2012 Community Health Needs Assessment of St. Vincent Morrilton 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 Morrilton 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

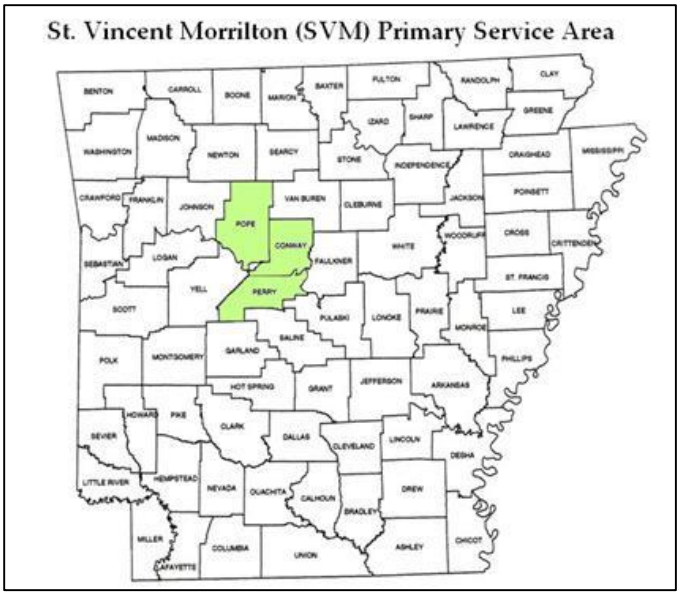
St. Vincent Morrilton Primary Service Area Community Health Needs Assessment

Introduction

The 2012 St. Vincent Morrilton (SVM) 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.

SVM, 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 SVM CHNA is a collaborative effort by graduate students of Cornell University's Sloan Program in Health Administration, St. Vincent Morrilton and St. Vincent Health System.

Data were reviewed on the three counties making up the SVI primary service area: **Conway, Perry, and Pope Counties** (see figure).



The results of the 2012 SVM CHNA will be used generate specific strategies to address a list of prioritized health needs in the SVM 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 Morrilton.

Methodology

In order to ascertain the emergent health needs of the SVM 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 SVM CHNA endeavor was the collection of secondary data related to the health status and health behaviors of the SVM 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 SVM 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.

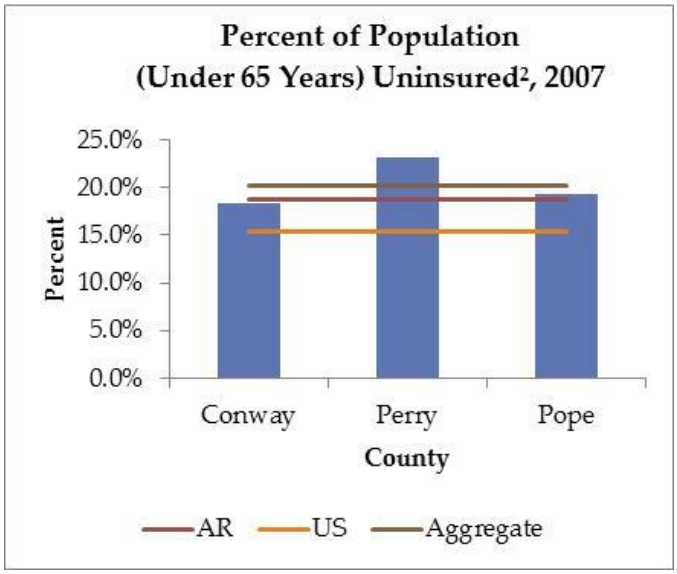
Data Collection: In order to obtain data on the chosen indicators for each county in SVM's primary service area, as well as for the State of Arkansas and United States, an extensive data collection process, primarily through publicly available data sources, was conducted. See Appendix A for a list of 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 SVM 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 departments
- 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 SVM 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 SVM 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 Morrilton's community was the collection of qualitative insight from key leaders and members of the SVM community. In order to better understand the specific health conditions, behaviors, and barriers to health faced by

SVM'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 SVM 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 SVM community interact with the health care system

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

- Identification of key influences on individuals' health related behaviors

Quantitative Data Findings: Executive Summary

- Making up 66% of the SVM primary service area (PSA), Pope County is the most populous of the counties and Conway County the most race-ethnically diverse.

- Perry County is the oldest of the three counties in the PSA with a median age of 40.7 (Arkansas' median age is 37.4) however, Conway County has the greatest percent of population age 65 or older (16.9%; Arkansas value is 14.4%).

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

- Conway, Perry, and Pope County have poverty (individual and childhood poverty) percentages higher than state and national averages.
- In terms of behavioral risk factors, no county in the SVM 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 SVM 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 SVM PSA generally perform better than the state on these indicators, but worse than the US as a whole.

- Of the six SVM 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.

- Compared to the state and the US, Conway and Perry Counties reported more mentally unhealthy days and a higher child maltreatment rate and suicide rate. However, Pope County reported fewer mentally unhealthy days and a lower child maltreatment rate than the state and the US.
- Infant mortality is a key health concern: From 2005-2007, each of the SVM PSA counties had a higher infant mortality rate than the US. Infant mortality is higher among Black women than White women. 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).

- Each county in the SVM PSA had a higher teen birth rate than the nation in 2009. Conway County had the highest rate of the three counties, with 79.1 births per 1,000 females aged 15-19. The state and US, on

the other hand, had 59.2 and 39.1 births per 1,000 females aged 15-19, respectively.

- Cancer mortality is a key health concern: In 2003-2007 lung cancer mortality rates exceed the US rate (52.5 lung cancer deaths per 100,000 population) in all three counties and, with the exception of Pope County, exceed the state rate of 67.1 lung cancer deaths per 100,000 population.

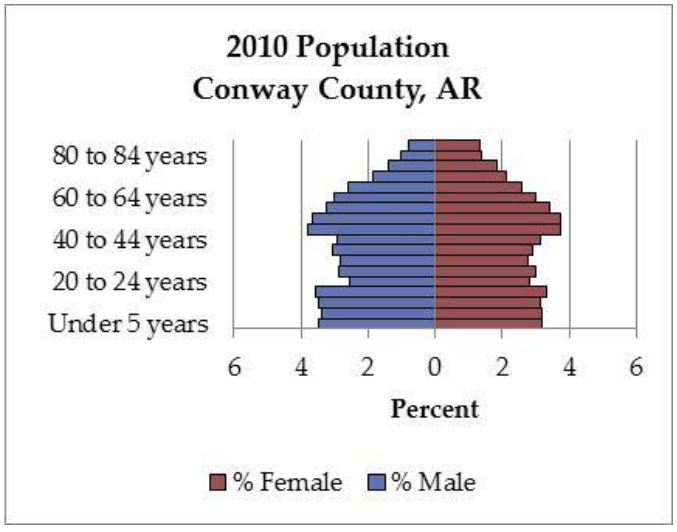
- Stroke mortality is a key health concern: In 2000-2006, rates of stroke mortality are higher in the three SVM PSA counties than in the state (132 stroke deaths per 100,000 population ages 35+) and US as a whole (98 stroke deaths per 100,000 population ages 35+). Stroke mortality rates are especially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

- 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. St. Vincent Health System (SVHS) should undergo data collection in 2012 for the six-county service area. Additionally, SVHS should conduct a county-level child health survey.

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.

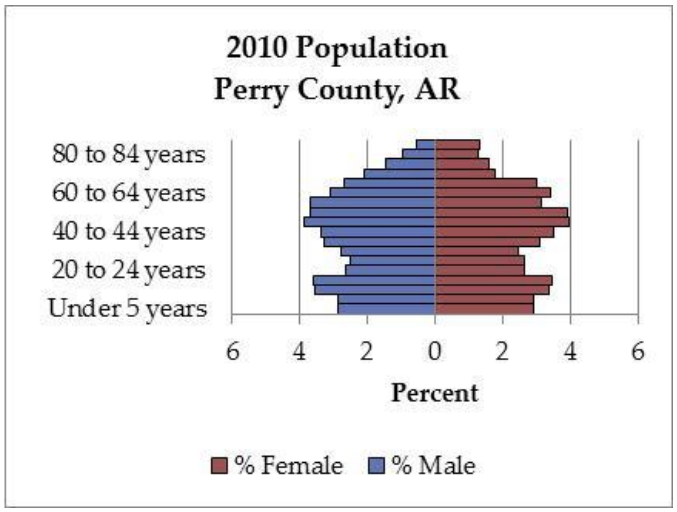
According to the 2010 Census, there were 21,273 people residing in Conway County. Representative of a rural setting, population density was 38.5 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 84.2% White, 11.2% Black, and 0.7% or less identified as American Indian/Alaskan 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.

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.

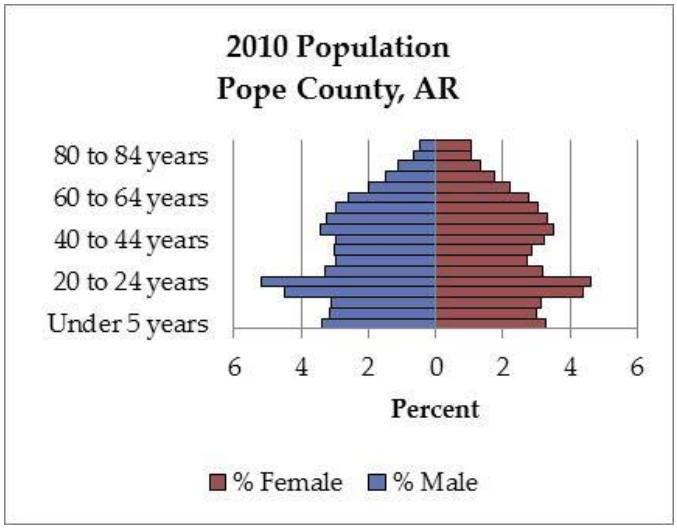
According to the 2010 Census, there were 10,445 people residing in Perry County. Representative of a rural setting, population density was 18.9 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 95.2% White, 1.9 % Black, and American Indian/Alaskan Native, Asian, and 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.

Pope County. Pope County is a rural county located on the northern side of the Arkansas River. Similar to Conway County, the Ozark National Forest attracts outdoor enthusiasts and provides a friendly environment for individuals, families, and tourists.

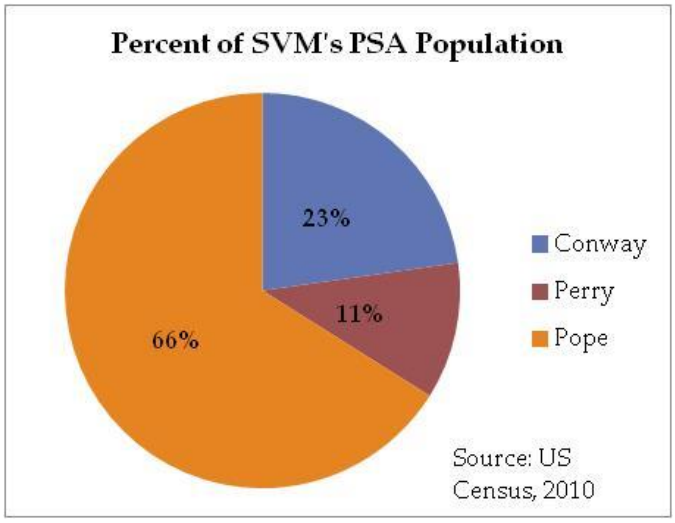
According to the 2010 Census, there were 61,754 people residing in Pope County. Population density was 76.0 persons per square mile. Among persons reporting only one race, race-ethnic makeup was 89.5% White, 2.9% Black, and American Indian/Alaskan Native, Asian, and Native Hawaiian/Other Pacific Islander each comprising 1.0% or less of the total population. About 2.2% reported two or more races, and 6.7% reported Hispanic ethnicity (regardless of race). Median age of the county was 35.4 and the age structure of the county is depicted below:

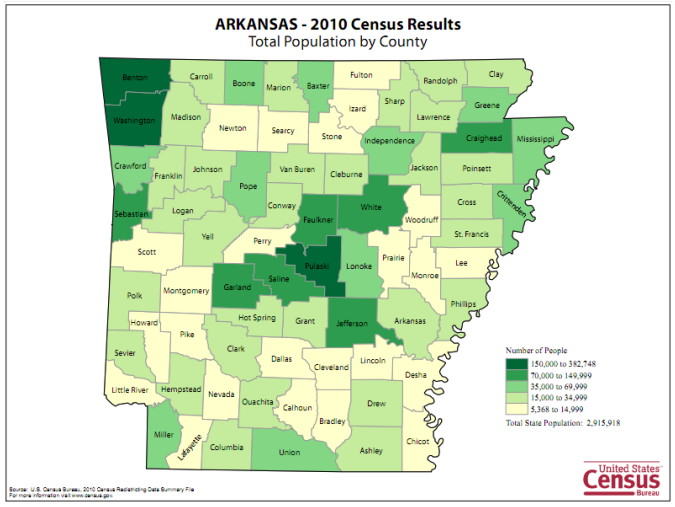


The 2005-2009 American Community Survey estimated Pope County's average household size at 2.6 people and median household income at $38,511. The average family size was 3.12 people and the median family income was $46,224. Per capita income was estimated to be $19,281. About 12.8% of families and 17.9% of the population were below the poverty line.

Key Community Socioeconomic Factors

Population Growth. According the US Census, Pope, Conway, and Perry County's annual population growth rate[1] between 2000 and 2010 is 1.3%, 0.5%, and 0.2% respectively. As depicted in the pie chart below, Pope County's population accounts for 66% of SVM's primary service area population.





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

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 three counties making up SVM's primary service area was 38.5. The oldest of the three counties was Perry (40.7 years) and the youngest was Pope (35.4 years). 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, Conway County has the greatest percent of elderly population (age 65 or greater) (16.9%), followed by Perry County (16.7%) and Pope County (13.1%). Conway and Perry County have a larger percent of their population that is elderly than does the SVM primary service area (15.6%) and the state of Arkansas (14.4%).

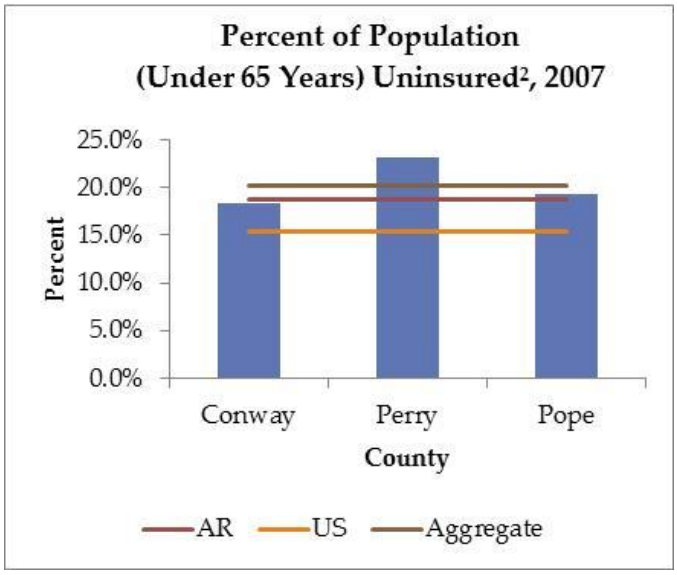
Age Characteristics, US Census, 2010			
	Median Age	% under age 5	% age 65 or over
Conway	39.4	6.6	16.9
Perry	40.7	5.8	16.7
Pope	35.4	6.7	13.1
AR	37.4	6.8	14.4
US	37.2	6.7	13.1
Aggregate	38.5	6.4	15.6

Race-ethnicity. According to the 2010 Census, the counties making up the SVM primary service area are fairly homogeneous with respect to race and ethnicity. Conway County has the highest non-White population (15.9% identifying as Black, Other, or Hispanic) which is still lower than the percent non-White in the

state of Arkansas (25.0%). Notably, Pope County has the greatest percentage of persons identify as Hispanic (6.7%), which is slightly higher than the state average of 6.4% but lower than the national average of 15.1%. Within all three counties, less than 2.0% of the population identified as American Indian/Alaskan Native, Asian, or Native Hawaiian/Other Pacific Islander.[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%
Perry	95.2%	1.9%	1.1%	2.4%
Pope	89.5%	2.9%	1.8%	6.7%
AR	77.0%	15.4%	3.2%	6.4%
US	74.5%	12.4%	6.3%	15.1%
Aggregate	89.6%	5.3%	1.3%	4.2%
*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 SVM's primary service area residents under 65 years ranges from 18.3% in Conway County to 23.2% in Perry County. All three counties fair worse than the state (18.7%) and national uninsured average (15.4%). At 19.3% uninsured, Pope County fairs slightly worse than Conway County but better than SVM's aggregate rate (20.3%).

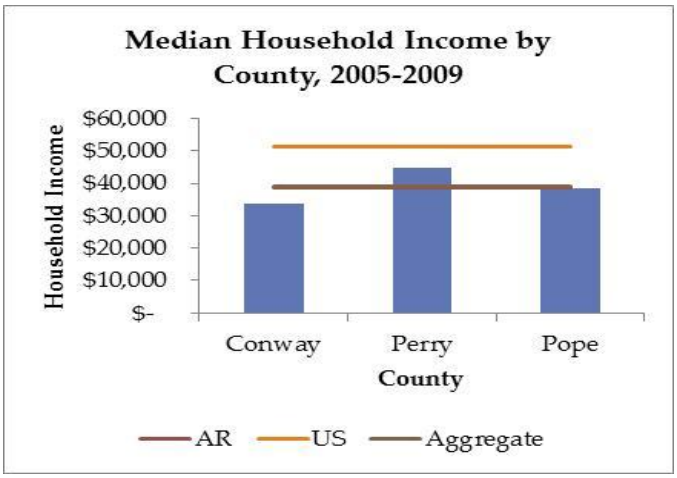


Income. With a median household income[4] of $33,554 and $38,511, respectively, Conway and Pope County fall below Arkansas state's median household income of $38,542. As depicted below, no county in SVM's primary service area surpasses the national median household income of $51,425. Of the three counties in SVM's primary service area, only Perry County ($44,921) surpasses SVM's primary service area median household income ($38,995).

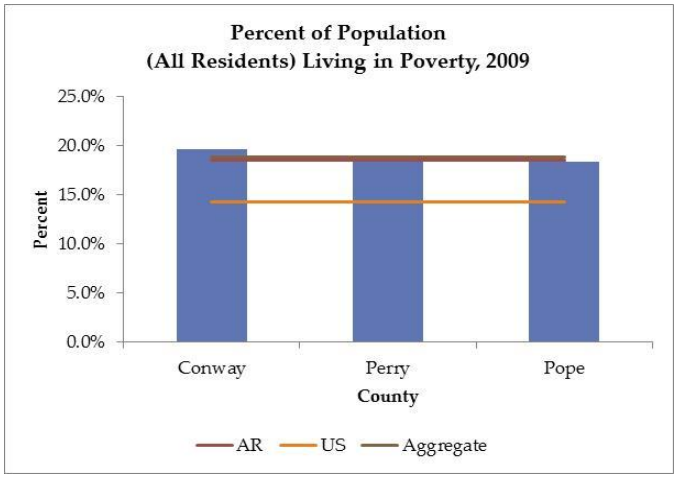
[2] Race and ethnicity data collected from the 2010 US Census

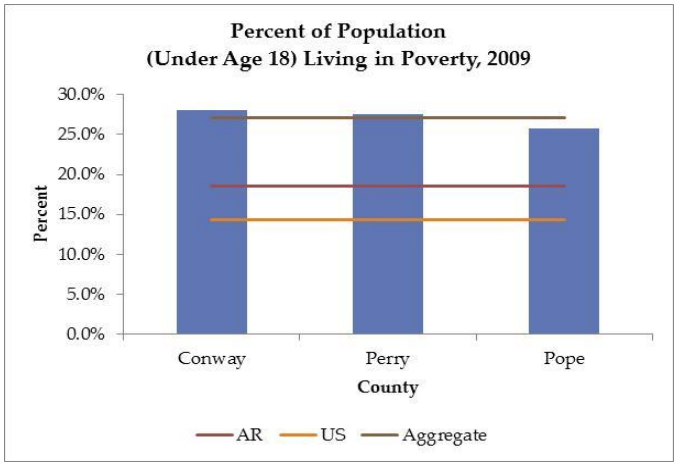
[3] 2007 Small Area Health Insurance Estimates sponsored by the US Census Bureau and the Centers for Disease Control and Prevention

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



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, 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, Perry, and Pope County 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) live in poverty. Among the residents living in Perry County, 18.6% live in poverty, while 27.5% of children live in poverty. Fairing slightly better than the other two counties in SVM's primary service area, 18.4% of all residents in Pope County live in poverty, while 25.8% of children (under 18) live in poverty.

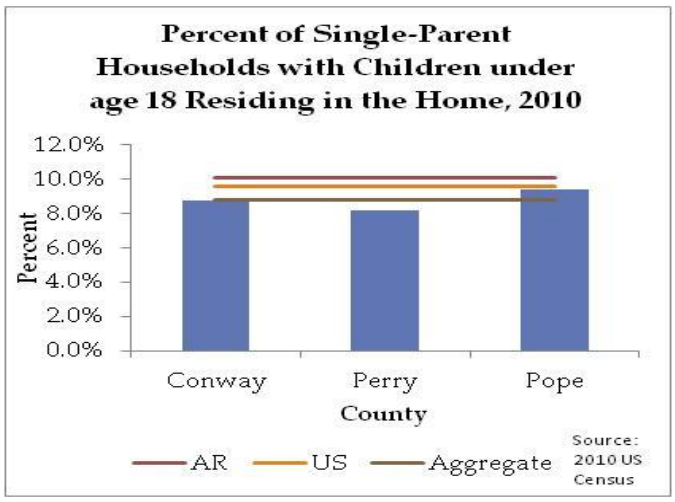




Single-Parent Families. Although Conway and Pope County are the two counties with the lowest household income in SVM's primary service area, their percentages of single-parent households with children under 18 residing in the home[6] are below the state and national percentage of 10.0% and 9.6%, respectively. Of the three counties, Perry County has the lowest percentage at 8.2%, followed by Conway County at 8.7%, and Pope County at 9.4%. SVM's primary service area aggregate percentage of single-parent households is 10.5%.

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

[6] 2010 US Census



Unemployment. Among the population age 16 and over, Conway County (7.6%) and Pope County (5.9%) have a lower unemployment rate[7] than the state and national averages of 8.5% and 9.0%, respectively. Data is unavailable for Perry County.

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[8], Conway County has a higher percentage of residents with less than a 9th grade education than the state and national average, as well as, a lower high school graduation rate. Further, as show in the chart, all three counties have a lower percentage of residents with a bachelor's degree or higher than the state and national percentages.

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%
Perry	5.4%	82.4%	11.4%
Pope	7.4%	81.9%	19.9%
AR	7.2%	81.3%	18.9%
US	6.4%	84.6%	27.5%
Aggregate	6.9%	81.8%	15.2%
Source: 2005-2009 American Community Survey 5-Year Estimates			

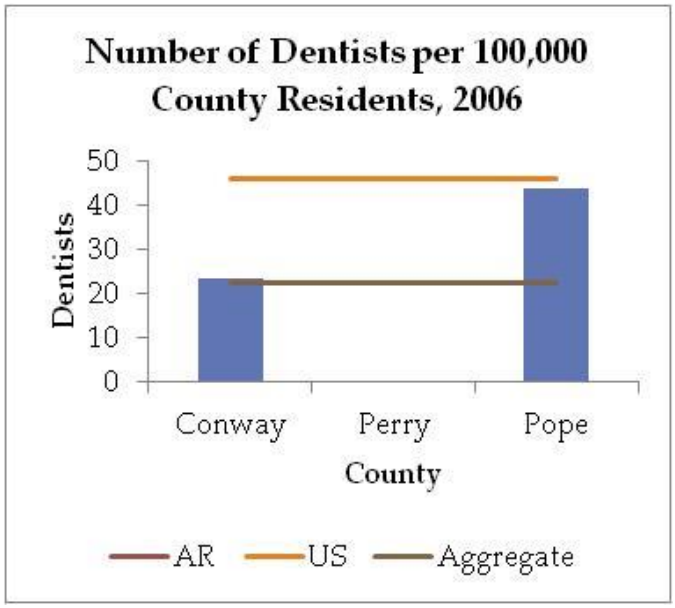
Language Spoken at Home. The 2005-2009 American Community Survey 5-Year Estimates, reports that in all three counties, 2.8% or less of the population speaks English less than "very well".

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

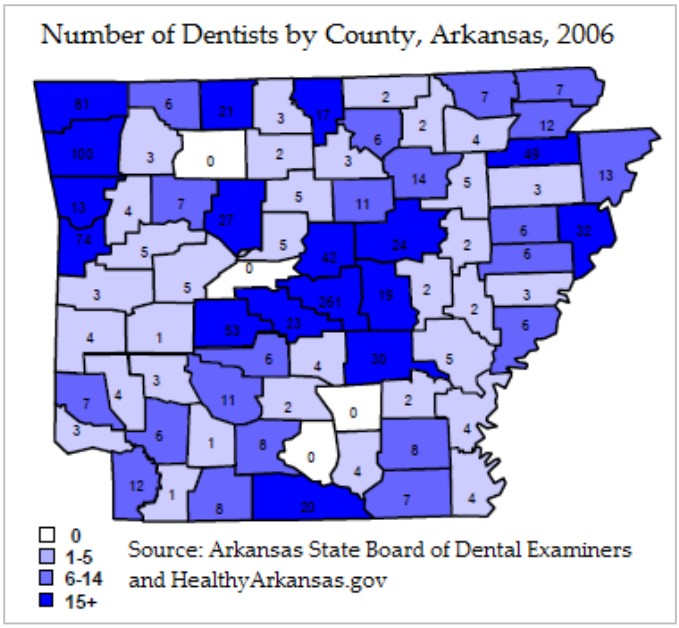
[8] Population 25 years and older. Education data collected from the 2005-2009 American Community Survey 5-Year Estimates

Health Resource Availability

Licensed Dentists. The number of licensed, practicing dentists per 100,000 population varies significantly among the three counties in SVM's primary service area. Representative of its rural population, Perry County has the lowest concentration of dentists with less than 1 licensed dentist per 100,000 population in 2006[9]. As noted in the accompanying graph below, the most populous county, Pope County, has 44 dentists per 100,000 population. Finally, Conway County has 24 licensed dentists per 100,000 population. All three counties fall below the national average of 46 dentists per 100,000 population. State data is not available.



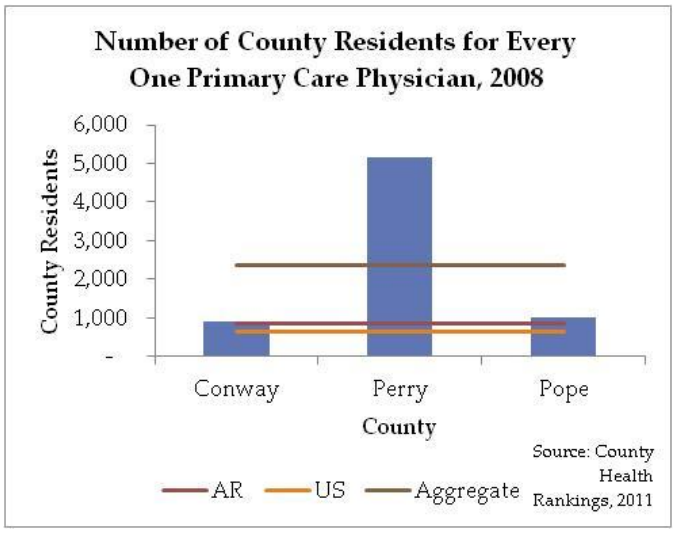
County-level dentist concentration for Arkansas is available in the following map.



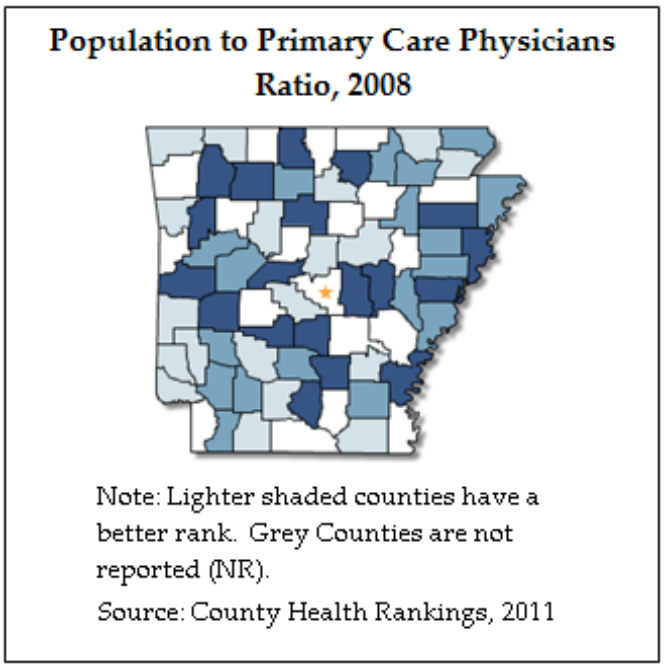
Licensed Primary Care Physicians. Having sufficient availability of primary care physicians is essential so that people can get preventive and primary care and, when needed, referrals to appropriate specialty care. The national benchmark for the number of county residents per one physician is 631:1.[10] As the graph below indicates, both the state of Arkansas (867:1) and SVM's aggregate primary service area (2,348:1) fail to meet this benchmark having greater than 631 county residents per primary physician. Most notable of the three counties, Perry County has 5,149 people to every 1 primary care physician. Just slightly worse than the state average, Conway County has 899 people for every 1 primary care physician, and Pope County has 996 people for every 1 primary care physician.

[9] 2006 data from HealthyArkansas.gov

[10] 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.

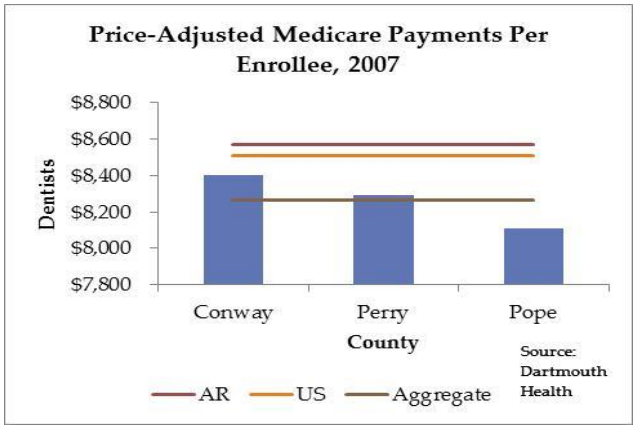


County-level population-per-physician ratios for the state, by rank, are depicted in the map below.



Licensed Hospital Beds. As an indicator of access to health care services, the number of licensed hospital beds[11] per 100,000 population varies significantly among SVM's primary service area. As of 2011, Perry and Pope County have 0 licensed hospital beds per 100,000 population. Falling below the state average[12] of 330 beds per 100,000 population, Conway County has 118 beds per 100,000 population. The SVM primary service area average is 36 hospital beds per 100,000 population.

Per Capita Health Care Spending per Medicare Beneficiary. According to the Dartmouth Health Atlas, the 2007 price-adjusted Medicare payments per enrollee was $8,267 for SVM's primary service area. Conway ($8,399), Perry ($8,292), and Pope County ($8,111) all have lower Medicare payments per enrollee than the state ($8,566) and national ($8,507) payments.



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

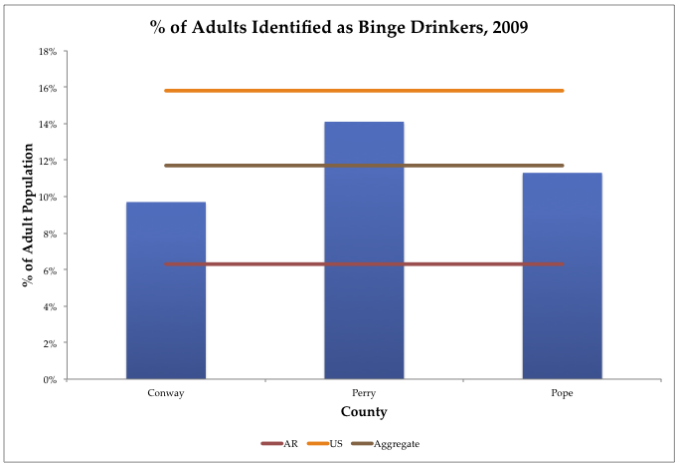
[12] 2009, Statehealthfacts.org. Kaiser Family Foundation

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 sixe counties in the SVM primary service area, have lower prevalence of binge drinking[13] than the U.S. median percentage of 15.8%. However, all counties in the SVM primary service area have binge drinking rates higher than the Arkansas state average, as illustrated in the graph below.[14] Perry County has the highest prevalence of binge drinking (14.1%), while Conway County has the lowest prevalence (9.7%).

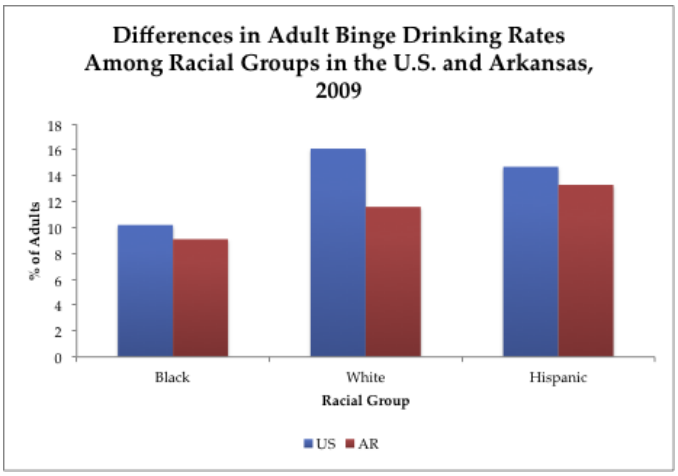


Binge drinking behavior in Arkansas is most prevalent among Hispanic populations[15], with 13.3% of the Hispanic adult population in Arkansas (in 2009) identified as binge drinkers. Whites in Arkansas had the second highest percentage of adults classified as binge drinkers during this period (11.6%) 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.

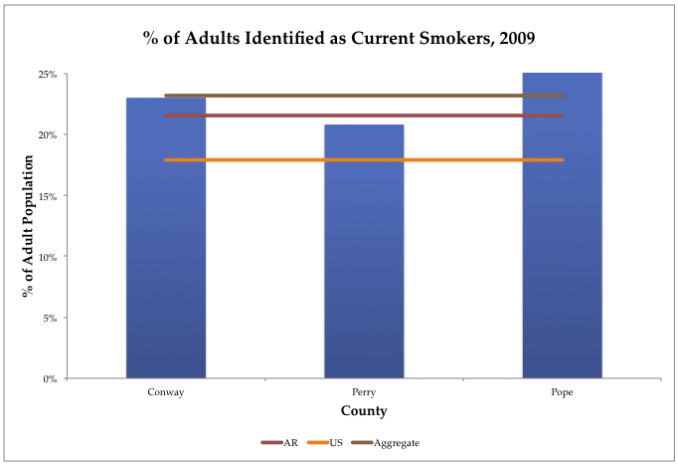
[13] Binge drinking is defined as the consumption of 5 or more drinks in one setting for males, or 4 or more drinks in one setting for females.

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

[15] 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.

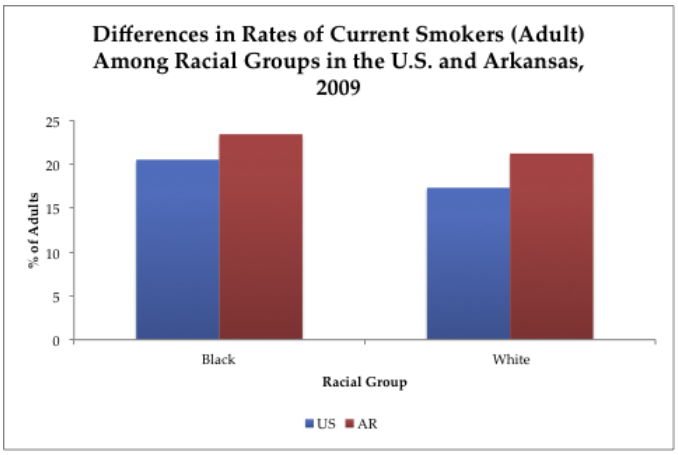


Tobacco Use. Overall adult tobacco use in Arkansas is more prevalent than in the U.S. All counties in SVM's primary service area have a higher percentage of adults who identified as current smokers (in 2009) than the national percent, of 17.9% of the adult population.[16]



As illustrated in the above graph, 25% of adults in Pope County and 23% of adults in Conway County identify as current smokers. Both Pope and Conway Counties have smoking prevalence greater than the Arkansas state (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[17].



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.

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

[17] 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.

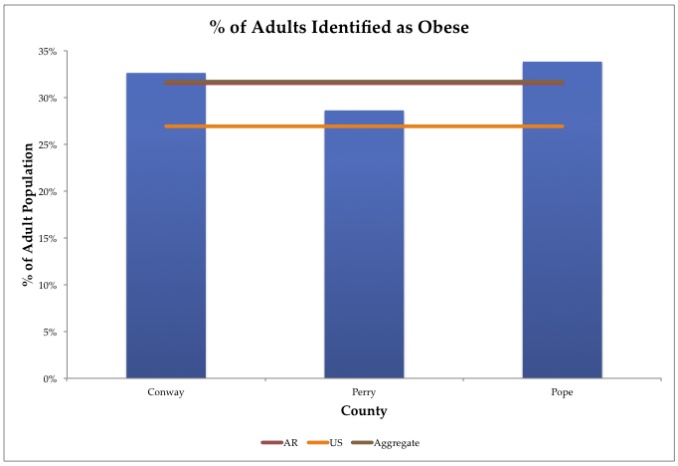
Adult Smoking % by Income Level (2009)[18]					
	Less than $15,000	$15,000 -24,999	$25,000 -34,999	$35,000 -49,999	$50,000 +
AR	37%	30.1%	27.8%	17.6%	12.6%
US*	31.4%	28.1	24%	19.5%	12.2%
*Includes DC					

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.[19]

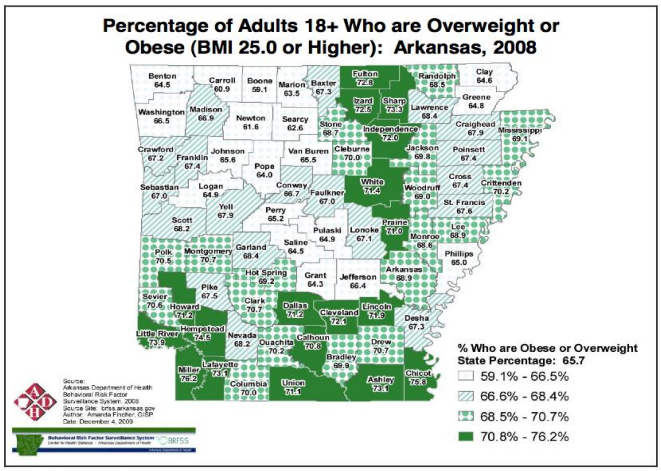
Lifestyle Factors

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

Obesity (Adult). Obesity prevalence in the SVM primary service area, as in Arkansas as a whole, is high relative to the U.S. Pope County has the highest obesity prevalence (34%), however, as depicted in the graph below, Conway County was close to Pope County, with an adult obesity rate of 33.4%. All counties in the SVM service area have obesity rates above the U.S. average (26.9%).[20]



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 SVM service area have lower prevalence of overweight and obesity among adults than other counties in Arkansas.

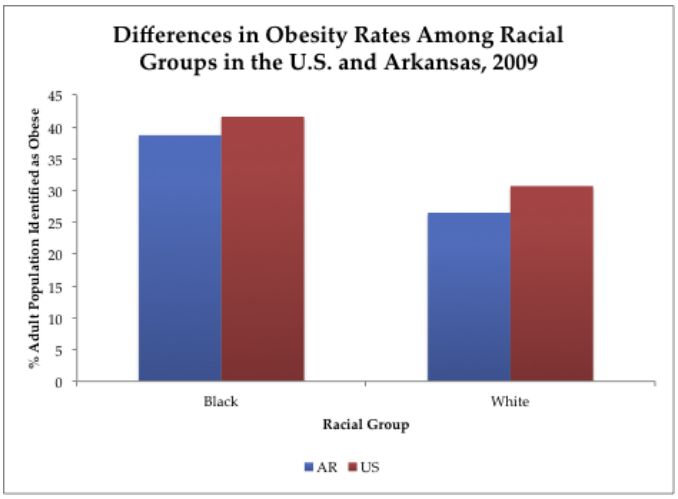


[18] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

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

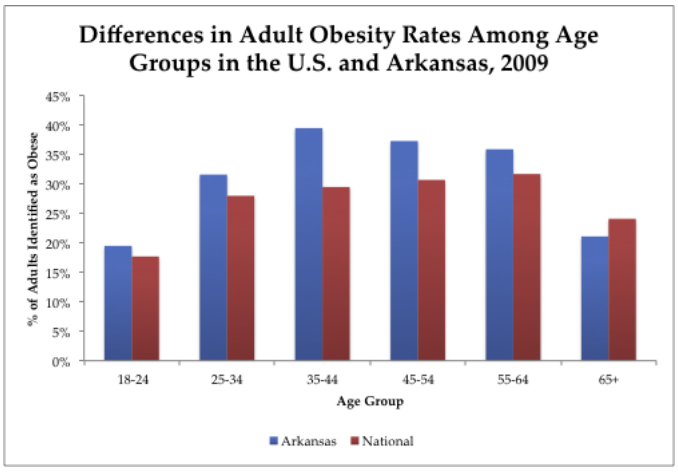
[20] Arkansas Department of Health. *County Data Estimates: Obesity*. 2010 report.

While obesity appears to be a concern across the entire SVM service area, analysis of obesity rates among different racial groups in Arkansas reveals that obesity prevalence is higher among Black populations in Arkansas, a trend that is also true of the overall U.S. population.[21] 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.[22]



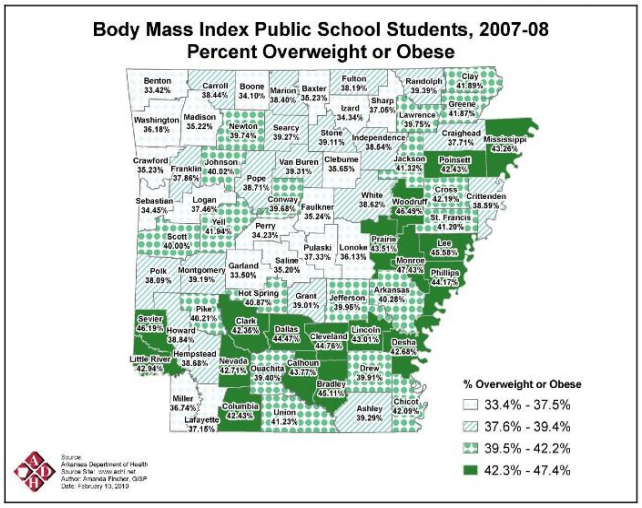
Overweight and Obesity (Child and Adolescent). In 2008, the Arkansas Center for Health Improvement (ACHI) published "Assessment of Child and Adolescent Obesity in Arkansas," a review of trends in overweight status among Arkansas school children (grades K-12). The following map exhibits state level distribution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

While Perry county is among the Arkansas counties with the lowest prevalence of overweight or obesity among children (between 33.4% and 37.5%), Conway County is in the second highest category (between 39.5% and 42.2% percent of children in Conway County are overweight or obese).[23]

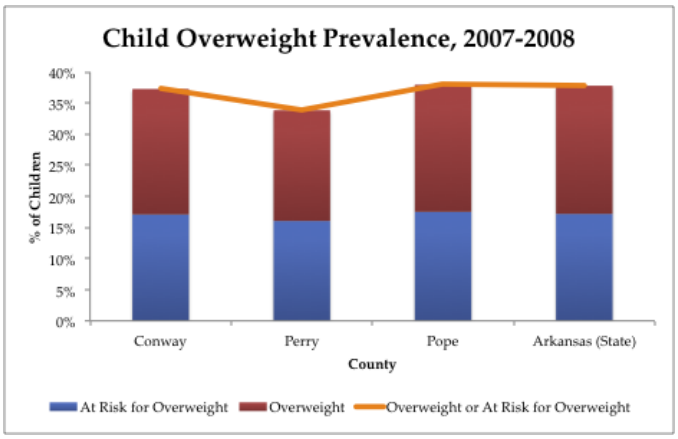
[21] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[22] 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

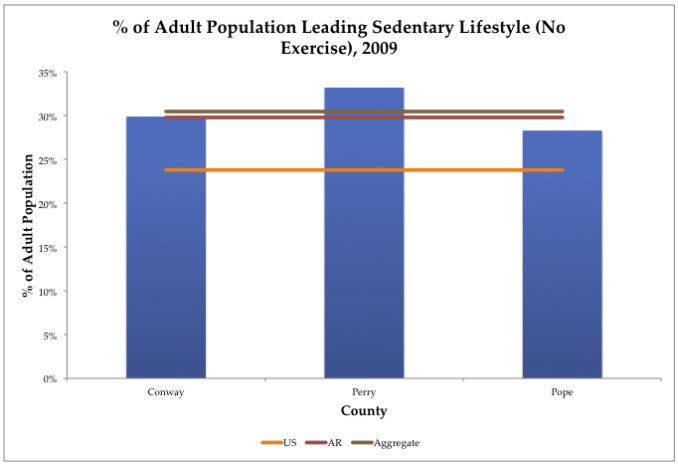
[23] Map Source: Arkansas Center for Health Improvement. *Assessment of Childhood and Adolescent Obesity in Arkansas*, 2007-2008.



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).[24] Pope County has the greatest prevalence of youth who are at risk of overweight or overweight (37.96%), 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 SVM's three county service area, a greater percent of adults are living a sedentary lifestyle than the nation as a whole. These differences are depicted in the graph below.[25]



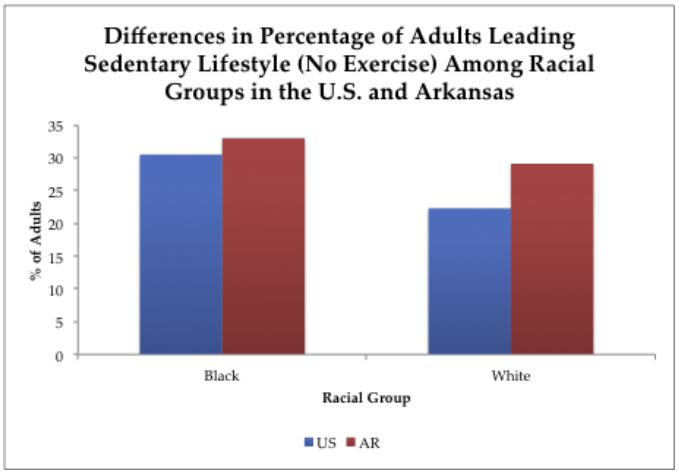
Perry County has the greatest prevalence of sedentary lifestyle with over 32% of the adult population not exercising. Perry County is the only county in SVM's six-county service area with a prevalence of adult sedentary lifestyle greater than that of Arkansas,[26] though Conway and Pope Counties are very close.

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

[24] 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

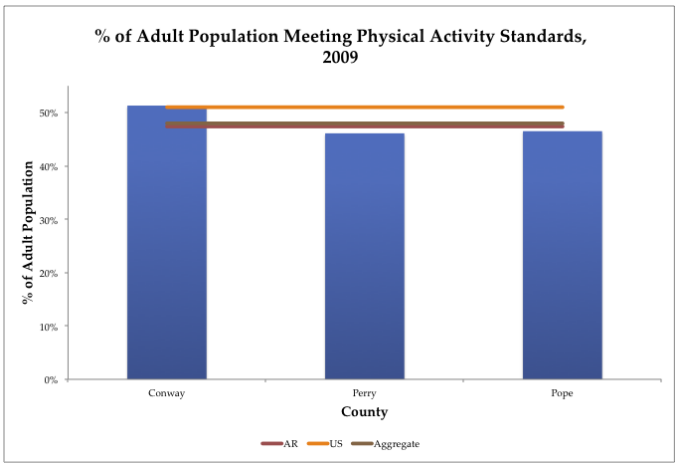
[25] Arkansas Department of Health. *County Data Estimates: Sedentary Lifestyle*. 2010 report

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



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.[27]

Examining instead the percentage of adults who *do* meet physical activity standards,[28] it appears that SVM'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 SVM'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%).[29]



Conway County has the highest percentage of adults meeting physical activity standards (around 51%) of the three counties in SVM's service area.

Nutrition (Adult). Fewer adults in SVM'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 on par with the state of Arkansas as a whole, (79% of individuals in the SVM service area do not eat at least 5 fruits/vegetables daily, versus 79.6% of adults in Arkansas state).[30] Among the three SVM counties, Conway County has the highest percentage (79.4%) of the adult population that is not consuming recommended levels of fruit and vegetables per day. Perry has the lowest percent of adults not meeting the fruit/vegetable consumption guideline, 76.9%,

---

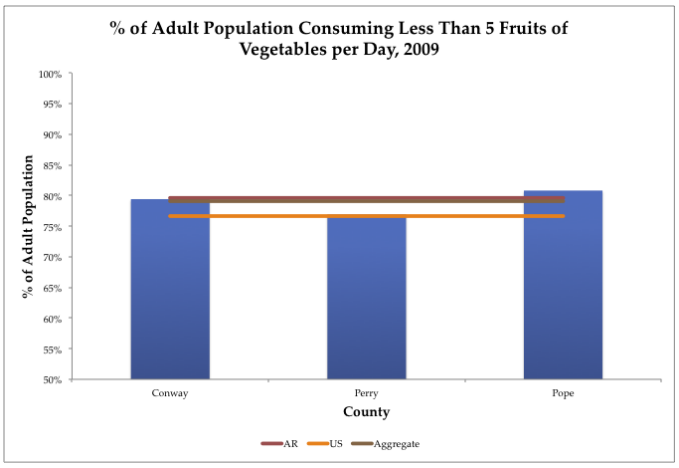
[27] Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2009.

[28] 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.

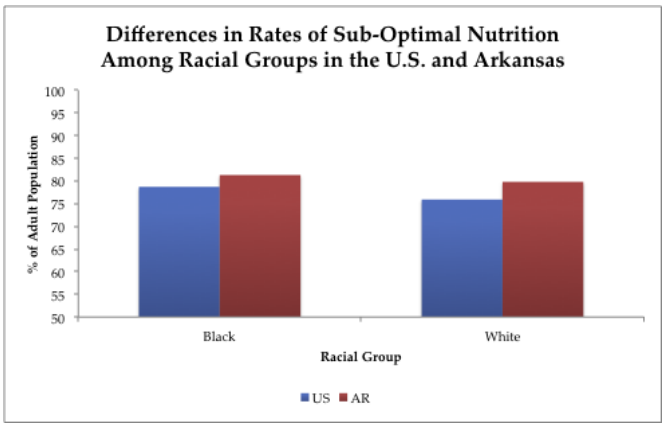
[29] Arkansas Department of Health. *County Data Estimates: Physical Activity*. 2010 report.

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

which is similar to the national percent of adults (76.6%).[31]



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.[32]



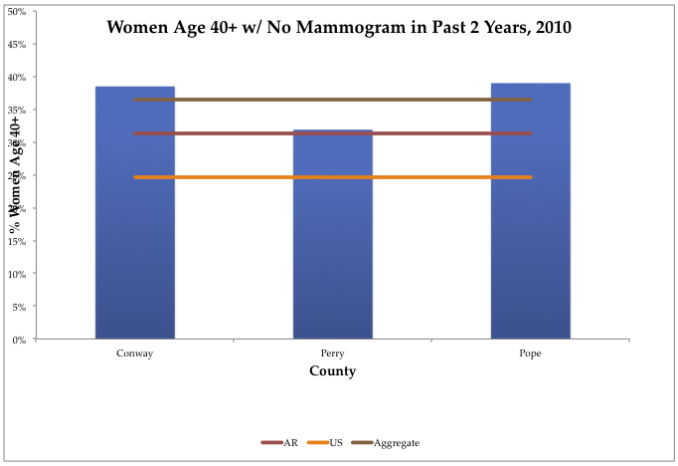
[31] Arkansas Department of Health. *County Data Estimates: Fruits and Vegetables* . 2010 report.

[32] 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.

Protective Factors

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

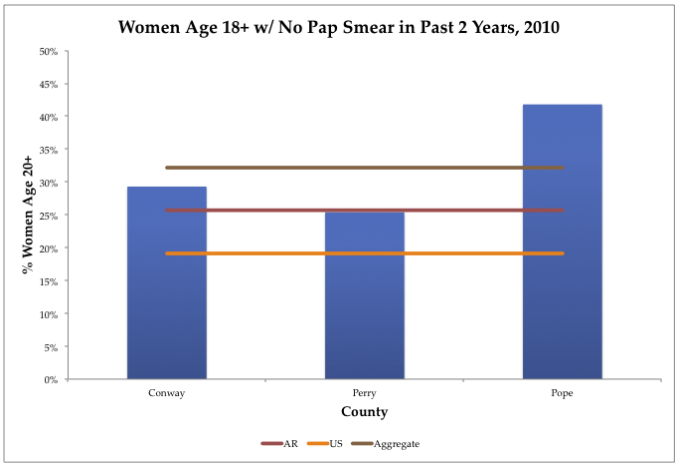
Mammography. A greater percentage of women do not get regular mammograms in the SVM primary service area than in the U.S and in in the state of Arkansas. Pope and Conway Counties both have a particularly high percentage of women over 40 who have not had a mammogram in the past two years (over 37%). Perry County has the lowest percentage of women over age 40 not having received a mammogram in the past two years, 32%.[33]



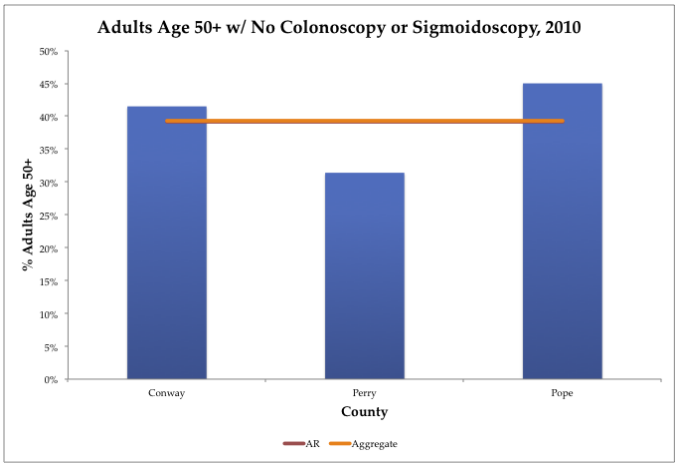
Pap Smear. As with mammogram testing, a higher percentage of women in the SVM primary service area fail to get a regular pap smear than in the U.S. Around 19% of women over age 18 in the U.S. had not received a pap smear in the past three years (2010). The SVM service area aggregate percentage was 32%, significantly higher than the National

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

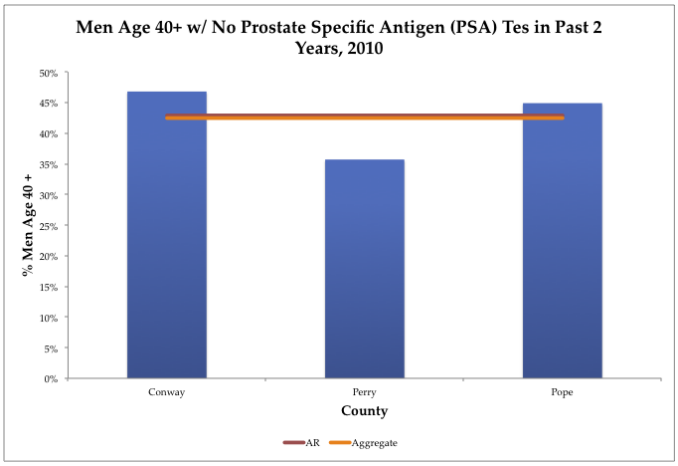
percentage and Arkansas state percentage, around 26%. Pope County has the highest percentage, with 39% of women over age 18 in Pope not having received a pap smear in the past three years.[34]



Colonoscopy/ Sigmoidoscopy. A similar percentage of adults over age 50 in the SVM primary service area and in the state of Arkansas are not getting a recommended colonoscopy or sigmoidoscopy, 39.3% and 39.1% respectively. Pope County, again, has the highest percentage of adults who failed to get a colonoscopy/sigmoidoscopy (45%).[35]



Prostate Specific Antigen (PSA) Testing. A higher percentage of men over age 40 in the SVM primary service area appear to be getting regular PSA tests than in the state of Arkansas. Approximately 43% of men in the SVM service and in Arkansas had not received a PSA test in the past two years. Both Conway and Pope Counties had a higher percentage of men over age 40 that had not received regular prostate testing, 46.8% and 44.9% respectively, above the Arkansas state percentage.[36]



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

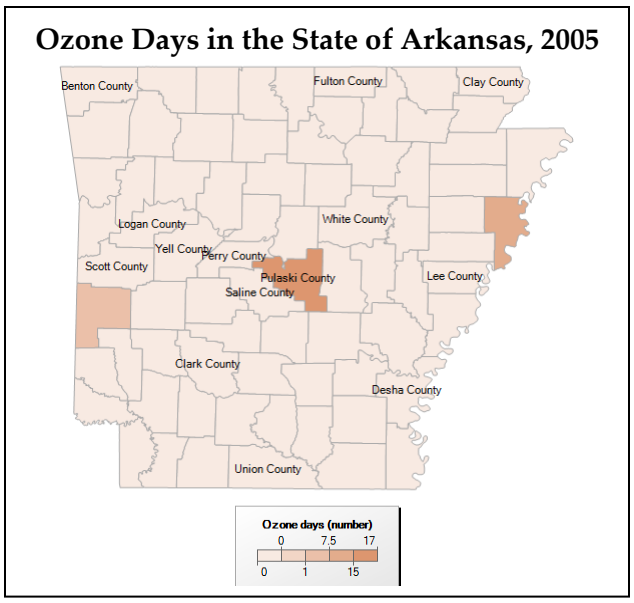
[35] Arkansas Department of Health. *County Data Estimates.* 2010 report

[36] Arkansas Department of Health. *County Data Estimates*. 2010 reort

Environmental Health Factors

Air Quality.
While specific air quality data was not available for the three counties in the SVM primary service area, information was available for certain metrics of air quality through the Health Indicators Warehouse.[37] 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[38], 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 SVM primary service area had zero defined ozone days in 2005.



Particulate Matter Days. The following map illustrates particulate matter days[39], by county, for Arkansas in 2005. Particulate matter is the other pollutant most commonly associated with a negative impact on health.[40] Particulate matter appears to be more of an issue in Arkansas, and in the SVM service area, than ozone. 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 SVM service area, while Pope County had between zero and 1 particulate matter days.

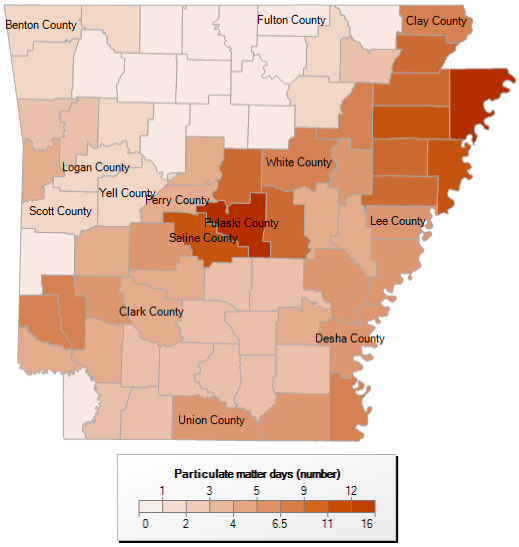
[37] Health Indicators Warehouse, National Center for Health Statistics, Department of Health and Human Services, 2009.

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

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

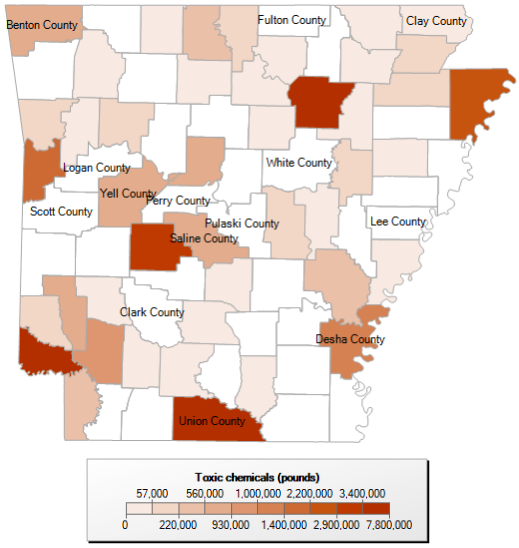
[40] http://www.healthindicators.gov/Resources/DataSources/PHASE_130/Profile

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.[41] None of the counties in SVM's three-county service area appear to have particularly high levels of toxic chemical releases.

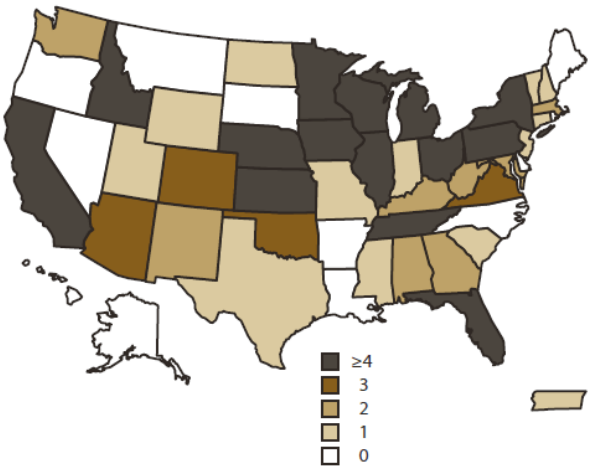
Waterborne illness. Waterborne illness throughout the U.S. is tracked by the Centers for Disease Control. Incidence of waterborne illness is measured separately for water bodies used as a drinking source and for water bodies used for recreational purposes. While, no county-level information could be 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.[42] 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

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

[42] 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.

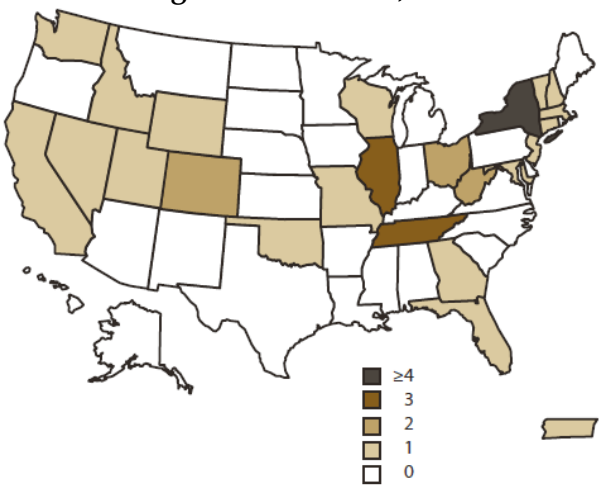
disease were identified in either recreational water bodies or drinking water sources.

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.

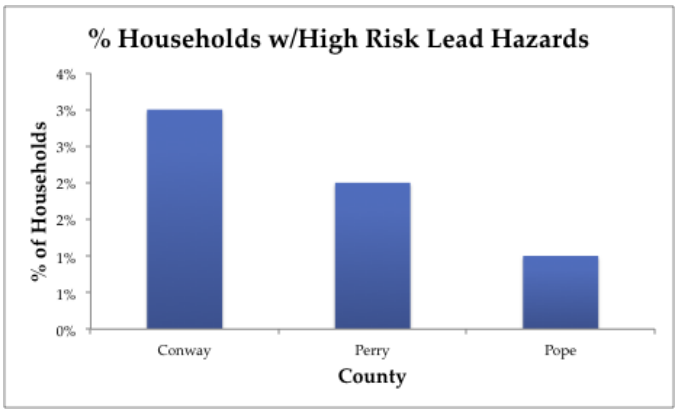
Incidence of Waterborne Disease Outbreaks in Drinking H_2O in the U.S., 2007-2008



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 SVM primary service area is from 2000.

The graph below illustrates the county-level percent of households in the SVM primary service area that were identified as having high-risk[43] health hazards in 2000. As illustrated, Conway County has the highest percentage of households with high-risk lead hazards (3%), while only 2% of households in Perry County and 1% of households in Pope County were identified as having high-risk lead hazards.

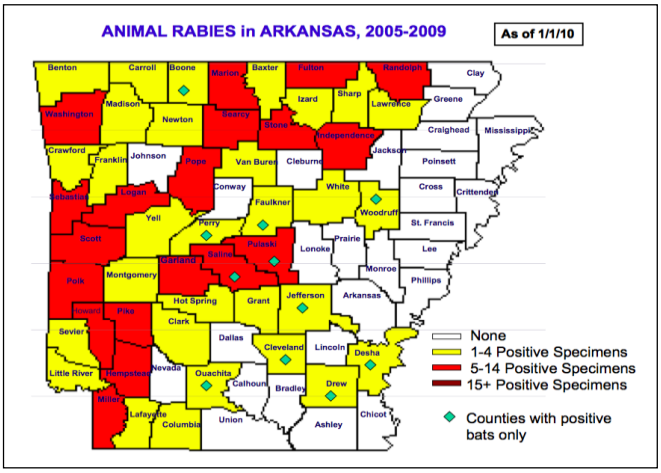


Rabies. The map below indicates the number of rabies positive bat specimens, by county, throughout Arkansas during these years.[44] Of the three counties in SVM's service area, Pope County had the highest number positive animal rabies incident cases (between 5 and 14 cases) between 2005 and 2009 were bat cases. Conway County has no reported rabies-positive incidences in this time period, while Perry County reported 1 to 4 rabies-positive specimens. However, all positive rabies cases

[43] 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.

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

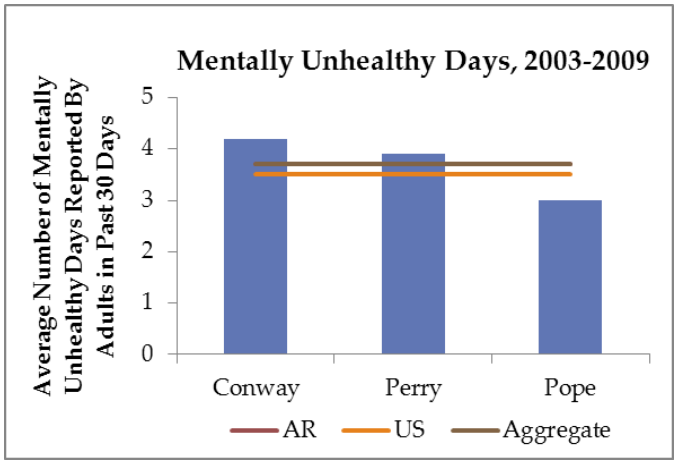
in Perry County were from bats; this is not the case for Pope County.



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

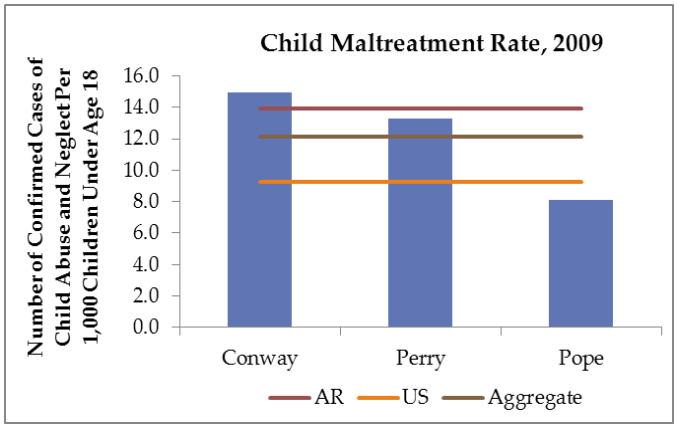
Social and Mental Health

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.[45] In the state of Arkansas, adults reported an average of 3.7 mentally unhealthy days between 2003 and 2009.[46] 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 and Perry Counties, however, reported even worse mental health. From 2003 to 2009, adults in these counties reported 3.9 and 4.2 mentally unhealthy days, on average. On the other hand, Pope County had fewer mentally unhealthy days (3.0 days) than both Arkansas and the US. It should be noted that SVM'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.

Child Maltreatment. The child maltreatment rate[47] was higher in the state of Arkansas (13.94 cases per 1,000 children) than in the US (9.27 cases per 1,000 children) in 2009.[48] Although lower than the state rate, the aggregate child maltreatment rate in the SVM service area (12.1 cases per 1,000 children) was still higher than the national rate.[49] This higher aggregate rate was driven by Perry and Conway Counties (13.26 cases and 14.91 cases per 1,000 children, respectively). Pope County had a lower child maltreatment rate (8.12 cases per 1,000 children) than 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.[50] As shown in the graph below, this rate was higher in the state of Arkansas (8.4 homicides per 100,000

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

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

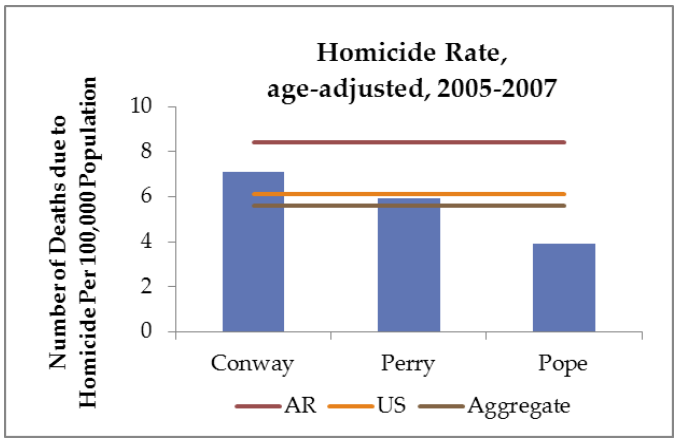
[47] The child maltreatment rate is defined as the number of confirmed cases of child abuse and neglect per 1,000 children under the age of 18. According to the KIDS COUNT Data Center, child maltreatment cases are confirmed by child protective services, including the Arkansas Division of Children and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

[48] KIDS COUNT Data Center

[49] Ibid

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

population)[51] than the US (about 6.1 homicides per 100,000 population)[52] from 2005 to 2007. However, all three counties comprising the SVM service area had a homicide rate below that of the state during the same time period. Conway County had the highest homicide rate of the three counties (7.1 homicide deaths per 100,000 population); a rate about 1.16 times the national homicide rate.



Homicide rates differ widely by race in the SVM service area, the state of Arkansas, and the US. Despite unreported rates for Perry and Pope Counties, reported data suggests that Blacks were killed at much higher rates than Whites from 2005 to 2007.

Homicide Rate by Race, 2005-2007[53]		
	White	**Black**
Conway	3.2	39.2
Perry[54]	—	—
Pope[55]	4.1	—
AR	4.4	28.4
US[56]	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 was about 11.1 per 100,000 population.[57] Although the suicide rate in many of the state'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.[58] Pope County had the lowest suicide rate of the three counties in the SVM service area (12.8 per 100,000 population), but this rate was still above that of the nation from 2005 to 2007.

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

[52] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS)

[53] Ibid

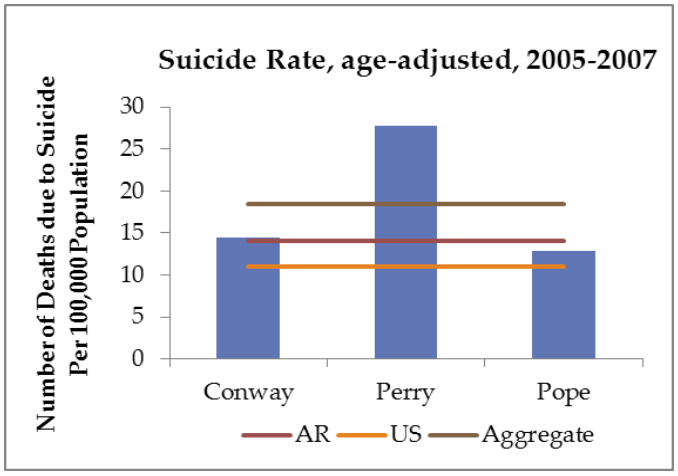
[54] The Arkansas Department of Health did not report Perry County's homicide rate by race.

[55] Ibid

[56] This is the 2007 US homicide rate by race, as reported by the CDC.

[57] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS)

[58] 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 higher among Whites than among Blacks. With the exception of Perry County, this pattern is not observed in the SVM service area. Blacks in Conway and Pope Counties committed suicide at more than twice the rate of Whites.

Suicide Rate by Race, 2005-2007[59]		
	White	**Black**
Conway	12.2	27.6
Perry	28.7	0.0
Pope	12.1	33.1
AR	15.5	5.6
US[60]	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.[61] 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.[62]

Inpatient Psychiatric Discharges. In 2010, the hospital discharge rate for inpatients primarily diagnosed with a mental disease or disorder[63] was higher in the state of Arkansas (84.9 discharges per 10,000 population)[64] than in the US (77.3 discharges per 10,000 population)[65]. This rate was even higher for the SVM service area, with an aggregate rate of 95.63 discharges per 10,000 population. Conway County had a considerably higher rate (123.6 discharges per 10,000 population) compared to Perry and Pope Counties (85.21 and 78.05 discharges per 10,000 population, respectively).[66]

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

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

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

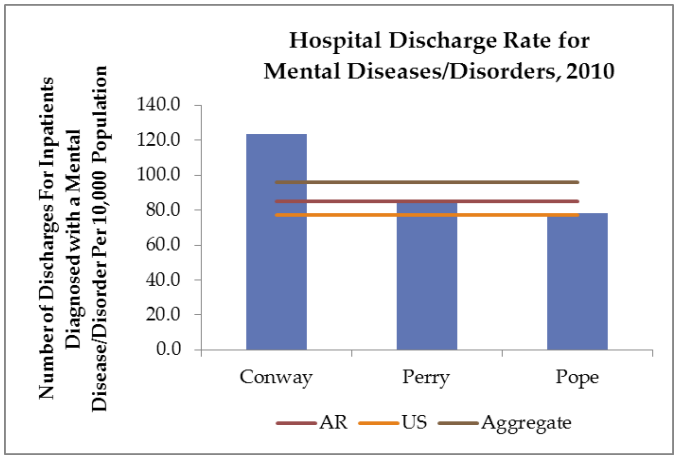
[62] Ibid

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

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

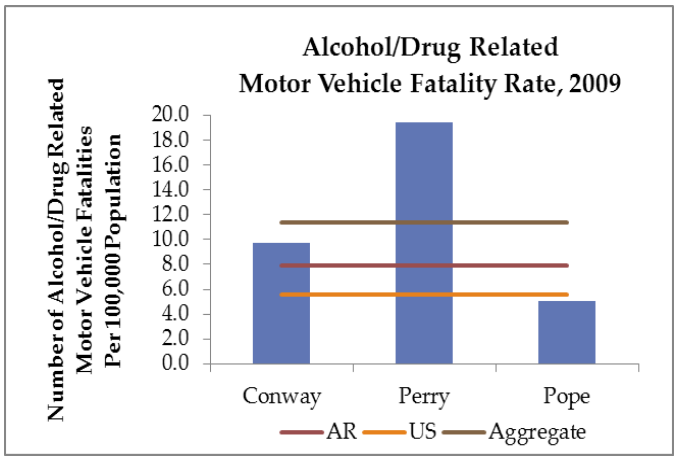
[65] This is the 2007 US rate, which is calculated from the most recent discharge data provided by the National Hospital Discharge Survey. Thus, while the 2007 US rate is likely an underestimate of the 2010 US rate, the relationship between the state and national rate still likely holds from 2007 to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

[66] 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 SVM service area had a higher number of alcohol/drug related motor vehicle fatalities per 100,000 population in 2009. The aggregate rate of the three SVM counties (11.4)[67] was 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)[68]. With an alcohol/drug related motor vehicle fatality rate of 5.09 fatalities per 100,000, only Pope 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. Pope, the most populous of the three counties comprising the SVM service area, had the highest number of fatalities and injuries.

Number of Alcohol/Drug Related Motor Vehicle Fatalities and Injuries, 2009[69]		
	Fatalities	**Injuries**
Conway	2	19
Perry	2	7
Pope	3	57
AR	262	2,672
US[70]	16,904	—

[67] Arkansas State Police, 2009 Traffic Crash Statistics

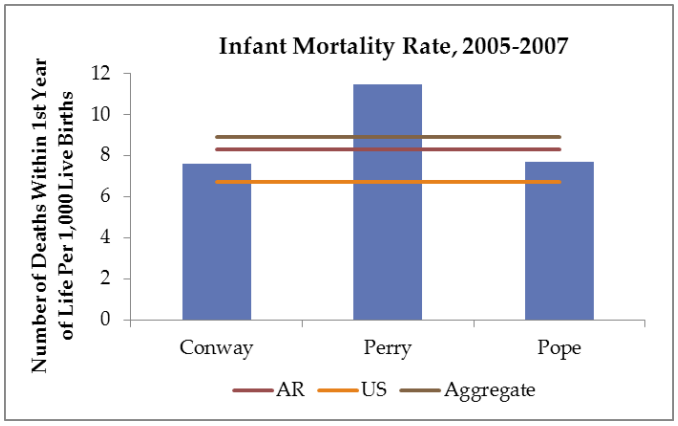
[68] Centers for Disease Control and Prevention (CDC), 2011; 2005-2009 American Community Survey, http://factfinder.census.gov

[69] Arkansas State Police, 2009 Traffic Crash Statistics

[70] 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 County had the highest infant mortality rate of the three counties in the SVM service area (11.5 deaths per 1,000 live births).[71] While the infant mortality rate in all three counties was higher than the national rate, Perry County was the only one with a rate above that of the state and nation.



Infant mortality varies by race. As with the US and state of Arkansas, Black infant mortality is higher than White infant mortality in the SVM service area. The table below shows that, from 2005 to 2007, Pope County reported 16.1 infant deaths per 1,000 live births for Black women as opposed to 7.6 infant deaths per 1,000 live births for White women.[72] 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[73]		
	White	**Black**
Conway	2.2	52.4
Perry	7.8	250.0
Pope	7.6	16.1
AR	6.6	15.3
US[74]	5.64	13.24

Prenatal Care. Among all live births, the state of Arkansas had a higher percentage 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.[75] However, in the three SVM counties, early entrance into prenatal care was even higher than the state (and presumably the nation) in 2010. The

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

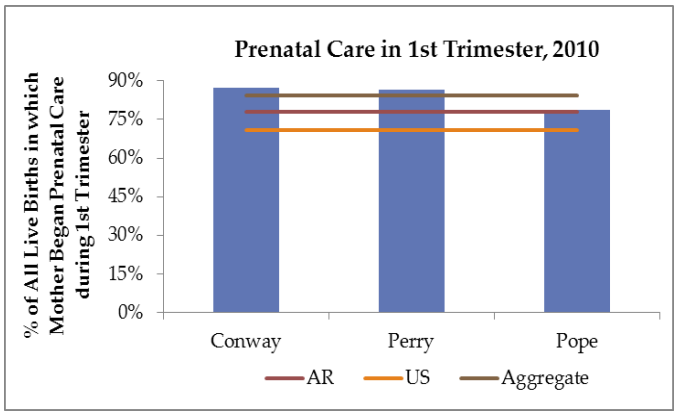
[72] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

[73] Ibid

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

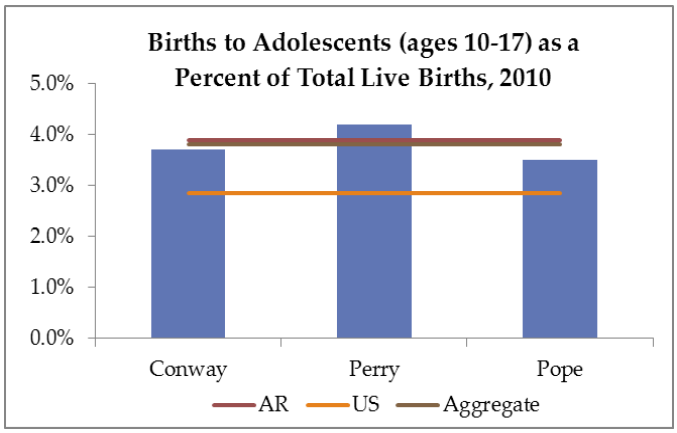
[75] The CDC's August 2010 edition of its National Vital Statistics Report gives national data on prenatal care up to 2007. This data is based on a 22-state reporting area which accounts for revisions to the U.S. Standard Certificate of Live Birth in 2003. The remaining states are not included, because they do not account for the 2003 revisions.

percentage of mothers receiving prenatal care during their first trimester ranged from 78.9% in Pope County to 87.2% in Conway County, with the three-county aggregate being 84.2%.[76]



Note: The graph displays the 2007 US percent.

Adolescent Births. The state of Arkansas had a higher percentage of total live births to adolescents[77] than the US in 2010 (3.9% versus 2.84%, respectively).[78] While the aggregate percentage for SVM's service area (3.8%) was also higher than the nation, this percent was still below that of the state. Nevertheless, Perry County (4.2%) reported the highest percentage of total live births to adolescents among the SVM counties, the state, and the 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).[79] However, Perry and Pope Counties had a lower teen birth rate than the state. Consequently, the aggregate teen birth rate in SVM's service area (58.5 births per 1,000 females aged 15-19) was slightly lower than the state.[80] Conway County had a considerably higher teen birth rate than the other two counties, 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.

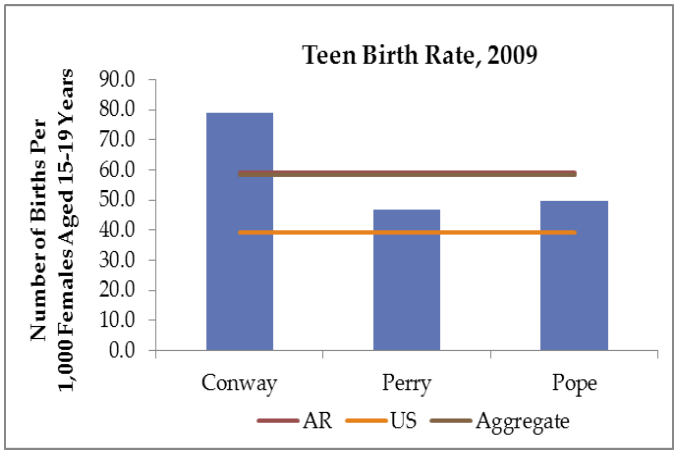
[76] Arkansas Department of Health, Health Statistics Branch, http://www.healthy.arkansas.gov

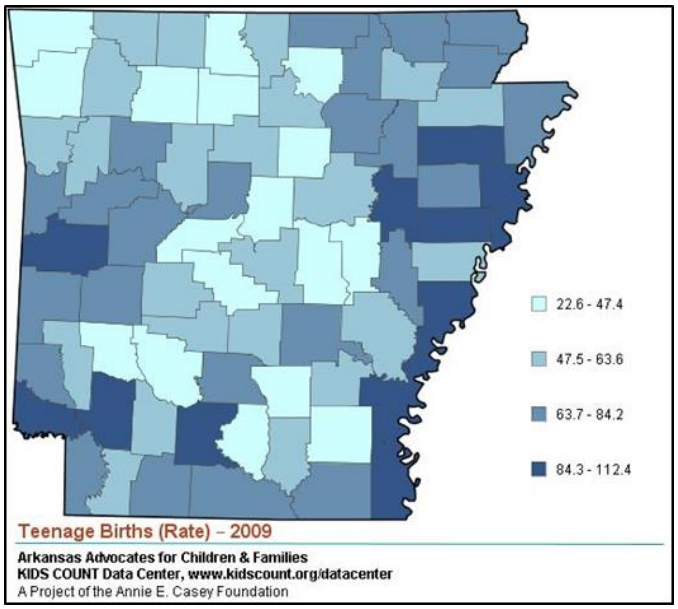
[77] Adolescents, in this measure, are defined as females aged 10-17.

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

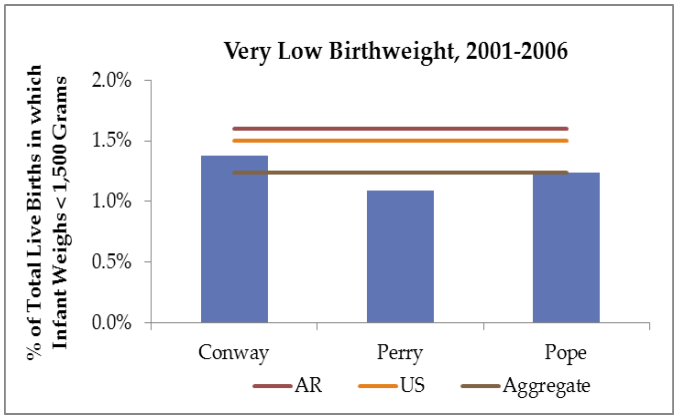
[79] KIDS COUNT Data Center, 2009

[80] 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.[81] This percentage was lower in the US during the same time period, with 1.5% of all live births categorized as very low birthweight.[82] Despite the higher state percentage, all counties in the SVM service area had a lower incidence of very low birthweight newborns than both the state and the nation. Within these counties, very low birthweight newborns ranged from 1.09% (Perry County) to 1.38% (Conway County) of all live births.[83]



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).[84] 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.[85] On the other hand, Pope County had a considerably higher child mortality rate (74.8 deaths per 100,000 children ages 1-14) than the state and nation.

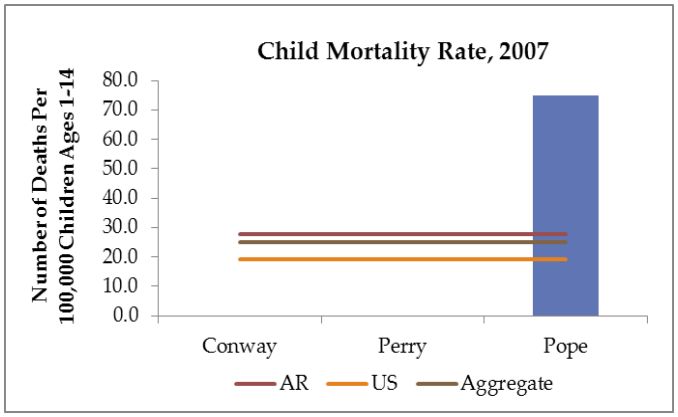
[81] Arkansas Department of Health, Health Statistics Branch Query System, http://www.healthy.arkansas.gov

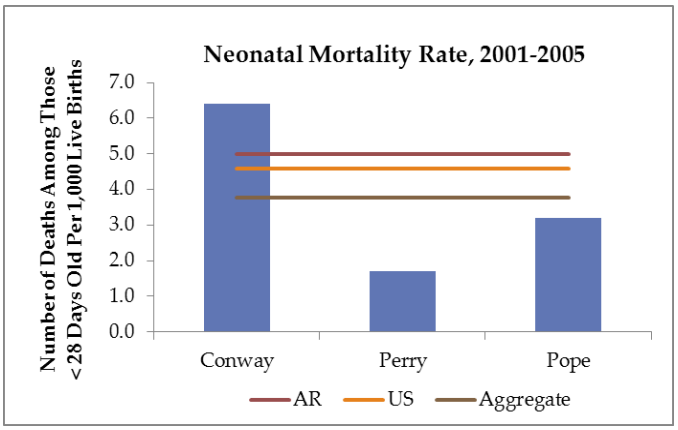
[82] Child Trends Data Bank, http://www.childtrendsdatabank.org

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

[84] KIDS COUNT Data Center, 2007; Centers for Disease Control and Prevention, National Center for Health Statistics

[85] Ibid





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[86] was also higher in the state of Arkansas (5.0 deaths per 1,000 live births)[87] than the US (on average, 4.576 deaths per 1,000 live births) from 2001 to 2005.[88] Conway County had an even higher neonatal mortality rate than the state and nation, with 6.4 deaths per 1,000 live births. This was not the case in Perry and Pope Counties, which both had a lower neonatal mortality rate (1.7 and 3.2 deaths per 1,000 live births, respectively) than the state and nation.[89]

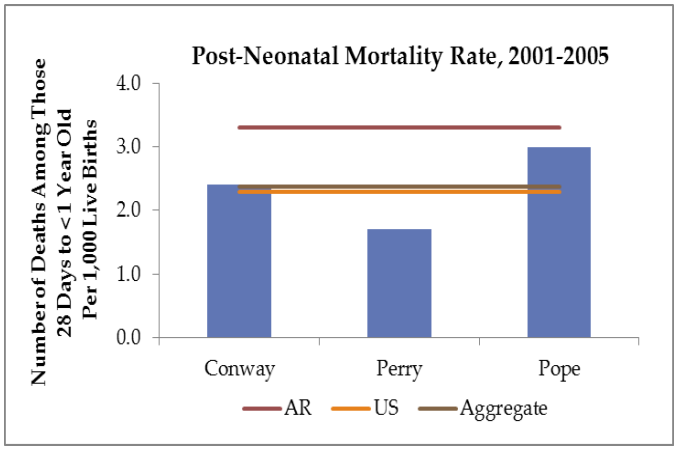
[86] The neonatal mortality rate is defined as the number of deaths among those less than 28 days old per 1,000 live births.

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

[88] Centers for Disease Control and Prevention (CDC), National Vital Statistics Reports, Volume 58 (19), 2010

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

Post-Neonatal Mortality. Both the state of Arkansas and the US had a lower post-neonatal mortality rate[90] than neonatal mortality rate from 2001 to 2005.[91] Nevertheless, Arkansas still had a higher post-neonatal mortality rate than the US for this time period. 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).[92] Among the three counties comprising the SVM service area, Conway County had the largest decrease from its neonatal mortality rate to its post-neonatal mortality rate (a decrease of 4.0 deaths per 1,000 live births).[93] Still, Conway and Pope Counties had a higher post-neonatal mortality rate than the nation (2.4 and 3.0 deaths per 1,000 live births, respectively). Only Perry County had a post-neonatal mortality rate (1.7 deaths per 1,000 live births) below that of the state and nation.



[90] 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.

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

[92] Ibid

[93] Ibid

Death, Illness, and Injury

General Health Status. As a self-rated measure as reported by respondents in their respective counties, this 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 Service, most of the counties examined are near the national average of 17.1% reporting fair or poor health.[94] Among the SVM primary service area counties, the highest percentage came from Perry County (29.7%) followed by Conway (23.3%) and Pope (19.2%). The aggregate for this measure for the SVM primary service area is 24.1% 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. Of the SVM primary service area counties, the highest average number of reported sick days came from Perry (7) followed by Conway (6.7) and Pope (5.8). The aggregate for this measure for the SVM primary service area is 6.5 sick days within the past month.

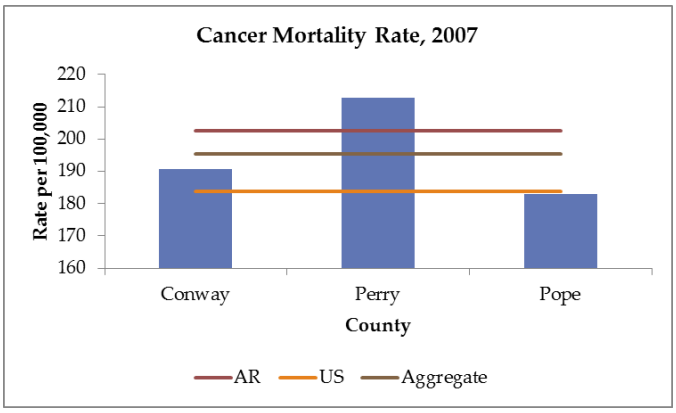
Health Indicators: Mortality

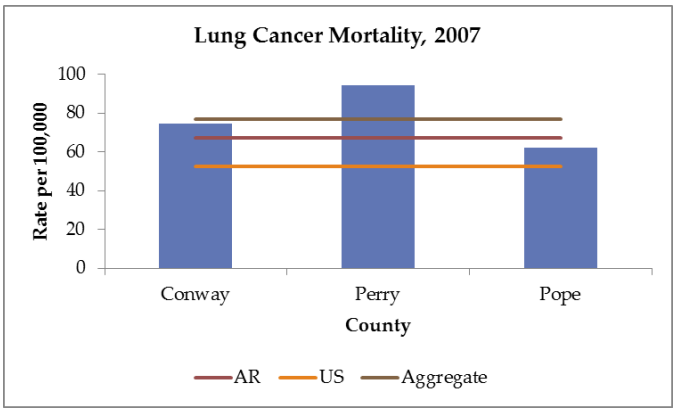
All Causes. According to the 2009 Community Health Status Indicators as provided by the US Department of Health and Human Services, these rates varied significantly in comparison with the national average of 1136.9 deaths per 100,000 population. The highest mortality rate from all causes within the SVM Primary service area was in Perry County (1670.1), followed by Conway (1558.4) and Pope (897.6). The aggregate for this measure within the SVM primary service area is 1375.4 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.[95] The aggregate for the counties in the SVN primary service area is 195.4 cancer deaths per 100,000 with a Black aggregate of 230.5 and a White aggregate of 195.1 cancer 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 highest cancer death rate was Perry (214.9) followed by Conway (187) and Pope (183.2). For Blacks, the only cancer death rate reported was Conway (258.6). With state average and aggregate numbers so close we see that the lines are overlapping in the graphic below.

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

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





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. Pope was the only county with a rate significant enough to report and this was 26.7 breast cancer deaths per 100.000 women leading to an aggregate measure of the same number.

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 SVM primary service area the highest number of lung cancer deaths per 100,000 population was in Perry County (94.5) followed by Conway (74.7) and Pope (62). The SVM primary service area aggregate for this measure is 77.1 cancer deaths per 100,000 population. This can be seen in the graphic below.

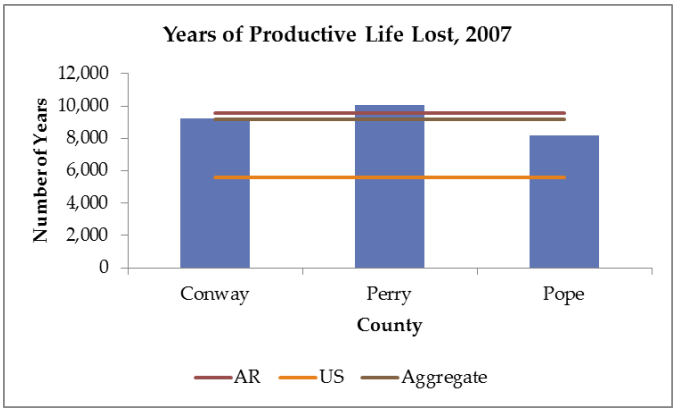
Cervical Cancer. None of the counties in the SVM primary service area were deemed to have a number of deaths due to cervical cancer significant enough to report.

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. The highest colorectal cancer death rate per 100,000 population was in Conway County (17.3) while the lowest was Pope (13.5). Perry County was deemed too sparse to report. The SVM primary service area aggregate for this measure is 15.4 colorectal cancer deaths per 100,000 population.

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 highest rate of unintentional injury deaths was in Perry County (91)

followed by Conway (74) and Pope (67).[96] The SVM primary service area aggregate for this measure is 77.3 deaths due to unintentional injury per 100,000 population.

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.[97] Within the SVM primary service area the highest number of years lost was in Perry County (10,062) followed by Conway (9,245) and Pope (8,167). The SVM aggregate for this measure is 9,158 years lost. This can be observed in the graph below.



Motor Vehicle Crashes. Data provided by the CDC in 2007 show the state average was 25 motor vehicle crash deaths per 100,000 population. The highest rate of motor vehicle crashes resulting in death in the SVM primary service area was Perry County (42) followed by Conway (29) and Pope (24). The aggregate for this measure is 31.7 fatal crashes per 100,000.

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 SVM primary service area counties, the highest cardiovascular death rate was in Perry County (186) followed by Pope (181) and Conway (116). The aggregate for the entire population for the SVM primary service area is 161 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. The highest cardiovascular death rate per 100,000 population in the SVM primary service area was in Perry County (188) followed by Pope (182) and Conway (125). The aggregate for Whites only for the SVN primary service area is 165 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 highest cardiovascular death rate among Blacks per 100,000 population was in Perry County (195) followed by Pope (161) and much lower in Conway (56). The aggregate for Blacks only for the SVM primary service area is 137.3 cardiovascular deaths per 100,000.

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

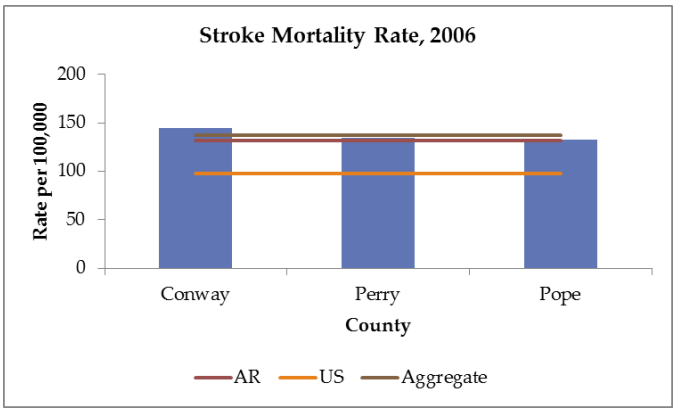
[97] http://www.countyhealthrankings.org/arkansas/

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 SVM primary service area counties, Pope had the highest COLD death rate (60), followed by Perry (42) and Conway (34). The aggregate for the SVM primary service area is 45.3 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. Of the SVM primary service area counties Conway has the highest rate (37), followed by Perry (22) and Pope (17). The aggregate for the SVM primary service area is 25.3 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 and national average of 16.2 pneumonia/influenza deaths per 100,000 population, Arkansas in general has dramatically higher rates than the rest of the country. Among the SVM primary service area counties Perry had the highest pneumonia/influenza death rate (44), followed by Pope (34) and Conway (28). The aggregate for the SVM primary service area is 35.3 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.[98] Of the SVM primary service area counties the highest stroke death rate per 100,000 population age 35+ was Conway (145), followed by Perry (135) and Pope (133). This puts Conway County at 48% above the national average when considering the population as a whole. The aggregate for the SVM primary service area for the entire population is 137.7 stroke deaths per 100,000 population age 35+. This can be seen in the graphic below.

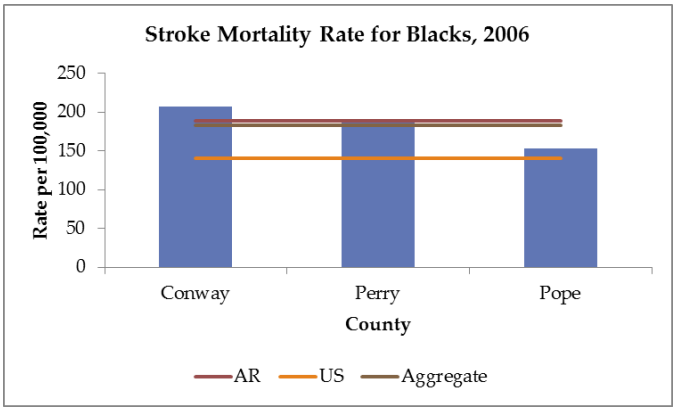


When looking at Whites only the state average of 125 stroke deaths per 100,000 population age 35+ is much higher than the national average of 94 stroke deaths per 100,000 population age 35+. Of the SVM primary service area counties, the highest stroke death rate per 100,000 population age 35+ when considering Whites only was Conway (143), followed by Pope (133) and Perry (127). The aggregate for the SVM primary service area is 134.3 stroke deaths per 100,000 population age 35+ when considering whites only.

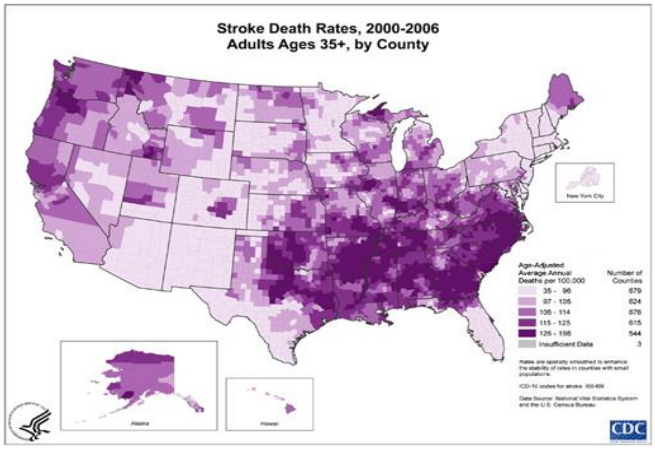
When considering Blacks only, the state and national averages rise to 189 and 140 stroke

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

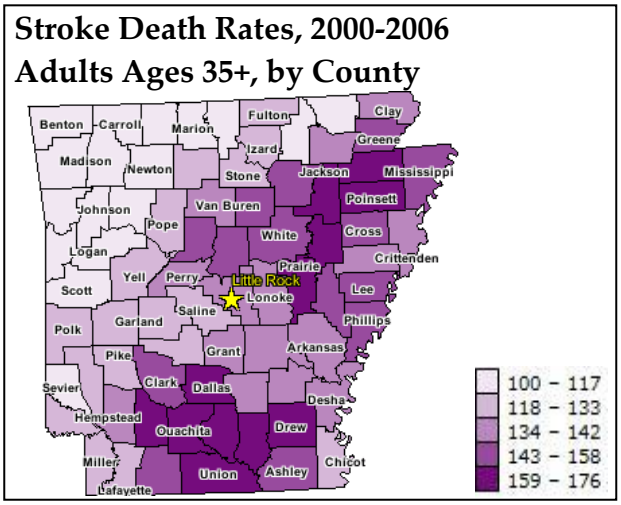
deaths per 100,000 population age 35+, respectively. Of the SVM primary service area counties, the highest stroke death rate per 100,000 age 35+ when considering Blacks only was Conway (207), followed by Perry (188) and Pope (153). The aggregate for the SVM primary service area was 182.7 stroke deaths 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

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 SVM primary service area counties, the only county with enough cases to report was Pope (2 cases yielding a rate of 3.2), therefore yielding an aggregate of the same number.

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. The state and national average number of reported cases of gonorrhea were 165 and 100.8 reported cases, respectively. Of the SVM primary service area counties, the highest rate was in Pope County (59 cases yielding a rate of 95.5), followed by Conway (13 cases yielding a rate of 61.1) and Perry (2 cases yielding a rate of 19.1). The aggregate for the SVM service area is 58.6 reported cases of gonorrhea reported 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. The state and national average number of reported cases of chlamydia were 533.8 and 426 cases, respectively. Of the SVM primary service area counties, the highest rate was in Pope (468 cases yielding a rate of 289), followed by Perry (26 cases yielding a rate of 248.9) and Conway (48 cases yielding a rate of 225.6). The aggregate for the SVM service area is 314.2 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. Of the SVM primary service area counties, the highest rate was in Conway (9.7 per 100,000 population[99]), followed by Pope (1.8) and Perry (0). The aggregate for the SVM primary service area is 3.8 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 SVM primary service area counties, the highest rate was in Conway County (2 cases yielding a rate of 9.4), followed by Pope (4 cases yielding a rate of 6.5) and Perry (0 cases yielding a rate of 0). The aggregate for the SVM primary service area is 5.3 reported cases of Hepatitis A per 100,000 population.

Hepatitis B. The number of cases of Hepatitis B reported through 2007 by the Community

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

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 SVM primary service area counties, the highest rate was in Perry County (1 case yielding a rate of 9.6), followed by Pope (4 cases yielding a rate of 6.5) and Conway (1 cases yielding a rate of 4.7). The aggregate for the SVN primary service area is 6.9 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.[100] 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.

[100] 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 community leaders from the St. Vincent Morrilton (SVM) primary service area to gather information on what health issues they believe are the most pressing in the community and how SVM can better serve those needs. From a high-level perspective, access to primary care, affordability, and patient awareness were the most commonly recognized issues. Addressing these issues could further alleviate other identified health problems like obesity, diabetes, and heart disease. Recommendations for improvement focused on the operations of non-acute care clinics which can minimize health care costs by providing primary care services to patients. The themes and corresponding summary of the relevant interview are provided below.

Qualitative Data Findings: Overall Interview Themes

- Need for primary care, consistency, follow-up, focus, full support. "Pick one thing and become experts."
- Access (to healthcare, to food/grocery stores, etc.), health education, effective communication, Metro Plan, potential funding opportunity with increase in taxes
- Impact of influx of newly insured individuals in 2014, understanding the newly insured population, be proactive/first mover
- 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
- Innovation, thinking outside the box, engagement of all community members, partnerships (with schools, free clinics, libraries, etc.)
- 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 Summary

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.

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.

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.

Date: Tuesday, January 17, 2012

Venue: St. Vincent Morrilton

Interviewees addressed SVM's image as the "band aid station" and discussed ways to improve access to non-emergent care facilities as a means of decreasing unnecessary utilization of SVM's ER. Ideas included

expanding operating hours at the existing Christian Clinic/Charitable Clinic, and adding an urgent care clinic that provides services on weekends. Despite concerns of patients still not being able to afford their care and not having access to physicians, some interviewees thought that nurse practitioners would be helpful in providing more non-emergent care at a cheaper cost.

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.

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.

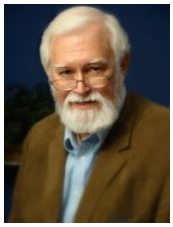
Cheryl J. LeDoux

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.