substances. This buildup is called "plaque." As the interior walls of arteries become lined with these deposits, the arteries become narrowed, reducing the blood flow through them. If a blood clot forms, it can stop the blood flow and prevent oxygen-rich blood from being delivered to the heart and other organs.

Body mass index (BMI) — A formula to assess a person's body weight relative to height. It correlates highly with body fat in most people. Weight in kilograms is divided by height in meters squared (kg/m^2).

Cardiac arrest — The stopping of the heartbeat, usually because of interference with the electrical signal (often associated with coronary heart disease).

Cardiovascular — Pertaining to the heart and blood vessels. (“Cardio” means heart; “vascular” means blood vessels.) The circulatory system of the heart and blood vessels is the cardiovascular system.

Cerebral embolism — A blood clot formed in one part of the body, then carried by the bloodstream to the brain, where it blocks an artery. A type of stroke.

Cerebral hemorrhage — Bleeding within the brain, resulting from a ruptured aneurysm or a head injury. A type of stroke.

Cerebral thrombosis — Formation of a blood clot in an artery that supplies blood and nutrients to part of the brain, thus blocking the flow. A type of stroke.

Cholesterol — A substance similar to fat that is found in the blood, muscles, liver, brain, and other body tissues. The body produces and needs some cholesterol. However, too much cholesterol can make fat stick to the walls of the arteries and cause a disease that decreases or stops circulation.

Congestive heart failure — A condition where the heart fails to pump as much blood per minute as the body needs. To adjust for this, the kidneys retain increased amounts of sodium and water leading to retention of too much fluid, and this leads to edema in all parts of the body.

Coronary heart disease (coronary artery disease, ischemic heart disease) — This term is applied to heart ailments caused by narrowed coronary arteries and characterized by a reduced blood supply to the heart.

Diabetes — The inability of the body to produce or respond properly to insulin. The body needs insulin to convert sugar and starch into the energy needed in daily life. The full name for this condition is diabetes mellitus. Diabetes is defined as a fasting blood glucose of 126 mg/dL or more measured on two occasions.

High blood pressure (hypertension) — A condition where the blood circulates through the arteries with too much force. High blood pressure tires the heart, harms the arteries, and increases the risk of heart attack, stroke, and kidney problems. High blood pressure is defined as a systolic pressure of 140 mm Hg or higher and/or diastolic pressure of 90 mm Hg or higher.

High-density lipoprotein (HDL) cholesterol — A type of protein believed to transport cholesterol away from the tissues and to the liver, where it can be removed from the bloodstream. Often called “good” cholesterol because a high level of it seems to protect against heart attack. People with a low HDL cholesterol level (less than 40 mg/dL) have a higher heart disease risk. A low level of HDL cholesterol also may raise stroke risk.

Heart attack — Death of or damage to part of the heart muscle due to an insufficient blood supply. The medical term for heart attack is myocardial infarction. It’s also sometimes called a coronary thrombosis or coronary occlusion.

Hemorrhagic stroke — The injury to brain cells caused by ruptured blood vessels in the brain. Cerebral hemorrhages bleed inside the brain; subarachnoid hemorrhages bleed into the space between the brain and the skull.

Ischemic stroke — The death of or injury to brain cells caused when a blood clot or other particle blocks a cerebral artery. Cerebral thrombosis and cerebral embolism are ischemic strokes.

Low-density (LDL) cholesterol — Often called “bad” cholesterol. A type of protein that transports “harmful” cholesterol in the blood. It’s the major cholesterol carrier in the blood. A high level of LDL cholesterol (160 mg/dL and above) reflects an increased risk of heart disease and stroke.

Moderate physical activity — Aerobic activity that raises the heart rate. One way to tell is being able to talk, but not sing the words to a song while exercising. Some examples of activities that require moderate effort are walking fast, doing water aerobics, riding a bike on level ground or with few hills, playing doubles tennis, or pushing a lawn mower.

Obesity — The condition of being significantly overweight. It’s defined as a body mass index (BMI) of 30.0 or greater, or about 30 pounds or more over ideal body weight. Extreme obesity is defined as a BMI of 40.0 or more.

Overweight — Defined as a body mass index (BMI) of 25.0–29.9. A BMI of 25 corresponds to about 10 percent over ideal body weight.

Prevalence — The total number of cases of a given disease in a population at a specific time. Prevalence is sometimes expressed as a percentage of population.

Rheumatic heart disease — Damage done to the heart, particularly the heart valves, by one or more attacks of rheumatic fever.

Stroke (also called brain attack or cerebrovascular accident) — Loss of muscle function, mental function, vision, sensation or speech resulting from brain cell injury caused by an insufficient supply of blood to part of the brain.

Tissue plasminogen activator (tPA) — One of several clot-dissolving drugs used during a heart attack or stroke to restore blood flow in a blocked artery.

Transient ischemic attack (TIA) — A temporary stroke-like event that lasts for only a short time and is caused by a temporarily blocked blood vessel leading to or within the brain. Also called a “little stroke” or “mini-stroke,” it’s an extremely important stroke indicator.

Triglyceride — The most common type of fat in the body. The body gets triglyceride directly from some foods (fatty acids) and makes it in the liver from other energy sources (carbohydrates, alcohol and some cholesterol).

Type 1 diabetes — A condition in which the pancreas makes so little insulin that the body can’t use blood glucose as energy. People with type 1 diabetes need to take insulin every day.

Type 2 diabetes — A condition in which the body either makes too little insulin or can’t use the insulin it makes to use blood glucose as energy. All people with diabetes need to eat healthy foods, stay at a healthy weight and be active every day. People with type 2 diabetes often need to take diabetes pills or insulin. Type 2 diabetes is the most common form of diabetes.

Vigorous physical activity — Aerobic activity that causes the body to breathe hard and fast and the heart rate to increase quite a bit. A person will not be able to say a few words without pausing

for a breath while exercising. Some examples of activities that require vigorous effort are jogging or running, swimming laps, riding a bike fast or on hills, playing singles tennis, and playing basketball.

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