# Addressing Rural Health Challenges Head On

*by Marci Nielsen, PhD, Darrin D'Agostino, DO & Paula Gregory, DO*


## Abstract

**Providing health care to patients and families living in rural America presents significant challenges, but comes with unique rewards. The physician who chooses a rural life typically cares for an underserved and aging population, which is often less healthy and affluent than its urban and suburban counterparts. At the same time, rural clinicians feel deeply connected to their patients and their communities. Physicians cite strong doctor-patient relationships as a primary motivator to practice in a rural setting, in addition to lower cost of living and slower pace of life[1]. Those who choose primary care specialties also enjoy the challenge of caring for multiple, interrelated aspects of health for their patients and community.**

**During Kansas City University of Medicine and Biosciences' (KCU) century-long history, we have offered our osteopathic medical students the opportunity to learn in rural areas during the third and fourth years. As our new, state-of-the-art medical school campus opens in Joplin, Missouri, we will build on our commitment to rural health by offering first- and second-year KCU-Joplin students training opportunities in rural settings, and expanding third- and fourth-year rural clinical rotations. The rich experience to learn rural medicine offers the potential to connect medical students, patients and community in new and exciting ways, building on the firm foundation of osteopathic medical training grounded in strong patient-centered primary care.**


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## Challenges of Rural Health

### *Health Professions Workforce Shortage*

About 20 percent of Americans live in rural areas, but barely one-tenth of physicians practice there[2]. The federal government projects a shortage of over 20,000 primary care physicians in rural areas by 2025.[3] Primary care physicians in rural areas often do not have the support of sub-specialists, hospitalists, or emergency physicians, and thus treat a wider range of conditions with limited access to sophisticated technology. Most are required to admit and take care of patients in community-based hospitals, many of which are gravitating toward an emergency room and short-stay models of care[4], moving more complex patients to larger medical centers. This reduces clerkship training sites at small hospitals and can impact medical students' specialty choices in the future.

### *Limits of Rural Health Training Opportunities*

Physicians are more likely to locate in the area where they train. Most U.S. medical schools and residencies are located in urban and suburban areas, resulting in fewer physicians choosing to locate in rural settings. Indeed, 99 percent of residencies are located in urban or suburban areas[5], and thus even those interested in rural practice may feel inadequately prepared for the challenges of working in rural communities. For middle- and high-school students interested in science, a dearth of rural physician role models limits exposure to medicine as a career choice. Moreover, students in rural settings may have fewer opportunities to receive the prerequisite math and science courses in undergraduate education curriculums that prepare them for medical school[6].

### *Population Health Challenges Among Rural Communities*

In addition to the challenges of recruiting students to train in rural settings, rural physicians treat patients that tend to be older, sicker, and less well insured. Populations in rural communities are increasingly elderly; the average age for hospital admissions in rural

settings is over 65, and these older patients comprise one-half of all admissions. In contrast, older patients in urban settings account for just 37 percent of hospital admissions[2]. Many patients in rural communities also suffer from multiple chronic diseases and acutely feel the various social determinants of health that impact their well-being — from social isolation; to lack of access to affordable, nutritious food; to the impact of rural poverty. A recent large national study found that although those living in rural areas had a lower incidence of cancer than those living in urban areas, they suffered from higher rates of death. Researchers suggested that differences in cancer death rates might reflect disparities in access to health care and timely diagnosis and treatment, as well as behaviors related to tobacco use and obesity[7].

### *Delaying Care*

Rural patients must often travel farther for their care and are reluctant to take time off from work. As a result, rural patients often delay seeking care, which can lead to a more complex illness and a sicker patient. For those in the self-employed farming community, who may live hours away from needed health care services, the challenges of caring for livestock and crops must be factored in, creating stresses unique to rural populations.

### *Missouri Demographics*

Although flanked by large cities on opposite sides of the state, Missouri has 25 percent of its population living in rural areas[8]. Those living in rural Missouri earn less than those in urban areas ($33,078 vs $42,300[9]) and have higher rates of poverty (18.7 percent vs 13.5 percent). In addition, rural Missourians are more apt to drop out of high school (16.4 percent vs 9.9 percent) and have higher unemployment rates (5.5 percent vs 4.3 percent)[10]. The relationship between socioeconomic factors and health are well established, with those at the lower end of the income scale suffering worse health outcomes[11]. Accordingly, in terms of health status rankings by state, Missouri ranks 35th for women and children's health, 36th for general population health and 40th for senior health[12].

## Role of Medical School and Graduate Medical Education in Addressing Physician Shortage

Kansas City University is one of six medical schools operating in Missouri. We are the number-one producer of primary care physicians for the state, with nearly 60 percent of our alumni practicing in a primary care specialty in Missouri, and 43 percent practicing in rural or underserved areas[13]. Our role is to train medical students during their first four years of medical education or undergraduate medical education (UME).

While UME and a number of factors impact the overall supply and distribution of physicians in each state, graduate medical education (GME) -- commonly known as residency training -- is also a significant determinant. Most GME is publicly funded through the Medicare program, which does not currently direct the $15 billion spent on GME to those areas of the country where health professions shortages exist. Instead, GME residency "slots" are determined by a federal formula that has been capped since 1997[14]. Although the number of students in U.S. medical schools (UME) has grown steadily to try to keep up with physician workforce demands, the number of GME residency slots has generally not been keeping pace. The majority of residency slots are currently found in the northeast United States (69 percent), are slotted for non-primary care (or specialist) training (86 percent), and are located in urban areas (99 percent).[15]

## Leadership of KCU and Joplin Community

The health workforce shortages facing rural communities will require attention from business, government, philanthropy, universities, community colleges, and local community leaders, who must work together to recruit health professionals to care for their communities. Although the needs of caring for rural populations can be daunting, many physicians find the rewards of caring for underserved rural communities as a meaningful professional calling. Building on a history of more than 100 years of training osteopathic medical students to improve the well-being of the communities we serve, KCU has partnered with entrepreneurial leaders from across the Joplin region to open its new campus in Joplin, Missouri – our second campus in more than a century.

With a class size of 150 students, the unique partnership between KCU and Joplin leaders (highlighted elsewhere[16]) seeks to expand the rural physician workforce for the entire Midwest region. In addition to increasing the number of medical students trained, KCU-Joplin will feature cutting-edge technology

in the classroom. In light of its particular focus on primary care and rural health, the curriculum at KCU-Joplin will expose medical students to rural clinical settings earlier in their training (during their first and second years) and expand the number of rural clinical rotations in years three and four. The curriculum will also utilize innovative models of care including: telemedicine; distance learning; a team-based integrated approach to patient-centered primary care; and the creation of new clinical partnerships across the region to expand graduate medical education opportunities for our students.

## Encouraging Rural Students

Encouraging medical students to practice in rural Missouri can be enhanced by recruiting and admitting qualified and motivated students from rural areas, and training them in rural settings across the state. One study found that students from a rural background were 10 times more likely to prefer to work in rural areas when compared with students from non-rural areas[17]. Of the 121 hospitals across the state of Missouri, 36 are considered to be rural (otherwise known as Critical Access Hospitals). Providing primary care services to Missouri communities are 367 Rural Health Clinics and 29 Federally Qualified Health Centers at 215 sites across the state[18]. Nearly a third of the first cohort of KCU-Joplin medical students grew up in the surrounding area and have expressed plans to remain in the region in order to help address inadequate access to high-quality primary care in the four-state rural region.

## Training with New Technology

KCU will use state-of-the-art technologies to teach students, connect the curriculums on the Kansas City and Joplin campuses, and enhance the use of patient-centered telehealth services. New technology that reinforces clinical skills is on the forefront, and universities like KCU are working with the business sector to explore innovative avenues for student education, especially at distant rural sites. In the classroom, students will benefit from: new anatomy and osteopathic medical manipulation labs; advanced robotics for clinical simulation and standardized patients; distance learning technology to provide lectures and standardized curriculum; and newer blended educational models that use part online and part real-time clinical information to train students. For example, a student learning neurology would be able to access a stroke patient's mini mental status exam, imaging readings, and other relevant clinical information important to the patient, in addition to didactic course materials on neurology and stroke. This allows the preceptor physician to instruct students and residents with information similar to that assessed during a clinical rotation.

The use of telehealth and mobile health applications is expected to increasingly connect patients and their health care providers. Communication between physician and specialist has changed over time, from informal discussion to virtual consults and beyond. Technology will help patients who must travel significant distances to receive care and will be key to providing rural health services over the next 10 years. However, the use of technology does not replace the needed personal connection between patients and physicians, and more progress on the interoperability of health information technology is sorely needed. In Joplin, one health system has created a vast network of technology supporting physicians and assisting patients. KCU will train our students on the use of these technologies to care for patients as part of their medical school curriculum.

## Expanding Early Clinical Experiences

Medical schools are typically part of a network of safety-net health care institutions. At KCU-Joplin, students will be afforded the opportunity to work with physicians in rural settings in years one and two in medically underserved communities. This will foster experiences in patient care and physician mentorship early in the students' education, with the goal of exposing them to patient-centered team-based care that embraces a whole-person perspective of health, addressing socioeconomic factors that affect patients' well-being and impact community health. Students report they enjoy these experiences and look forward to building healing relationships with patients and learning about health disparities, particularly the challenges facing rural communities with patients who suffer from multiple chronic conditions and barriers to care. With deep connections to the local health

care network not typically seen in urban settings, medical schools like KCU have the opportunity to partner with rural local and regional physicians and hospitals to guide, train and motivate students to consider rural health opportunities after medical school graduation.

## Increasing GME in the Joplin Region

Historically, Kansas City University has had a robust process of assisting medical students with residency placement. Through collaboration with local Joplin hospital systems and leaders, KCU will help to foster growth in the number of residency programs and expand the number of residency slots in the region. We will work with area hospitals and clinics to take advantage of the various federal and state programs designed to expand much needed GME residency slots in rural and primary care settings. Currently, these programs range from incentivizing hospitals to expand the number of residency slots, to supporting the development of Teaching Health Center GME programs, to partnering with Veterans Affairs GME expansion programs, to expanding GME funding through Medicaid[19]. Since the distribution of residency programs favors non-rural settings, placing new residency programs in rural areas could further ensure that physicians remain connected to these areas of need.

## Conclusion

Kansas City University has taken the bold step of opening an additional campus in Missouri in partnership with regional leaders from across the Joplin, Missouri, area. As the first new medical school in Missouri in nearly 50 years, we seek to improve health and wellness by training and retaining physicians for Missouri, with a particular focus on rural health and primary care. By instilling in our students an understanding and appreciation for the unique challenges of caring for rural communities, we hope to inspire our students with a whole-person perspective that improves the health of the region and the state. As our new osteopathic medical school campus opens in Joplin, KCU is proud to build on our more than 100-year history of training medical students grounded in strong patient-centered primary care. By offering first- and second-year KCU-Joplin students training opportunities in rural settings, expanding third- and fourth-year rural clinical rotations, and working to expand GME residency opportunities in the region, we remain committed to our mission of improving the well-being of the communities we serve.

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