2012 Community Health Needs Assessment of St. Vincent Infirmary Primary Service Area

St. Vincent Health System
Catholic Health Initiatives

May 2012

Cornell University
College of Human Ecology
Sloan Program in Health Administration

2012 Community Health Needs Assessment of St. Vincent Infirmary Primary Service Area

Danielle Bangs
MHA Candidate
Sloan Program in Health Administration

Kevin Cullinan
MHA Candidate
Sloan Program in Health Administration

Alix Hayashida
MHA Candidate
Sloan Program in Health Administration

Erin Santerre
MHA Candidate
Sloan Program in Health Administration

May 2012

Questions may be directed to:

Danielle Bangs
Sloan Program in Health Administration
db348@cornell.edu

Carter Dredge
Catholic Health Initiatives / St. Vincent Health System
CDredge@stvincenthealth.com

Table of Contents

Introduction 4

Methodology 5

Quantitative Data Findings 8

- Quantitative Data Findings: Executive Summary 8
- Quantitative Data Findings: County Profiles 10
- Quantitative Data Findings: Key Community Socioeconomic Factors 14
- Quantitative Data Findings: Health Resource Availability 19
- Quantitative Data Findings: Behavioral Risk Factor Status 22
- Quantitative Data Findings: Environmental Health Factors 32
- Quantitative Data Findings: Social and Mental Health 37
- Quantitative Data Findings: Maternal and Child Health 41
- Quantitative Data Findings: Death, Illness, and Injury 46
- Quantitative Data Findings: Communicable Diseases 53

Qualitative Data Findings 54

- Qualitative Data Findings: Executive Summary 54
- Qualitative Data Findings: Interview Summaries 56

Appendices 58

- Appendix A: 58
- Appendix B: 66

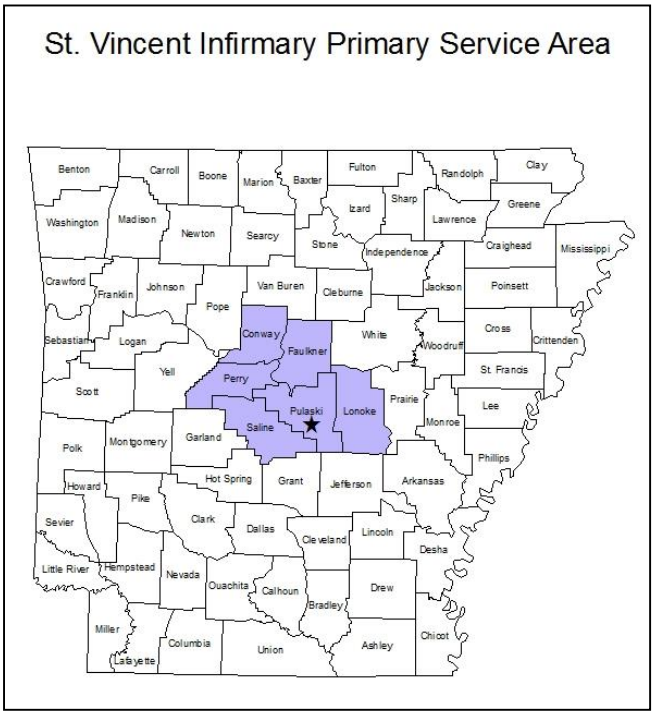
St. Vincent Infirmary Primary Service Area Community Health Needs Assessment

Introduction

The 2012 St. Vincent Infirmary (SVI) Primary Service Area Community Health Needs Assessment (CHNA) utilizes quantitative information based on review of secondary social, demographic, economic, health, and quality-of-life data. In addition, the Assessment incorporated qualitative primary data based on interviews with community leaders and representatives of local agencies.

SVI, part of St. Vincent Health System, a wholly-owned subsidiary of Catholic Health Initiatives, serves patients in the greater Little Rock, Arkansas area. The 2012 SVI CHNA is a collaborative effort by graduate students of Cornell University's Sloan Program in Health Administration, St. Vincent Infirmary and St. Vincent Health System.

Data were reviewed on the six counties making up the SVI primary service area: **Conway, Faulkner, Lonoke, Perry, Pulaski, and Saline Counties** (see figure).



The results of the 2012 SVI CHNA will be used to generate specific strategies to address a list of prioritized health needs in the SVI community. These prioritized health needs will be incorporated into an implementation plan, to be released at a later date, and used to inform strategic planning at both St. Vincent Health System and St. Vincent Infirmary.

Methodology

In order to ascertain the emergent health needs of the SVI community, a comprehensive analysis of primary and secondary data, both quantitative and qualitative in nature, was conducted. The following section details this data collection process, the nature of the data used, and the methods of analysis employed in the assessment.

Secondary Data Analysis. Primary in the SVI CHNA endeavor was the collection of secondary data related to the health status and health behaviors of the SVI community. A thorough collection and analysis of publicly available data was conducted based off of a list of generated health indicators.

Indicator Selection. The indicators that were selected to drive our data analysis were a combination of health outcomes, health behaviors and socioeconomic health determinants. The Healthy Communities Network (HCN) website provides over 120 health and quality-of-life indicators for the counties in the SVI primary service area. Rather than focus on one isolated area of needs, the SVI CHNA sought to create a comprehensive needs assessment for the six-county service area using multiple health and quality-of-life indicators. Taking as a starting point the Community Health Status Assessment Core Indicator List identified in the Catholic Health Association (CHA) website at www.chausa.org/cbresources (Planning for Community Benefit > Assessment-Indicators), the CHNA process involves assessment and understanding of the following areas: Demographics, Socioeconomic Characteristics, Health Resource Availability/Access to Care, Behavioral Risk Factors, Environmental Health Factors, Social and Mental Health, Maternal and Child Health, Death Illness and Injury, Communicable Disease, and Sentinel Events.

Data Collection. In order to obtain data on the chosen indicators for each county in SVI's primary service area, as well as for the State of Arkansas and United States, an extensive data collection process, primarily through publicly available data sources, was conducted. See Appendix A for a list of the indicators used in our Community Health Needs Assessment, as well as the secondary data sources that were used for each of these indicators (indicators for which data could not be found, either for certain counties or in whole, are identified as such).

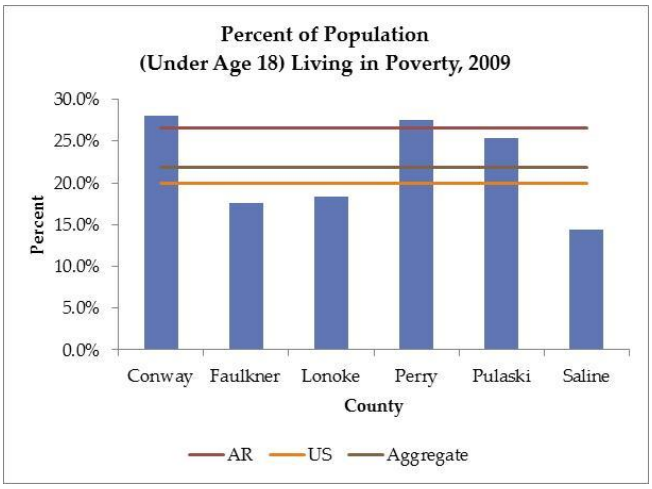
While secondary data was readily found for many of the identified indicators, there were issues of limited and/or dated data for others. Relevant gaps in data for the 2012 SVI CHNA include:

- Homelessness
- Ratio of Medicaid eligible to participating physicians
- Visiting nursing services
- Residents with a primary care physician
- Local health department FTEs
- Total operating budget of local health department
- Quality of Life Indicators

- Behavioral Risk Factor data for children.
- Domestic violence rate at the county level
- Adolescent pregnancy rate
- Proportion of 2-year old children who have received all age-appropriate vaccines
- Proportion of adults aged 65 and older who have ever been immunized for pneumococcal pneumonia
- Proportion of adults aged 65 and older who have been immunized in the past 12 months for influenza
- Vaccine preventable: Percent of appropriately immunized children
- Tuberculosis
- Hepatitis C
- Bacterial Meningitis Cases

Analysis and Interpretation of Secondary Data. In an effort to analyze generated data on these core indicators for the SVI community within an interpretable context, the following data was compared for each variable: the value for each individual county, the mean value for the aggregate SVI primary service area, the Arkansas State value, and the U.S. value. For certain indicators, or indicator subsets, data was not available for one or more of the above areas, in these instances data was still analyzed and reported for the areas data was available.

The findings of the secondary data analysis are graphically presented and described in the "Key Findings" section of this report. For the majority of the graphs, county level values for the given indicator are represented in vertical bar columns, with aggregate service area, state and national data presented as horizontal lines. The below chart demonstrates the described graphing system.



Where applicable, additional comparisons are made to national benchmarks such as those set by Healthy People 2010, which include a set of key national health objectives.

Primary Data Analysis. Integral to the identification and understanding of the health needs of the St. Vincent's Community was the collection of qualitative insight from key leaders and members of the SVI community. In order to better understand the specific health conditions, behaviors, and barriers to health faced by SVI's population, SVH leadership hosted three days of focus groups, during which key individuals, representing diverse backgrounds and perspectives, shared their perspectives and concerns regarding a

broad range of health related issues in the community. These results of these focus groups represent the bulk of the primary data incorporated into this report. For detailed information regarding the attendees of these focus groups and their backgrounds, as well as for a list of the questions posed during these sessions, please see Appendix B.

Results of our primary data collection were used to gain insight into the results of the quantitative analysis of secondary data described in the previous section. In addition to their incorporation into the identification of the SVI community's priority health needs, the key findings from focus group sessions are presented independently in the Executive Summary: Qualitative Data section.

While there is infinite potential insight to be gained from primary data collection, specifically identified gaps in primary data collection include:

- Insight into how various subsets of the SVI community interact with the health care system

- Insight into the health care decision making processes of individuals in the SVI community

- Identification of key influences on individuals' health related behaviors

Quantitative Data Findings: Executive Summary

- Pulaski County is the most populous of the counties in the SVI primary service area and the most race-ethnically diverse. Pulaski County makes up 54.4% of the SVI primary service area (54.4% of 703,177 individuals in 2010).

- Perry County is the oldest of the six counties in the primary service area (PSA) with a median age of 40.7 (Arkansas' median age is 37.4) however, Saline County has the greatest percent of population age 65 or older (24.4%; Arkansas value is 14.4%).

- Among the six counties, Conway County is the worst economically with below-state median household incomes.

- Conway and Perry County both have poverty (individual and childhood poverty) percentages higher than state and national averages.

- In terms of behavioral risk factors, no county in the SVI PSA fares consistently better or worse across a variety of indicators: Pulaski County has the highest percentage of adult binge drinkers and the lowest percentage of adult current smokers; conversely, Conway has the highest percentage of adult current smokers and lowest percent of adult binge drinkers.

- Obesity is a key health concern: In 2010, every county in the SVI PSA had a greater percent of adults identified as obese than did the US as a whole (26.9%). Blacks are more likely to be obese than Whites.

- In terms of protective factors, Conway County has the greatest percent of adults who fail to get recommended pap, mammogram, colonoscopy/sigmoidoscopy, and prostate specific antigen screenings. With the exception of Conway County, the counties in the SVI PSA generally perform better than the state on these indicators, but worse than the US as a whole.

- Of the six SVI PSA counties, only Pulaski County had non-zero days of high ozone concentration and had the highest reported particulate matter days in the PSA. Conway County reported the greatest lead exposure.

- In terms of social and mental health, Conway, Perry, and Saline Counties have the highest reported mentally unhealthy days, child maltreatment rate, and suicide rate (higher than the US average).

- Infant mortality is a key health concern: From 2005-2007, with the exception of Lonoke County, each of the SVI PSA counties has a higher infant mortality rate than the US. Infant mortality is higher among Black women than White women (with the exception of Lonoke County); alarmingly, in Perry County, Black infant mortality occurred at a rate of 250 infant deaths per 1,000 live births (compared to the national average among Black women of 13.2 deaths per 1,000 live births).

- With the exception of Faulkner County, the SVI PSA counties experienced higher than national rates of teen births in 2009. Conway County experienced a rate of 79.1 births per 1,000 females aged 15-19 in 2009 compared to state and US rates (59.2 and 39.1 births per 1,000 females age 15-19).

- Cancer mortality is a key health concern: In 2003-2007, all six counties in the SVI PSA had higher cancer mortality rates (all cancers) than the US (183.8 deaths due to lung cancer per 100,000 population). Lung cancer mortality rates also exceed the US rate (52.5 lung cancer deaths per 100,000 population) in all six counties and, with the exception of Pulaski County, exceed the state rate of 67.1 lung cancer deaths per 100,000 population.

- Stroke mortality is a key health concern: In 2000-2006, with the exception of Saline County, rates of stroke mortality are higher in the six SVI PSA counties than in the state (132 stroke deaths per 100,000 population ages 35+) and US as a whole (98 stroke deaths per 100,000 population ages 35+). Stroke mortality rates are especially high among Blacks.

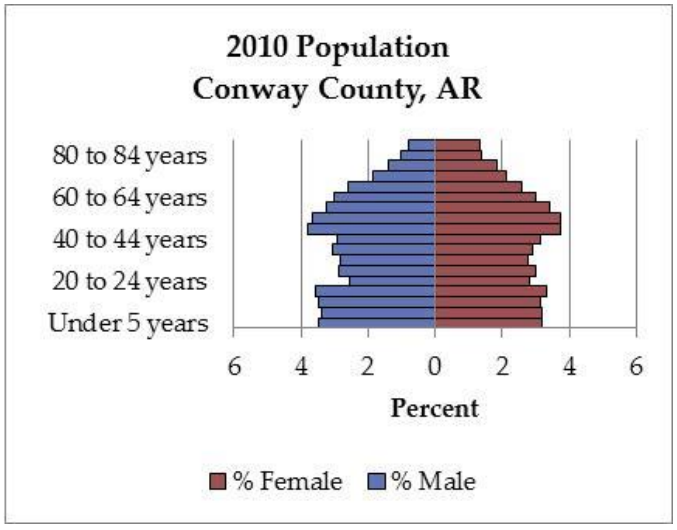
- Sexually transmitted infections are a concern in Pulaski County which reports greater cases and rates of syphilis, gonorrhea, chlamydia, and HIV/AIDS than all other counties.

- Several key health indicators are missing at the county-level. In 2004, Catholic Health Initiatives partnered with the Arkansas Department of Health and Hometown Health Improvement to conduct the Adult Health Survey using questions from the Behavioral Risk Factor Surveillance System (BRFSS) in several counties.

County Profiles

Conway County. Conway County is a rural county located in central Arkansas on the northern side of the Arkansas River. The county seat is Morrilton, which is located 51 miles northwest of the state capital, Little Rock. Part of the Ozark National Forest is located in the county, providing vast hiking trails, fishing holes, and parks for residents to enjoy.

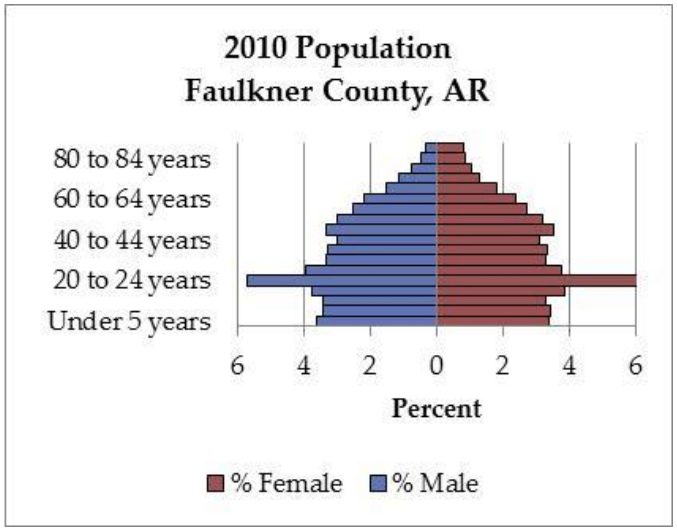
According to the 2010 Census, there were 21,273 people residing in Conway County. Representative of a rural setting, population density was 38.5 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 84.2% White, 11.2% Black, and 0.7% or less identified as American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander. Two percent of persons reported two or more races. Only 3.6% of the population reported Hispanic ethnicity (regardless of race). Median age of the county was 39.4 years and the age structure of Conway County is depicted below:



The 2005-2009 American Community Survey estimated Conway County's average household size at 2.51 people and median household income at $33,554. Average family size was 3.14 people and median family income was $47,708. Per capita income was estimated to be $19,562. Approximately 10.1% of families and 16.7% of the total population were below the federal poverty line.

Faulkner County. Faulkner County is located on the northern side of the Arkansas River. It is home to the popular fishing destination, Lake Conway, located in the southern portion of the county. Faulkner County is home to the University of Central Arkansas, among other colleges, and the city of Conway, which is the fastest growing city in Arkansas.

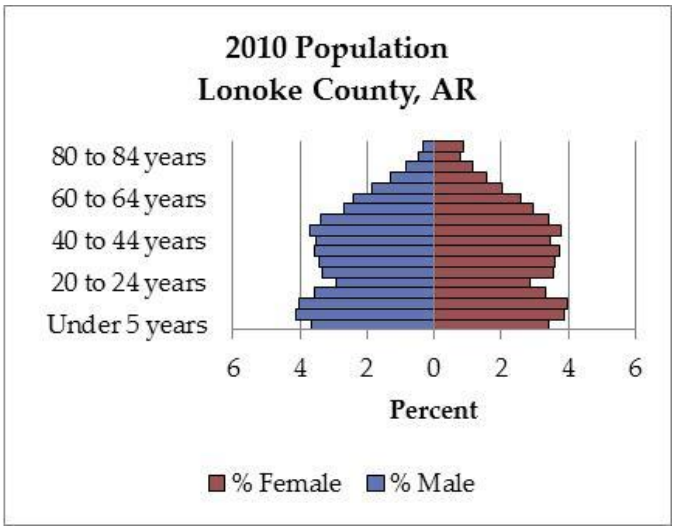
According to the 2010 Census, there were 113,237 people residing in Faulkner County. Population density was 174.8 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 84.3% White, 10.2% Black, and 1.1% of less of the total population identified as American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander. Two percent of the county reported two or more races. Only 3.9% of the population reported Hispanic ethnicity (regardless of race). Median age of the county was 30.8 and the age structure of the county is depicted below:



The 2005-2009 American Community Survey estimated Faulkner County's average household size at 2.58 people and median household income at $44,600. The average family size was 3.08 people and median family income was $60,475. Per capita income was estimated to be $22,080. About 10.3% of families and 15.9% of the population were below the poverty line.

Lonoke County. Lonoke County is the eastern most county in the St. Vincent PSA. Lonoke is primarily an agricultural county named after a "lone oak" tree that was used as a landmark by a railroad surveyor.

According to the 2010 Census, there were 68,356 people residing in the county, and population density was 88.7 persons per square mile. Among persons reporting only one race, race-ethnic makeup of Lonoke County was 89.8% White, 6.0% Black, and 0.8% or less of the population identified as American India/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander. Nearly 2% (1.8%) reported being of two or more races. Approximately 3.3% of the population reported Hispanic ethnicity (regardless of race). Median age was 35.3 years and the age structure of the county is depicted below:

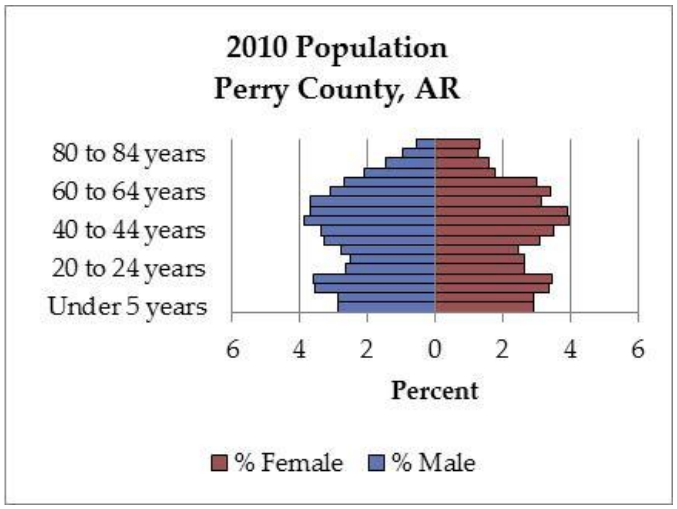


The 2005-2009 American Community Survey estimated Lonoke County's average household size at 2.72 people and median household income at $50,295. The average family size was 3.19 people while the median family income was $57,302. Per capita income was estimated to be $22,154. About 9.2% of families and 12.3% of the population were below the poverty line.

Perry County. Perry County is a rural county located on the southern side of the Arkansas River. Part of the Ouachita Nation Forest is located in the county, making it an ideal location for those seeking a non-urban, scenic environment.

According to the 2010 Census, there were 10,445 people residing in Perry County. Representative of a rural setting, population

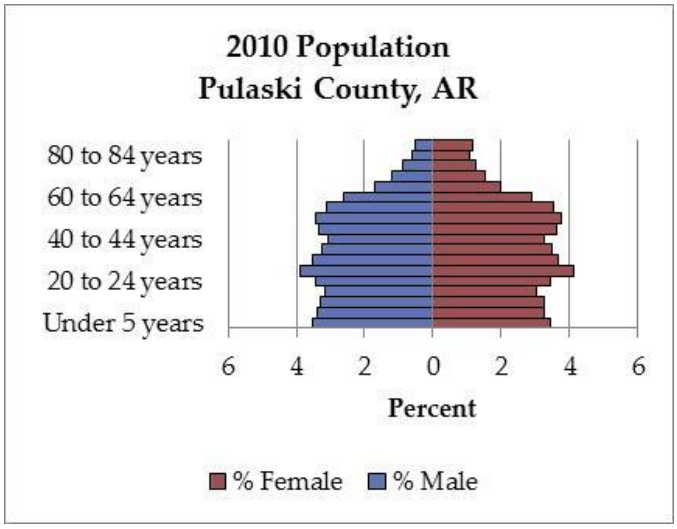
density was 18.9 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 95.2% White, 1.9 % Black, and American Indian/Alaskan Native, Asian, and Native Hawaiian/Other Pacific Islander each comprising 0.7% or less of the total population. Approximately 1.6% persons reported two or more races, and 2.4% reported Hispanic ethnicity (regardless of race). Median age was 40.7 and the age structure of the county is depicted below:



The 2005-2009 American Community Survey estimated Perry County's average household size at 2.54 people and median household income at $44,921. The average family size was 2.92 people while the median family income was $51,420. Per capita income was estimated to be $20,418. About 11.5% of families and 14.3% of the population were below the poverty line.

Pulaski County. Pulaski County is home of the state capital, Little Rock, and former President Bill Clinton. The urban center of the county houses many company headquarters including Stephens Inc. Museums and historical showcases attract tourists worldwide.

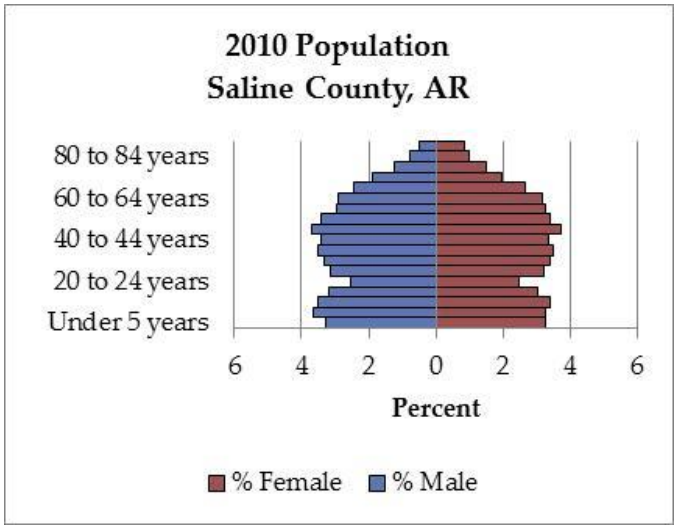
According to the 2010 Census, there were 382,748 people residing in Pulaski County. Population density was 503.8 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 57.5% White, 35.0% Black, with American Indian/Alaskan Native, Asian, and Native Hawaiian/Other Pacific Islander each comprising 2.0% or less of the total population. 2.1% reported two or more races, and 5.8% reported Hispanic ethnicity (regardless of race). Median age was 35.5 and the age structure of the county is depicted below:



The 2005-2009 American Community Survey estimated Pulaski County's average household size at 2.37 people and median household income at $44,370. The average family size was 3.02 people while the median family income was $57,324. Per capita income was estimated to be $26,975. About 11.5% of families and 15.4% of the population were below the poverty line.

Saline County. The county of Saline is located to the west of the state capital, Little Rock. Its county seat and largest city is Benton.

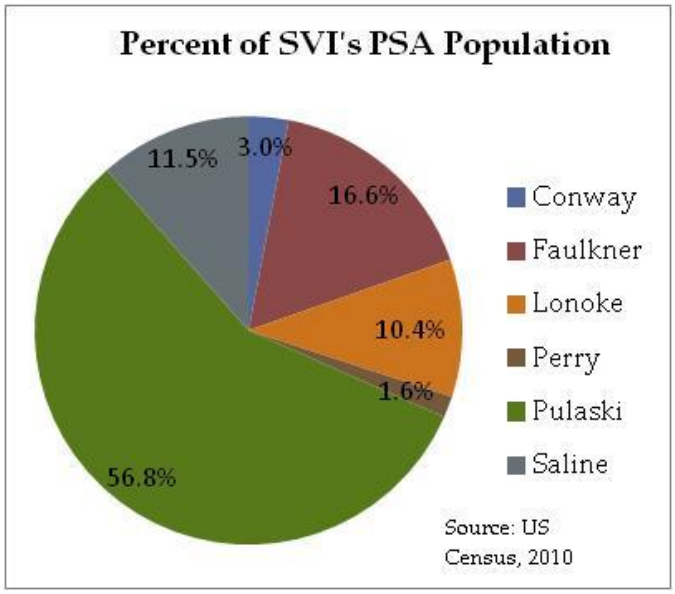
According to the 2010 Census, there were 107,118 people residing in Saline County. Population density was 148.0 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 90.5% White, 4.7% Black, and less than 1% of the total population identified as American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander. About 1.4% reported two or more races, and 3.8% reported Hispanic ethnicity (regardless of race). Median age was 38.1 and the age structure of the county is depicted below:

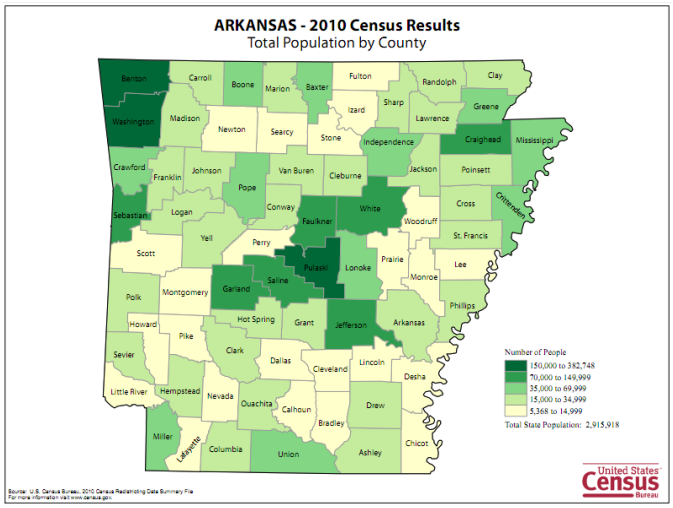


The 2005-2009 American Community Survey estimated Saline County's average household size at 2.5 people and median household income at $51,082. The average family size was 2.94 people while the median family income was $61,294. Per capita income was estimated at $24,099. About 7.2% of families and 10.4% of the population were below the poverty line.

Key Community Socioeconomic Factors

Population Growth. According the US Census, Faulkner County, Lonoke County, and Saline County have the highest annual population growth rate[1] between 2000 and 2010 at 3.2%, 2.9%, and 2.8% respectively. The three counties account for almost 40% of SVI's primary service area population. As depicted in the pie chart below, Pulaski County's population accounts for 56.8% of SVI's primary service area population and experienced an annual growth rate of 0.6% between 2000 and 2010. From a population perspective, Perry and Conway County are the least populated counties in SVI's primary service area, and these two counties had low growth rates of 0.2% and 0.5% respectively.





Age. According to the US Census, in 2010, the median age of the US was 37.2 and the median age of Arkansas was roughly the same at 37.4 years. The median age of the six counties making up SVI's primary service area was 36.6. The oldest of the six counties was Perry (40.7 years) and the youngest was Faulkner (30.8). Because age is such an important predictor of health and healthcare service utilization, information about the percent of persons under age 5 and age 65 and over are shown for each county.

As shown in the table below, Saline County has the greatest percent of elderly population (age 65 or greater) (24.4%), followed by Conway County (16.9%) and Perry County (16.7%). Each of these counties has a larger percent of their population that is elderly than does the SVI primary service area (15.2%) and the state of Arkansas (14.4%).

[1] Growth rate calculated by taking the percentage change in population between 2000-2010 (provided by the US Census) divided by 10.

Age Characteristics, US Census, 2010			
	Median Age	% under age 5	% age 65 or over
Conway	39.4	6.6	16.9
Faulkner	30.8	7.0	10.0
Lonoke	35.3	7.0	11.2
Perry	40.7	5.8	16.7
Pulaski	35.5	7.0	12.0
Saline	38.1	6.6	24.4
AR	37.4	6.8	14.4
US	37.2	6.7	13.1
Aggregate	36.6	6.7	15.2

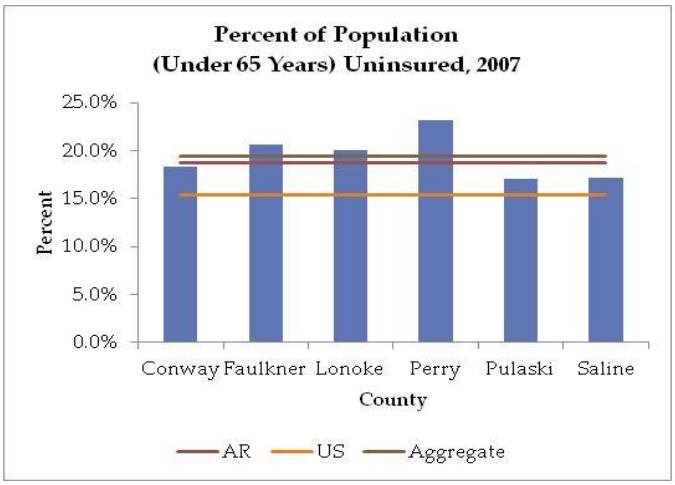
Race-ethnicity. According to the 2010 Census, the counties making up the SVI primary service area are fairly homogeneous with respect to race and ethnicity. Only Pulaski County has a non-White population above 37.0% (35.0% Black) which is greater than the percent non-White in the state of Arkansas (25.0% Black, Other, or Hispanic). Pulaski County also had the greatest percentage of persons identify as Hispanic (5.8%) which is slightly less than the state average of 6.4%. Within all six counties, less than 3% of the population identified as American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander. Pulaski County also had the greatest percent of persons identify as two or more races at 2.1% (data not shown).[2]

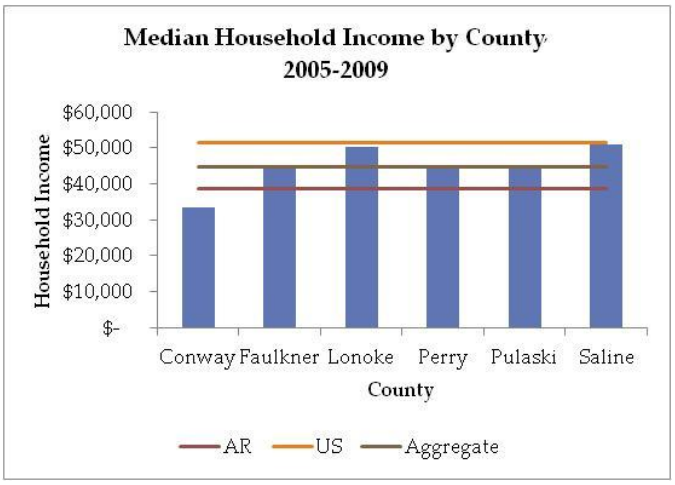
Race-Ethnicity, US Census, 2010				
Among Persons Reporting One Race				
	White*	Black*	Other*	Hispanic (any race)
Conway	84.2%	11.2%	1.1%	3.6%
Faulkner	84.3%	10.2%	1.7%	3.9%
Lonoke	89.8%	6.0%	1.3%	3.3%
Perry	95.2%	1.9%	1.1%	2.4%
Pulaski	57.5%	35.0%	2.1%	5.8%
Saline	90.5%	4.7%	1.4%	3.8%
AR	77.0%	15.4%	3.2%	6.4%
US	74.5%	12.4%	6.3%	15.1%
Aggregate	83.6%	11.5%	2.4%	3.8%
*Regardless of Hispanic ethnicity				

Uninsured. Lack of health insurance coverage is a significant barrier to accessing needed health care. As reported by the US Census (and depicted in the graph below), total uninsured prevalence[3] for SVI's primary service area residents under 65 years ranges from 17.1% in Pulaski County to 23.2% in Perry County. Along with Pulaski County, Saline County (17.2% uninsured) and Conway County (18.3% uninsured) fair better than the state uninsured average (18.7%). The uninsured rate among residents under age 65 in Lonoke (20.0%), Faulkner (20.6%), and Perry County (23.2%) all exceed the state, US (15.4%), and SVI's primary service aggregate rate (19.4%).

[2] Race and ethnicity data collected from the 2010 US Census

[3] 2007 Small Area Health Insurance Estimates sponsored by the US Census Bureau and the Centers for Disease Control and Prevention





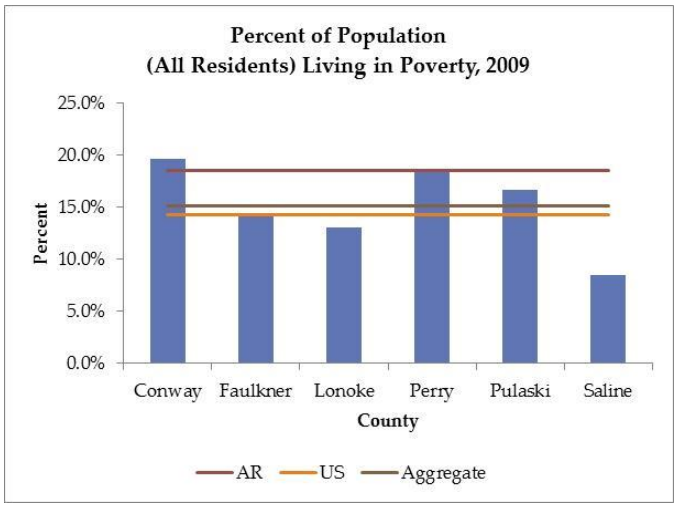
Income. With a median household income[4] of $33,554 Conway County falls below Arkansas state's median household income of $38,542. As depicted below, no county in SVI's primary service area surpasses the national median household income of $51,425. At $44,600, and $44,370, respectively, Faulkner and Pulaski County are above the Arkansas median but below SVI's primary service area median household income of $44,804. Of the six counties in SVI's primary service area, only Saline, Lonoke, and Perry County surpass SVI's primary service area median household income with median incomes of $51,082, $50,295, and $44,921, respectively.

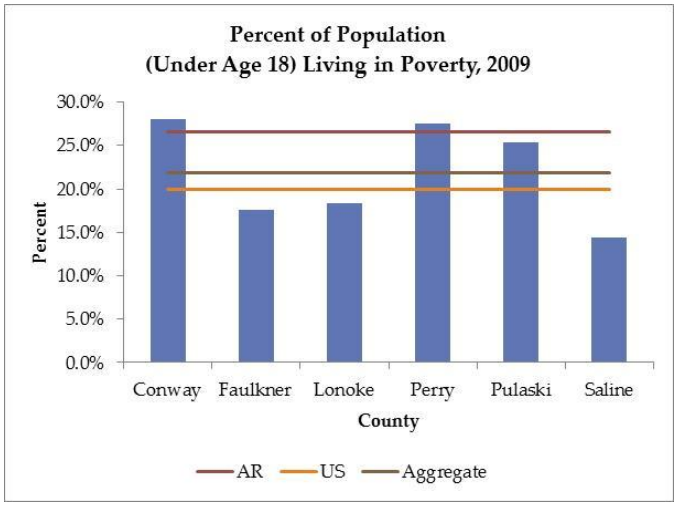
Poverty. In the state of Arkansas, prevalence of poverty among all persons is 18.5% and among children (under age 18) is 26.6%. As depicted in the graphs below, both of these values are higher than the national prevalence statistics of 14.3% (all persons) and 20.0% (children).[5] Similar to the income rankings by county, Conway and Perry County both have poverty percentages higher than state and national averages. 19.6% of all residents in Conway County live in poverty while 28.0% of all children (under age 18) residing in the county live in poverty. Among the residents living in Perry County, 18.6% live in poverty, while 27.5% of children live in poverty. Improving upon state poverty prevalence, 16.7% of Pulaski County persons and 25.4% of Pulaski children live in poverty. Faulkner County matches the national poverty prevalence of 14.3% of persons living in poverty and has fewer children (17.6%) living in poverty. Ranking better than both state and national averages, 13.1% of Lonoke County residents and 18.3% of county children live in poverty. Among the counties in SVI's primary

[4] US Census, 2005-2009 American Community Survey 5-Year Estimates

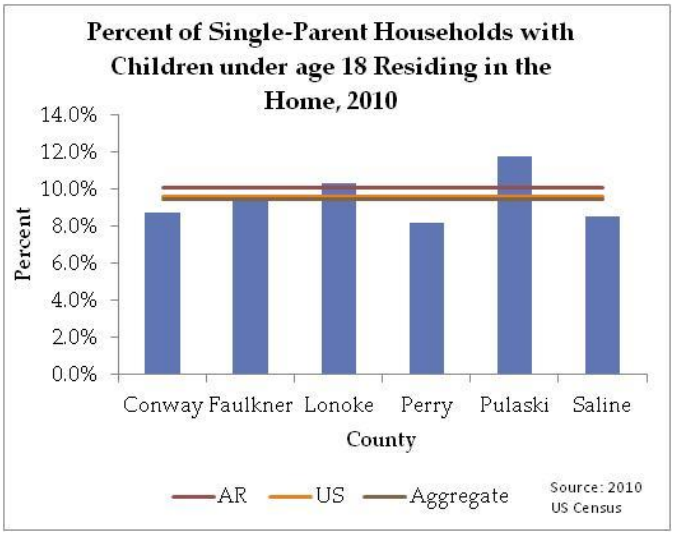
[5] Poverty data collected from 2009 Small Area Income and Poverty Estimated sponsored by the US Census

service area, Saline County has the lowest total poverty prevalence at 8.5% and the lowest percentage of children living in poverty at 14.4%.





Single-Parent Families. Although Conway and Perry County are the two counties with the lowest household income in SVI's primary service area, their percentages of single-parent households with children under 18 residing in the home[6] are below the state and national percentage of 10.0% and 9.6%, respectively. Of the six counties, Perry County has the lowest percentage at 8.2%, followed by Saline County at 8.5%, and Conway County at 8.7%. Close to the national percentage, 9.4% of Faulkner County's households are single-parent households with children under 18 residing in the home. Above both state and national averages, Lonoke County's percentage is 10.3% and Pulaski County's is 11.7%.



Unemployment. Among the population age 16 and over, all six counties in SVI's primary service area have a lower unemployment rate[7] than the state and national averages of 8.5% and 9.0%, respectively. Noting that data is unavailable for Perry County, Saline County has the lowest unemployment rate at 6.9% followed by Conway County at 7.6% and Faulkner County at 7.7%. Slightly above Faulkner County, Pulaski County has 7.8% unemployment and Lonoke County has the highest rate at 8.4%.

Disability. Although data is only available for Faulkner, Pulaski, and Saline County, the percentage of the population 5 years and over

[6] 2010 US Census

[7] 2008-2010 American Community Survey 3-Year Estimates

in all three counties with one type of disability (either sensory, physical, mental, or self-care)[8] is higher than the national percentage (6.8%). 7.3% of Faulkner County residents, 7.8% of Pulaski County residents, and 7.6% of Saline County residents 5 years and older report having one disability. Relative to the state average (9.3%), however, all three counties have a lower percentage of the population reporting one type of disability. The percentage of residents reporting two or more disabilities is higher in Saline County (13.7%) than the statewide number (12.5%), while Faulkner County (9.4%) and Pulaski County (8.8%) are higher than the national number (8.3%).

Education. Comparing county total population percentages of residents reporting less than a 9th grade education, a high school graduation, or a bachelor's degree or higher[9], Conway County has a higher percentage of residents with less than a 9th grade education than the state average, and lower high school graduation and bachelor's degree or higher percentages. Further, as show in the chart, Lonoke and Perry County have a lower percentage of residents with a bachelor's degree or higher.

Education in 2010 among Population Age 25 and Over			
	Less than a 9th grade education	High school graduation	Bachelor's degree or higher
Conway	7.9%	81.2%	14.3%
Faulkner	4.8%	87.2%	26.6%
Lonoke	5.8%	85.1%	16.5%
Perry	5.4%	82.4%	11.4%
Pulaski	3.9%	88.3%	31.0%
Saline	4.9%	86.7%	21.8%
AR	7.2%	81.3%	18.9%
US	6.4%	84.6%	27.5%
Aggregate	5.5%	85.2%	20.3%
Source: 2005-2009 American Community Survey 5-Year Estimates			

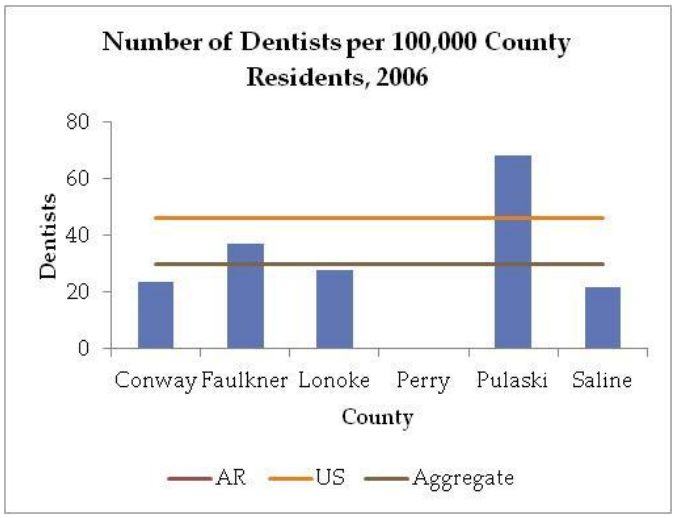
Language Spoken at Home. The 2005-2009 American Community Survey 5-Year Estimates, reports that in all six counties, 2.8% or less of the population speaks English less than "very well".

[8] Population 5 years and older. Source 2006 American Community Survey

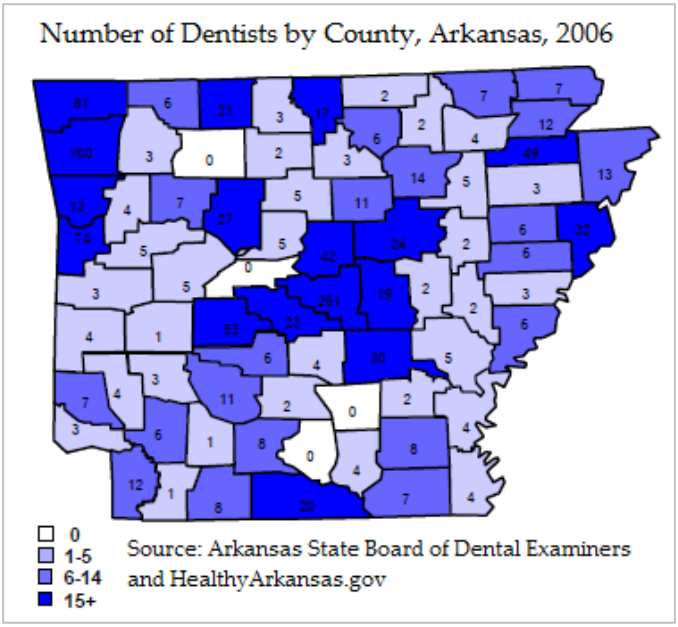
[9] Population 25 years and older. Education data collected from the 2005-2009 American Community Survey 5-Year Estimates

Health Resource Availability

Licensed Dentists. The number of licensed, practicing dentists per 100,000 population varies significantly among the six counties in SVI's primary service area. Representative of its urban population, Pulaski County has the highest concentration of dentists at 68 licensed dentists per 100,000 population in 2006[10]. As noted in the accompanying graph below, the least populated county, Perry County, has fewer than 1 dentist per 100,000 population. Like Perry County, Saline (21 dentist/100,000 people), Conway (24 dentist/100,000 people), and Lonoke County (28 dentist/100,000 people) have less dentists per 100,000 population than the SVI aggregate (30 dentist/100,000 people) and national average (46 dentist/100,000 people). Close to the national average, Faulkner County has 37 dentists per 100,000 population. State level statistics are not available.



County-level dentist concentration for Arkansas is available in the following map.

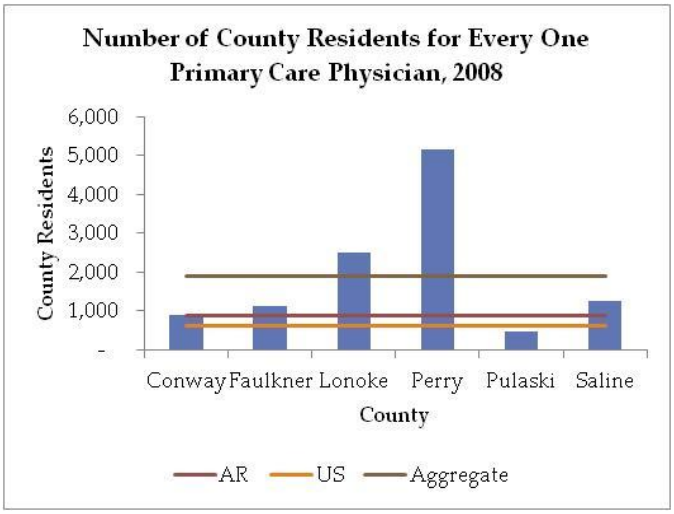


Licensed Primary Care Physicians. Having sufficient availability of primary care physicians is essential so that people can get preventive and primary care and, when needed, referrals to appropriate specialty care. The national benchmark for the number of county residents per one physician is 631:1.[11] As the graph below indicates, both the state of Arkansas and SVI's aggregate primary service area fail to meet this benchmark having greater than 631 county residents per primary physician. With a ratio of 467:1, Pulaski County is the only county that outperforms the national benchmark. Conversely, Perry, Lonoke, Saline, and Faulkner County fall above (worse than) the state and national averages with ratios of 5,149 people to 1 primary care physician, 2,509 people to 1

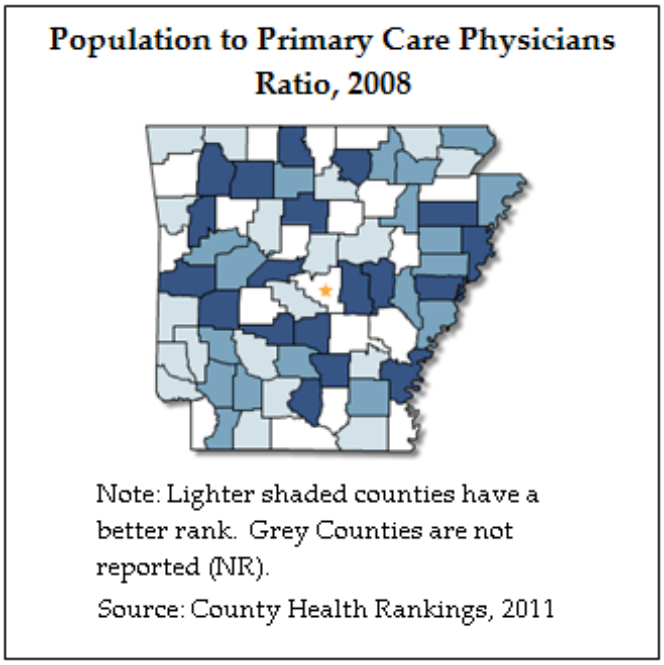
[10] 2006 data from HealthyArkansas.gov

[11] Ratios collected from 2011 County Health Rankings. Primary care physicians include practicing physicians specializing in general practice medicine, family medicine, internal medicine, pediatrics, and obstetrics/gynecology. The measure represents the population per one provider.

primary care physician, 1,263 people to 1 primary care physician, and 1,118 people to 1 primary care physician, respectively. Finally, just slightly worse than the state average, Conway County has 899 people for every one primary care physician.



County-level population-per-physician ratios for the state, by rank, are depicted in the map below.

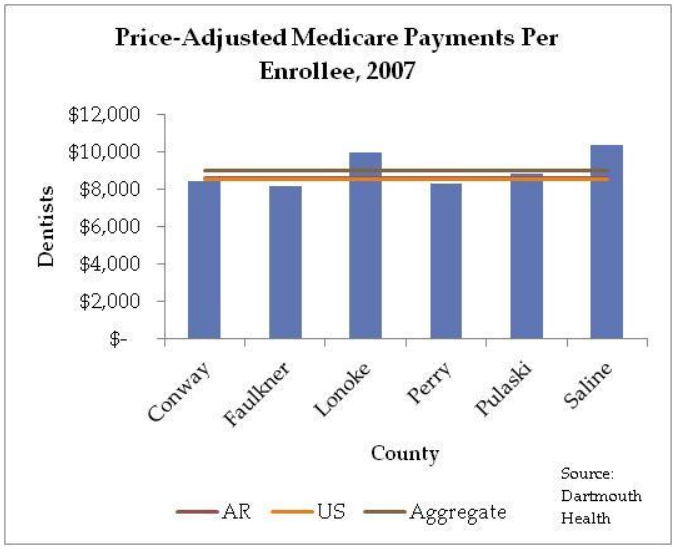


Licensed Hospital Beds. As an indicator of access to health care services, the number of licensed hospital beds[12] per 100,000 population varies significantly among SVI's primary service area. As of 2011, Perry and Lonoke County have 0 licensed hospital beds per 100,000 population. At 951 licensed beds per 100,000 population, Pulaski County is the hub for hospital based care. Saline County has 228 beds per 100,000 population, Faulkner County has 152 beds per 100,000 population, and Conway County has 118 beds per 100,000 population. Lower than the state average[13] of 330 beds per 100,000 population, SVI's primary service area has an average of 241 hospital beds per 100,000 population.

[12] Licensed beds include certified beds from general hospitals and specialty facilities including surgery, psychiatric, and rehabilitation. Source is HealthyArchansas.gov

[13] 2009, Statehealthfacts.org. Kaiser Family Foundation

Per Capita Health Care Spending per Medicare Beneficiary. According to the Dartmouth Health Atlas, the 2007 price-adjusted Medicare payments per enrollee was $8,995 for SVI's primary service area. Conway ($8,399), Faulkner ($8,193), and Perry County ($8,292) all have lower Medicare payments per enrollee than the state ($8,566) and national ($8,507) payment. As depicted in the graph below, Pulaski County ($8,817) Medicare payments fall just below SVI's primary service area. Lonoke County has $9,925 Medicare payments per enrollee, and Saline County has the highest number at $10,342.

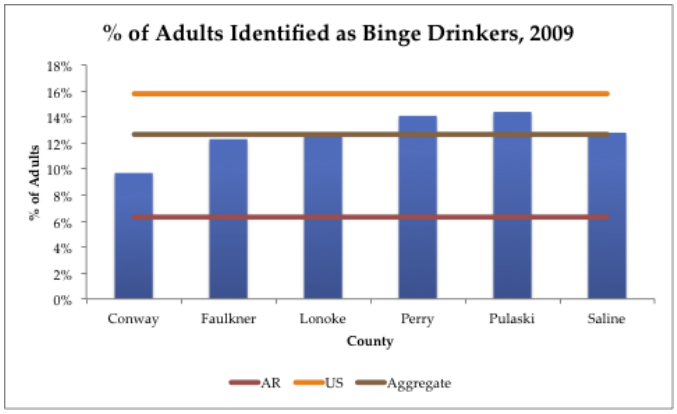


Behavioral Risk Factor Status

Substance Abuse Risk Factors

Excessive consumption of alcohol, tobacco and illicit drugs is associated with significant negative health outcomes. The Center for Diseases Control publishes adult behavioral risk factor data at the national, state and county level through the Behavioral Risk Factor Survey. The Arkansas Health Department developed county-level estimates from the survey data. The following section analyzes these survey results, as well as supplemental behavioral risk factor data.

Binge Drinking and Alcohol Consumption. The state of Arkansas as a whole, and the six counties in the SVI primary service area, have lower prevalence of binge drinking[14] than the U.S. median percentage of 15.8%. However, all counties in the SVI primary service area have binge drinking rates higher than the Arkansas state average, as illustrated in the graph below.[15] Pulaski and Perry County have the highest prevalence of binge drinking (14.4% and 14.1%, respectively) and Conway County has the lowest prevalence of binge drinking (9.7%). Notably, Pulaski and Perry Counties' binge drinking is greater than the aggregate percent of the SVI primary service area (12.7%).

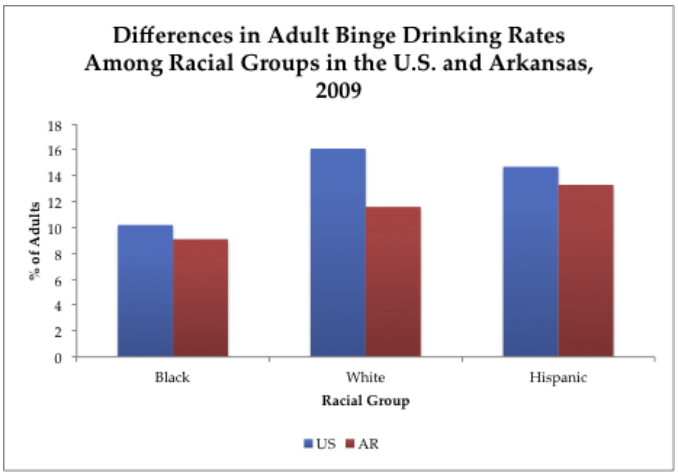


Binge drinking behavior in Arkansas is most prevalent among Hispanic populations[16], with 13.3% of the Hispanic adult population in Arkansas (in 2009) identified as binge drinkers. Whites in Arkansas had the second highest percentage of adults classified as binge drinkers during this period (11.6%) while Black adults in Arkansas had the lowest percentage (9.1%). While adult binge drinking in Arkansas is most prevalent among the Hispanic population, this is not true of binge drinking behavior in the U.S., where White adults have the highest percentage of identified binge drinkers. The graph below illustrates differences in adult binge drinking rates, in 2009, among racial groups for the United States and Arkansas.

[14] Binge drinking is defined as the consumption of 5 or more drinks in one setting for males, or 4 or more drinks in one setting for females.

[15] Arkansas Department of Health. "County Data Estimates: Binge Drinkers." 2010 report.

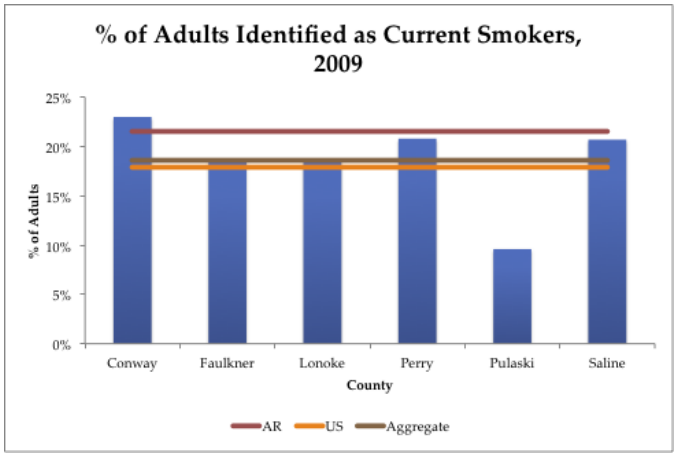
[16] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.



An alternate measure of unhealthy alcohol consumption, excessive drinking,[17] is reported by the National Center for Health Statistics, Department of Health and Human Services. Excessive drinking among adults (as with binge drinking) is most prevalent in Pulaski County, with between 18% and 20% of the adult population in Pulaski County identified as excessive drinkers.[18] The following map depicts the percentage of the adult population identified as excessive drinkers, by county, throughout Arkansas. In Perry County and Conway County, excessive drinking was not measured (white counties are not reported).

Source: Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

Tobacco Use. Overall adult tobacco use in Arkansas is more prevalent than in the U.S. All counties in SVI's primary service area, with the exception of Pulaski County (9.6%), have a higher percentage of adults who identified as current smokers (in 2009) than the national percent, of 17.9% of the adult population.[19]



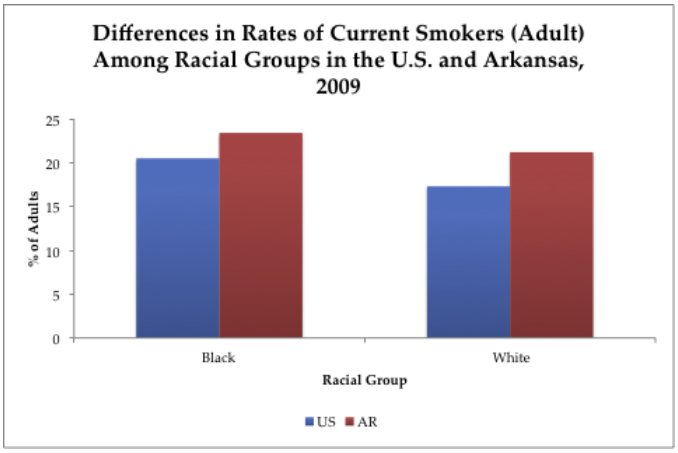
[17] Males age 18+ who consume more than 2 alcoholic drinks per day on average, women who consume more than 1 drink per day, males that consumed more than 5 drinks in one setting or females who consumed more than 4 drinks per setting.

[18] Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

[19] Arkansas Department of Health. *County Data Estimates: Tobacco Use.* 2010 report.

As illustrated in the above graph, 23% of adults in Conway County identify as current smokers, the highest percentage of any county in the SVI primary service area. Conway County is also the only county in the SVI service area with smoking prevalence greater than the state of Arkansas (22%).

While adult smoking rates in Arkansas are higher among Blacks, this is also true of the nation as a whole, and does not appear to be unique to the state[20].



Similarly, while lower income populations in Arkansas have higher adult smoking prevalence than higher income populations, this is also true of national adult smoking trends. The following tables present United States and Arkansas race and income specific adult smoking prevalence (county-level data is not available). As with nation-wide anti-smoking endeavors, efforts should be focused on lower income and, to a lesser extent, minority populations.

Adult Smoking % by Income Level (2009)[21]					
	Less than $15,000	$15,000 -24,999	$25,000 -34,999	$35,000 -49,999	$50,000 +
AR	37%	30.1%	27.8%	17.6%	12.6%
US*	31.4%	28.1	24%	19.5%	12.2%
*Includes DC					

While county-level information on the prevalence of current smokers among high school students was not available, Arkansas had a statewide prevalence of 20.3% of high school students reporting current smoking (as of 2009). Arkansas ranked 29th (out of 50 states) for this measure in the 2011 Commonwealth Fund State Scorecard on Child Health System Performance.[22]

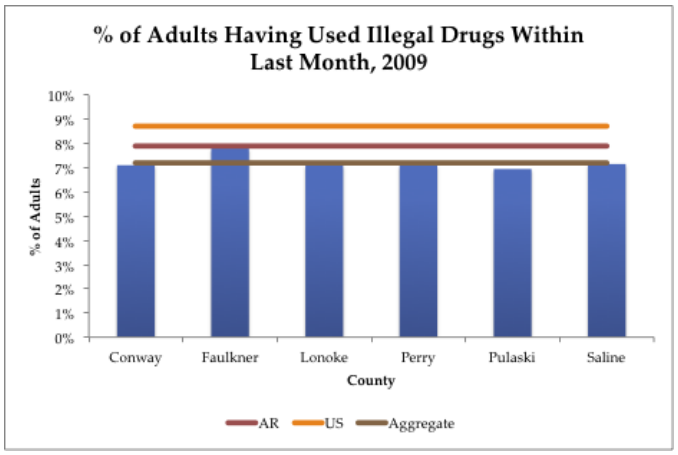
Illegal Drug Use. Illegal drug use prevalence among individuals over age 12 are equal to or lower in the SVI counties than in the state of Arkansas as a whole (8%). Additionally, Arkansas has lower illegal drug use prevalence than the U.S. (8.7%).[23] The following graph compares illegal drug use prevalence for Arkansas, the six counties in SVI's primary service area, and the nation. Faulkner County has the highest prevalence of illegal drug use (7.8%), however, this figure is equal to the Arkansas median drug use figure (7.9%) and lower than the national prevalence of illegal

[20] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[21] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[22] Commonwealth Fund. *State Scorecard Data Tables*. June 2007.

drug use. Pulaski County has the lowest prevalence of illegal drug use (6.9%).

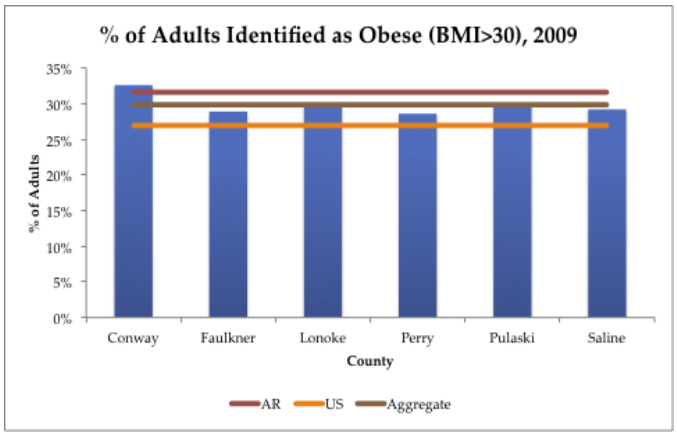


No information was available regarding differences in illegal drug use rates among different racial, income or age groups.

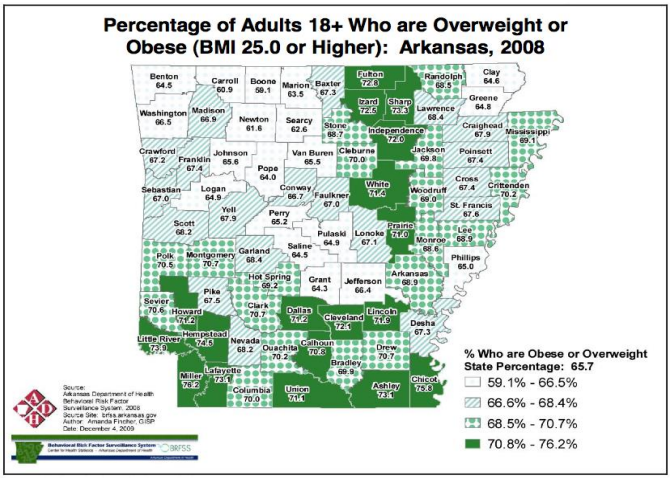
Lifestyle Factors

With increasing rates of morbidity and mortality associated with chronic disease and contributing negative lifestyle behaviors, analysis of lifestyle risk factors in the SVI primary service area is essential to understanding the health needs of the population.

Obesity (Adult). Obesity prevalence in the SVI primary service area, as in Arkansas as a whole, is high relative to the U.S. Conway County has the highest obesity prevalence (32.6%), however, as depicted in the graph below, all counties have obesity rates above the U.S. average (26.9%).[24]



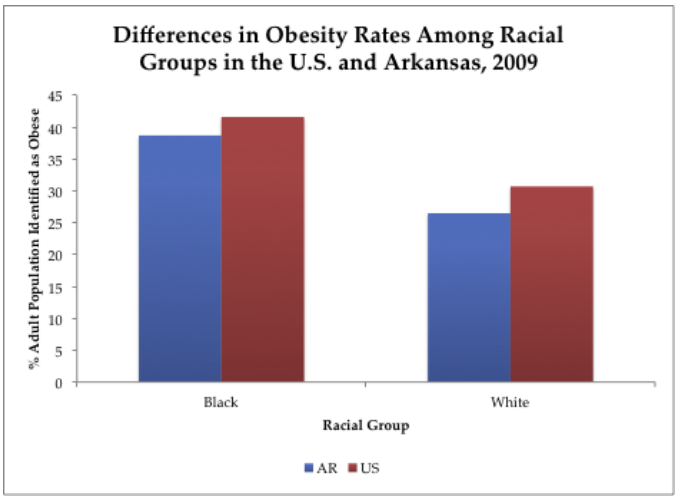
Considering the percentage of the Arkansas population that is either overweight *or* obese (BMI>25), it is evident that an overwhelming majority of Arkansas residents have a BMI above healthy levels. The distribution of overweight and obesity among adults age 18+ across the state of Arkansas in 2008 is depicted in the map below. As illustrated, counties in the SVI service area have lower prevalence of overweight and obesity among adults than other counties in Arkansas.



While obesity appears to be a concern across the entire SVI service area, analysis of obesity rates among different racial groups in Arkansas reveals that obesity prevalence is

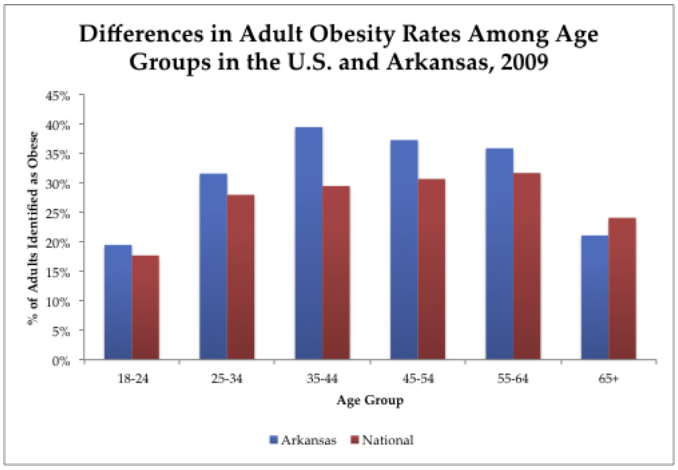
[24] Arkansas Department of Health. *County Data Estimates: Obesity*. 2010 report.

higher among Black populations in Arkansas, a trend that is also true of the overall U.S. population.[25] The difference in obesity prevalence among Black and White adults is illustrated below.



In both Arkansas and the US, Blacks have higher prevalence of obesity than Whites. Black-White differences in obesity prevalence in Arkansas seem similar to Black-White differences in the US as a whole.

Analysis of obesity prevalence among different age groups shows that among all age groups up until age 65+, Arkansas has higher obesity prevalence than the US with the gap being the largest among 35-44 year olds. Among persons age 65 and older, prevalence of obesity is lower in Arkansas than in the US.[26]



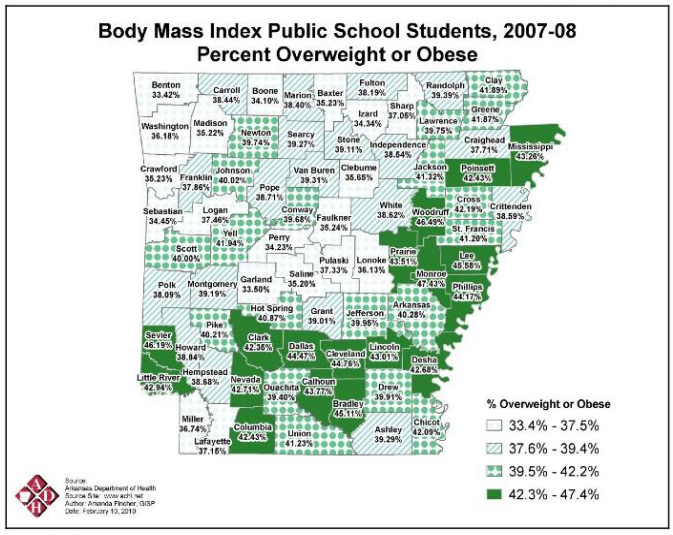
Overweight and Obesity (Child and Adolescent). In 2008, the Arkansas Center for Health Improvement (ACHI) published "Assessment of Child and Adolescent Obesity in Arkansas," a review of trends in overweight status among Arkansas school children (grades K-12). The following map exhibits state level distribution of weight status among Arkansas school children in 2007-2008.

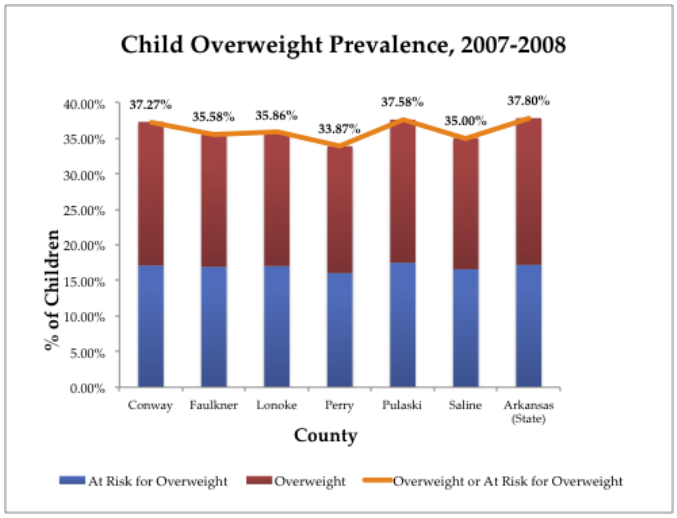
Aside from Conway County, all counties in SVI's primary service area are among the counties with the lowest prevalence of overweight or obesity among children (between 33.4% and 37.5%). Conway County, however, is in the second highest category in terms of percentage of children that are overweight (between 39.5% and 42.2% percent of children).[27]

[25] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[26] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009

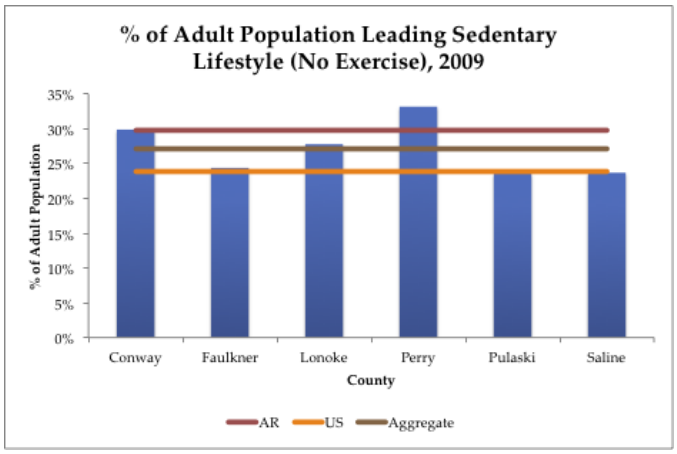
[27] Map Source: Arkansas Center for Health Improvement. *Assessment of Childhood and Adolescent Obesity in Arkansas*, 2007-2008.





The ACHI report also indicated children who were at risk for overweight. The graph below depicts, by county, the number of children who are at risk for overweight (25 ≤ BMI < 30) or overweight (BMI ≥ 30).[28] Pulaski County has the greatest prevalence of youth who are at risk of overweight or overweight (37.58%), with Conway County at a close second (37.27%). Perry County has the lowest prevalence of youth who are at risk of overweight or overweight (33.87%).

Physical Activity (Adult). One input to obesity, and thus obesity associated disease, is lack of physical activity. While a sedentary lifestyle, or physical inactivity, is not always associated with obesity, it is associated with higher rates of chronic illness, such as cardiovascular disease. In SVI's six county service area, a greater percent of adults are living a sedentary lifestyle than the nation as a whole, but a lower percent than the state of Arkansas. These differences are depicted in the graph below.[29]

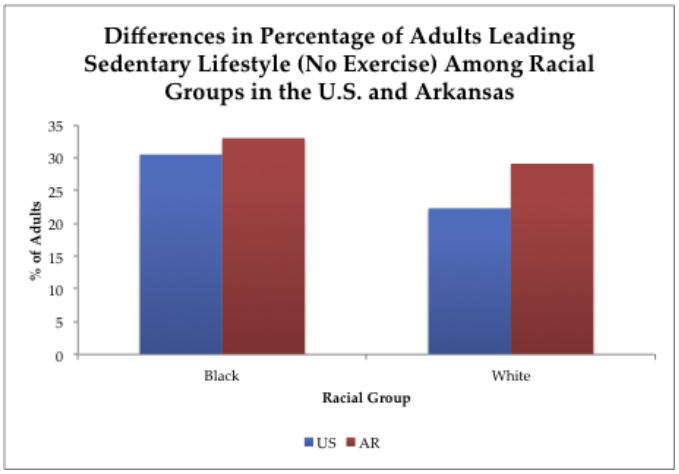


[28] Among adults, overweight is 25 ≤ BMI < 30 and obese is BMI ≥ 30. Among children, at risk of overweight is 25 ≤ BMI < 30 and overweight is BMI ≥ 30

[29] Arkansas Department of Health. *County Data Estimates: Sedentary Lifestyle*. 2010 report

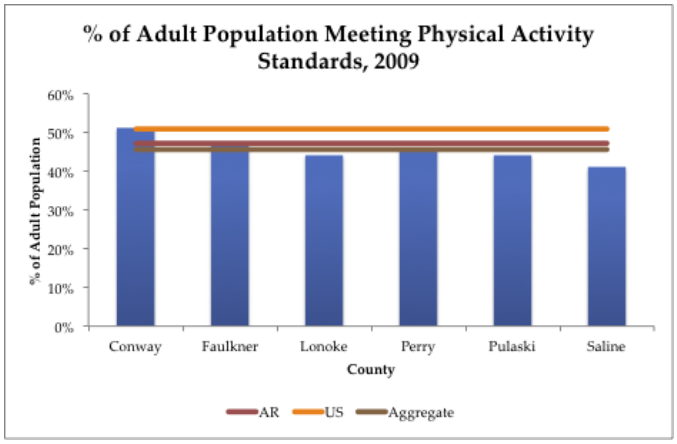
As is evident in the above graph, there is significant variation within SVI's primary service area in the prevalence of adults living a sedentary lifestyle. While prevalence of sedentary lifestyle among adults in Faulkner and Pulaski County are comparable to the national average, around 24% of adults, the prevalence of sedentary lifestyle among adults is much higher in the other counties. Perry County has the greatest prevalence of sedentary lifestyle with over 32% of the adult population meeting this requirement. Perry County is the only county in SVI's six-county service area with a prevalence of adult sedentary lifestyle greater than that of Arkansas.[30]

The graph below depicts racial differences (Black adults v. White adults) in the prevalence of adults leading a sedentary lifestyle.



Black and White adults in Arkansas have greater prevalence of sedentary lifestyle than Black and White adults in the US though there is less of a disparity in race for this measure in Arkansas than there is in the nation as a whole. This suggests that in Arkansas there may be more diffusion of physical inactivity across racial groups than is exhibited in the greater U.S. population.[31]

Examining the percentage of adults who *do* meet physical activity standards,[32] it appears that SVI's primary service area has a smaller percentage of adults who are getting recommended levels of physical activity relative to both national and Arkansas state prevalence. Looking at the graph below, the line representing the percentage of adults in SVI's aggregate service area meeting physical activity standards shows that the percent associated with this line (about 46% of adults) is lower than the national rate (about 51%) and the state rate (about 47%).[33]



[30] Arkansas Department of Health. *County Data Estimates: Sedentary Lifestyle*. 2010 report.

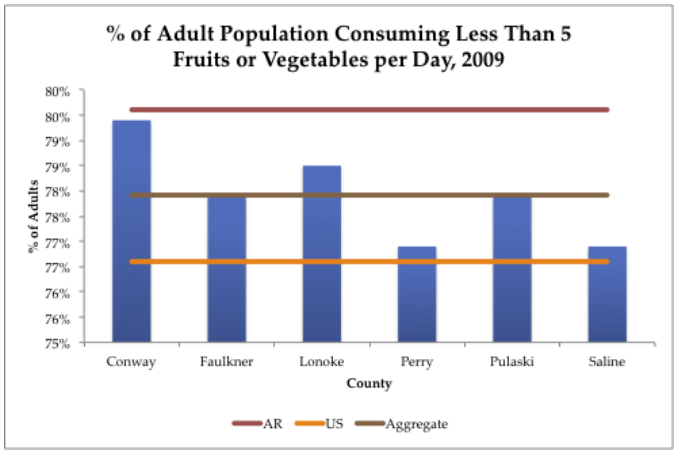
[31] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[32] Defined as 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.

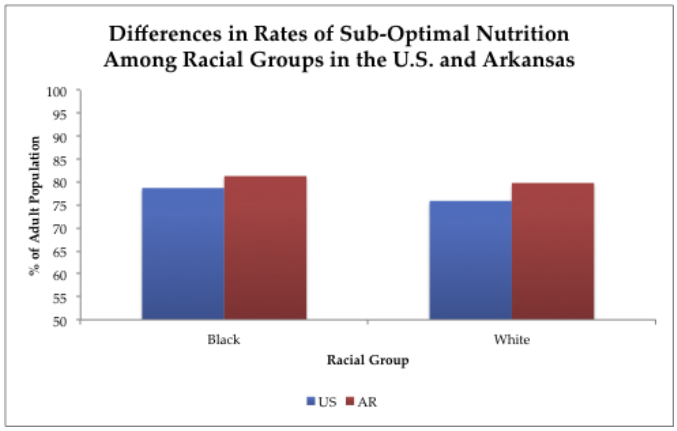
[33] Arkansas Department of Health. *County Data Estimates: Physical Activity*. 2010 report.

Saline County and Lonoke County have the lowest percentage of adults meeting physical activity standards, about 40% and 44% respectively, while Conway County has a considerably higher percentage (around 51%) than the other five counties (and equivalent to the national percentage).

Nutrition (Adult). Fewer adults in SVI's primary service area are consuming the recommended number of fruits and vegetables each day (5) than in the U.S. However, fruit and vegetable consumption in the aggregate service area is better than in the state of Arkansas as a whole, (78% of individuals in the SVI service area do not eat at least 5 fruits/vegetables daily, versus 79.5% of adults in the SVI service area)[34]. Among the six SVI counties there is considerable variation in adult fruit and vegetable consumption. Conway County has the highest percentage (79.4%) of the adult population that is not consuming recommended levels of fruit and vegetables per day. While the difference from Conway County is not large, Perry and Saline County have the lowest percent of adults not meeting the fruit/vegetable consumption guideline (both at 76.9%) which is similar to the national percent of adults (76.6%).[35]



Analysis of nutritional intake among Black and White adults in the U.S. and in Arkansas reveals that, slightly fewer Black adults consumed five fruits and vegetables a day in 2009 than White adults, with the Black-White gap in consumption being smaller in Arkansas than in the US.[36]



Protective Factors

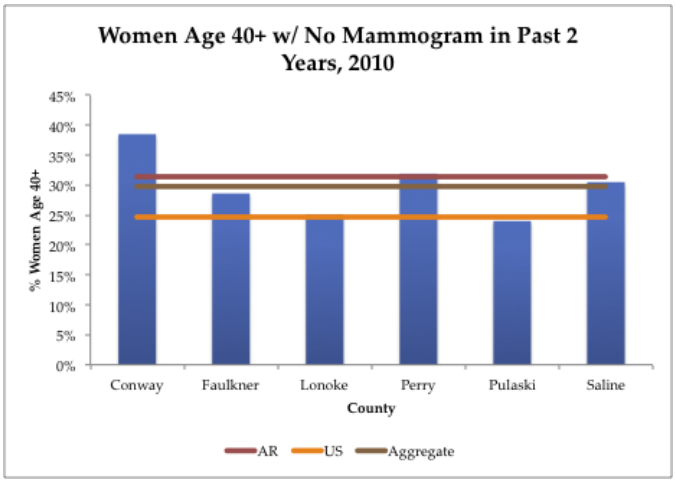
The following section analyzes the extent to which adults in the SVI service area are receiving recommended preventive diagnostic screening.

[34] Arkansas Department of Health. *County Data Estimates: Fruits and Vegetables* . 2010 report.

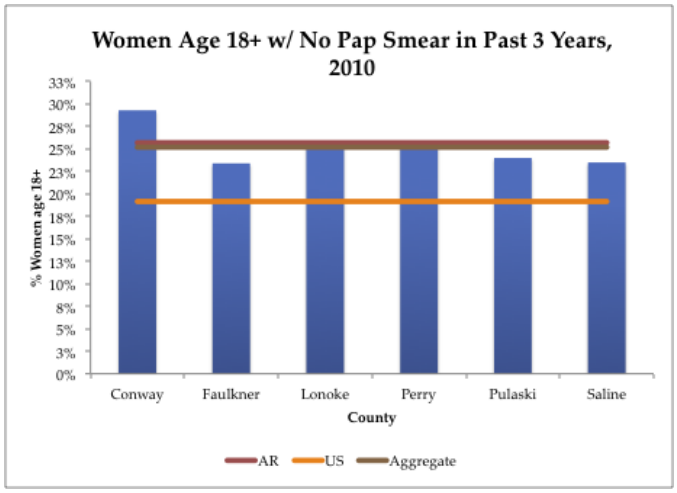
[35] Arkansas Department of Health. *County Data Estimates: Fruits and Vegetables* . 2010 report.

[36] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

Mammography. A greater percentage of women do not get regular mammograms in the SVI primary service area than in the U.S. However, overall, a greater percentage of women over 40 in the SVI service area are getting regular mammograms than in the state of Arkansas. Conway County has a particularly high percentage of women over 40 who have not had a mammogram in the past two years (over 37%). Perry County has the second highest percent (32%). Pulaski and Lonoke have the lowest percentages, with less than 25% of women over 40 not having had a mammogram in the past two years, similar to the U.S. rate.[37]



Pap Smear. As with mammogram testing, a higher percentage of women in the SVI primary service area fail to get a regular pap smear than in the U.S. Around 19% of women over age 18 in the U.S. had not received a pap smear in the past three years (2010). The SVI service area aggregate percentage and Arkansas state percentage are both roughly around 26%. Conway County, again, has the highest percentage, with 29.5% of women over age 18 in Conway not having received a pap smear in the past three years.[38]

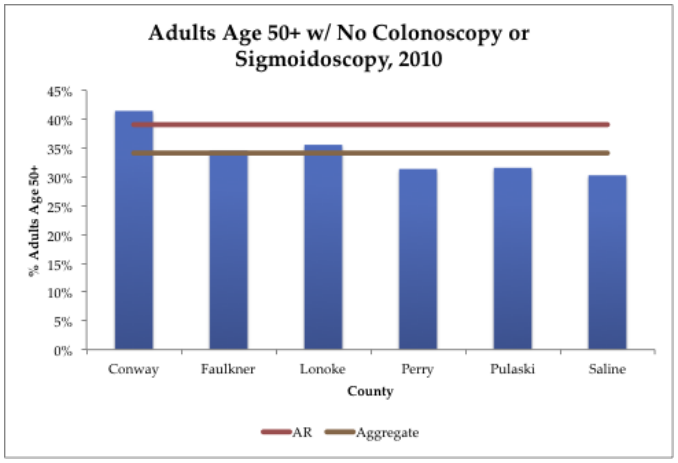


Colonoscopy/ Sigmoidoscopy. A greater percentage of adults over age 50 in the SVI primary service area are getting a recommended colonoscopy or sigmoidoscopy than percent of adults in the state of Arkansas. Conway County is the only county in the SVI service area in which a greater percentage (42%) of adults failed to get a colonoscopy/sigmoidoscopy than the state percent (the state percentage is slightly under 40%). The SVI aggregate average percentage of adults over age 50 receiving a colonoscopy is around 34%.[39]

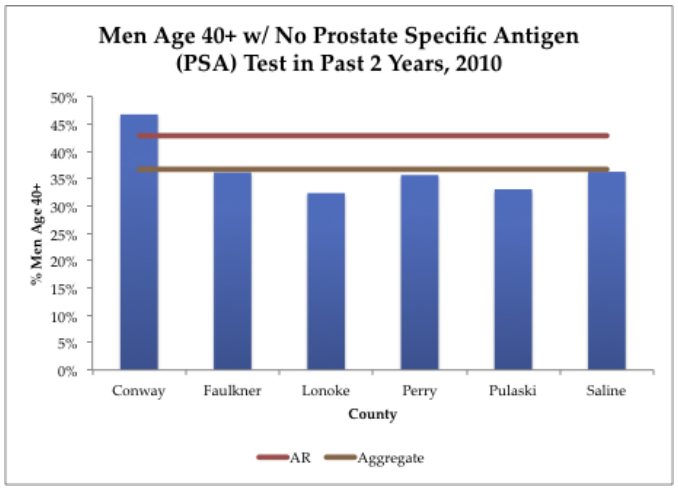
[37] Arkansas Department of Health. *County Data Estimates: Mammography*. 2010 report

[38] Arkansas Department of Health. *County Data Estimates: Pap Smear*. 2010 report

[39] Arkansas Department of Health. *County Data Estimates*. 2010 report



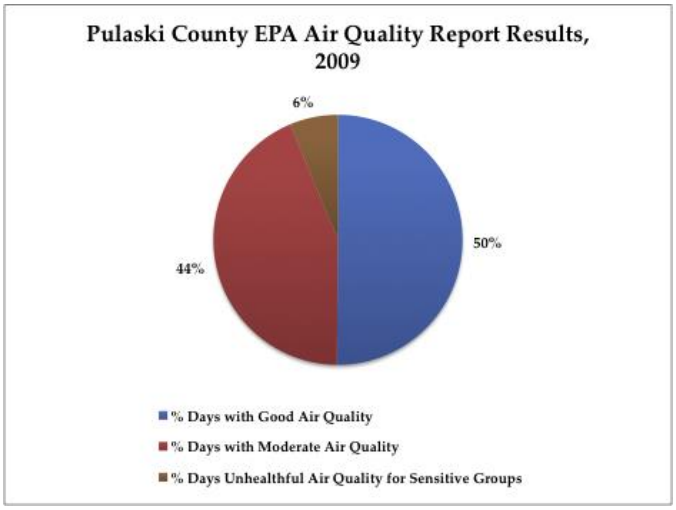
Prostate Specific Antigen (PSA) Testing. A higher percentage of men over age 40 in the SVI primary service area appear to be getting regular PSA tests than in the state of Arkansas. Approximately 32% of men in the SVI service had not received a PSA test in the past two years, while approximately 43% of men over age 40 in Arkansas hadn't received a PSA test. As with the previous three preventive health indicators, Conway County had the highest percentage of men over age 40 that had not received regular prostate testing – approximately 47%.[40]



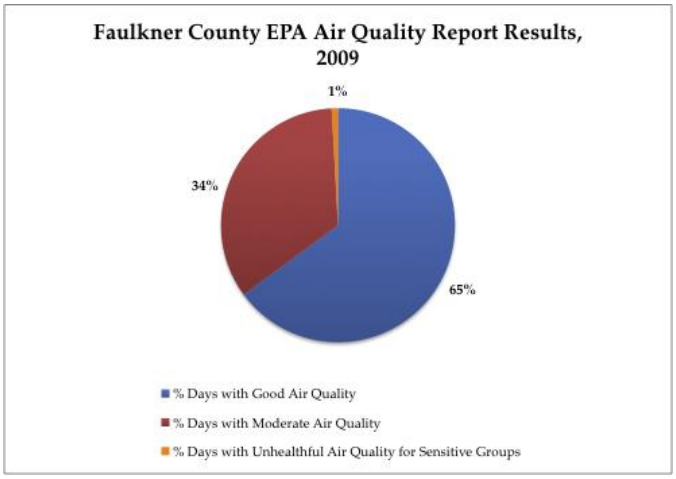
[40] Arkansas Department of Health. *County Data Estimates*. 2010 report

Environmental Health Factors

Air Quality. Air quality measures are only available for two of the six counties in SVI's service area: Pulaski and Faulkner. According to the EPA, air quality is not monitored in Conway, Lonoke, Perry or Saline. Neither Pulaski nor Faulkner County had any measured days in 2005 where air quality was determined to be unhealthful[41].
In Pulaski County, 50% of days in 2005 were classified as having good air quality, [42] and 44% of days were determined to be of moderate air quality.[43] As illustrated in the graph below, while none of the measured days in 2005 were deemed to be of overall unhealthful air quality, 6% of the days were deemed unhealthful *for sensitive populations.*



A separate report provided the maximum and minimum Air Quality Index (AQI) for Pulaski and Faulkner Counties in 2003. In Pulaski County, the maximum AQI was 104 (classified in the range of "Unhealthful Air Quality") and the minimum measured AQI was 45 (classified in the range of "Good Air Quality"). In Faulkner County, 65% of days in 2005 were classified as having good air quality, and 34% of days were classified as having moderate air quality. As illustrated in the graph below, while none of the measured days in 2005 were classified as having unhealthful air quality, 1% of days in 2005 were deemed *unhealthful for sensitive populations.*



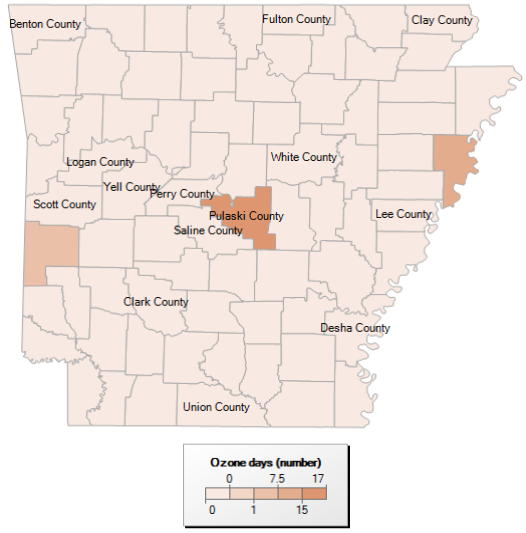
[41] Air quality was measured for 365 days in Pulaski County and for 114 days in Faulkner County.
[42] United States Department of Environmental Protection. *Air Quality Index Report,* 2005 Data. Report Generated 11/20/2011.

[43] **The EPA Defines AQI levels as such:**
"Good" AQI is 0 - 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
"Moderate" AQI is 51 - 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
"Unhealthy for Sensitive Groups" AQI is 101 - 150. Although general public is not likely to be affected at this AQI range, people with lung disease, older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air. .
"Unhealthy" AQI is 151 - 200. Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects. .
"Very Unhealthy" AQI is 201 - 300. This would trigger a health alert signifying that everyone may experience more serious health effects.
"Hazardous" AQI greater than 300. This would trigger a health warnings of emergency conditions. The entire population is more likely to be affected.

While specific air quality data were not available for the other four counties in the SVI primary service area, information was available for certain metrics of air quality through the Health Indicators Warehouse.[44] The maps that follow illustrate atmospheric and environmental health measured by ozone days, particulate matter days, and toxic chemicals, for all counties in Arkansas.

Ozone Days. The map below illustrates the number of measured ozone days[45], by county, in Arkansas in 2005. Ozone is identified as one of the two pollutants that are most harmful to health (the other being particulate matter days, addressed in the following section). All counties in the SVI primary service area, except Pulaski County, had zero defined ozone days in 2005. Pulaski County, however, had between 15 and 17 defined ozone days in this period.

Ozone Days in the State of Arkansas, 2005



Source: Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

Particulate Matter Days. The following map illustrates particulate matter days[46], by county, for Arkansas in 2005. Particulate matter is the other pollutant most commonly associated with a negative impact on health.[47] Particulate matter appears to be more of an issue in Arkansas, and in the SVI service area, than ozone. Pulaski County, again, has the highest number of identified particulate matter days (between 12 and 16 measured days) in the SVI service area. Faulkner, Lonoke and Saline Counties all fell between 9 and 11 particulate matter days in 2005. Perry and Conway Counties had the lowest number of particulate matter days, between 3 and 4 days in 2005, of the six counties in the SVI service area.

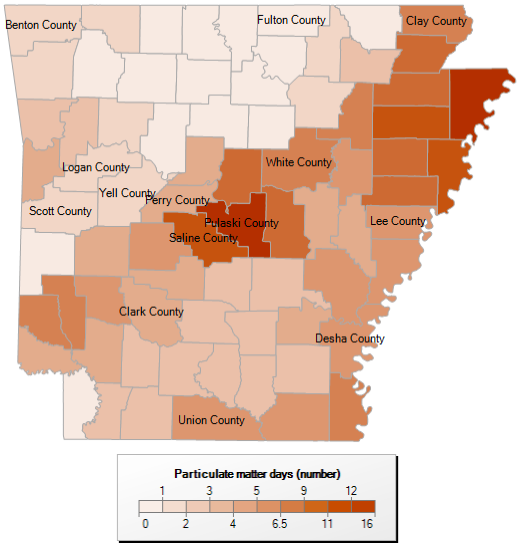
[44] Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

[45] Annual number of days with daily 8-hour maximum ozone concentration over the National Ambient Air Quality Standard.

[46] Annual number of days with maximum 24-hour average PM 2.5 concentration over the National Ambient Air Quality Standard.

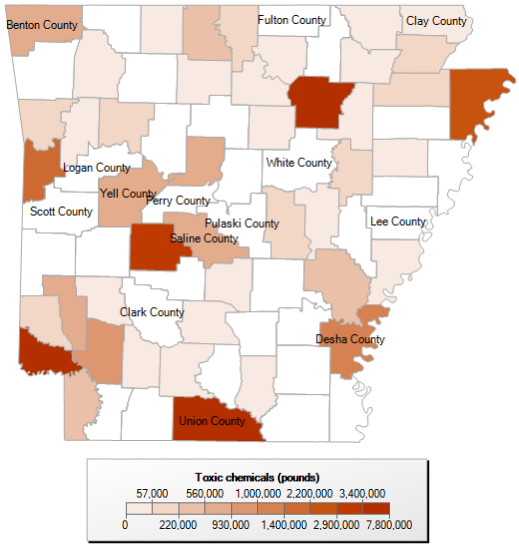
[47] http://www.healthindicators.gov/Resources/DataSources/PHASE_130/Profile

Particulate Matter Days in the State of Arkansas, 2005



Source: Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

Toxic Chemicals Released Annually in the State of Arkansas, 2008



Source: Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

Toxic Chemicals (Pounds). Toxic chemical releases and waste management activities are tracked and reported (at the county level) by the EPA through the Toxic Release Inventory.[48] None of the counties in SVI's six-county service area appear to have particularly high levels of toxic chemical releases.

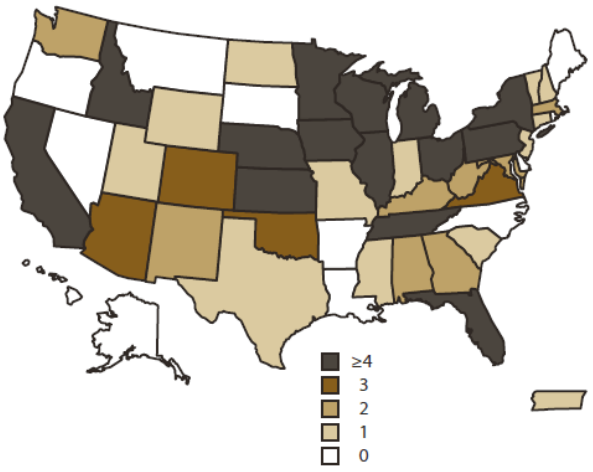
Waterborne illness. Waterborne illness throughout the U.S. is tracked by the Centers for Disease Control. Incidence of waterborne illness is measured separately for water bodies used as a drinking source and for water bodies used for recreational purposes. While, no county-level information could be acquired regarding waterborne illness incidence in Arkansas, the need for this information was obviated by the fact that Arkansas had zero incidences of identified waterborne illness, in either recreational water bodies or water bodies that served as a drinking source, between 2007 and 2008.[49] The following two maps illustrate incidences of waterborne illness throughout the U.S. between 2007 and 2008. As is evident, Arkansas is one of a minority of states in which no incident cases of waterborne

[48] http://www.healthindicators.gov/Resources/DataSources/PHASE_130/Profile

[49] Centers for Disease Control. *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks and Other Health Events Associated with Recreational Water – United States- 2007-2008*. September 23, 2011.

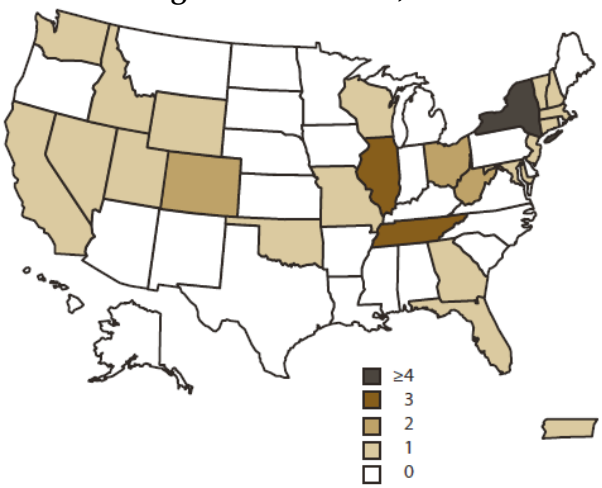
disease were identified in either recreational water bodies or drinking water sources.

Incidence of Waterborne Disease Outbreaks in Recreational H_2O in the U.S., 2007-2008



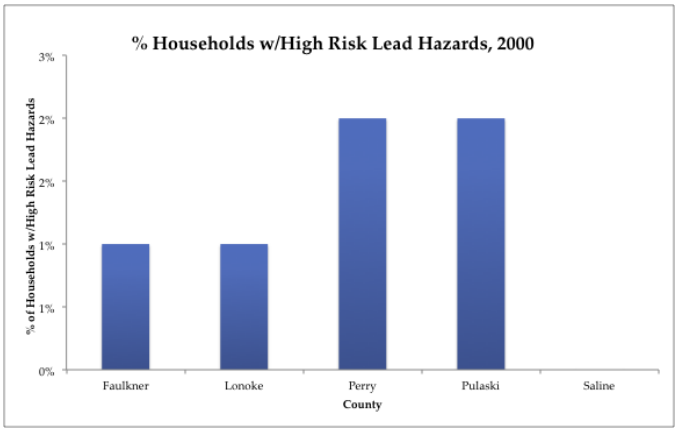
Source: Centers for Disease Control. *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks and Other Health Events Associated with Recreational Water – United States- 2007-2008*. September 23, 2011.

Incidence of Waterborne Disease Outbreaks in Drinking H_2O in the U.S., 2007-2008



Source: Centers for Disease Control. *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks and Other Health Events Associated with Recreational Water – United States- 2007-2008*. September 23, 2011.

Lead Exposure. The most recent information available on lead exposure among households in the SVI primary service area is from 2000. The graph below illustrates the county-level percent of households in the SVI primary service area that were identified as having high-risk[50] health hazards in 2000. As illustrated, Conway County has the highest percentage of households with high-risk lead hazards (3%), with Perry County and Pulaski County having the second highest percentage (2%). Only 1% of households in Lonoke and Faulkner were identified as having high-risk lead hazards. Saline County was the only county in the SVI primary service are with no households identified as having high-risk lead hazards in 2000.

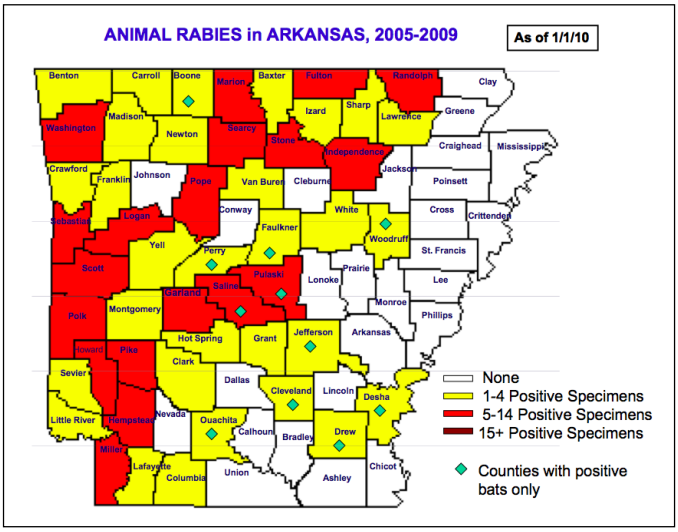


Rabies. In SVI's six county service area, all positive animal rabies incident cases between 2005 and 2009 were bat cases. The map below indicates the number of rabies positive bat specimens, by county, throughout Arkansas during these years.[51] Pulaski and Saline County had the highest number of bat

[50] The percent of housing units in an area with a high risk of lead hazards is calculated by dividing the number of housing units with high risk of lead hazards by the total number of occupied housing units.

[51] Arkansas Department of Health. *Positive Rabies Results Maps*, 2005-2009

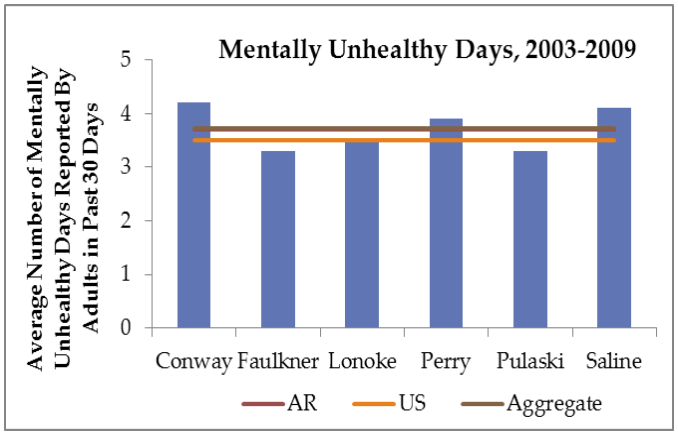
specimens test positive for rabies between 2005 and 2009 (between 5 and 14 positive specimens). Faulkner and Perry Counties reported 1 to 4 rabies-positive bat specimens. Conway and Lonoke Counties had no reported rabies-positive bat specimens during this period.



Source: Arkansas Department of Health. *Positive Rabies Results Maps*, 2005-2009

Social and Mental Health

Mentally Unhealthy Days. The average number of mentally unhealthy days reported by adults during the past 30 days is a primary indicator of mental health status.[52] In the state of Arkansas, adults reported an average of 3.7 mentally unhealthy days between 2003 and 2009.[53] This average was higher than the nationwide average in 2009, with adults across all states reporting an average of 3.5 mentally unhealthy days. Adults in Conway, Saline, and Perry Counties, however, reported even worse mental health. From 2003 to 2009, adults in these counties reported 3.9 to 4.2 mentally unhealthy days, on average. While the average number of mentally unhealthy days in Lonoke County (3.5 days) was on par with the 2009 national average, Faulkner and Pulaski Counties had fewer mentally unhealthy days (3.3 days) than both Arkansas and the US. It should be noted that SVI's six-county aggregate average for mentally unhealthy days was about equal to the state average from 2003 to 2009.

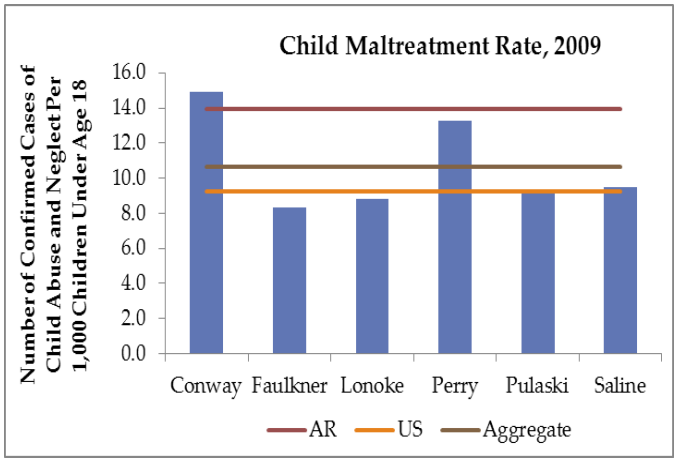


Note: The graph displays the 2009 US rate.

[52] Adults are defined as persons ≥ 18 years of age.

[2] Behavioral Risk Factor Surveillance System, 2003-2009

Child Maltreatment. The child maltreatment rate[54] was higher in the state of Arkansas (13.95 cases per 1,000 children) than in the US (9.27 cases per 1,000 children) in 2009.[55] Although lower than the state rate, the aggregate child maltreatment rate in the SVI primary service area (10.66 cases per 1,000 children) was still higher than the national rate.[56] This higher aggregate rate was mainly driven by Perry and Conway Counties (13.26 cases per 1,000 children and 14.91 cases per 1,000 children, respectively). Faulkner, Lonoke, and Pulaski Counties actually had lower child maltreatment rates than those of the nation and the state.



Homicide. The age-adjusted homicide rate accounts for the number of crude deaths due to murder or non-negligent manslaughter per 100,000 population.[57] As shown in the graph below, this rate was higher in the state of

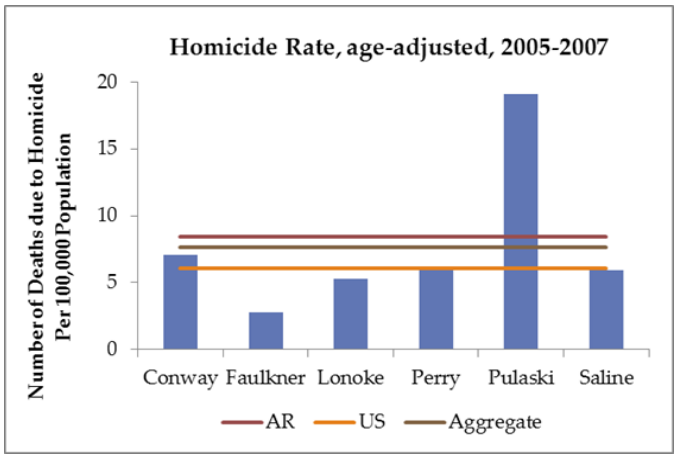
[54] The child maltreatment rate is defined as the number of confirmed cases of child abuse and neglect per 1,000 children under the age of 18. According to the KIDS COUNT Data Center, child maltreatment cases are confirmed by child protective services, including the Arkansas Division of Children and Family Services (DCFS) and the Crimes Against Children Division (CACD).

[55] KIDS COUNT Data Center

[56] Ibid

[57] County Health Rankings, www.countyhealthrankings.org/arkansas

Arkansas (8.4 homicides per 100,000 population)[58] than the US (about 6.1 homicides per 100,000 population)[59] from 2005 to 2007. The majority of counties comprising the SVI primary service area had homicide rates below that of the state during the same time period. However, the homicide rate in Pulaski County was considerably higher than the state and national homicide rates from 2005 to 2007.[60] The Arkansas Department of Health reported 19.1 homicide deaths per 100,000 population in Pulaski County during this time; a rate about 2.27 times the state homicide rate and about 3.13 times the national homicide rate.

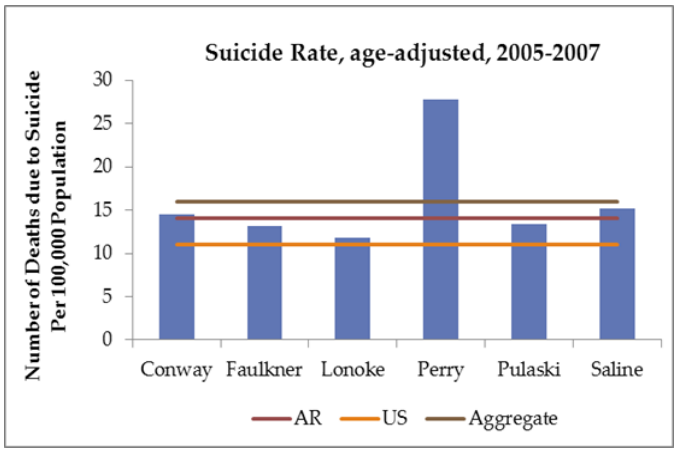


Homicide rates differ widely by race in the SVI primary service area, the state of Arkansas, and in the US. Overall, Blacks were killed at much higher rates than Whites.

Homicide Rate by Race, 2005-2007[61]		
	White	**Black**
Conway	3.2	39.2
Faulkner	1.8	9.5
Lonoke	3.0	41.1
Perry[62]	—	—
Pulaski	6.7	39.2
Saline	5.1	33.8
AR	4.4	28.4
US[63]	3.7	22.2

Suicide. Data from the CDC and Arkansas Department of Health reveal that the suicide rate has been consistently higher in the state of Arkansas than in the US. From 2005 to 2007, the state suicide rate was 14.0 per 100,000 population while the US suicide rate ranged from 10.9 to 11.3 per 100,000 population.[64] Although the suicide rate in many of Arkansas's counties also exceeded the national rate during this time period, the suicide rate in Perry County was considerably higher. In particular, the suicide rate in Perry County (27.8 per 100,000 population) was almost twice that of the state from 2005 to 2007.[65] Suicide rates in Lonoke, Faulkner, and Pulaski Counties were below that of the state but still above that of the nation from 2005 to 2007.

[58] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov
[59] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS)
[60] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov
[61] Ibid
[62] The Arkansas Department of Health did not report Perry County's homicide rate by race.
[63] This is the 2007 US homicide rate by race, as reported by the CDC.
[64] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS)
[65] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov



Suicide rates vary by race (see table below). In both Arkansas and the US, suicide rates are lower among Blacks than among Whites. With the exception of Conway and Lonoke Counties (where Blacks have about twice the rate of suicide than do Whites), the pattern is also observed in the SVI primary service area counties.

Suicide Rate by Race, 2005-2007[66]		
	White	Black
Conway	12.2	27.6
Faulkner	14.8	0.0
Lonoke	11.6	19.1
Perry	28.7	0.0
Pulaski	17.9	5.1
Saline	15.4	8.4
AR	15.5	5.6
US[67]	12.9	4.9

Domestic Violence. According to the Violence Policy Center, the homicide rate among females murdered by males in Arkansas was 2.29 per 100,000 population in 2007. This rate was the fourth highest in the nation. However, among the homicides in which the victim to offender relationship could be identified, 89% of female victims (24 out of 27) were murdered by someone they knew.[68] While domestic violence data by county is not reported, the Violence Policy Center classified 54% of the victims who knew their offenders as wives, ex-wives, or girlfriends.[69]

Inpatient Psychiatric Discharges. In 2010, the hospital discharge rate for inpatients primarily diagnosed with a mental disease or disorder[70] was higher in the state of Arkansas (84.9 discharges per 10,000 population)[71] than in the US (77.3 discharges per 10,000 population)[72]. This rate was even higher for the SVI primary service area, with an aggregate rate of 104.2 discharges per 10,000 population. Conway County had the highest rate (123.6 discharges per 10,000 population), while Pulaski, Lonoke, and Saline Counties also drove up the aggregate rate (119.2, 115.7, and 111.6 discharges per 10,000 population, respectively).[73] Of the six counties in the SVI primary service area, Faulkner County was the only one with a psychiatric discharge rate below that of the state and nation (70.0 discharges per 10,000 population).

[66] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

[67] This is the 2007 US suicide rate by race, as reported by the CDC.

[68] Violence Policy Center Report, *When Men Murder Women: An Analysis of 2007 Homicide Data*

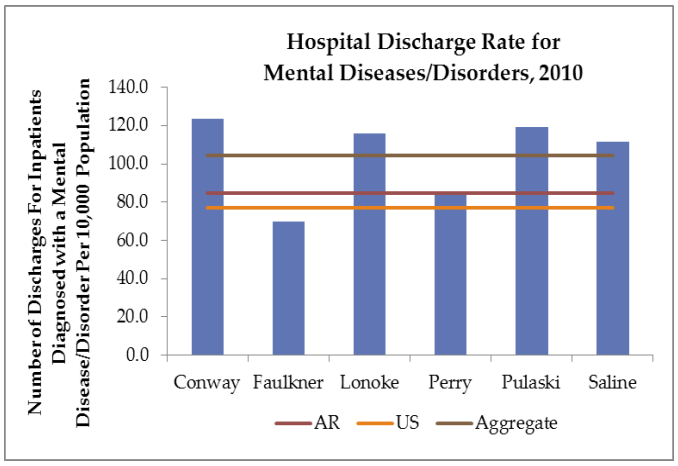
[69] Ibid

[70] "Mental diseases or disorders" represent a major diagnostic category which accounts for a range of psychoses including major depressive disorders and schizophrenic disorders.

[71] Arkansas Department of Health, Health Statistics Branch Query System, http://www.healthy.arkansas.gov

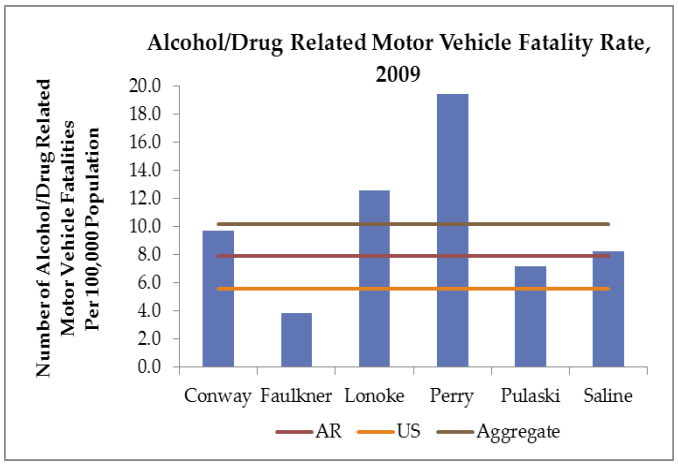
[72] This is the 2007 US rate, which is calculated from the most recent discharge data provided by the National Hospital Discharge Survey. Thus, while the 2007 US rate is likely an underestimate of the 2010 US rate, the relationship between the state and national rate still likely holds from 2007 to 2010.

[73] Arkansas Department of Health, Health Statistics Branch Query System, http://www.healthy.arkansas.gov



Note: The graph displays the 2007 US rate.

Alcohol/Drug Related Motor Vehicle Fatality. Compared to the state and the nation, the counties comprising the SVI primary service area had, on average, a higher number of alcohol/drug related motor vehicle fatalities per 100,000 population in 2009. The six-county average rate (10.2)[74] seemed primarily driven by Perry County (19.4 fatalities per 100,000), which had a rate about 2.45 times that of the state (7.9 fatalities per 100,000) and about 3.5 times that of the US (5.6 fatalities per 100,000)[75]. With an alcohol/drug related motor vehicle fatality rate of 3.8 fatalities per 100,000, only Faulkner County had a rate below both the state and nation.



The number of alcohol/drug related motor vehicle fatalities and injuries in 2009 are reported below. As would be expected, the most populous county, Pulaski, had the highest number of fatalities and injuries.

Number of Alcohol/Drug Related Motor Vehicle Fatalities and Injuries, 2009[76]		
	Fatalities	**Injuries**
Conway	2	19
Faulkner	4	73
Lonoke	8	43
Perry	2	7
Pulaski	27	401
Saline	8	106
AR	262	2,672
US[77]	16,904	—

[74] Arkansas State Police, 2009 Traffic Crash Statistics

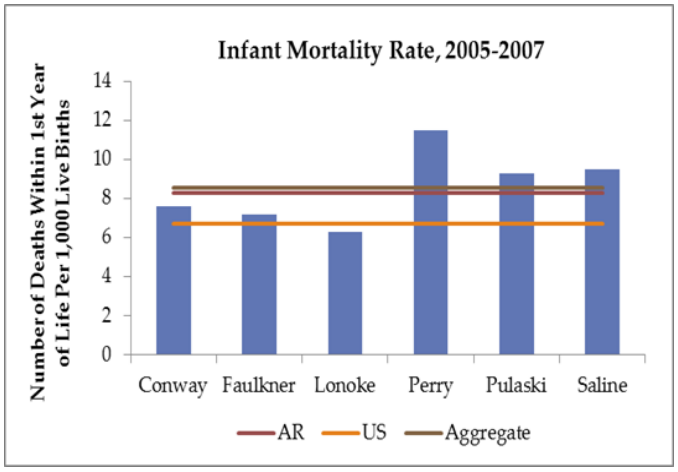
[75] Centers for Disease Control and Prevention (CDC), 2011; 2005-2009 American Community Survey, http://factfinder.census.gov

[76] Arkansas State Police, 2009 Traffic Crash Statistics

[77] According to the CDC, in 2009, about 32% of traffic fatalities involved alcohol while about 18% of traffic fatalities involved other drugs. The total number of alcohol/drug related motor vehicle fatalities was derived using these percentages.

Maternal and Child Health

Infant Mortality Rate. The infant mortality rate, defined as the number of deaths within the first year of life per 1,000 live births, was higher in the state of Arkansas than the US from 2005 to 2007. In particular, the state rate (8.3 deaths per 1,000 live births) during this time period was about 1.23 times higher than the US rate (about 6.7 deaths per live births). Perry, Saline, and Pulaski Counties all had rates above that of the state and nation, with Perry having the highest rate at 11.5 deaths per 1,000 live births.[78] Lonoke County was the only county in the SVI service area that had an infant mortality rate below that of the state and nation.



Infant mortality varies by race. As with the US as a whole, Black infant mortality is higher than White infant mortality, with the exception of Lonoke and Saline Counties. As shown in the table below, from 2005 to 2007, Lonoke County reported no infant deaths per 1,000 live births for Black women as opposed to 6.4 infant deaths per 1,000 live births for White women.[79] During this same time period, the Black infant mortality rate in Saline County was 8.2, lower than the County's White infant mortality rate of 9.2.[80] While the Arkansas Department of Health reported that Conway and Perry Counties had very high Black infant mortality rates (52.4 and 250.0 infant deaths per 1,000 live births, respectively) relative to their White counterparts and Blacks in other counties, these rates should be interpreted with caution. Reporting error or the small populations of Conway and Perry Counties may have skewed the data.

Infant Mortality Rate by Race, 2005-2007[81]		
	White	**Black**
Conway	2.2	52.4
Faulkner	6.3	16.2
Lonoke	6.4	0.0
Perry	7.8	250.0
Pulaski	5.5	15.2
Saline	9.2	8.2
AR	6.6	15.3
US[82]	5.64	13.24

Prenatal Care. Among all live births, the state of Arkansas had a higher percent of mothers who entered prenatal care during their first trimester compared to all mothers in the US. In 2010, 77.9% of live births in Arkansas were to mothers who entered prenatal care during their first trimester while this percentage was about 70.8% for all mothers in the US in 2007.[83]

[78] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

[79] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

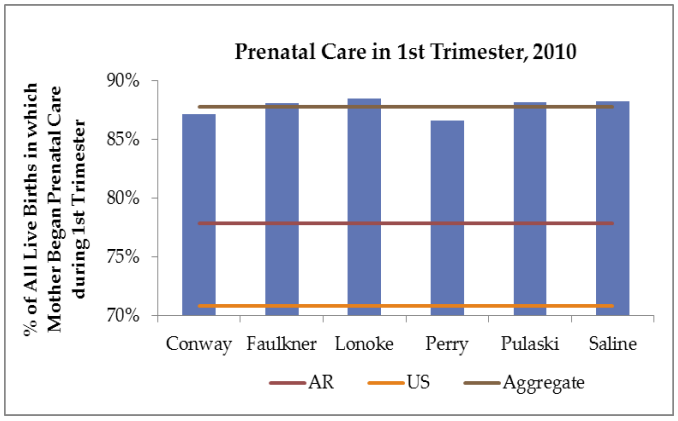
[80] Ibid

[81] Ibid

[82] This is the 2007 US infant mortality rate by race, as reported by the CDC.

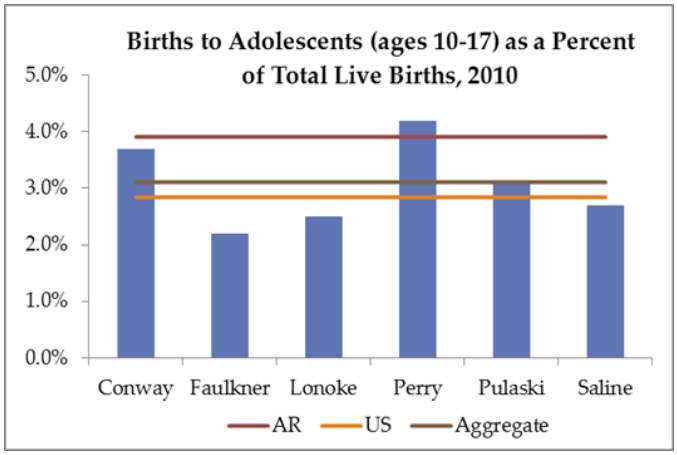
[83] The CDC's August 2010 edition of its National Vital Statistics Report gives national data on prenatal care up to 2007. This data is based on a 22-state reporting area which accounts for revisions to the U.S.

However, in the six counties comprising SVI's service area, early entrance into prenatal care was even higher than the state (and presumably the nation) in 2010. The percent of mothers receiving prenatal care during their first trimester ranged from 86.6% in Perry County to 88.5% in Lonoke County, with the six-county aggregate being 87.8%.[84]



Note: The graph displays the 2007 US percent.

Adolescent Births. The state of Arkansas had a higher percent of total live births to adolescents[85] than the US in 2010 (3.9% versus 2.84%, respectively).[86] While the aggregate percent for SVI's service area (3.1%) was also higher than the nation, this percent was still below that of the state. In fact, Faulkner (2.2%), Lonoke (2.5%), and Saline (2.7%) Counties had a lower percent of live births to adolescents than the state and nation.[87] However, at 4.2%, Perry County reported the highest percent among the six counties, state, and nation.



Teen Birth Rate. In 2009, the teen birth rate in the state of Arkansas (59.2 births per 1,000 females aged 15-19) was about 1.5 times that of the US (39.1 births per 1,000 females aged 15-19).[88] However, five of the six counties in SVI's primary service area had a lower teen birth rate than the state. Consequently, the aggregate teen birth rate in SVI's service area (50.4 births per 1,000 females aged 15-19) was also lower than the state.[89] Among the six counties, Faulkner was the only county with a teen birth rate below that of the state and nation. Conway County had a considerably higher teen birth rate, exceeding that of the state and nation. In fact, the teen birth rate in Conway County (79.1 births per 1,000 females aged 15-19) was about 1.34 times that of the state rate.

Standard Certificate of Live Birth in 2003. The remaining states are not included, because they do not account for the 2003 revisions.

[84] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

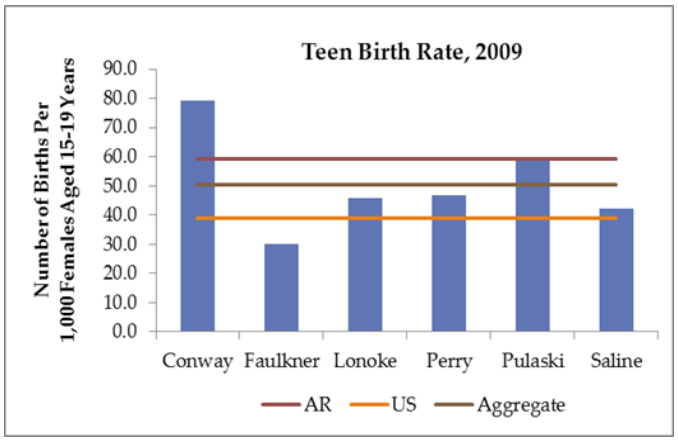
[85] Adolescents, in this measure, are defined as females aged 10-17.

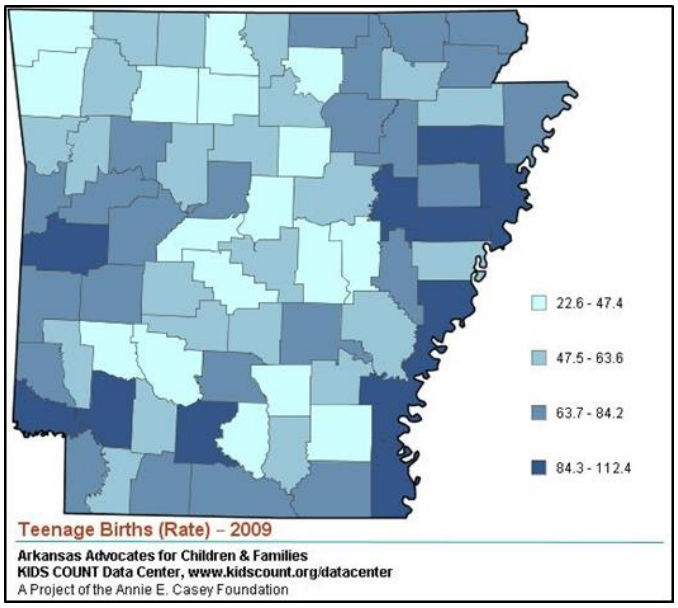
[86] Centers for Disease Control and Prevention (CDC), National Vital Statistics Reports, Volume 60 (2), 2011

[87] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

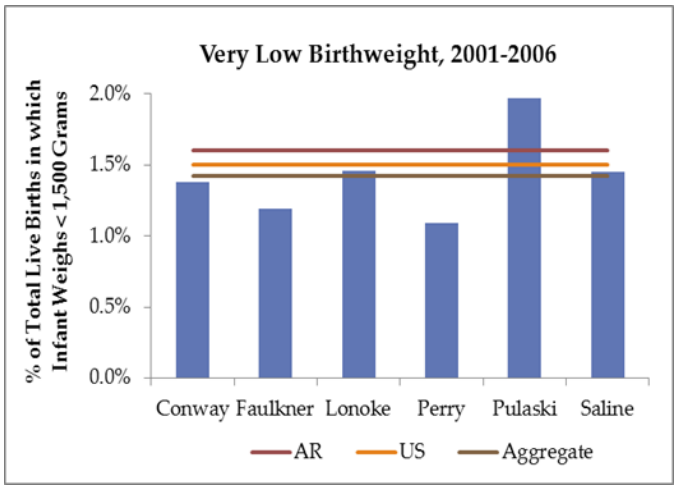
[88] KIDS COUNT Data Center, 2009

[89] Ibid





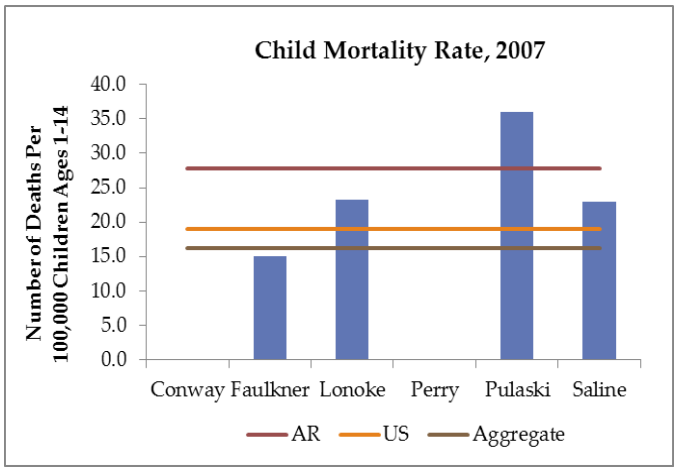
Very Low Birthweight. From 2001 to 2006, newborns weighing less than 1,500 grams comprised 1.6% of all live births in the state of Arkansas.[90] This percentage was lower in the US during the same time period, with 1.5% of all live births categorized as very low birthweight.[91] Despite the higher state percentage, five of six counties comprising the SVI primary service area had a lower incidence of very low birthweight newborns than both the state and the nation. Among these five counties, infants weighing less than 1,500 ranged from 1.09% (Perry County) to 1.46% (Lonoke County) of all live births.[92] The only exception was Pulaski County, which reported that 1.97% of its newborns (on average) had very low birthweight from 2001 to 2006.



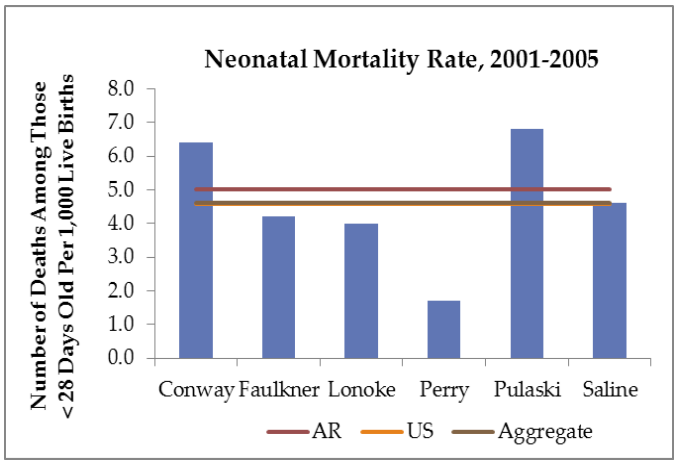
Child Mortality Rate. The KIDS COUNT Data Center, which utilizes the CDC's National Center for Health Statistics as well as data from Arkansas' Department of Health, reported that the state of Arkansas had a higher child mortality rate than the US in 2007 (27.8 deaths versus 19.0 deaths per 100,000 children ages 1-14).[93] While the child mortality rate was listed as 0.0 in Conway County and Perry County, this rate should be interpreted with caution, as both counties have relatively small populations and may not have tracked and/or reported child deaths.[94] Faulkner County was the only other county in the SVI primary service area which had a child mortality rate below that of the state and nation. Saline and Lonoke

[90] Arkansas Department of Health, Health Statistics Branch Query System, http://www.healthy.arkansas.gov
[91] Child Trends Data Bank, http://www.childtrendsdatabank.org
[92] Arkansas Department of Health, Health Statistics Branch Query System, http://www.healthy.arkansas.gov
[93] KIDS COUNT Data Center, 2007; Centers for Disease Control and Prevention, National Center for Health Statistics
[94] Ibid

Counties had rates above that of the nation, but below that of the state. The child mortality rate in Pulaski County, however, was above that of the state and nation (36.0 deaths per 100,000 children ages 1-14).



Neonatal Mortality. Just as the infant mortality rate was higher in the state of Arkansas relative to the US from 2005 to 2007, the neonatal mortality rate[95] was also higher in the state of Arkansas (5.0 deaths per 1,000 live births)[96] than the US (on average, 4.576 deaths per 1,000 live births) from 2001 to 2005.[97] Pulaski and Conway Counties, however, exceeded both of these neonatal mortality rates, with 6.8 and 6.4 deaths per 1,000 live births, respectively. While the neonatal mortality rates in Saline, Faulkner, and Lonoke Counties were below state rates from 2001 to 2005, they were slightly under or over the US rate for the same time period. Among the six counties in SVI's primary service area, the neonatal mortality rate was considerably lower in Perry County (1.7 deaths per 1,000 live births).

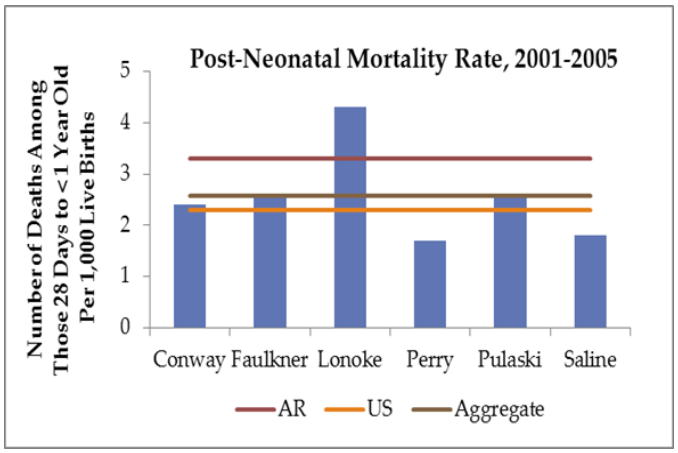


Post-Neonatal Mortality. Using 2001-2005 data, both Arkansas and the US had a lower post-neonatal mortality rate[98] than neonatal mortality rate, but Arkansas still had a higher post-neonatal mortality rate than the US for this time period.[99] In particular, the state post-neonatal mortality rate was 3.3 deaths per 1,000 live births while the national rate was about 2.29 deaths per 1,000 live births (on average)[100]. Although Lonoke County had the highest post-neonatal mortality rate (4.3 deaths per 1,000 live births) among the six counties comprising the SVI primary service area, Pulaski County had the largest decrease from its neonatal mortality rate to its post-neonatal mortality rate (a decrease of 4.2 deaths per 1,000 live births).[101] Saline and Perry Counties, however, were the only ones with post-neonatal mortality rates below that of the state

[95] The neonatal mortality rate is defined as the number of deaths among those less than 28 days old per 1,000 live births.
[96] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov
[97] Centers for Disease Control and Prevention (CDC), National Vital Statistics Reports, Volume 58 (19), 2010

[98] The post-neonatal mortality rate is defined as the number of deaths among those 28 days to less than 1 year old per 1,000 live births.
[99] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov
[100] Centers for Disease Control and Prevention (CDC), National Vital Statistics Reports, Volume 58 (19), 2010
[101] Ibid

and national rate (1.8 and 1.7 deaths per 1,000 live births, respectively).



Death, Illness, and Injury

General Health Status. As a self-rated measure, general health status is reported by respondents in their respective counties. The measure is the percentage of adults, age 18 and older, reporting fair or poor health. According to the Community Health Status Indicators from the Department of Health and Human Services, most of the counties examined are near the national average of 17.1%.[102] Perry County had the highest percentage of adults reporting fair or poor health (29.7%), higher than the state and US average, and Faulkner had the lowest (16%). In between fell Conway, Lonoke, Pulaski, and Saline with reported fair or poor health statuses of 23.3%, 16.8%, 16.7%, and 18.2%, respectively. The aggregate for this measure is 20.1% reporting fair or poor health.

Average Number of Sick Days within Past Month. According to the Community Health Service Indicators from the Department of Health and Human Services from 2006, all of the counties under consideration are around the national average of 6 sick days. Of the SVI primary service area counties, Lonoke County had the lowest number of sick days (5.7) and both Perry and Saline County shared the highest (7.0). In between fell Pulaski, Faulkner, and Conway with 6.2, 6.4, and 6.7 reported sick days, respectively. The SVI aggregate for this measure is 6.5 days.

Health Indicators: Mortality

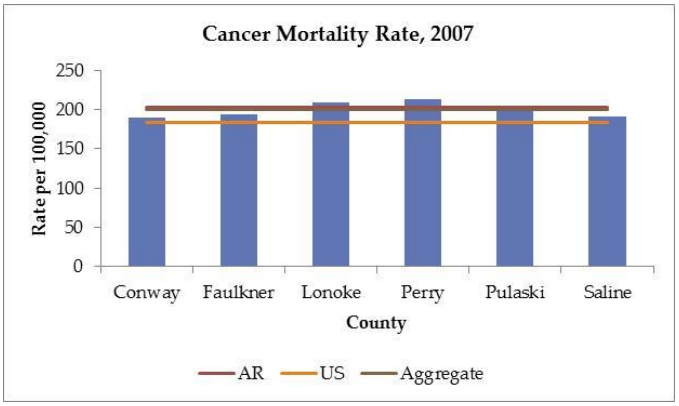
All Causes. According to the 2009 Community Health Status Indicators as reported by the US Department of Health and Human Services, these rates varied widely across the SVI primary service area with the highest mortality rate in Perry County (1670.1 deaths per 100,000 population). This rate was higher than the state (882.6) and US (760.2) average. Saline County had the lowest (876 deaths per 100,000 population). In between fell Conway, Faulkner, Lonoke, and Pulaski with mortality rates of 1558.4, 913.3, 948.2, and 940.7, respectively, while the SVI aggregate is 1151.1 deaths per 100,000 population.

All Cancers. According to data from 2007 as provided by the National Cancer Institute, part of the CDC, the Arkansas state average is 202.6 deaths due to cancer per 100,000 population, compared to the United States average of 183.8 deaths due to cancer per 100,000.[103] The aggregate for the counties in the SVI primary service area is 200.3 deaths per 100,000 with a Black aggregate of 234.2 and a White aggregate of 198.6 deaths per 100,000. As a state, Blacks have significantly higher cancer-specific mortality rates than Whites on average (247.5 compared to 200.4 deaths per 100,000). None of the counties specified deviate largely from their respective state averages. For Whites, the range is from a high of 214.9 deaths due to cancer per 100,000 in Perry County to a low of 187 deaths due to cancer per 100,000 in Conway County. Falling in between are Faulkner, Saline, Pulaski, and Lonoke with

[102] http://www.communityhealth.hhs.gov/SummaryMeasuresOfHealth.aspx?GeogCD=05115&PeerStrat=23&state=Arkansas&county=Perry

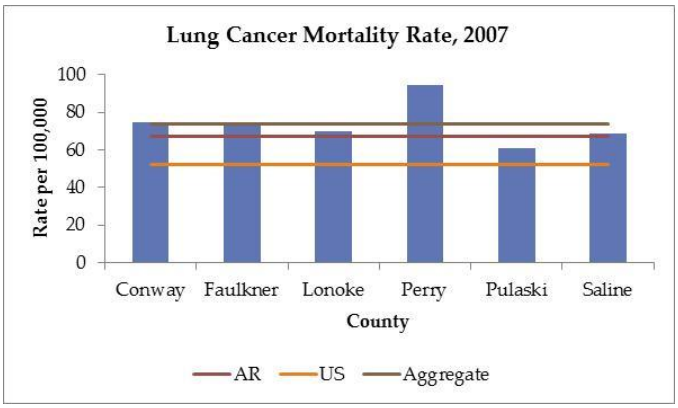
[103] http://statecancerprofiles.cancer.gov/cgi-bin/deathrates/deathrates.pl?05&001&00&0&001&2&0&1

cancer mortality rates of 191.9, 192, 194.3, and 211.5 per 100,000 respectively. For Blacks, the range is from a high of 258.6 deaths due to cancer per 100,000 in Pulaski County to a low of 184.5 deaths per 100,000 in Saline County. In between fell Conway, Faulkner, and Lonoke with rates of 230.5, 246.1, and 251.1 deaths due to cancer per 100,000, respectively. It should be noted that data were not provided for Blacks in Perry County because there were fewer than three deaths due to cancer per year and this is deemed too sparse to estimate. With state average and aggregate numbers so close we see that the lines are overlapping in the graphic below.



Breast Cancer. Looking more specifically at breast cancer rates provided by the National Cancer Institute in 2007, the Arkansas state average of 24.4 deaths due to breast cancer per 100,000 female population is only slightly above the national average of 24 breast cancer deaths per 100,000 women. None of the counties measured have rates deviating significantly from the average. On the high end is Pulaski with 25.6 breast cancer deaths per 100,000 women and on the low end is Lonoke with 18.1 breast cancer deaths per 100,000 women. Falling in between are Saline and Lonoke with rates of 21 and 22.5 deaths per 100,000 women respectively. Perry and Conway were deemed to be too sparse to estimate. The aggregate for this measure is 21.7 breast cancer deaths per 100,000 women.

Lung Cancer. The lung cancer mortality rate, as provided by the National Cancer Institute in 2007 shows that the state average of 67.1 deaths due to lung cancer per 100,000 population is nearly 28% higher than the national average of 52.5 lung cancer deaths per 100,000 population. For the SVI primary service area, all but one of the counties is below or slightly above the state average. Perry County, however, has a dramatically higher rate of 94.5 lung cancer deaths per 100,000 population. This is 41% higher than the state average and 80% higher than the national average. On the low end stands Pulaski County, with a rate of 60.7 lung cancer deaths per 100,000 population. Falling in between are Saline, Lonoke, Faulkner, and Conway with rates of 68.6, 70.1, 73.5, and 74.7 lung cancer deaths per 100,000 population, respectively. The SVI primary service area aggregate for this measure is 73.7 cancer deaths per 100,000 population. This can be seen in the graphic below.



Cervical Cancer. The rate of deaths due to cervical cancer per 100,000 females is 3.3 in Arkansas compared to 2.4 as a national average, a 37.5% difference as provided in 2007 by the National Cancer Institute, part of the CDC. Pulaski is the only county with enough data to provide a reliable rate (3.2 deaths due to cervical cancer per 100,000 women).

Colorectal Cancer. This colorectal cancer mortality rate, as provided in 2007 by the National Cancer Institute, shows a state rate of 19.1 deaths due to colorectal cancer per 100,000 population, slightly higher than the national average of 17.6 colorectal cancer deaths per 100,000. None of the counties examined deviate much from the state average, ranging from 21.8 colorectal cancer deaths per 100,000 in Lonoke County to 15.9 in Saline. Falling in between were Conway, Faulkner, and Pulaski, with rates of 17.3, 17.8, and 18.4 colorectal deaths per 100,000 population, respectively. Perry County was too sparse to estimate. The SVI primary service area aggregate for this measure is 18.2 colorectal cancer deaths per 100,000 population.

Cardiovascular Disease. Data provided by the Arkansas Department of Health from 2007 include deaths due to coronary heart disease, hypertensive heart disease, congestive heart failure, congenital defects, and rheumatic heart disease. The rate for the state was 183 cardiovascular disease deaths per 100,000 population. Of the SVI primary service area counties, Perry had the highest cardiovascular death rate (186 cardiovascular deaths per 100,000 population), and Faulkner had the lowest (110 cardiovascular deaths per 100,000 population). In between, fell Conway, Pulaski, Saline, and Lonoke, with rates of 116, 143, 148, and 153 cardiovascular deaths per 100,000 population, respectively. The aggregate for the entire population for the SVI primary service area was 142.7 cardiovascular deaths per 100,000 population .

The rates are quite similar when looking at Whites only, with a state average of 178 cardiovascular deaths per 100,000 population and ranging from a high of 188 cardiovascular deaths in Perry County to a low of 115 cardiovascular deaths per 100,000 population in Faulkner County. In between, fell Conway, Pulaski, Saline, and Lonoke with rates of 125, 134, 148, and 149 cardiovascular deaths per 100,000 population, respectively. The aggregate for Whites only for the SVI primary service area is 143.2 cardiovascular deaths per 100,000 population.

The state average for Blacks only is 230 cardiovascular deaths per 100,000 population, this is 29% higher than the state average taking Whites only into account. The range among the counties under review is quite unusual, ranging from a high of 221 cardiovascular deaths per 100,000 population in Lonoke County to 39 cardiovascular deaths per 100,000 population in Faulkner County. In between, fell Conway, Saline, Pulaski, and Perry with rates of 56, 145, 184, and 195 cardiovascular deaths per 100,000 population, respectively. The aggregate for Blacks only for the SVI primary service area is 140 cardiovascular deaths per 100,000.

Chronic Obstructive Lung Disease. According to the Arkansas Department of Health from the year 2007, the state average is

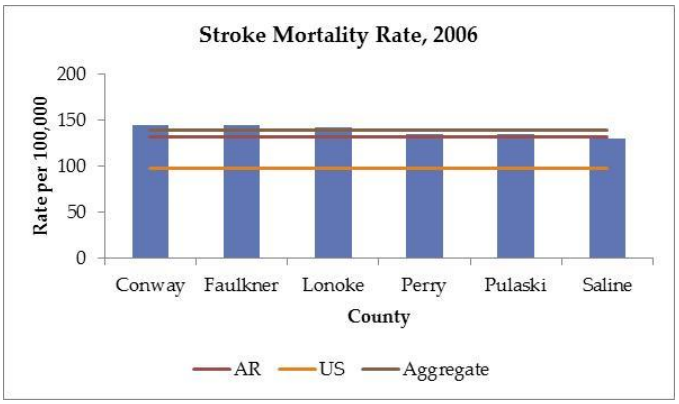
49 COLD deaths per 100,000 population. Of the SVI primary service area counties, Faulkner County had the highest rate (60 COLD deaths per 100,000 population), and Conway had the lowest (34 COLD deaths per 100,000 population). In between, fell Saline, Perry, Pulaski, and Lonoke with rates of 41, 42, 43, and 57 COLD deaths per 100,000 population, respectively. The aggregate for the SVI primary service area is 46.2 COLD deaths per 100,000 population.

Diabetes Mellitus. The Arkansas Department of Health in 2007 found the state and national averages to be 28 and 22.5 diabetes deaths per 100,000 population, respectively. The range for the SVI primary service area is from a high of 37 diabetes deaths per 100,000 population in Lonoke and Conway Counties to a low of 20 diabetes deaths per 100,000 population in Saline. In between, fell Perry, Faulkner, and Pulaski, with rates of 22, 23, and 25 diabetes deaths per 100,000 population, respectively. Lonoke and Conway County both have rates approximately 32% higher than the state average. The aggregate for the SVI primary service area is 27.3 diabetes deaths per 100,000 population.

Pneumonia/Influenza. As defined by the Arkansas Department of Health for the year 2007, with a state average of 27 pneumonia/influenza deaths per 100,000 population; most counties in the SVI primary service area are below or slightly above this rate, however Perry County has a rate of 44, some 63% higher than the state average and dramatically higher than the national average of 16.2 pneumonia/influenza deaths. The lowest rate was in Pulaski County (20 pneumonia/influenza deaths per 100,000 population). In between, fell Conway, Saline, Lonoke, and Faulkner with rates of 28, 31, 35, and 36 pneumonia/influenza deaths per 100,000, respectively. The aggregate for the SVI primary service area is 32.3 pneumonia/influenza deaths per 100,000 population.

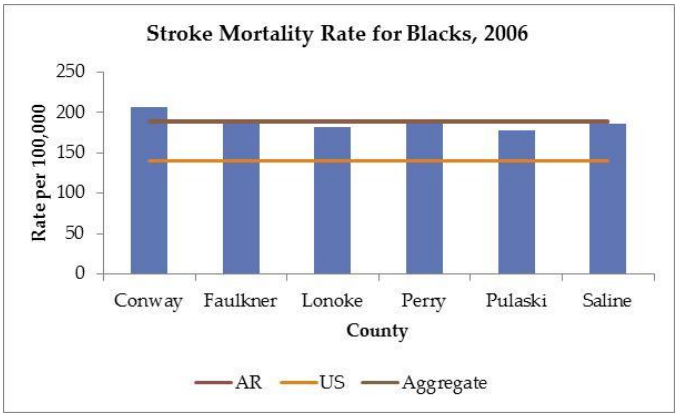
Stroke. This rate is measured as all deaths attributable to stroke per 100,000 population aged 35 and older as defined by the CDC for the year 2006. The state average of 132 per 100,000 is 35% higher than the national average of 98 for the population as a whole.[104] None of the counties under review are markedly different from the state average, ranging from a high of 145 stroke deaths per 100,000 population age 35+ in Conway and Faulkner to a low of 130 stroke deaths per 100,000 population age 35+ in Saline County. This puts Conway and Faulkner at 48% above the national average when considering the population as a whole. In between, fell Perry, Pulaski, and Lonoke with rates of 135, 135, and 142 stroke deaths per 100,000 population age 35+, respectively. The aggregate for the SVI primary service area for the entire population is 138.7 stroke deaths per 100,000 population. This can be seen in the graphic below.

[104] http://apps.nccd.cdc.gov/giscvh2/Results.aspx

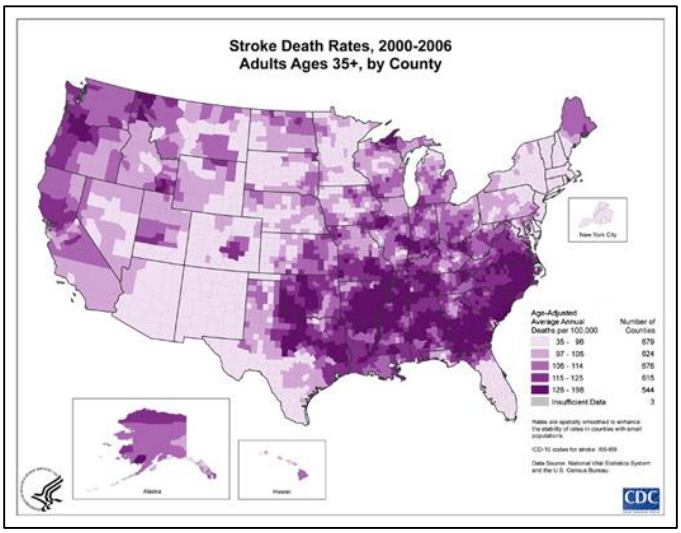


When looking at Whites only the state average of 125 stroke deaths per 100,000 population age 35+ is much higher than the national average of 94 stroke deaths per 100,000 population age 35+. Of the SVI primary service area counties, Conway had the highest (143 stroke deaths per 100,000 population age 35+), and Saline County had the lowest (122 stroke deaths per 100,000 population age 35+). This puts Conway County at 52% above the national average when considering Whites only. In between, fell Perry, Pulaski, Lonoke, and Faulkner with rates of 127, 127, 133, and 138 stroke deaths per 100,000 population age 35+, respectively. The aggregate for the SVI primary service area is 131.7 stroke deaths per 100,000 population age 35+ when considering whites only.

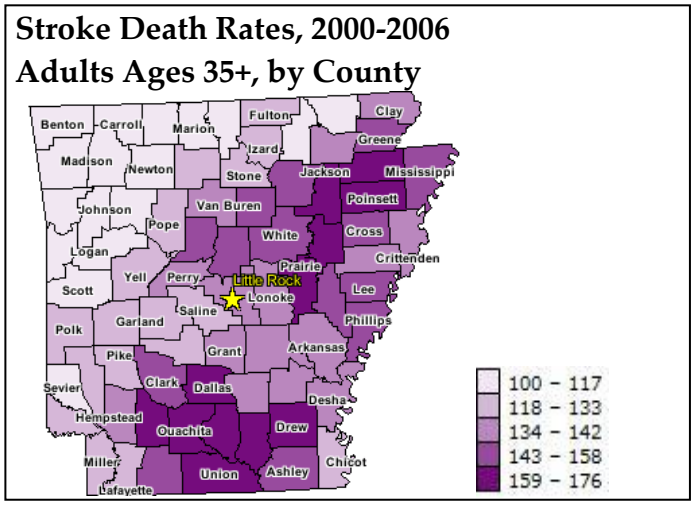
When considering Blacks only, the state and national averages rise to 189 and 140 stroke deaths per 100,000 population age 35+, respectively. The counties under review range from a high of 207 stroke deaths per 100,000 population age 35+ in Conway County to a low of 178 stroke deaths per 100,000 population age 35+ in Pulaski County. This puts Conway County at 48% above the national average when considering Blacks only. In between, fell Lonoke, Saline, Perry and Faulkner with rates of 182, 186, 188, and 191 stroke deaths per 100,000 population age 35+, respectively. The aggregate for the SVI primary service area is 188.7 stroke deaths per 100,000 population age 35+ when considering Blacks only. This is represented in the associated graphic. With state average and aggregate numbers so close we see that the lines are overlapping.



Arkansas is in an area of the United States known as the "Stroke Belt." This refers to the area of the southeastern US where the stroke mortality rate is relatively high. This can be seen quite clearly in the graphic below.



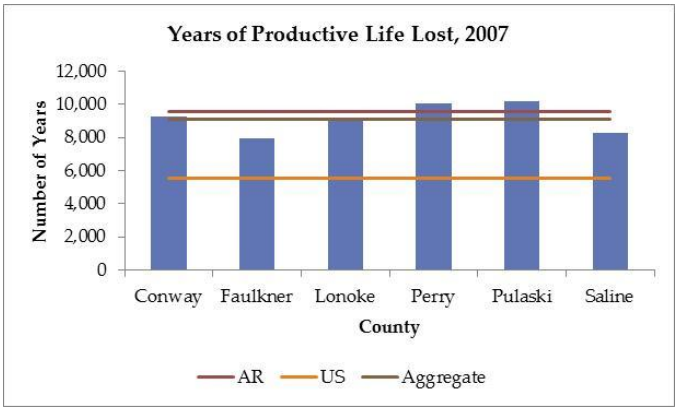
Looking more specifically at the state of Arkansas we see that some areas have higher stroke death rates than others. While some of the counties under review have quite high stroke rates as explained above there are areas of Arkansas with even higher rates. This is demonstrated in the graphic provided below.



Source: http://apps.nccd.cdc.gov/giscvh2/Results.aspx

Unintentional Injuries. As provided by the CDC in 2006, the state average was 75 unintentional injury deaths per 100,000 population. The national average is quite a bit lower at 41 unintentional injury deaths per 100,000. The range for the SVI primary service area is from a high of 91 unintentional injury deaths per 100,000 in Perry County to a low of 64 in Saline County. Perry County's rate of 91 unintentional injury deaths per 100,000 is 21% higher than the state average.[105] In between the high and low fell Faulkner, Lonoke, Pulaski, and Conway with rates of 67, 68, 73, and 74 unintentional injury deaths per 100,000 population, respectively. The SVI primary service area aggregate for this measure is 72.8 deaths due to unintentional injury.

Years of Productive Life Lost. Years of productive life lost is measured as the number of years of productive life lost under age 75 as reported by County Health Rankings for the year 2007. The state of Arkansas has a dramatically higher number of years lost (9,545) than the national average of 5,564; a more than 71% difference.[106] Within Arkansas the range is from a high of 10,188 years lost in Pulaski County to a low of 7,913 years lost in Faulkner County. The Pulaski County figure is a striking 83% higher than the national average. Falling in between are Saline, Lonoke, Conway, and Perry with years of productive life lost measures of 8.256, 9,048, 9.245, and 10,062, respectively. The SVI aggregate for this measure is 9118.7 years lost. This can be observed in the graph below.



Motor Vehicle Crashes. Data provided by the CDC is from 2007 and shows all but one of the counties examined were slightly above or below the state average of 25 motor vehicle crash deaths per 100,000 population. The

[105] http://www.healthy.arkansas.gov/programsServices/healthStatistics/Documents/Publications/CountyHealthData/pope.pdf

[106] http://www.countyhealthrankings.org/arkansas/

counties in SVI's primary service area range from a high of 42 motor vehicle crash deaths in Perry County to a low of 17 motor vehicle crash deaths per 100,000 population in Pulaski County. Perry County's rate is approximately 68% higher than the state average. Falling in between are Faulkner, Saline, Conway, and Lonoke with rates of 20, 20, 29, and 30 motor vehicle deaths per 100,000, respectively. The aggregate for this measure is 26.3 crashes per 100,000.

Communicable Disease

Syphilis. This was reported through December 31, 2010 by the Arkansas Department of Health. The number of cases was then converted into rates per 100,000 population for comparison. The state and national average number of reported cases of syphilis were 18.5 and 14.9 per 100,000 population, respectively. Of the SVI primary service area counties, Pulaski County had the highest number of cases at 97, yielding a rate of 25.3 reported cases of syphilis per 100,000 population, and Perry and Conway both had zero reported cases of syphilis. In between, fell Saline, Faulkner, and Lonoke with reported cases of 7, 11, and 7, yielding rates of 6.5, 9.7, and 10.2 reported syphilis cases per 100,000 population, respectively. The aggregate for the SVI primary service area is 20.3 reported syphilis cases per 100,000 population.

Gonorrhea. This was reported through December 31, 2010 by the Arkansas Department of Health. The number of cases was then converted into rates per 100,000 population for comparison. This follows roughly the same pattern as syphilis. The state and national average number of reported cases of gonorrhea were 165 and 100.8 per 100,000 population, respectively. Of the SVI primary service area counties, Pulaski had the highest number of cases at 1,368, yielding a rate of 357.4 reported cases of gonorrhea per 100,000 population, and Perry had the lowest number of cases at 2, yielding a rate of 19.1 reported cases of gonorrhea per 100,000 population. In between, fell Saline, Lonoke, Conway, and Faulkner with reported cases of 31, 41, 13, and 141 yielding rates of 28.9, 60, 61.1, and 124.5 reported cases of gonorrhea per 100,000 population, respectively. The aggregate for the SVI service area is 108.5 reported cases of gonorrhea per 100,000 population.

Chlamydia. This was reported through December 31, 2010 by the Arkansas Department of Health. The number of cases was then converted into rates per 100,000 population for comparison. This measure again follows the same pattern as syphilis and gonorrhea. The state and national average number of reported cases of chlamydia were 533.8 and 426 per 100,000 population, respectively. Of the SVI primary service area counties, Pulaski had the highest number of cases at 3,027, yielding a rate of 790.9 reported cases of chlamydia per 100,000 population, and Saline County had 224 cases reported, yielding a rate of 209.1 reported cases of chlamydia per 100,000 population. In between, fell Conway, Perry, Lonoke, and Faulkner with reported cases of 48, 26, 221, and 477 yielding rates of 225.6, 249.8, 323.3, and 421.2 cases of chlamydia per 100,000 population, respectively. The aggregate for the SVI service area is 369.8 cases of chlamydia reported per 100,000 population.

AIDS. The number of cases of AIDS reported through June 1, 2006 by the Arkansas Department of Health was converted into rates per 100,000 population for comparison. The state and national average rate of AIDS cases reported per 100,000 population are 6.8 and 11.2, respectively. Perry had a rate of zero. Faulkner is next lowest with a rate of 1.1 reported AIDS cases per 100,000 population.[107]

[107] http://www.healthy.arkansas.gov/stats/hiv_aids/063006_report.pdf

Lonoke, Saline, and Conway have rates of 5.1, 5.6, and 9.7 reported cases of AIDS per 100,000 population, respectively. Pulaski is yet again much higher than the others with a rate of 20 reported cases of AIDS per 100,000 population. The aggregate for the SVI primary service area is 6.9 reported cases of AIDS per 100,000 population.

Hepatitis A. The number of cases of Hepatitis A reported through 2007 by the Community Health Status Indicators was converted into rates per 100,000 population for comparison. The state and national averages are 1.7 and 1.2 Hepatitis A cases reported per 100,000 population, respectively. Of the SVI primary service area counties, Conway County had the highest rate (9.4 Hepatitis A cases per 100,000 population), and Perry County had the lowest with zero. In between, fell Saline, Pulaski, Lonoke, and Faulkner, with rates of 0.9, 1.8, 4.4, and 6.2 Hepatitis A cases per 100,000 population. The aggregate for the SVI primary service area is 3.3 reported cases of Hepatitis A per 100,000 population.

Hepatitis B. The number of cases of Hepatitis B reported through 2007 by the Community Health Status Indicators was converted into rates per 100,000 population for comparison. The state and national averages are 3.1 and 1.6 Hepatitis B cases reported per 100,000 population, respectively. Of the SVI primary service area counties, Perry County had the highest rate at 9.6 reported Hepatitis B cases per 100,000 population but it should be noted that this rate is the result of only one reported case. The lowest rate is Saline County with 3.7 reported Hepatitis B cases per 100,000 population. In between, fell Faulkner, Conway, Lonoke, and Pulaski with rates of 4.4, 4.7, 7.3, and 9.4 reported Hepatitis B cases per 100,000 population. The aggregate for the SVI primary service area is 6.5 reported Hepatitis B cases per 100,000 population.

Sexual Education. We see that Pulaski County has higher rates across all sexually transmitted diseases examined. This issue is even more severe when considering that the population of Pulaski is more than three times the size of the next largest county under review.

Looking to sexual education requirements, as of November 1, 2011 twenty-one states and Washington DC mandate sex education, Arkansas is not one of them.[108] Thirty-three states and Washington DC mandate HIV education, Arkansas is not one. Thirty-seven states and Washington DC require school districts to involve parents in sex education, HIV education or both, Arkansas is not one.

[108] http://www.guttmacher.org/statecenter/spibs/spib_SE.pdf

Qualitative Data Findings: Executive Summary

As part of St. Vincent Health System's Community Health Needs Assessment, a team of St. Vincent employees and Cornell University students met with several community leaders from the St. Vincent primary service area to gather information on what health issues they believe are the most pressing in the community and how St. Vincent can better serve those needs. From a high-level perspective, access to affordable care, prevention of disease, and public awareness were among the three most recognized needs. Addressing these issues could further alleviate other identified health problems like obesity, diabetes, and heart disease. Furthermore, several interviewees proposed that St. Vincent partner with other community organizations (schools, free clinics, libraries, etc.) to improve health education and health resource availability. Recommendations proposed that St. Vincent take an innovative and creative approach to address specific health needs, and that the health system use its powerful faith-based brand to reach out and connect with community members. The themes and corresponding summaries of the relevant interviews are provided below.

Overall Interview Themes

1) Need for primary care, consistency, follow-up, focus, full support. "Pick one thing and become experts."

2) Access (to healthcare, to food/grocery stores, etc.), health education, effective communication, Metro Plan, potential funding opportunity with increase in taxes

3) Impact of influx of newly insured individuals in 2014, understanding the newly insured population, be proactive/first mover

4) Prevention and maintenance ("treat the pre-diabetic like the diabetic"), lack of life skills (education), health awareness, barriers (transportation/gas money, accessing resources, etc.), fragmented and uncoordinated healthcare system

5) Innovation, thinking outside the box, engagement of all community members, partnerships (with schools, free clinics, libraries, etc.)

6) Access, partnerships, incentives (for both patients and providers), education (from prevention perspective, expectations), transportation, reaching out to religious community/connection to SV brand

Qualitative Data Findings: Interview Summaries

1) **Date:** Monday, January 16, 2012

Venue: St. Vincent Infirmary

Primary care was largely the focus of this meeting. The issues regarding incorrect usage of the ED were discussed at length. Some possible solutions include an urgent care center and a vehicle that goes to the communities most commonly using the ED for primary care services. Employers are willing to get involved with their employees' health much more now than they were in the past. One issue is that employers do not re-engage in order to assure employees are adhering to guidelines set forth. Ultimatums (e.g. quit smoking or lose your job) can work and have worked with unions in the past. Emphasized over and over again was the point that St. Vincent needs to pick one or a few things and master them. Some examples include; partner with one school, focus on treating one disease (diabetes). Absolutely imperative for success in any situation is having support from top administration.

2) **Date:** Tuesday, January 17, 2012

Venue: St. Vincent Infirmary

The attendees at the meeting took a strong population health perspective to addressing the needs of the SVI's primary service area. This included insuring healthy food options in grocery stores, transportation and/or safe sidewalks to access community services like the community walk, and ensuring access to primary care. It was mentioned that the "if we build it, they will come" mentality is not applicable, especially among individuals living in low socioeconomic neighborhoods. As such, we need to raise awareness about available services and try our best to eliminate the stigma associated with certain health conditions, specifically mental health. One way to do this is through religious affiliations. We were left on a final note to make sure that we reach out to the grassroots community for their perspective/ideas.

3) **Date:** Tuesday, January 17, 2012

Venue: St. Vincent Infirmary

This discussion primarily focused on how SVH would position itself in the era of health reform – i.e. how would they fulfill their mission and provide community benefit if the level of uncompensated care decreased and SVH did not intend to participate in payment reforms (i.e. ACOs). Additionally, it was questioned how SVH would be able to meet the new demand and unique needs generated by the newly insured (in terms of physician recruitment and in the particular characteristics of the expected newly insured). It was proposed that maybe SVH could be a "first mover" and work in collaboration with the government. Additionally, it was suggested that another area that would be beneficial (though difficult) for SVH to focus is on the poverty front.

4) **Date:** Tuesday January 17, 2012

Venue: St. Vincent Infirmary

The main health problems addressed were access to care, lack of preventive medicine and education, and the fragmented, uncoordinated nature of health care in the community. Much of the negative health outcomes statistics

presented by the DOH were attributed to one of the previous mentioned central issues. Proposed solutions and interventions centered on group-level disease management and education, medical-home like delivery systems and coordination with other facilities (supported by the DOH).

5) **Date:** Wed, January 18, 2012

Venue: St. Vincent Infirmary

The interviewee reflected on some of his experiences in the Little Rock community, and emphasized a "boots on the ground" approach to identify and address problems. To have a positive impact, he claimed that St. Vincent's must be creative and innovative as well as fearless in order to act on ideas that aren't necessarily developed. He particularly suggested that St. Vincent's partner with local libraries to improve literacy and make communities more aware of important health information and services. He also encouraged the building of a creative environment by having different organizations commit to think tanks, thereby acting as innovation centers for change.

6) **Date:** Wed, January 18, 2012

Venue: St. Vincent Infirmary

In the final meeting of the interview series, the three attendees really focused on the issues surrounding barriers to care access and to healthy lifestyle adoption, as well as on the need for a collaborative multi-prong approach to intervention. Specifically stressed were the need for understanding of the "silent tradeoffs" and decision making that is going on behind the scenes and driving undesirable outcomes, patient non-compliance, etc. Additionally, the issues of mental health, dental health and the trio of overweight, heart disease and diabetes were addressed. Almost all solution ideas involved a community based setting (working with churches, schools, etc.) and incorporated involvement with multiple parties (with other providers and with other entities such as the government, schools, etc.).

Appendix A: SVH CHNA Indicators and Data Sources

Indicator Category	Indicator	County Data Source	Arkansas Data Source	U.S. Data Source
Demographics	Population Size	2010 Census	2010 Census	2010 Census
Demographics	Race/Ethnicity	2010 Census	2010 Census	2010 Census
Demographics	Median Age	2010 Census	2010 Census	2010 Census
Demographics	Population Density	2010 Census	2010 Census	2010 Census
Demographics	Average Household Size	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	Median Household Income	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	Average Family Size	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	Median Family Income	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	Per Capita Income	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	% of Families below FPL	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Demographics	% of Total Population below FPL	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Socioeconomic	Annual Population Growth Rate	2010 Census	2010 Census	2010 Census
Socioeconomic	% of Population under age 5	2010 Census	2010 Census	2010 Census
Socioeconomic	% of Population age 65 or over	2010 Census	2010 Census	2010 Census
Socioeconomic	Uninsured	2007 Small Area Health	2007 Small Area Health	2007 Small Area Health

		Insurance Estimates	Insurance Estimates	Insurance Estimates
Socioeconomic	Poverty among all persons	2009 Small Area Income and Poverty	2009 Small Area Income and Poverty	2009 Small Area Income and Poverty
Socioeconomic	Poverty among children (<18)	2009 Small Area Income and Poverty	2009 Small Area Income and Poverty	2009 Small Area Income and Poverty
Socioeconomic	% of Single Parent Families with children <18	2010 Census	2010 Census	2010 Census
Socioeconomic	Unemployment	2008-2010 American Community Survey 3-Year Estimates	2008-2010 American Community Survey 3-Year Estimates	2008-2010 American Community Survey 3-Year Estimates
Socioeconomic	% of Population with One Type of Disability	2006 American Community Survey	2006 American Community Survey	2006 American Community Survey
Socioeconomic	% of Population with 2 + Disabilities	2006 American Community Survey	2006 American Community Survey	2006 American Community Survey
Socioeconomic	% of Population with Less than a 9th Grade Education	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Socioeconomic	High School Graduate %	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Socioeconomic	% of Population with Bachelor's Degree or Higher	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Socioeconomic	% of Population that speaks English less than "very well"	2005-2009 American Community Survey	2005-2009 American Community Survey	2005-2009 American Community Survey
Health Resource	# of Licensed,	2006 data from	2006 data from	2006 data from

Access	Practicing Dentists	HealthyArkansas.gov	HealthyArkansas.gov	HealthyArkansas.gov
Health Resource Access	# of Licensed, Practicing Primary Care Physicians	2011 County Health Rankings	2011 County Health Rankings	2011 County Health Rankings
Health Resource Access	# of Licensed Hospital Beds	HealthyArkansas.gov	HealthyArkansas.gov	HealthyArkansas.gov
Health Resource Access	Per Capita Health Care Spending per Medicare Beneficiary	2009, Statehealthfacts.org. Kaiser Family Foundation	2009, Statehealthfacts.org. Kaiser Family Foundation	2009, Statehealthfacts.org. Kaiser Family Foundation
Behavioral Risk Factors	Binge Drinking	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Excessive Drinking	2009- National Center for Health Statistics	2009- National Center for Health Statistics	2009- National Center for Health Statistics
Behavioral Risk Factors	Tobacco Use	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Illegal Drug Use	2011 -Arkansas Department of Human Services	2011 -Arkansas Department of Human Services	2011 -Arkansas Department of Human Services
Behavioral Risk Factors	Nutrition (Less than 5 fruits & veg per day)	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Obesity	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Obesity (Child)	2007-2008- Arkansas Center for Health Improvement	2007-2008- Arkansas Center for Health Improvement	N/A
Behavioral Risk	Exercise (Meet	2009 - Behavioral Risk	2009 - Behavioral Risk	2009 - Behavioral Risk

Factors	exercise standards)	Factor Surveillance System	Factor Surveillance System	Factor Surveillance System
Behavioral Risk Factors	Sedentary Lifestyle (No exercise)	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System	2009 - Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Women age 18+ w/No pap smear in last 3 years	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Women Age 40+ w/No Mammography in Past 2 Years	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System
Behavioral Risk Factors	Men age 40+ w/ No PSA Test in Past 2 Years	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System	N/A
Behavioral Risk Factors	Adults age 50+ w/ No Colonoscopy & No Sigmoidoscopy	2010- Behavioral Risk Factor Surveillance System	2010- Behavioral Risk Factor Surveillance System	N/A
Env. Health	% Days with Good Air Quality I	2002- Environmental Protection Agency	2002- Environmental Protection Agency	N/A
Env. Health	% Days w/ Unhealthful Air Quality I	2002- Environmental Protection Agency	2002- Environmental Protection Agency	N/A
Env. Health	Ozone Days	2009- National Center for Health Statistics	2009- National Center for Health Statistics	N/A
Env. Health	Particulate Matter Days	2009- National Center for Health Statistics	2009- National Center for Health Statistics	N/A
Env. Health	Toxic Chemicals Releases	2009- National Center for Health Statistics	2009- National Center for Health Statistics	N/A
Env. Health	Waterborne Illness	2009- National Center for Health Statistics	2009- National Center for Health Statistics	N/A

Env. Health	Lead Exposure	Centers for Disease Control - based on 2010 Census data	Centers for Disease Control - based on 2010 Census data	N/A
Env. Health	Rabies	2005-2009 Arkansas Health Department	2005-2009 Arkansas Health Department	N/A
Social and Mental Health	Average # of mentally unhealthy days reported by adults in past 30 days	2003-2009 data from Behavioral Risk Factor Surveillance System	2003-2009 data from Behavioral Risk Factor Surveillance System	2003-2009 data from Behavioral Risk Factor Surveillance System
Social and Mental Health	Child Maltreatment Rate	2009 data from KIDS COUNT Data Center	2009 data from KIDS COUNT Data Center	2009 data from KIDS COUNT Data Center
Social and Mental Health	Homicide Rate	2005-2007 data from Arkansas Dept of Health	2005-2007 data from Arkansas Dept of Health	2005-2007 data from CDC's National Center for Health Statistics
Social and Mental Health	Suicide Rate	2005-2007 data from Arkansas Dept of Health	2005-2007 data from Arkansas Dept of Health	2005-2007 data from CDC's National Center for Health Statistics
Social and Mental Health	Domestic Violence Rate	N/A	2007 Violence Policy Center Report	2007 Violence Policy Center Report
Social and Mental Health	Hospital Discharge Rate for Mental Diseases/Disorders	2010 data from Arkansas Dept of Health	2010 data from Arkansas Dept of Health	2007 data from the National Hospital Discharge Survey
Social and Mental Health	Alcohol/Drug Related Motor Vehicle Fatality	2009 Traffic Crash Statistics, Arkansas State Police	2009 Traffic Crash Statistics, Arkansas State Police	2009 data from CDC, & 2005-2009 data from American Community Survey
Maternal and Child Health	Infant Mortality Rate	2005-2007 data from Arkansas Dept of Health	2005-2007 data from Arkansas Dept of Health	2007 data from CDC
Maternal and Child Health	Prenatal Care in 1st Trimester	2010 data from Arkansas Dept of Health	2010 data from Arkansas Dept of Health	CDC's National Vital Statistics Report, August

				2010
Maternal and Child Health	Births to Adolescents as a % of Total Live Births	2010 data from Arkansas Dept of Health	2010 data from Arkansas Dept of Health	CDC's National Vital Statistics Report, Volume 60(2), 2011
Maternal and Child Health	Teen Birth Rate	2009 data from KIDS COUNT Data Center	2009 data from KIDS COUNT Data Center	2009 data from KIDS COUNT Data Center
Maternal and Child Health	Very Low Birthweight	2001-2006 data from Arkansas Dept of Health	2001-2006 data from Arkansas Dept of Health	2001-2006 data from Child Trends Data Bank
Maternal and Child Health	Child Mortality Rate	2007 data from KIDS COUNT Data Center	2007 data from KIDS COUNT Data Center	2007 data from CDC's National Center for Health Statistics
Maternal and Child Health	Neonatal Mortality Rate	2001-2005 data from Arkansas Dept of Health	2001-2005 data from Arkansas Dept of Health	CDC's National Vital Statistics Report, Volume 58(19), 2010
Maternal and Child Health	Post-Neonatal Mortality Rate	2001-2005 data from Arkansas Dept of Health	2001-2005 data from Arkansas Dept of Health	CDC's National Vital Statistics Report, Volume 58(19), 2010
Mobid./Mort.	General Health Status	2009 Dept of HHS Community Health Status Indicators	Data from CountyHealthRankings.com	2009 Dept of HHS Community Health Status Indicators
Mobid./Mort.	Average number of sick days within past month	2009 Dept of HHS Community Health Status Indicators	None Available	2009 Dept of HHS Community Health Status Indicators
Mobid./Mort.	Mortality- All Causes	2009 Dept of HHS Community Health Status Indicators	2008 Data from CDC-State Health Facts	2008 StateHealthFacts.org using CDC Data
Mobid./Mort.	Mortality- All Cancers	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC
Mobid./Mort.	Mortality- Unintentional Injuries	2001-2006 Data from Arkansas Dept of Health	2001-2006 data from Arkansas Dept of Health	2007 Data from CDC

Mobid./Mort.	Mortality- Years of Productive Life Lost	2007 Data from CountyHealthRankings.com	2007 Data from CountyHealthRankings.com	2007 Data from CountyHealthRankings.com
Mobid./Mort.	Mortality- Breast Cancer	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC
Mobid./Mort.	Mortality- Lung Cancer	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC
Mobid./Mort.	Mortality- Cardiovascular Disease	2007 Data from Arkansas Dept of Health	2007 Data from Arkansas Dept of Health	2007 Data from CDC- State Health Facts
Mobid./Mort.	Mortality- Cervical Cancer	2007 National Cancer Institute- CDC, Data for Pulaski County Only	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC
Mobid./Mort.	Mortality- Colorectal Cancer	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC	2007 National Cancer Institute- CDC
Mobid./Mort.	Mortality- Chronic Obstructive Lung Disease	2007 Data from Arkansas Dept of Health	2007 Data from Arkansas Dept of Health	2007 Data from CDC
Mobid./Mort.	Mortality- Diabetes Mellitus	2007 Data from Arkansas Dept of Health	2007 Data from Arkansas Dept of Health	2005 data from CDC- State Health Facts
Mobid./Mort.	Mortality- Pneumonia/Influenza	2007 Data from Arkansas Dept of Health	2007 Data from Arkansas Dept of Health	2005 data from CDC- State Health Facts
Mobid./Mort.	Mortality- Stroke	2006 Data from CDC	2006 Data from CDC	2006 Data from CDC
Mobid./Mort.	Mortality- Motor Vehicle Crashes	2007 Data from Arkansas Dept of Health	2007 Data from Arkansas Dept of Health	None Available
Communicable Disease	Syphilis	2010 Data from Arkansas Dept of Health	2010 Data from CDC- State Health Facts	2010 Data from CDC- State Health Facts
Communicable Disease	Gonorrhea	2010 Data from Arkansas Dept of Health	2010 Data from CDC- State Health Facts	2010 Data from CDC- State Health Facts
Communicable	Chlamydia	2010 Data from Arkansas	2010 Data from CDC-	2010 Data from CDC-

Disease		Dept of Health	State Health Facts	State Health Facts
Communicable Disease	AIDS	2010 Data from Arkansas Dept of Health	2010 Data from CDC-State Health Facts	2010 Data from CDC-State Health Facts
Communicable Disease	Hepatitis A	2007 Dept of HHS Community Health Status Indicators	2007 Dept of HHS Community Health Status Indicators	2007 Dept of HHS Community Health Status Indicators
Communicable Disease	Hepatitis B	2007 Dept of HHS Community Health Status Indicators	2007 Dept of HHS Community Health Status Indicators	2007 Dept of HHS Community Health Status Indicators

Appendix B: Interviewees

Andy Allison

With over a decade of experience researching and running Medicaid program, Dr. Andy Allison serves as the Division of Medical Services (DMS) Director for the Department of Human Services. He has extensive operational and managerial experience with the Medicaid program, Children's Health Insurance Program, and Kansas state's employee health plans. He is a founding board member and current President of the National Association of Medicaid Directors.

Jay Bradford

Jay Bradford has previous experience working for the Division of Behavioral Health Services within the Arkansas Department of Human Services. He has served the Arkansas Legislature for over 24 years and currently serves as the Arkansas Insurance Commissioner.

Mike Castleberry

As a former employee of HealthScope Benefits and WellPoint, Mr. Castleberry has extensive health care leadership experience. Currently, he is on the board of Arkansas Comprehensive Health Insurance Pool where he serves as Secretary/Treasurer and is the President of the Central Arkansas Association of Health Underwriters. He also serves as adjunct professor at the University of Arkansas at Little Rock.

Virginia Cicirello

Teacher at Pulaski Technical College. Detailed biography unavailable.

Joyce Elliott

Senator Joyce Elliott is a Democratic member of the Arkansas State Senate, representing District 33 since 2009. She currently serves as the State Senate Majority Whip. Elliott served in the Arkansas State House of Representatives from 2000 to 2006. She earned her BA in English/Speech from Southern Arkansas University in 1973 and went on to receive her MA in English from Ouachita Baptist University in 1981. She has worked as a high school teacher in several states and is currently the Director of Legislative Outreach for the Southwestern Region for The College Board.

Tom Fitz

Named interim administrator at St. Vincent Morrilton but found this partial article. Mr. Fitz brings more than 30 years of experience as a senior executive in the healthcare industry. In addition, he has more than 10 years of consulting experience with CEOs and other senior executives at several of the largest health-care systems in the country.

Paul Halverson

Dr. Paul Halverson is a member of Arkansas Governor Mike Beebe's cabinet and serves as the

Director of the Arkansas Department of Health and as the Arkansas State Health Officer. Dr. Halverson is a Professor of Public Health Policy and Management in the UAMS Fay W. Boozman College of Public Health. Dr. Halverson currently serves as President of the Association of State and Territorial Health Officials. He also has an extensive background in the area of public health systems development and research, and has previous experience working with the Centers for Disease Control and Prevention (CDC).

Jimmy Hart

Jimmy Hart is lifelong resident of Conway County. He resides in Springfield, Arkansas with his wife of 31 years, the former Nancy Davidson. Mr. Hart was elected Conway County Judge in November of 2000. He was elected president of the County Judges Association of Arkansas in 2009 and is now a member of the Arkansas Technology Transfer Advisory Committee.

Harold Hedges, MD

After serving in the Navy as a naval flight surgeon, Dr. Hedges returned to Little Rock and co-founded Little Rock Family Practice Clinic with Dr. Jim Flack. He is a member of the American Academy of Family Physicians and the Pulaski County Medical Society, and has served as President of the Arkansas Academy of Family Physicians. Dr. Hedges teaches not only locally but also nationally.

Col. Ray Jeter, USAF

Col. Ray Jeter is the 19th Medical Group Commander. The Group offers family practice, pediatrics and flight medicine clinics that serve approximately 37,000 beneficiaries and care for more than 6,500 patients per month.

Dean Kumpuris, MD

Dr. Kumpuris is a local gastroenterologist. In the community, he serves as the chairperson at the University of Arkansas at Little Rock Board of Visitors Trustees. He also serves as a liaison for River Market District Design Review Committee, Downtown Little Rock Partnership, and Museum of Discovery Board of Trustees.

Baker Kurrus

Lawyer and former Little Rock school board member for 12 years. Mr. Kurrus is heavily involved in mentoring and other community activities.

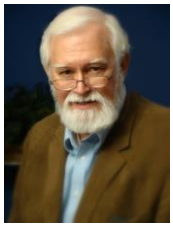
Cheryl J. LeDoux

Cheryl LeDoux is a Senior Epidemiologist at the Arkansas Department of Health. She also works as an Adjunct Professor in the Epidemiology Department at the University of Arkansas for Medical Sciences. She has an MPH from Tulane University's School of Public Health and Tropical Medicine. Her research interests include infectious diseases and bioterrorism.

Fredrick J. Love

Rep. Freddie Love of Little Rock is serving his first term in the Arkansas House of Representatives. He represents District 35, which includes part of Pulaski County. For the 88th General Assembly, Rep. Love serves on the House Revenue and Taxation Committee, where he chairs the Personal and Corporate Income Taxes Subcommittee. He also serves on the House Agriculture, Forestry and Economic Development Committee and the Public School Desegregation Lawsuit Resolution Task Force.

Stewart Nelson



Mayor of Morrilton and very supportive of the community and keeping St. Vincent Morrilton operational. Detailed biography unavailable.

Tim Osterholm

Tim Osterholm is the CEO of St. Vincent Medical Center North. He received his Masters in Public Administration from the University of Nebraska at Omaha.

Charles Penick

St. Vincent Morrilton Chairman of the Board. Detailed biography unavailable.

Bo Ryall – Arkansas Hospital Association

Bo Ryall has been the Arkansas Hospital Association since 2005 and was named president in 2010. He holds a bachelor's degree from the University of Arkansas at Fayetteville and a master's degree in public administration from the University of Arkansas at Little Rock. Bo also served as the chief lobbyist on the state level for Arkansas hospitals and was previously executive director of the HomeCare Association of Arkansas. He currently serves as the chairman of the Health Care Providers Forum and president of the Arkansas Society of Association Executives.

Jeff Spry

Jeff Spry is the President of City Connections, Inc., which aims to connect the church to the city of Little Rock, whether through civic and community groups or federal, state and local governmental agencies. He has experience as a Minister of Involvement and Administration and has management experience from being a Director of Business Development at Staffing Solutions (19995-2000) and as the Owner of The Spry Group (2000-2002). He has a bachelor's degree in Business Administration, a Master of Arts degree, and a diploma from the Institute of Practical Ministry in Dallas.

LaValerie Smith
Employee at St. Vincent's East Clinic. Detailed biography unavailable.

Jon Swanson
Jon Swanson is the Executive Director of the Metropolitan Emergency Medical Service, MEMS. He served for 25 years in the Air Force as a pilot and a Colonel.

Joe Thompson, MD

Dr. Joe Thompson has served as the first Surgeon General for Arkansas since 2007. In addition to serving the state, Dr. Thompson is the Director of the Arkansas Center for Health Improvement and the Director of the Robert Wood Johnson Foundation Center to Prevent Childhood Obesity. He continues to work as an Associate Professor in the Colleges of Medicine and Public Health at the University of Arkansas for Medical Sciences and to practice as a general pediatrician at Arkansas Children's Hospital.