

# ARKANSAS MEDICARE CHRONIC CONDITIONS REPORT

July 1, 2016

T. Mac Bird, PhD, APCD Analytic Lead  
Kenley Money, APCD Director

Version 1.0.2016

*ACHI is a nonpartisan, independent, health policy center that serves as a catalyst to improve the health of Arkansans.*



1401 West Capitol Avenue  
Suite 300, Victory Building  
Little Rock, Arkansas 72201  
[www.achi.net](http://www.achi.net)

## Revision History

VERSION	CHANGE MGMT. #	DATE	OWNER	DESCRIPTION
1.0.2016	0	4/25/2016	T. Mac Bird, PhD, University of Arkansas for Medical Sciences (UAMS)	Analytic report using the Arkansas All-Payer Claims Database (APCD) Medicare data
1.0.2016	1	7/1/2016	T. Mac Bird, PhD, University of Arkansas for Medical Sciences (UAMS)	Final version after technical edit.

This dynamic document will be reviewed and updated on a periodic basis. Each change will be recorded in the Revision History section.

# TABLE OF CONTENTS

Revision History.....	i
<b>INTRODUCTION.....</b>	<b>1</b>
<b>DATA SOURCE AND ANALYSIS.....</b>	<b>1</b>
<b>CHRONIC CONDITIONS MAPS.....</b>	<b>3</b>
<i>Asthma</i> .....	3
<i>Breast Cancer</i> .....	4
<i>Chronic Obstructive Pulmonary Disease (COPD)</i> .....	5
<i>Coronary Heart Disease</i> .....	6
<i>Depression</i> .....	7
<i>Diabetes</i> .....	8
<i>Hypertension</i> .....	9
<i>Lung Cancer</i> .....	10
<i>Stroke</i> .....	11
<b>CHRONIC CONDITIONS FIGURES.....</b>	<b>12</b>
<i>Box Plots of High-, Medium-, and Low-Rate Conditions</i> .....	13
<b>COST DISTRIBUTION MAPS .....</b>	<b>14</b>
<i>Medicare Combined Inpatient and Outpatient Cost Per Capita</i> .....	14
<i>Medicare Inpatient Total Cost Per Capita</i> .....	15
<i>Medicare Outpatient Total Cost Per Capita</i> .....	16
<b>COST DISTRIBUTION FIGURES .....</b>	<b>17</b>
<i>Box Plots of Annual Cost per Beneficiary</i> .....	17
<b>CONCLUSION .....</b>	<b>18</b>

## INTRODUCTION

An estimated eight out of ten Medicare beneficiaries have at least one chronic medical condition.<sup>1</sup> Individuals who have chronic conditions usually require more healthcare services, such as visits to the doctor or emergency department, and have higher total healthcare costs compared to those without chronic conditions. Currently, money spent on treating Medicare beneficiaries accounts for 20 percent of all healthcare spending in the United States.<sup>2</sup>

Neither disease burden nor healthcare utilization are evenly distributed across geographic regions in the United States. Considerable variation exists from region to region and county by county.<sup>3</sup> This is likely due to a combination of varying rates of disease burden and varying levels of access to care across counties.

This report provides information about the geographic variability of nine selected chronic health conditions as well as three measures of healthcare utilization for Medicare patients in Arkansas. The chronic conditions chosen for this report represent some of the most common chronic health conditions in Arkansas, many of which are relevant to current healthcare policy initiatives in the state.

This report contains a series of maps and figures that graphically depict variability in chronic condition rates and healthcare utilization at the county level in Arkansas. These graphics may prove useful to Arkansans in general as a method of becoming familiar with which chronic conditions are most common in their area of the state. These graphics may also prove useful to policymakers in identifying areas of the state where resources are most needed. For example, high rates of lung cancer in an area may indicate a need for increased access to smoking cessation programs, and high rates of hypertension may indicate a need for community outreach for education about hypertension control through diet and exercise.

## DATA SOURCE AND ANALYSIS

Data for this report came from the Arkansas All-Payer Claims Database and the CMS Chronic Conditions Data Warehouse. The Arkansas All-Payer Claims Database (APCD) is a large-scale database that systematically collects healthcare data from a variety of payer sources including private health insurance carriers with Arkansas members, Arkansas Medicaid, and Arkansas Medicare. The Arkansas APCD is an important vehicle for increased transparency in Arkansas's healthcare system, examinations of quality and cost among healthcare services and providers, and assessment of the impact of state programs and initiatives. The CMS Chronic Conditions Data Warehouse is a clinical claims database linking data by beneficiary across the continuum of care in order to support research and quality-improvement initiatives.

The data used to create the maps and figures in this report were generated when Medicare beneficiaries received a healthcare service from a healthcare provider in 2013. Not all Medicare beneficiaries who have one of the chronic conditions selected for this report actually visited a healthcare provider during the calendar year (2013). Those individuals who did not receive care are not represented in the maps and figures. All geographic data presented in this report are based on where a Medicare patient lives rather than where the patient received

---

<sup>1</sup> Wolff, J.L., Starfield, B., & Anderson, G. (2002). Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Archives of Internal Medicine*, 162(20), 2269-2276. doi:10.1001/archinte.162.20.2269

<sup>2</sup> Centers for Medicare & Medicaid Services. NHE fact sheet. 2014. Retrieved from <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html>. Accessed 28 March 2016.

<sup>3</sup> Fisher, E.S., Wennberg, D.E., Stukel, T.A., Gottlieb, D.J., Lucas, F.L., & Pinder, E.L. (2003). The implications of regional variations in Medicare spending. Part 1: the content, quality, and accessibility of care. *Annals of Internal Medicine*, 138(4), 273-287. doi:10.7326/0003-4819-138-4-200302180-00006

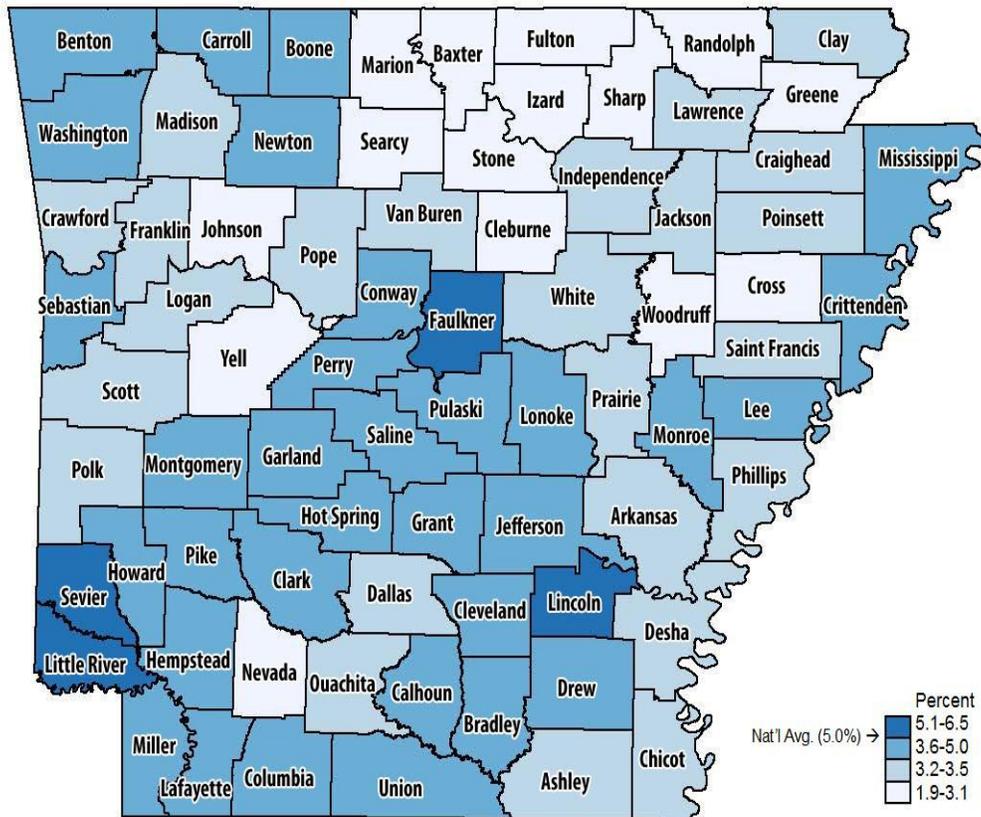
healthcare. For example, a patient who lives in Searcy County and receives health care in Pulaski County will be counted for Searcy County because this is his/her county of residence. The same logic applies if the patient received care outside of Arkansas, for example, Memphis, Tennessee. Data for all of Arkansas's 75 counties were included in the analyses.

Data in this report are separated into two main sections. The first is based on rates of chronic conditions, and the second is based on the cost of health care. The national rate of each condition and the national average for each cost measure was taken from the CMS Chronic Conditions Data Warehouse. Counties were ranked from low to high for each measure, and then divided into four groups, or quartiles, with roughly the same number of counties in each group. The number of counties in each group will not be exactly the same because of adjustments made to one of the cut points to coincide with the national average. The national average was aligned with a cut point to simplify presentation of the data.

## CHRONIC CONDITIONS MAPS

The nine maps presented below graphically depict variability at the county level in the percentage of Medicare beneficiaries who received treatment for select chronic conditions across Arkansas.

### Asthma

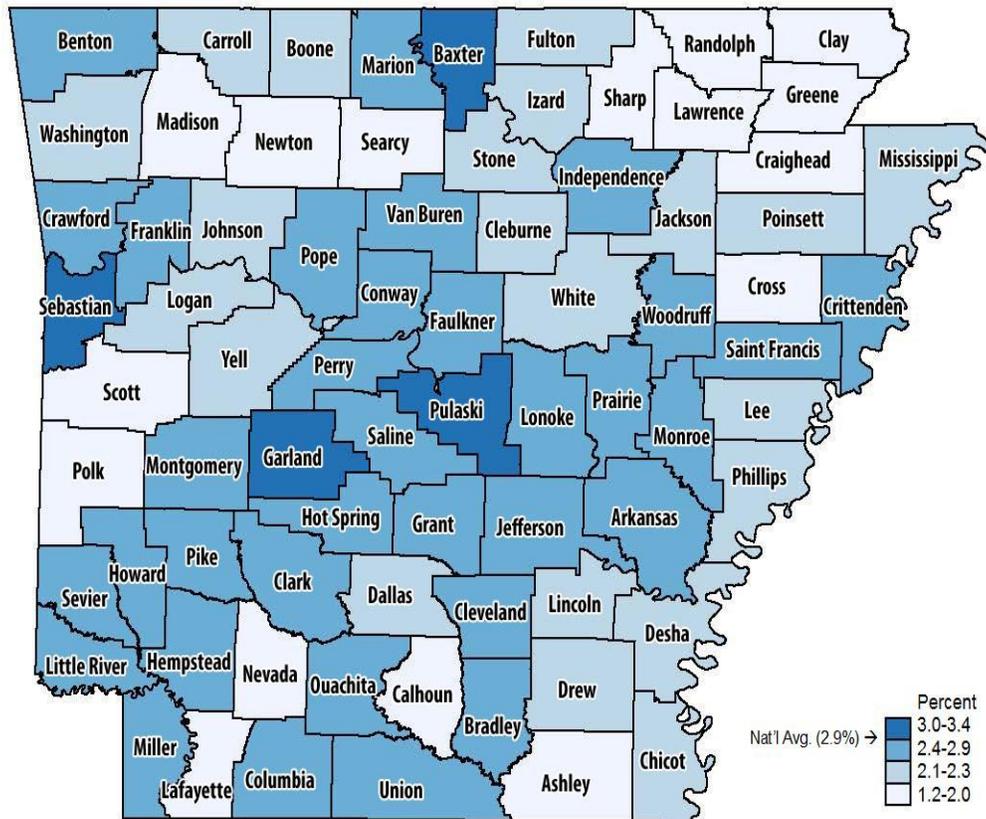


The percent of Arkansas Medicare patients with asthma is shown for Arkansas counties. Asthma is an inflammatory disease in the airways of the lungs that makes it difficult for individuals to breathe at times. The average rate of asthma for this group of Arkansans is 3.8 percent, which is lower than the national average of 5.0 percent. The darkest shade on this map shows the counties with an asthma rate that is higher than the national average for Medicare beneficiaries. Rates of asthma for Medicare patients vary widely between counties in Arkansas. The highest county rate (6.9 percent) is about 3.5 times greater than the lowest county rate (1.9 percent). As shown on the map, areas in the northeastern part of the state have the lowest diagnosed rates of asthma.

#### Example Research Topic:

Symptoms of asthma can be triggered by environmental factors, such as air pollution and second-hand smoke. Data from the APCD could be paired with data on smoking and air pollution to estimate the potential impact of targeted public health interventions.

## Breast Cancer

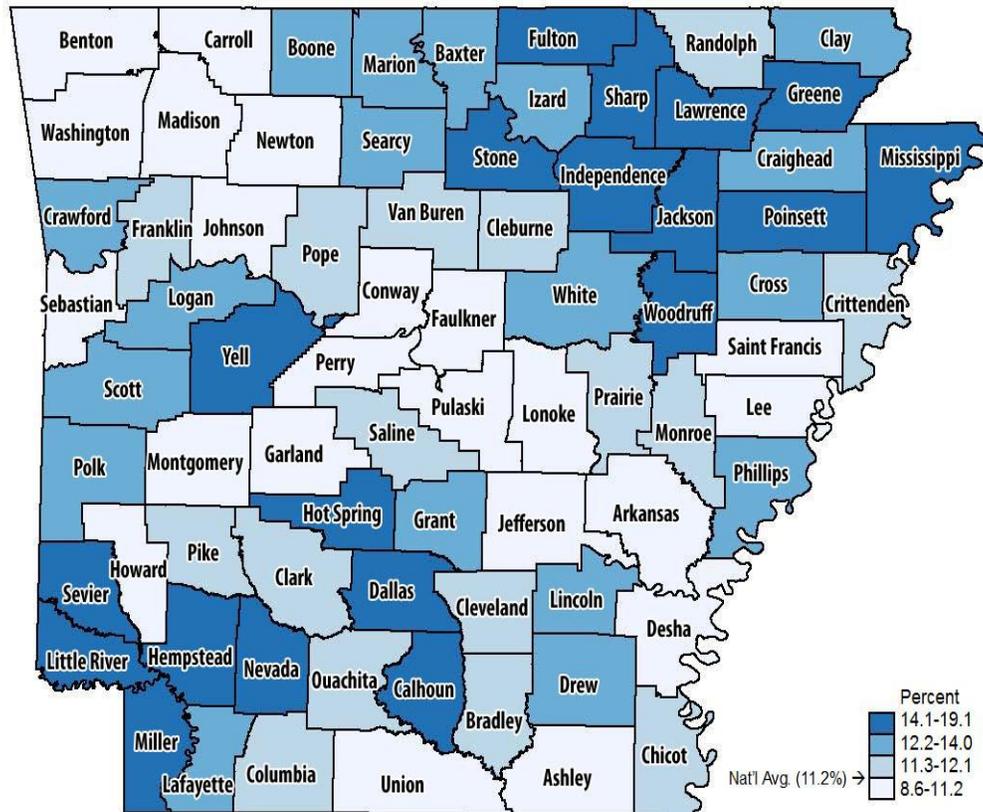


The percent of Medicare patients with breast cancer is shown for Arkansas counties. Breast cancer is abnormal cell growth in the breast tissue. The average breast cancer rate for Medicare patients in Arkansas is 2.6 percent, which is slightly lower than the national average of 2.9 percent. The counties with the darkest shading on this map have a breast cancer rate higher than the national average for the Medicare population. County-level breast cancer rates range from 1.2 percent to 3.4 percent. Counties in the central part of the state generally have the highest breast cancer rates.

### Example Research Topic:

Some counties in the state have breast cancer rates twice that of the county with the lowest rate. Data from the APCD could be used to determine whether the geographic distribution of prevention, screening, and treatment resources are correlated with high breast cancer rates in the Medicare population.

## Chronic Obstructive Pulmonary Disease (COPD)

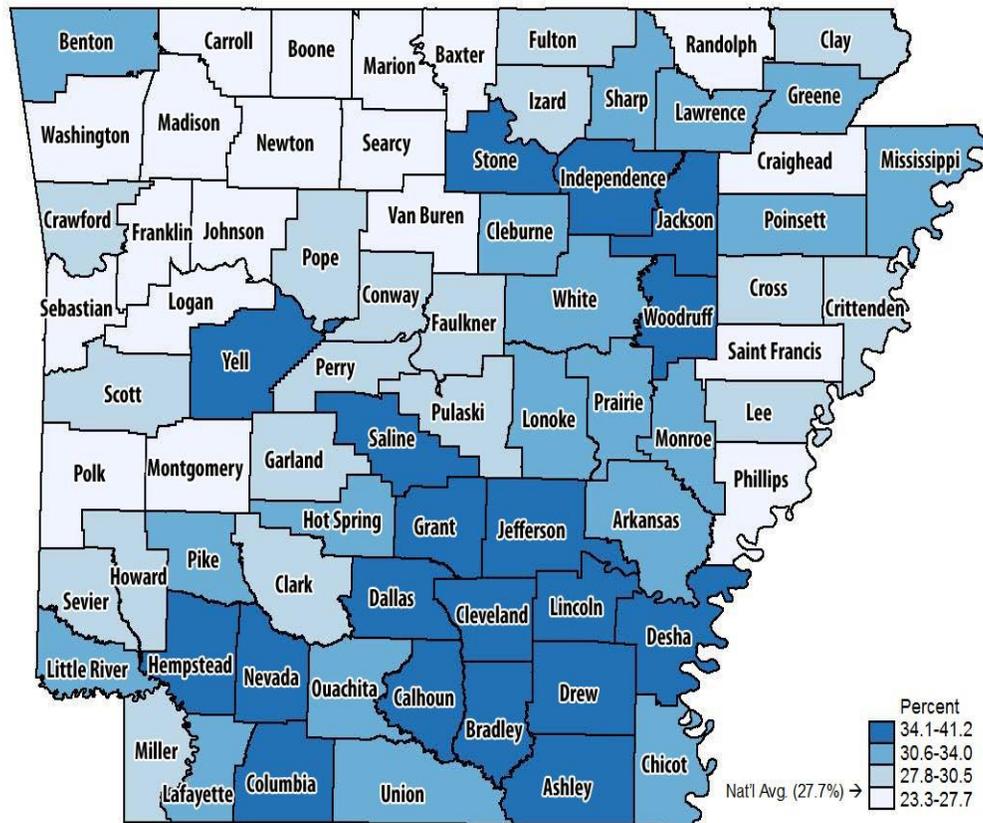


The percent of Arkansas Medicare patients with chronic obstructive pulmonary disease (COPD) is shown for Arkansas counties. COPD is a chronic lung disease that causes individuals to have difficulty breathing. The average rate of COPD for Medicare recipients in Arkansas is 11.6 percent, which is slightly higher than the national average of 11.2 percent. The lightest shade on this map shows the counties with a rate that is lower than the national average. There is wide variation in the rates of COPD for Medicare patients in counties across Arkansas. The lowest county rate (8.6 percent) is less than half of the highest county rate (19.1 percent). Counties in the northeastern and southwestern areas of the state generally have higher rates of COPD than other areas of the state.

### Example Research Topic:

An increase in symptoms associated with COPD is related to several behavioral and environmental factors, such as smoking cigarettes and living in areas with increased air pollution. The data from the APCD could be used with data about county smoking rates or about the distance from major air pollution generators and prevailing wind patterns to determine if these factors are linked to county-level COPD claims in Arkansas.

## Coronary Heart Disease

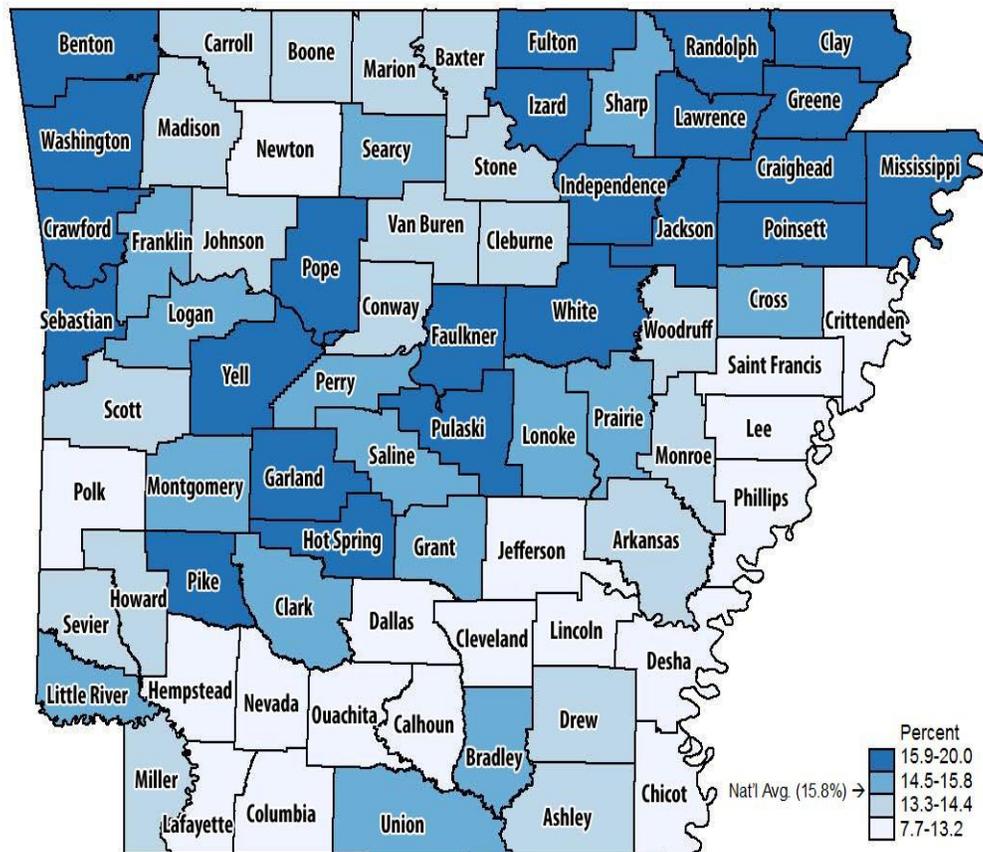


The percent of Medicare patients with coronary heart disease is shown for Arkansas counties. Coronary heart disease occurs when plaque build-up in the arteries surrounding the heart prevents the heart from getting enough blood flow and oxygen. The average rate of coronary heart disease in the Arkansas Medicare population is 30.0 percent, which is higher than the national average of 27.7 percent. On this map, the counties with the lightest shading have a rate of coronary heart disease that is lower than the national average. Almost 75 percent of the counties have rates higher than the national average. The rate of coronary heart disease by county ranges from 23.3 percent to 41.2 percent. Distinct geographic patterns for coronary heart disease are noted with counties in the southern and central areas of the state having the highest rates of this disease, and counties in the northwestern part of the state having the lowest rates.

### Example Research Topic:

Coronary heart disease may be treated or managed by a number of methods. Data from the APCD could be combined with data related to the frequency or total costs of different types of treatments, such as medications or stents, to determine whether counties are delivering care according to evidence-based guidelines.

## Depression



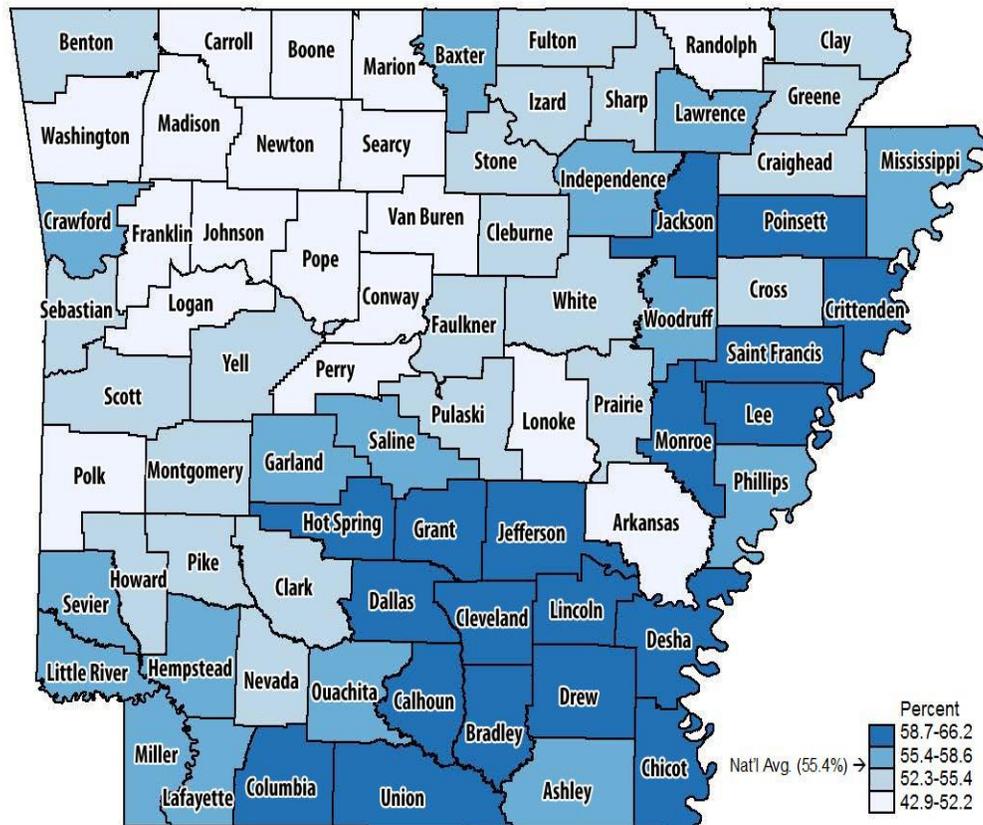
The percent of Arkansas Medicare patients with depression is shown for Arkansas counties. Depression is characterized by a number of symptoms, including feelings of sadness or a loss of interest in activities. The national average for depression among Medicare patients is 15.8 percent, which is slightly higher than the average for Arkansas at 15.6 percent. Counties with the two darkest shadings have rates of depression that are higher than the national average. The rate of diagnosed depression in the state varies widely. The highest county rate (20.0 percent) is more than 2.5 times greater than the lowest county rate (7.7 percent). There are also regional variations in depression rates in Arkansas. Counties in the northern part of the state tend to have higher rates of diagnosed depression than those in the southern part of the state.

### Example Research Topic:

The APCD could be used as a source of preliminary data for planning more in-depth studies employing primary data collection; these new studies could determine if the differences in the prevalence of diagnosed depression shown in this map are due to differences in access, diagnosis, or some other factor.



## Hypertension

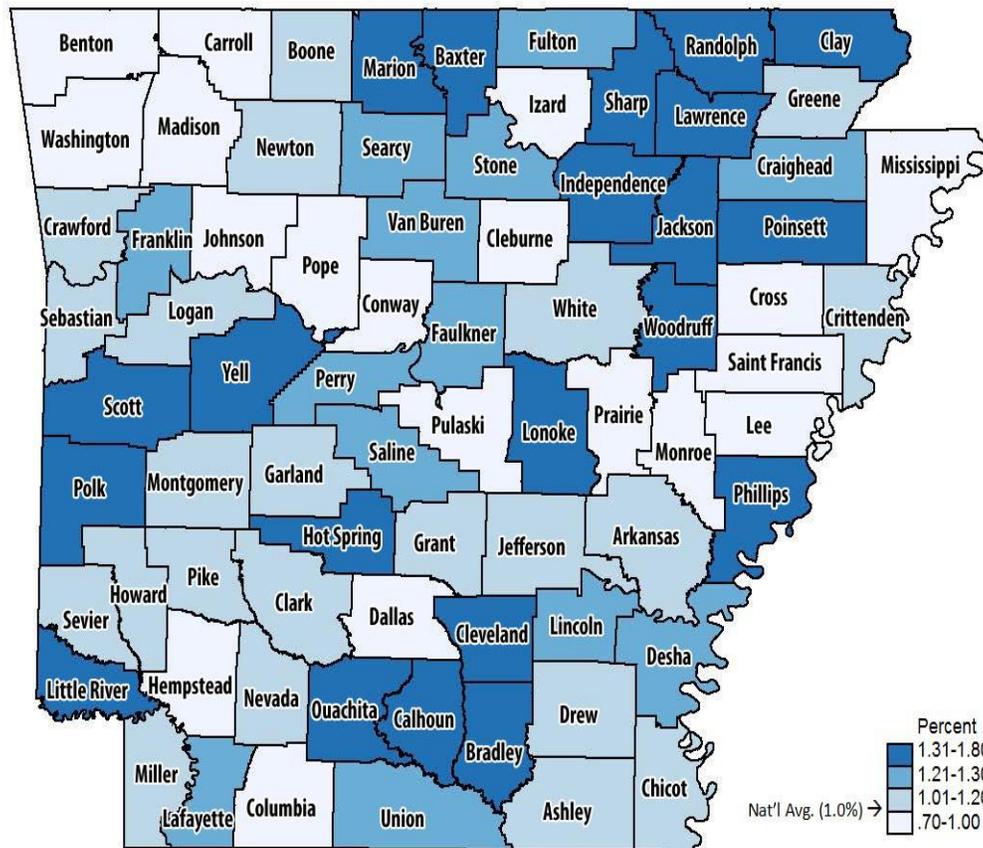


The percent of Medicare patients with hypertension (also known as high blood pressure) is shown for Arkansas counties. Hypertension occurs when blood pressure in the arteries is too high, which can lead to many other health problems, including stroke. The average rate of hypertension among Arkansas Medicare patients is 55.6 percent, which is approximately equal to the national average of 55.4 percent. On this map, counties that are the two darkest shades have a percentage of Medicare patients with hypertension that is higher than the national average. The rate of hypertension by county ranges from 42.9 percent to 66.2 percent. As seen on the map, counties in the southern and eastern regions of the state generally have the highest rates of hypertension among Arkansas Medicare beneficiaries.

### Example Research Topic:

Risk for hypertension is related to many behavioral and other factors. For example, individuals who are more sedentary and eat less healthy foods are more likely to develop hypertension than those who exercise more and consume healthier foods. Data from the APCD could be combined with data on food deserts and availability of public outdoor recreational areas to determine whether local zoning and tax laws are correlated with hypertension rates.

## Lung Cancer

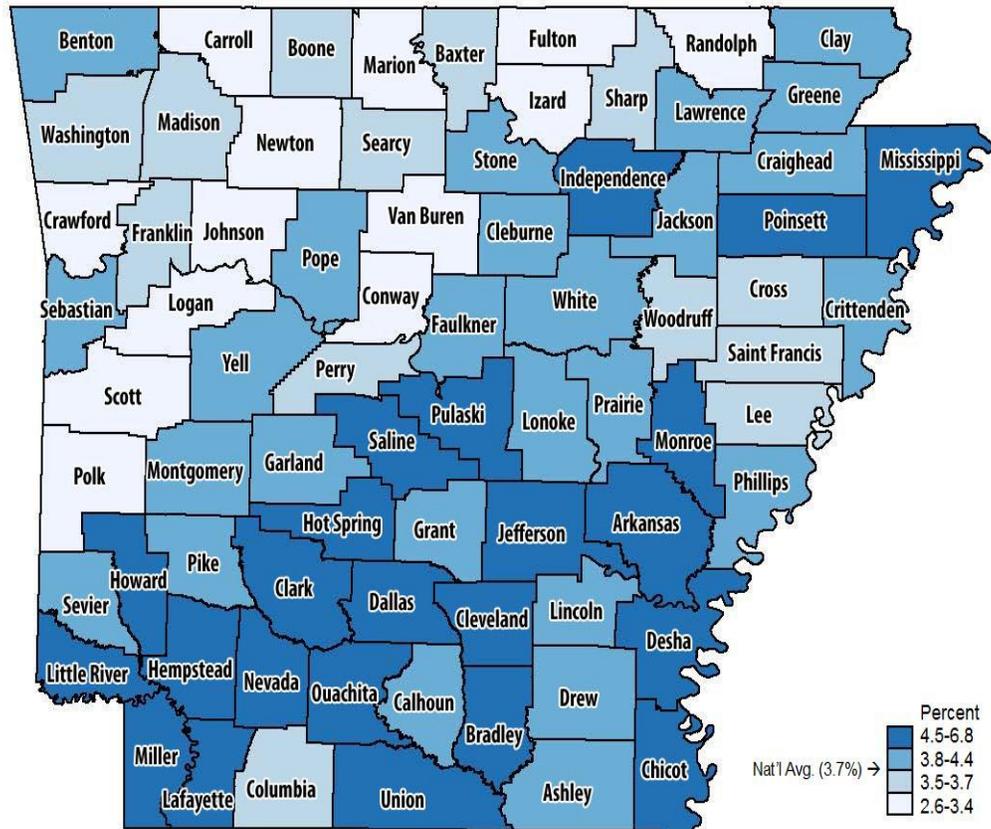


The percent of Arkansas Medicare patients with lung cancer is shown for Arkansas counties. Lung cancer is uncontrolled cell growth in the lung that forms tumors and prevents the lungs from providing oxygen to the body. The average lung cancer rate for Medicare patients in Arkansas is 1.1 percent, which is slightly higher than the national average of 1.0 percent. The counties with the lightest shading on this map have a lung cancer rate lower than the national average of 1.0 percent. The county-level lung cancer rates range from 0.70 percent to 1.80 percent. This map shows clusters of counties with higher lung cancer rates in the northeastern, western, and southern parts of the state.

### Example Research Topic:

Data from the APCD in conjunction with data on smoking rates by county could be used to target anti-smoking interventions where high smoking rates overlap with high cancer rates.

## Stroke



The percent of Medicare patients in Arkansas who had a stroke-related medical claim in 2013 is shown for Arkansas counties. Stroke occurs when the blood flow to a part of the brain is stopped or severely limited; brain cells very quickly begin to die when this occurs. The average annual rate of stroke nationally for the Medicare population was 3.7 percent. In Arkansas, the rate was slightly higher at 4.1 percent. Counties that are shaded in the lightest two colors have a county-level stroke rate that is lower than the national average. The highest county-level stroke rate is 6.8 percent, which is about 2.5 times higher than the lowest county rate of 2.6 percent. The eastern and southern areas of the state generally have a higher Medicare beneficiary stroke rate than the northeastern area of the state.

### Example Research Topic:

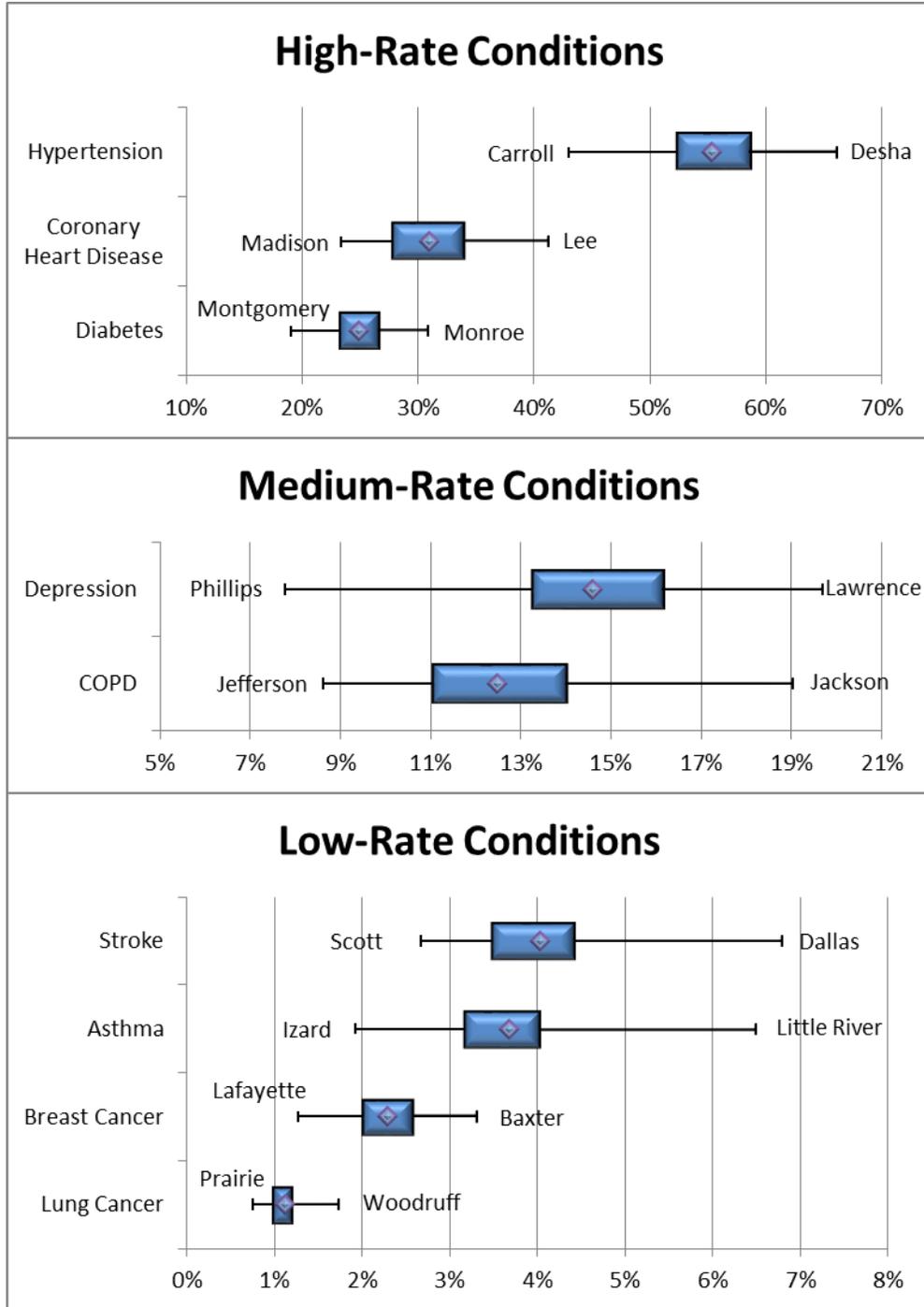
Data from the APCD could be used to determine if geographic distribution and capacity of designated “stroke ready” hospitals in Arkansas meet the access needs expected based on county-level population and disease-burden estimates.

## CHRONIC CONDITIONS FIGURES

The three figures on the next page offer a more concise presentation of the county-level variability of the selected chronic conditions in Arkansas. This graphic displays a box-and-whisker plot for each of the selected chronic conditions. The blue boxes represent counties with diagnosis rates between the 25<sup>th</sup> to the 75<sup>th</sup> percentiles (meaning that 50 percent of Arkansas counties have diagnosis rates within this range). The light blue diamond shows the average diagnosis rate for each condition among Arkansas Medicare beneficiaries. The black vertical lines at the ends of each figure represent the highest and lowest county-level rates for each condition. The counties with the highest and the lowest rates for each chronic condition are displayed in the figures.

Conditions are separated into three categories based solely upon the county-level rate at which the condition is diagnosed in the Arkansas Medicare population. The conditions designated as “high-rate” conditions are diagnosed in approximately 20 to 70 percent of the Medicare population. The conditions designated as “medium-rate” conditions are diagnosed in approximately 7 to 19 percent of the Medicare population. The conditions designated as “low-rate” conditions are diagnosed in 1 to 6 percent of the Medicare population.

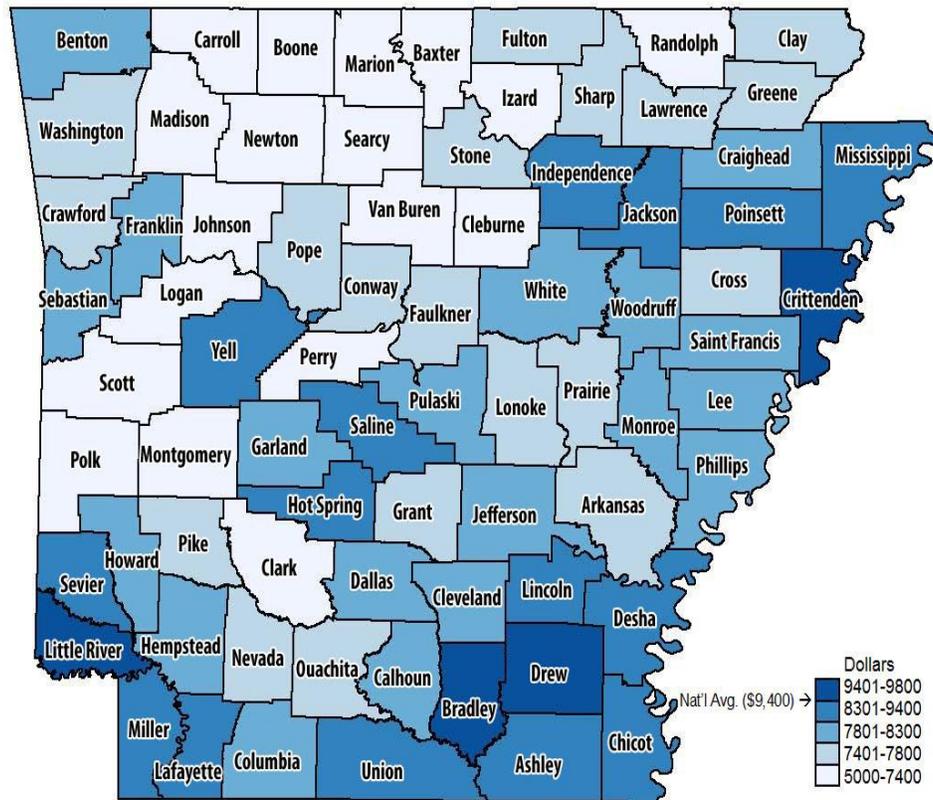
**Box Plots of High-, Medium-, and Low-Rate Conditions**



## COST DISTRIBUTION MAPS

The three maps presented below graphically depict variability of healthcare costs in the Arkansas Medicare population.

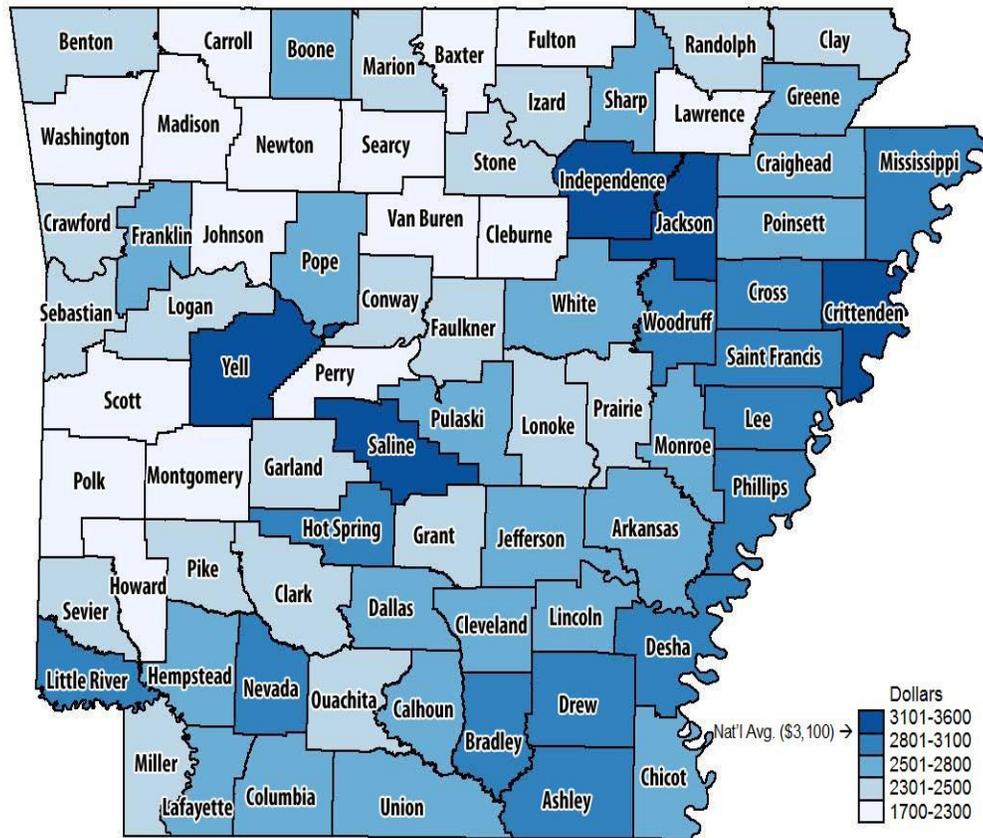
### Medicare Combined Inpatient and Outpatient Cost Per Capita



The average combined inpatient and outpatient cost spent on healthcare services per Arkansas Medicare beneficiary is depicted above. Total cost includes services such as hospitalizations, doctor visits, and imaging tests. Other costs such as pharmacy and durable medical equipment are not included.

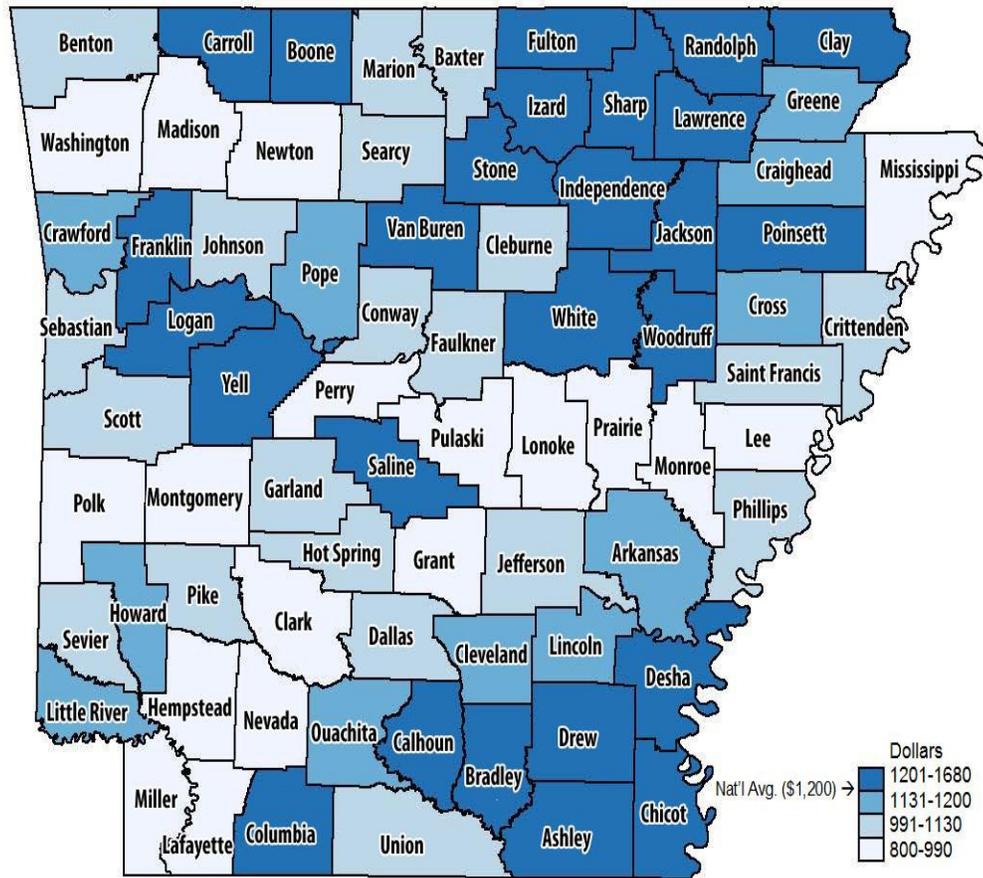
On average, \$7,900 is spent on health care for each Arkansas Medicare beneficiary each year, which is significantly lower than the national average of \$9,400. The four counties shaded in the darkest color on the map have an average per-Medicare beneficiary combined healthcare cost that is greater than the national average. The per-Medicare beneficiary combined healthcare cost is almost double the cost in some counties compared to others, with county-level costs ranging from \$5,000 to \$9,800 across Arkansas. Counties in the southern and eastern areas of the state have higher combined healthcare costs than elsewhere.

## Medicare Inpatient Total Cost Per Capita



The range of average hospital inpatient costs for an Arkansas Medicare beneficiary is illustrated by county. These costs include services received while in a hospital. On average, the inpatient cost for an Arkansas Medicare beneficiary is \$2,600, which is lower than the national average of \$3,100. Counties shaded in the darkest color have average inpatient costs that are higher than the national average. As seen on the map, areas in the northwestern part of the state have the lowest inpatient costs and areas in the eastern part of the state have the highest inpatient costs.

## Medicare Outpatient Total Cost Per Capita

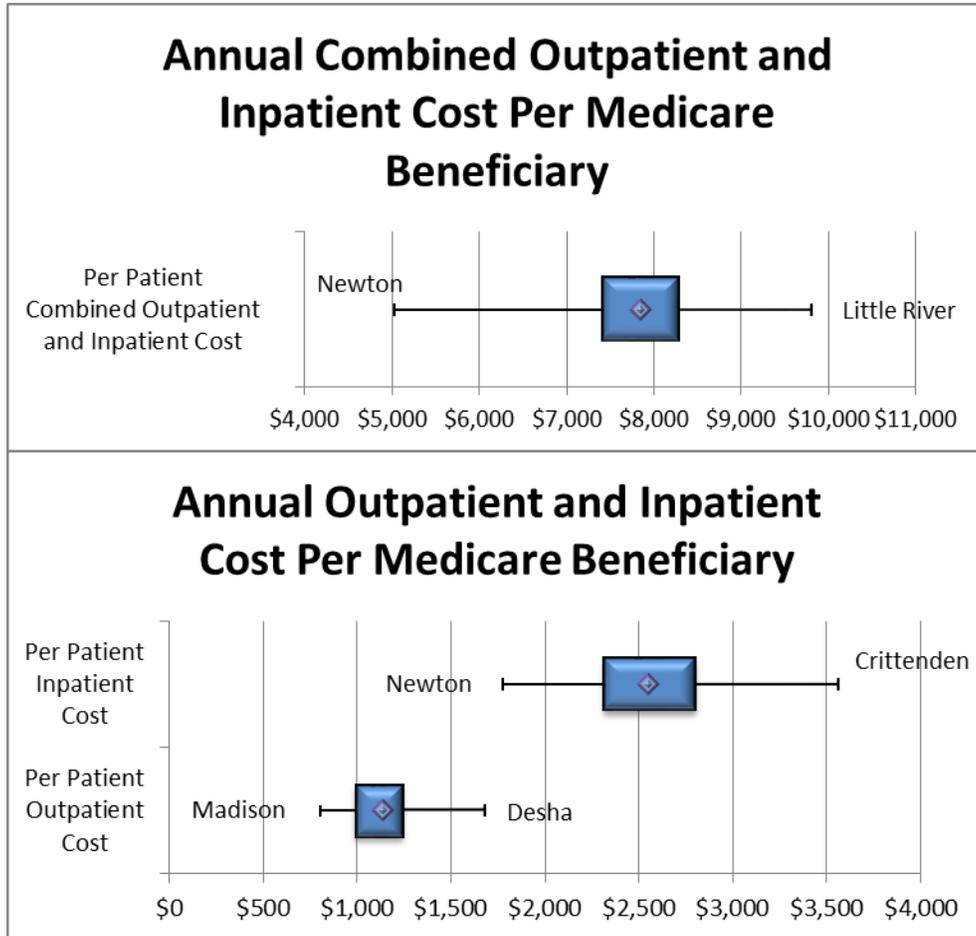


The range of average outpatient costs for an Arkansas Medicare beneficiary is illustrated by county. These costs include services such as doctor visits and outpatient imaging services. On average, the outpatient cost for an Arkansas Medicare beneficiary is \$1,100, which is lower than the national average of \$1,200. Counties shaded in the darkest color have average outpatient costs that are higher than the national average. As seen on the map, counties in the northeastern and southeastern areas of the state have the highest outpatient costs.

## COST DISTRIBUTION FIGURES

The two figures presented below offer a more concise presentation of the variability in county-level healthcare costs for the Arkansas Medicare population. This graphic displays a box-and-whisker plot for each of the selected cost categories. The blue boxes represent counties with healthcare costs between the 25<sup>th</sup> to the 75<sup>th</sup> percentiles (meaning that 50 percent of Arkansas counties have healthcare cost within this range). The light blue diamond shows the state average for each cost category. The black vertical lines at the ends of each figure represent the highest and lowest county in terms of healthcare costs. The counties with the highest and the lowest healthcare cost are displayed in the figures.

### Box Plots of Annual Cost per Beneficiary



## CONCLUSION

The variation in rates for a number of chronic conditions common in the Medicare population, as well as Medicare healthcare spending across counties in Arkansas, has been described in this report. While Arkansas ranks higher than the national average on many healthcare indicators, the maps show that there is considerable variation at the county level. Looking at disease rates and healthcare costs for the whole state may not provide an accurate representation for many Arkansas counties.

It is important to evaluate how healthcare conditions and spending in Arkansas counties compare to each other as well as to the nation as a whole for several reasons. First, comparing health care within the state to the whole country can allow Arkansas policymakers to recognize which conditions need the most attention. Second, policymakers can determine which areas of the state have the highest disease rates and spending so that resources can be allocated to improve health and health care in these regions. Third, information can be gathered from those regions with the best health outcomes and used to implement policies and practices that can improve the overall health of the state. Fourth, information about county-level data can provide a way for residents to become engaged in their health care and policy-decision processes.

The analyses performed for this report represent ways in which data from the Arkansas All-Payer Claims Database (APCD) can be used. APCDs provide a unique data source to help address the growing demand and need for transparency of healthcare information in Arkansas to promote high-value care and advance research. Consumers, employers, and policymakers are advocating for greater reporting on the prices of healthcare services as a way to encourage consumers to choose low-cost, high-quality providers and to promote competition based on value. The Arkansas APCD is a dynamic tool that will enable Arkansas to further its transparency objectives by collecting healthcare data from public and private sources and by empowering Arkansans with information to better understand how and where health care is being delivered and how much is being spent.<sup>4</sup>

As described in the report, data from the Arkansas APCD can be used for a deeper evaluation of health care in Arkansas. For example, rates of chronic health conditions and complications can be compared for Arkansas residents with different insurance coverage or of different ages. The rich data provided by the APCD will also allow researchers to evaluate specific aspects of health care, such as spending on different healthcare procedures or medications. This can allow a more detailed analysis of why certain health conditions differ across the state and what treatments and medications lead to the best health outcomes.

---

<sup>4</sup> Retrieved from <https://www.arkansasapcd.net/Home/>