ACHI
Arkansas Center for Health Improvement

# ISSUE BRIEF

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

## Drive-time Analyses for Primary and Specialty Care • April 2013

*Does Arkansas have enough primary and specialty care providers for our citizens in all parts of the state now? Do people have to drive more than 30 minutes to reach a primary care physician? Do people have to drive more than an hour when they have acute care needs?*

*Maldistribution of physicians is a major issue as both specialists and primary care physicians tend to be clustered around urban areas and indications are that many portions of the state lack capacity to absorb additional primary care demand. The vast majority of the state can access primary care within a reasonable amount of time, but access to a full complement of specialists is more problematic leaving large swaths of the state unable to access a full range of specialty care services in a timely manner. While there is a problem concerning access to a full range of specialty care services, access to acute care, defined as a city with at least one internist and one general surgeon is not as severe. Arkansas, for the most part, has adequate access to acute care services within a 1-hour drive-time.*

## INTRODUCTION

Drive-times are important when attempting to adequately explain access issues. Increased health care coverage as envisioned under the Patient Protection and Affordable Care Act (PPACA) is a crucial first step in removing financial access barriers to care. Removing financial barriers alone, however, does not guarantee access. Additional barriers to care may still remain, such as language, cultural, or geographic barriers.

The *Arkansas Health Care Workforce: A Guide for Policy Action* report was developed by ACHI with funding from the Blue and You Foundation for a Healthier Arkansas in response to questions about access to primary and specialty care across the state. As part of that report, ACHI assessed geographic access issues via drive-time analyses to further illuminate all access-to-care issues affecting Arkansans. Primary care supply relative to demand in the population is examined in a separate issue brief. This drive-time analysis summary should be considered in the overall context of the comprehensive report, which is available at www.achi.net along with other issue briefs highlighting portions of the complete report.

## PRIMARY CARE GEOGRAPHIC ACCESS

### Methods

Through a combination of different data sources of physician identification, including the Arkansas State Medical Board's licensure file and both public and private payer files, ACHI developed a master data file that is the best available descriptive roster of primary care and specialist physicians and identified the current supply in each county, as well as used Esri®—a geographic information system mapping software—to depict drive-time access. "Reasonable" access to primary care physicians was defined as a 30-minute one-way drive-time (60-minute round trip).


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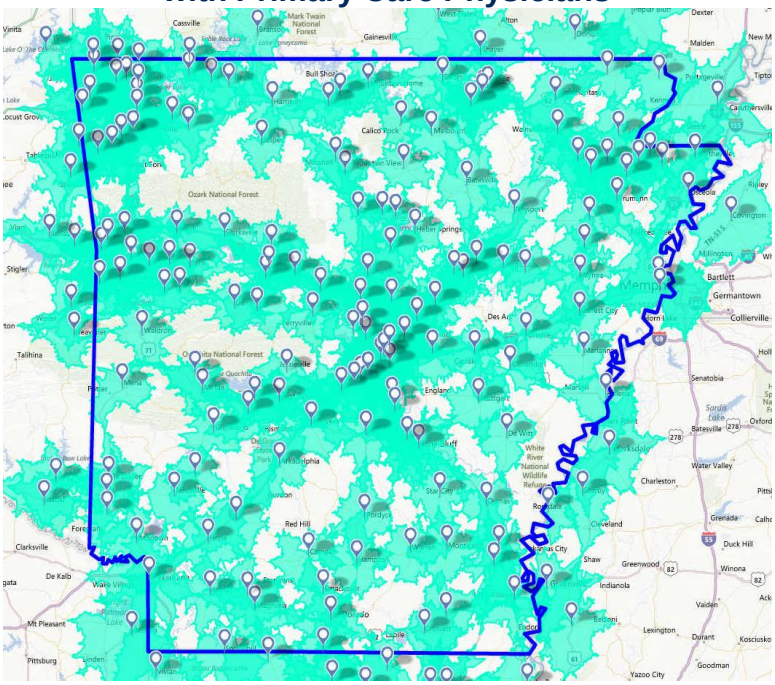
Capacity was analyzed by classifying the cities in which there is a primary care physician into one of four categories: critical shortage, stressed supply, adequate supply, and excess capacity. After restricting data to cities for which a primary care provider reported a location, the attributable city population was generated from each city's reported population plus a prorated proportion of the non-city population residing in the county. The number of primary care physicians in each city was determined from the master provider file. Ratios of population to primary care physician were then generated for each city with assignments of excess capacity (below 1,000 individuals/primary care physician), adequate supply (1,000–2,000 individuals/primary care physician), stressed supply (2,001–3,499 individuals/primary care physician), and critical shortage (3,500 or more individuals/primary care physician).

## Results

**Map A** represents cities with at least one primary care provider and the catchment area within a 30-minute drive-time. Large portions of Arkansas are within a 30-minute drive to a primary care physician. Areas lacking any access include the sparsely populated Northwest Ozark mountains, the Western Ouachita mountains, pockets in South-Central and Northeastern Arkansas, and portions of the Mississippi Delta geographically isolated by the Mississippi River barrier.

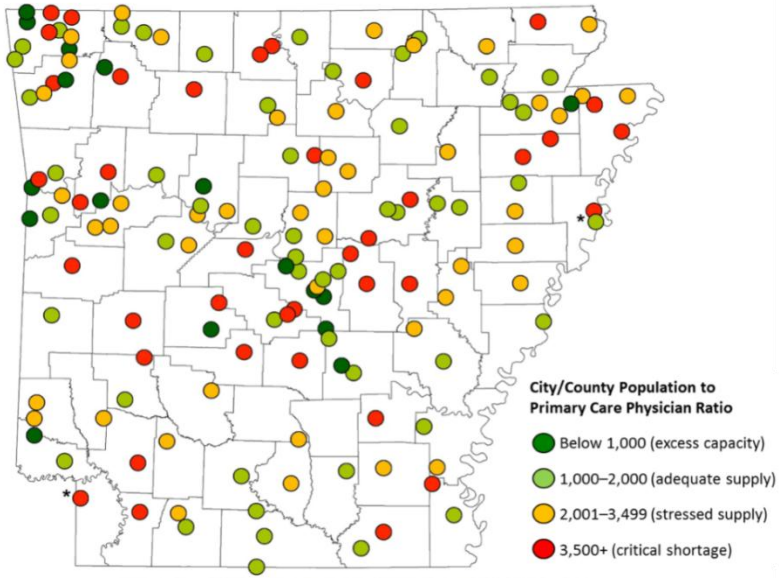
**Map B** reflects cities containing primary care physicians with an assigned color signifying a primary care supply of excess capacity (dark green), adequate (light green), stressed (yellow), or critically short (red).

### Map A: 30-Minute Drive-Times from Cities with Primary Care Physicians




Cities are noted by a point. The light green color indicates areas in which individuals may reach a primary care physician within a 30-minute drive time.

### Map B: City/County Population to Primary Care Physician Ratio



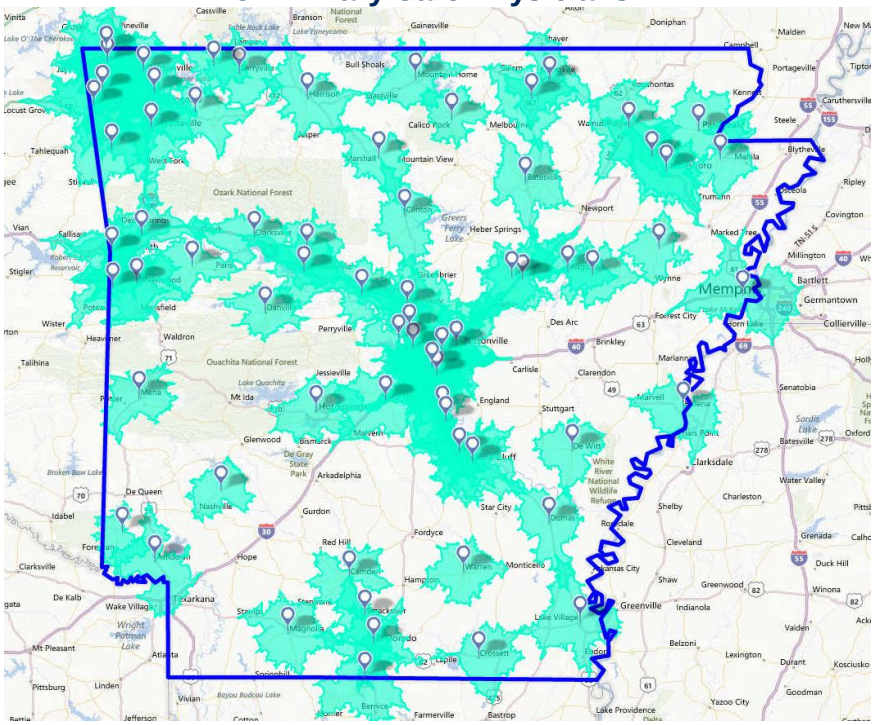

*This map shows only primary care physicians located in Arkansas. It is improbable that the two "red" cities marked with an asterisk are underserved because of the high likelihood that primary care physicians are available across the state's border.

This map reveals a number of counties—many concentrated in Central and Northwestern Arkansas—where the primary care physician supply is adequate or more than adequate. On the other hand, there are many counties—such as Lincoln, Newton, Calhoun, Jackson, and St. Francis—with a supply that is either stressed or inadequate for the populace being served .

**Map C** shows areas within a 30-minute drive-time of cities with adequate or more than adequate primary care physician supply. Many parts of the state lack capacity to absorb additional demand. Many of these areas are rural, not on major transportation routes, and not near metropolitan areas.

Clear areas of primary care availability shortages are evident, including not only the Ozark and Ouachita Mountains, but also large swaths of Southern and Eastern Arkansas. Major transportation routes and major cities are clearly delineated representing the concentration of physician supply and the challenges facing rural Arkansas.

**Map C: 30-Minute Drive-Times from Cities with an Adequate or More Than Adequate Supply of Primary Care Physicians***




Cities are noted by a point on the map. The light green color indicates areas in which there is an adequate or more than adequate supply of primary care physicians.

*Texarkana, Texas and Memphis, Tennessee are not depicted on this map as cities with an adequate supply of primary care physicians because, although a search determined that there are primary care physicians in those cities, we were unable to determine the total supply of primary care physicians, thereby limiting our ability to determine adequacy.

As shown in Maps B and C, the regions in Arkansas in which there are an adequate or excess supply of physicians are in Central Arkansas, Northwest Arkansas, Pine Bluff, Memphis, Texarkana, and Jonesboro. These regions also happen to lie along major transportation corridors which can be a boon for access. However, if one does not live in close proximity to these regions or corridors, there will be problems accessing care within a "reasonable" distance or of finding a physician willing to accept new patients.

## SPECIALTY CARE GEOGRAPHIC ACCESS

### Methods

"Reasonable" access to a specialist was defined as a 60-minute one-way drive-time (120-minute round trip). These maps serve to illustrate the areas in Arkansas where citizens do not have "reasonable" access to specialty care. Cities were determined to have a full complement of specialties in two ways: they have either met Level I or II Arkansas Department of Health Trauma System designations or ACHI determined through manual examination of the master provider file that Arkansas Department of Health Trauma System designations were met. A partial complement

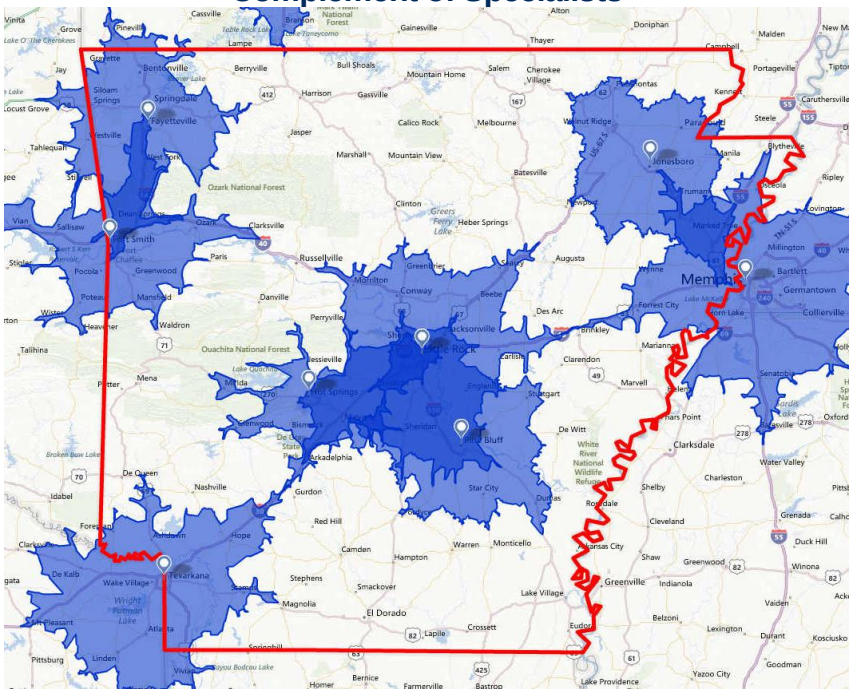
of specialties was defined as those cities having at least an internist and a general surgeon—for both chronic care management and acute care stabilization and treatment.

## Results

**Map D** reflects the concentration of specialty resources in major metropolitan areas. Access and availability of specialty care requires substantial travel for many Arkansans. Northwest Arkansas, Fort Smith, Texarkana, Memphis, and Jonesboro each serve as major specialty assets for their regions. In Central Arkansas, Pine Bluff, Hot Springs, and the greater Little Rock area offer reinforcing capacity. However, large portions of the state require transit of the patient and/or outreach from the specialist to achieve accessible and available services. The opportunities to use telemedicine and new technologies offer a mitigating strategy to this concentration of resources.

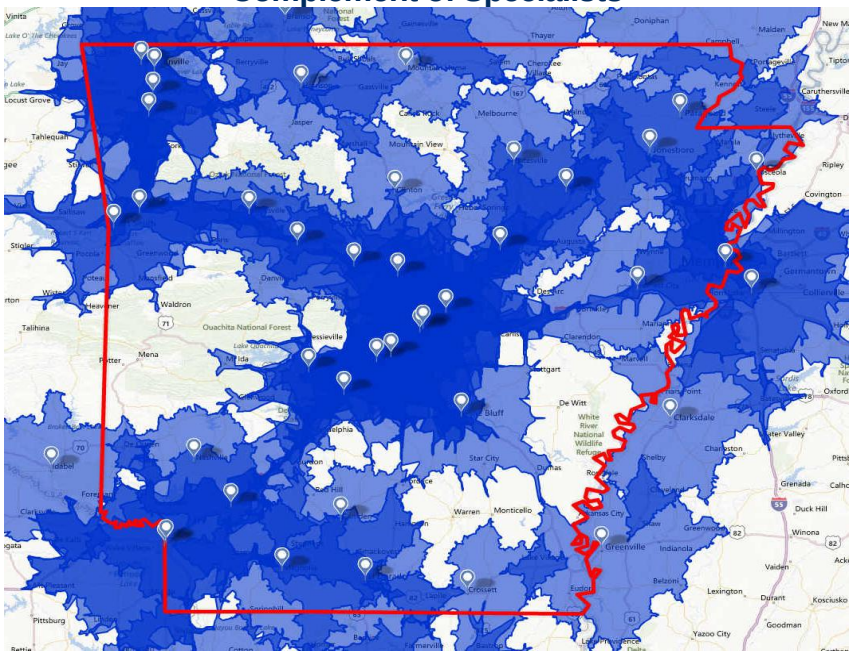
Many cities (**Map E**) have a partial complement of specialists—at least an internist and general surgeon—for both chronic care management and acute care stabilization and treatment. However, rural areas without cities and/or not on major transit corridors are relatively isolated.

### Map D: 60-Minute Drive-Times from Cities with a Full Complement of Specialists




Cities in which there is a full complement of specialists are noted by a point on the map. The blue color indicates areas in which individuals may reach a full complement of specialists within a 60-minute drive-time.

### Map E: 60-Minute Drive-Times from Cities with a Partial Complement of Specialists




Cities in which there is a partial complement of specialists are noted by a point on the map. The blue color indicates areas in which individuals may reach a partial complement of specialists within a 60-minute drive-time.

## CONCLUSION

The vast majority of Arkansans are within a reasonable drive-time to a primary care physician. However, many parts of the state lack capacity to absorb additional demand for primary care services that will follow from an extension of health care insurance to 250,000 low-income Arkansans through Act 1498 of 2013, which created the Arkansas Health Care Independence Program. Even after removing financial access barriers, primary care workforce maldistribution will continue to be an issue, necessitating innovative approaches to patient-centered medical homes, financing to build capacity, enhanced availability and use of health information technology to extend the reach of clinicians, and increased utilization of existing local assets such as county health units and pharmacists.

Access to a full complement of specialist physicians is scant if an individual does not live in relative proximity to an urban area or a transportation corridor immediately adjacent to these urban areas. On the other hand, access to chronic care management and acute care stabilization and treatment through a partial complement of specialists is available for large portions of the state. Currently, transportation efforts for both patients to the specialist (e.g., CareLink) and specialist (e.g, cardiologists) to underserved communities are underway. Efforts to support local health care professional personnel with technology-facilitated solutions (e.g, telemedicine) to increase availability and accessibility of specialist providers are clearly warranted.