Primary Care Physicians: 
*Rural and Urban Disparities in Missouri*
OVERVIEW

Primary care is the frontline of health care delivery. A primary care system with the capacity to ensure that individuals receive the care they need, manage chronic conditions and live healthy lives is essential to individual and community health.

Missouri’s primary care system is at a crossroads. The nexus of an aging primary care workforce, an aging population with increased health care needs and extended health insurance coverage through the Affordable Care Act have placed demands on the system that have stretched it past its capacity. Moreover, these factors and others portent a primary care shortage that will increase through time.

A recent Health Affairs article suggests the primary care physician shortage will increase to 40,000 with a deficit of 52,000 primary care physicians by 2025.1

There have been ebbs and flows in the primary care workforce in the past. A 2007 commentary in HealthLeaders described a number of the conditions that were projected to lead to workforce shortages at the end of the last decade.

“One out of three practicing physicians in the United States is over the age of 55, and many of them are expected to retire in the next 10 or 15 years. Meanwhile, U.S. medical schools have not provided for the loss of 33 percent of the nation's physician work force. A number of studies have estimated that by 2020 the United States will be short anywhere from 24,000 to 200,000 physicians. Additionally, some anecdotal evidence suggests that younger physicians are not willing to put their lives on hold and work 80-hour weeks that include weekends, nights and emergency department on-call duty like their...

KEY POINTS

- With nearly 209,000 primary care physicians in 2010, the United States will require nearly 52,000 additional primary care physicians by 2025 — approximately 33,000 to meet population growth, 10,000 to meet population aging and 8,000 to meet insurance expansion.13
- The Association of American Medical Colleges projects that the U.S. needs to train an additional 4,000 doctors a year to avoid a shortage. Although medical school enrollment continues to grow, the number of available residency slots remains an issue. To deal with the rising demand for physicians, the AAMC called for a 30 percent increase in the number of medical school slots to meet shortages forecast by 2020.19
- The United States is relying more heavily on foreign medical school graduates. The AAMC’s call for 30 percent growth in the number of medical school graduates factors in an annual influx of 5,000 to 6,000 students from foreign medical schools.2
- In terms of socioeconomics, rural Missourians are at a significant disadvantage compared to their urban counterparts when considering income and education. Missouri’s rural poverty rate at 18 percent is 24.1 percent higher than its urban poverty rate at 14.5 percent.
- According to the Missouri Foundation for Health, 80 percent of Missouri is in a health professional shortage area, leaving one in five Missourians without access to primary care.
- Rural Missourians are older than urban Missourians. An average of 18.6 percent of the rural population is over age 65 while only 14.4 percent of the urban population is over age 65.20
- Although the number of licensed and practicing physicians in Missouri has increased slightly, the state has lost physicians in rural Missouri since 2011.
- Physicians are important economic contributors in rural communities. In Missouri, 56 percent of all rural physicians are employed by hospitals.23
- Among practicing physicians in Missouri, 40 percent are older than 55, and about one-third of the nursing workforce is older than 50. Physicians in rural Missouri are older than their urban counterparts by at least two years.10
- Missouri comprises 1.9 percent of the country’s population and produces 2.7 percent of the nation’s medical school graduates. Missouri ranks second in the nation for exporting the doctors it trains to other states.5
- Nearly all of the growth in the number of doctors per capita during the last several decades has been caused by a rise in the number of specialists. Between 1965 and 1992, the primary care physician-to-population ratio grew by only 14 percent while the specialist-to-population ratio exploded by 120 percent.21
- Only 16 states and the District of Columbia allow nurse practitioners to practice completely independent of a physician and use the full extent of their training, including the right to prescribe medication.22

elders — which means it may take two younger physicians to cover the work of one retiring physician.\(^2\)

These estimates of the situation were outlined before the adoption of the ACA and reflect a workforce and population that have since advanced in age.

The U.S. Census Bureau estimates that the nation’s population age 62 and older will increase from 46 million to 83 million by 2030. Of that population, 14 million will have diabetes, and 21 million will be obese. By 2020, the American Hospital Association estimates that baby boomers will account for four of 10 office visits to physicians.\(^2\)

Missouri’s health ranking has fallen 75 percent nationally since 1990 — from 24th to 39th overall.\(^3\)

Although the primary goal in addressing the physician shortage is to increase the number of physicians, where a physician practices is important to access to care and efforts to improve health status. Increasing the number of primary care clinicians is important; so is the location of the clinician’s practice. The distribution of physicians can result in large primary care “deserts” in areas of rural Missouri and underserved areas of urban Missouri. In many parts of Missouri, the primary care provider shortage limits access to primary care for low-income, uninsured and rural residents. An increased demand for care, a primary care practitioner shortage, an aging workforce and worsening health status are creating serious challenges for the state’s health care system.

Our health care system is at a crossroads. We must ensure that the health care system is able to meet the demands caused by an aging workforce, an aging population and full ACA implementation. We must address the issues at the core of the physician shortage debate. This may include strategies to incentivize primary care physicians while addressing the financial inequities seen between primary care and specialty care; identifying the infrastructure changes that will be needed to address a changing health care delivery system; and establishing the best model to efficiently deliver primary care statewide while supporting policies that help recruit and retain the providers needed to deliver care.

**Rural Missouri and Its Residents**

Of the more than 6 million Missouri residents, 2.23 million, or 37 percent, live in rural areas.\(^4\) Since 2002, rural areas overall have experienced a 6.2 percent population increase. However, population growth is not evenly distributed throughout rural Missouri.

Since 2002, 10 rural counties in northern Missouri had population losses of greater than 5 percent while four rural counties adjacent to urban counties experienced population increases of 20 percent. Between 2002 and 2012, 33 percent of Missouri’s rural counties experienced population loss. Three counties (Atchison, Carroll and Worth) experienced at least a 10 percent population decline. Ten of the 11 counties with a population loss of 5 percent or greater are located north of the Missouri River. In contrast, the greatest population increases occurred in counties adjacent to urban areas (Christian, Lincoln, Taney and Warren). This reflects the growth of suburban communities.

**Demographic and Socioeconomic Indicators**

Rural Missourians are at a significant income and education disadvantage compared to their urban counterparts. Missouri’s 18 percent rural poverty rate is 24.1 percent higher than its urban poverty rate of 14.5 percent. Poverty rates for youth in rural Missouri are 26.3 percent, while the rate for urban youth is 19.9 percent. Staggeringly, eight counties — all rural — have youth poverty rates higher than 40 percent. U.S. Census Bureau data indicate that rural Missourians also are approximately half as likely to hold a college degree as urban Missourians — 15.8 percent for rural versus 31.2 percent for urban.\(^4\)

According to the Missouri Foundation for Health, 80 percent of Missouri is in a Health Professional Shortage Area, leaving one in five Missourians with limited access to primary care.\(^5\) HPSAs are designated by the Health Resources and Services Administration as having shortages of primary medical care, dental or mental health providers and may be geographic (a county or service area), demographic (low-income population) or institutional (comprehensive health center, federally-qualified health center or other public facility). Medically underserved areas/populations are areas or populations designated by HRSA as having too
few primary care providers, high infant mortality, high poverty and/or a high elderly population. As shown in the map at right from the U.S. Department of Health and Human Services, when categories of medical primary care HPSAs are applied to Missouri, only six counties are not an HPSA. Of Missouri’s 114 counties and the City of St. Louis, 101 are considered primary dental HPSAs and 111 are primary care mental health HPSAs. Primary medical HPSAs are defined using a ratio between the general population and the number of full-time equivalents of licensed primary care physicians. Demographically, rural Missouri has an older population than urban Missouri. In 2010, 14 percent of Missourians — 826,561 individuals — were age 65 and older. In 2012, 885,604, or 14.7 percent of Missourians were age 65 and older. An average of 18.6 percent of the rural population is over age 65, while only 14.4 percent of the urban population is over age 65. Missouri’s aging population will continue to grow, as shown in the following estimates.

- 935,979 (15.6 percent) by 2015
- 1,079,491 (18 percent) by 2020
- 1,414,266 (23.6 percent) by 2030

As Missourians continue to live longer, chronic diseases will increase and the need to access health services and primary care physicians will increase substantially.

HPSA — Primary care HPSAs are based on a physician to population ratio of 1:3,500. In other words, when there are 3,500 or more people per primary care physician, an area is eligible to be designated as a primary care HPSA. Applying this formula, it would take approximately 8,000 additional primary care physicians to eliminate the current primary care HPSA designations nationwide.

Primary Care HPSAs In Missouri


HEALTH STATUS AND ACCESS TO HEALTH CARE IN RURAL MISSOURI

Missouri’s rural residents tend to be older and have higher rates of chronic diseases than their urban counterparts. Poor health means higher health care costs, which punctuates the importance of having medical services close to home to avoid the additional costs of travel to receive services. Rural Missourians’ health status shows a higher level of risk factors, which lead to chronic health conditions.

Compared to urban residents, rural residents report the following.

- higher rates of smoking (24.6 percent versus 21.6 percent)\(^4\)
- increased rates of obesity (32.3 percent versus 28.9 percent)\(^4\)
- higher rates of diagnosed high blood pressure and high cholesterol (37.4 percent versus 32.6 percent and 46.9 percent versus 43.5 percent)\(^4\)
Primary care plays a large role in the management of chronic diseases. Developing a larger primary care workforce improves access and quality of health care, emphasizing a focus on prevention, population health and community health to reduce health care costs. In 2012, Missouri was ranked 11th worst among all states in 12 out of 42 measures documented by the United Health Foundation’s American Health Rankings. To realize lower health care costs, Missouri must improve the overall health of the population. This requires primary care access for all residents.

With lower incomes, an older population and more limited access to local health care services, rural residents experience less consistent care. Of the licensed hospitals in Missouri, only 41 percent (76 total) are located in rural counties, leaving 41 rural counties without a hospital. Of the 76 rural hospitals, 35 are critical access hospitals with 25 or fewer beds. As a result, rural Missourians often are required to travel farther than urban residents to obtain specialty services.

MHA reported on the physician workforce in its 2011 publication “Primary Care Physicians: The Status in Rural Missouri.” Since then, the number of licensed and practicing physicians in Missouri has increased only slightly, but has declined in rural Missouri. And, the average age of Missouri’s primary care physicians has increased. The information at right compares data from the Missouri Department of Health and Senior Services and the Missouri Division of Professional Registration Board of Registration for the Healing Arts in 2011 and 2014.

### RURAL PRIMARY CARE PHYSICIAN CHARACTERISTICS

Another complicating issue is physicians in rural Missouri are older than their urban counterparts by at least two years. In the two years since the publication of the first MHA report, the situation has deteriorated. Of the 14,848 licensed and practicing physicians in Missouri, only 1,402 practice in rural Missouri. The average age of all physicians in rural Missouri increased from 53 in 2011 to 56 in 2013 while the average age of primary care physicians in rural Missouri increased from 49 to 52.

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### A SNAPSHOT OF MISSOURI’S LICENSED PRIMARY CARE PHYSICIANS

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<tbody>
<tr>
<td>Number of ALL licensed physicians</td>
<td>1,646</td>
<td>12,379</td>
<td>1,402</td>
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<tr>
<td>Number of licensed primary care physicians in Missouri (PCP)</td>
<td>859</td>
<td>4,639</td>
<td>789</td>
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<tr>
<td>Percent of physicians who are primary care (PCP)</td>
<td>52%</td>
<td>37%</td>
<td>56%</td>
<td>38%</td>
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<tr>
<td>Average age of ALL physicians</td>
<td>53 years</td>
<td>51 years</td>
<td>56.4 years</td>
<td>54.5 years</td>
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<tr>
<td>Percent of ALL physicians age 50 and older</td>
<td>62%</td>
<td>53%</td>
<td>68%</td>
<td>61%</td>
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### MISSOURI TOTAL

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<tr>
<th></th>
<th>2011</th>
<th>2014</th>
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<tr>
<td>Average age of primary care physicians (PCP)</td>
<td>49 years</td>
<td>52 years</td>
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<tr>
<td>Number of primary care physicians (PCP) age 50 and older</td>
<td>2,617</td>
<td>2,962</td>
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<tr>
<td>Percent of primary care physicians (PCP) age 50 and older</td>
<td>48%</td>
<td>58%</td>
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<tr>
<td>Number of primary care physicians (PCP) age 40 and younger</td>
<td>1,402</td>
<td>886</td>
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<tr>
<td>Percent of primary care physicians (PCP) age 40 and younger</td>
<td>26%</td>
<td>18%</td>
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Source: Missouri Department of Health and Senior Services, physician demographic data set Missouri Division of Professional Registration, healing arts licensee listing.
Missouri Economy at a Glance

Contributions to the gross state product from the health care sector have steadily increased since 1997, from 3.12 percent to 8.99 percent in 2012. Hospitals, along with nursing and residential care, comprise 4.35 percent of that figure in 2012. In many communities, the hospital is the largest employer. In metropolitan areas, hospitals and health systems lead and fill the top 10 list of employers. Although this is good for hospital employees, the benefit does not end there.

Hospital jobs support and create additional jobs as payroll is converted into economic activity and household spending. The state’s 126,010 full-time equivalent hospital jobs support the employment of another 140,000 Missourians. Depending on where you live in Missouri, hospitals’ economic activity creates between one and two jobs for every hospital employee. Missouri’s economic stability has become reliant on the strength of its health care workforce.

Factors Contributing to the Primary Care Physician Shortages

The Institute of Medicine’s Committee on the Future of Primary Care defined primary care as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients and practicing in the context of family and community.”
What exactly is primary care? Primary care promotes effective communication with patients and encourages the role of patients as partners in their health care. This includes health promotion, disease prevention, health maintenance, counseling, patient education, diagnosis and treatment of acute and chronic illnesses in various health care settings. Primary care is usually performed and managed by family practice and internal medicine physicians, pediatricians, physician assistants and nurse practitioners who often collaborate with other health professionals and use referrals, as appropriate. For purposes of this report, primary care physicians are identified as those practicing in family medicine, internal medicine and pediatrics.

With nearly 209,000 primary care physicians in 2010, the U.S. will require almost 52,000 additional primary care physicians by 2025 — approximately 33,000 to meet population growth, 10,000 to support an aging population and 8,000 to meet insurance expansion.

The Association of American Medical Colleges projects that the U.S. needs to train an additional 4,000 doctors each year to avoid a shortage. Although medical school enrollment continues to grow, the number of available residency slots constricts the pipeline. To deal with the rising demand for physicians, the AAMC called for a 30 percent increase in the number of medical school slots to meet shortages forecast by 2020.

Also contributing to an inadequate supply is the fact that not enough medical students intend to become primary care physicians. Primary care physicians are at the bottom of the physician income chart. Radiologists and orthopedic surgeons at the upper end of the scale may earn three times the income of a primary care physician.

Program funding, incentives and infrastructure changes provide opportunities to ensure that clinicians are attracted to primary care. In addition, faculty must be available to educate health care professionals. Finally, improvements can be made in the care delivery model and the health care delivery system must be efficient and effective.

To lessen the impact of some of these forces and to encourage more health professionals to choose primary care, the ACA provides financial incentives for providers to practice in primary care specialties. These include higher Medicare and Medicaid reimbursement rates (although Medicaid rates increased for only 2013 and 2014) to primary care providers and general surgeons, along with additional bonus payments for practicing in shortage areas. Other provisions pertain to education; these incentives come in the form of loan repayments. Despite the change in the attractiveness of a primary care career, it may take decades to produce enough primary care physicians to fill the gap. Even if there were sufficient primary care physicians to meet the need, diversity is still an issue that must be addressed as minority physicians are still underrepresented.

**2013 MISSOURI EMPLOYED PHYSICIANS**

<table>
<thead>
<tr>
<th>Employed by a rural hospital*</th>
<th>752</th>
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<tr>
<td>Employed by an urban hospital**</td>
<td>2,338</td>
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Source: MHA Physician Survey, 2013

*80 urban hospitals reported

**61 rural hospitals reported

MOVING FORWARD: OTHER OPTIONS FOR CLOSING THE GAPS IN ACCESS TO CARE

Health care reform is providing the opportunity to examine how health care is delivered and to make changes that will address the primary care shortage. The first step in addressing the workforce shortage may be the reallocation of clinical responsibilities or changes in scope of practice regulations. Changing the delivery system may be the solution to the primary care physician issue because changes in the reallocation of clinical responsibilities could greatly increase physicians’ capacity to meet patient demand. Reallocating these resources could significantly increase primary care practices’ ability to meet patient needs in preventive, chronic and acute care. One-fifth of primary care visits involve preventive care, most of which consist of cancer screening, counseling and immunizations.

Today, numerous primary care practices have delegated many of these services to non-diagnosing health professionals such as health educators, pharmacists and medical assistants.

New delivery models may offer hope in the face of the primary care shortage. Nonphysician clinicians, including nurse practitioners and physician assistants, are playing a much larger role in the delivery of health care. The supply
of primary care nurse practitioners is projected to increase by 30 percent, from 55,400 in 2010 to 72,100 in 2020. The supply of primary care physician assistants is projected to increase by 58 percent during the same period, from 27,700 to 43,900. In Missouri, there were 6,677 advanced practice nurses in 2012, an increase of 55 percent since 2010. Increasing the use of nurse practitioners and physician assistants could alleviate the primary care shortage. As previously noted, most medical students do not choose primary care as their specialty. However, the majority of nurse practitioners are trained in primary care. Nurse practitioners will be an important resource for future primary care needs. Researchers estimate that 60 percent of preventive care services can be performed by non-diagnosing health professionals. Based on this estimate, 10 percent of clinicians’ time could be saved, which could translate into a 10 percent increase in primary care capacity.

Today, other options are being considered when looking to solve the primary care shortage. Some states have turned to community health workers to address primary care access issues. Community health workers are frontline public health workers with an intimate understanding of the communities they serve. The role of the community health worker started as a link between health and social services and the community. The role has evolved into a position responsible for providing health information, resources and health care services to those in need. These workers could assist in eliminating the persistent disparities in health care and health outcomes in underserved or rural communities.
Missouri could benefit from the use of community health workers to improve access to health care services. Residents in communities that provide community health workers could gain access to information about health care in their communities.

In 2013, the Missouri General Assembly passed community paramedic legislation to close the access to care gap in rural communities by expanding the role of emergency medical services personnel. The program allows first responders to serve communities more broadly in the area of primary care. Community paramedics provide patients in rural communities with access to care not otherwise available. Moreover, the community paramedic system is defined by and adapts to local needs. The Missouri General Assembly also continues to consider legislation that will close the access to care gap in rural and underserved communities. This year, the legislature appropriated $1.25 million from general revenue to fund community paramedic pilot programs in St. Louis, Greene and Crawford counties. Also in 2014, the legislature passed the “Show-Me Extension for Community Healthcare Outcomes (ECHO) Program” and assistant physician legislation. The ECHO program will use telehealth technology to expand the capacity to treat chronic, common and complex diseases in rural and underserved areas of the state. The technology is used to distribute information from a team of multidisciplinary medical experts to local primary care providers who deliver the treatment. This program reduces the need for patients to travel to see specialists and allows patients to receive treatment in a timelier manner.

The assistant physician collaborative practice arrangement allows some medical school graduates to obtain a temporary assistant physician license to enter into “assistant physician collaborative practice arrangements” with a physician. Through the arrangement, an assistant physician is authorized to provide primary care services in medically underserved rural or urban areas of Missouri or in any pilot project areas.

**CONCLUSION**

Although the purpose of the ACA is to improve access to appropriate care for all populations, the physician shortage could impede its success. All options that provide increased access to care must be considered to assist all Missourians and to ensure the future of the state’s economic stability.

The ACA will significantly affect the need for primary care providers, including physicians, physician assistants and nurse practitioners. It is clear that the implementation of the law and the effects of an older population have contributed to the current and projected expansion of the primary care shortage. These shortages are one of the most pressing issues facing the health care system. Although the ACA did not create the situation, combined with other changes in the health care system, it will intensify the shortages and does not adequately offer policy options to address them.

Primary care must be the foundation of efforts to expand access to care. To make this happen, we must invest in the development of the primary care workforce. Producing a high performing health care system that improves access to care, reduces disparities and is cost effective depends on access to primary care.

At the federal and state level, we must begin to develop policies that will improve primary care, including review of APRN scope of practice limits, medical school incentives, Medicare reimbursement, the number of residency slots and adoption of technology changes. It has never been more urgent for Missouri to show a commitment to the primary care shortage. The future economic stability and health status of Missourians depends on it.

**OPPORTUNITIES FOR INNOVATION**

Several programs have been implemented throughout the country to help recruit and retain physicians desiring to work in rural and underserved communities. The MHA Center for Education has contributed more than $10 million to PRIMO – the Primary Care Resource Initiative for Missouri. The PRIMO program was designed to increase the number of primary care professionals within the state. The PRIMO Student Loan Program is a competitive state program that awards forgivable loans for primary care physicians. To earn loan forgiveness, participants are required to work in one of Missouri’s rural or underserved areas.

Studies have shown that medical students who come from rural areas are more likely to practice
there. Some states have designed programs to increase the number of medical students in rural areas. The University of Missouri - Columbia developed its Rural Track Pipeline Program to support rural medical training for undergraduate and medical student education. The goal of the program is to produce practicing physicians for rural and underserved areas of Missouri. The rural track program is a highly sought-after experience for students that has enhanced the collaboration between the school and rural communities, area health education centers and local health care providers. In addition to offering unique learning experiences, it is designed to help address the state’s physician workforce needs in rural areas.17

Each year, the National Health Services Corps’ scholarship program awards scholarships to students pursuing careers in primary care. The Texas Department of Agriculture helps rural communities “grow their own” health care professionals by providing loan repayment for professionals who return to their rural communities to practice. Several states offer loan repayment programs to professionals who practice in medically underserved areas.

Another notable model for helping students from rural areas is the Physician Shortage Area Program in Pennsylvania. The PSAP is an admissions and educational program designed to increase the supply and retention of physicians in rural areas and small towns. The program is designed to recruit and educate medical students who grew up in rural areas or small towns and who intend to practice in rural communities — with a priority placed on those medical students planning to practice in family medicine. According to The New England Journal of Medicine and The Journal of the American Medical Association, outcomes of the PSAP have shown that its graduates are eight times more likely than their peers to become rural family physicians.18

California is experimenting with expanding the scope of practice of pharmacists to address its shortage of primary care providers. The new law establishes an advanced practice pharmacist license that enables pharmacists to perform patient assessments, write orders, analyze drug therapy tests and participate in the evaluation and management of diseases and health conditions in collaboration with other health care providers. The program will allow pharmacists to be a part of the team providing health care services.

The health reform law has funded a primary care residency expansion program with $167 million for training 889 doctors, as well as $28 million in National Health Service Corps’ scholarships for students pursuing primary care careers.19

Physicians and medical students nationwide are urging Congress to retain Medicare funding for graduate medical education programs and to lift the cap on the number of available residency slots. Resolution of these issues is essential to the goal of reducing and eliminating the primary care shortage.

SUGGESTED CITATION

REFERENCES


Primary Care Physicians: Rural and Urban Disparities in Missouri


