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ORIGINAL ARTICLE

Where Do Family Medicine Residency Graduates Practice? Implications for Workforce Distribution and Scope of Practice Among Kansas Graduates

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ABSTRACT

Background and Objectives: Family physicians are essential to equitable access to comprehensive care, particularly in rural and underserved communities. Graduate medical education programs are essential to preparing the future primary care workforce. Understanding where graduates practice is key to evaluating workforce impact and the environments that shape scope of practice. This study examined the geographic distribution of family medicine residency graduates and factors associated with practice location.

Methods: This retrospective cross-sectional workforce study examined practice locations of graduates from University of Kansas School of Medicine-sponsored family medicine residency programs. We used licensure databases to identify practice locations and classified them by rurality using Rural–Urban Commuting Area codes. We calculated distance from training site and in-state retention and we also examined timing of obtaining unrestricted licensure.

Results: Among 1,221 graduates responding, 51.1% practiced in Kansas and 40.5% practiced in rural communities. The median distance from training location was 153.8 miles; 38.3% practiced within 100 miles. Graduates who obtained unrestricted licensure during residency practiced closer to training locations and were more likely to practice in rural areas. International medical graduates practiced farther from training sites and were less likely to practice rurally. Graduates of rural residency programs were more likely to practice in rural communities.

Conclusions: Family medicine residency programs play a critical role in supporting regional and rural workforce needs. Training location, rural exposure, and clinical autonomy during residency may influence practice location. Understanding where graduates practice can inform workforce planning and policies that support comprehensive family medicine in underserved communities.

INTRODUCTION

Family physicians are uniquely positioned to deliver comprehensive, continuous care across community settings, making their distribution critical to equitable access. Nearly one in five Americans lives in a rural area, yet only a small proportion of physicians practice in these communities, contributing to persistent gaps in access to primary care, threatening both health outcomes and community sustainability.[1-3] Understanding the factors that drive family physician choice in practice location is critical to developing a robust primary care workforce for every community.

Graduate medical education (GME) programs are a critical component of the physician workforce pathway. Training location is strongly associated with eventual practice location, and residency programs serve as key contributors to state and regional workforce supply.[4,5] Studies of residency graduates in New

Mexico demonstrate that while many family physicians initially remain in state, relocation occurs over time; however, being born in the state or attending medical school locally increases long-term retention.[6] Prior studies have demonstrated that residency graduates often remain near their training locations and contribute substantially to local workforce needs, though migration patterns vary across regions and over time.[7,8] A 2012 study found nationally that more than half (54.8%) of family physicians practiced within 100 miles of their residency training location.[9] Practice location and retention over time provide essential insight into the effectiveness of residency programs in addressing workforce distribution. Measures such as in-state retention and geographic proximity to training sites offer meaningful indicators of workforce impact.

The proportion of residency graduates who practice in rural areas is also a critical indicator of impact, particularly for largely rural states. Prior studies have demonstrated that physicians who train in rural or community-based settings are more likely to practice in similar environments, and targeted training pipelines have demonstrated long-term success in increasing service to underserved areas.[6,10]

Additionally, practice location influences the breadth of services family physicians provide, with rural and underserved settings often requiring broader scope and procedural care. Scope of practice refers to the range of clinical services, settings, and patient populations served by family physicians. Prior research has demonstrated that practice environment is a major determinant of scope, with rural physicians often providing broader-spectrum care than their urban counterparts.[11] However, national data suggest that the scope of practice among family physicians has narrowed over time, raising concerns about the sustainability of comprehensive care, particularly in rural settings.[12] Understanding factors that shape scope during training may therefore be critical to sustaining comprehensive family medicine practice. Fogarty et al reported a net loss of 11% of rural family physicians over a 7 year period. The need to understand factors that predispose family physicians to rural practice may be timelier than ever.[10]

Obtaining an unrestricted medical license during residency represents an important milestone in professional development, reflecting eligibility for independent clinical practice and expanded clinical autonomy. Although unrestricted licensure is often pursued to facilitate moonlighting opportunities, it may also serve as a marker of residents' interest in gaining additional clinical experience and preparing for independent practice. In Kansas, unrestricted licensure is not required prior to completion of graduate medical education. Prior studies have found that family medicine residents view opportunities for autonomous clinical work as beneficial for skill development, practice readiness, and evaluation of future practice settings.[7,8] However, little is known about whether obtaining unrestricted licensure during residency is associated with eventual practice location or the environments in which family physicians choose to practice. Understanding this relationship may provide insight into how training experiences and early professional autonomy influence workforce distribution and the future scope of family practice.

Despite ongoing workforce shortages and growing emphasis on accountability, comprehensive evaluations of graduate practice location distribution remain limited. Examining where family medicine residency graduates practice can inform workforce planning, guide policy decisions, and help training programs align educational priorities with community health needs.

This study examined the geographic distribution of family medicine residency graduates from University of Kansas School of Medicine sponsored programs. It evaluated in-state retention, rural practice participation, proximity to training location, and timing of obtaining unrestricted licensure eligibility to better understand the programs' contributions to the primary care workforce.

METHODS

This retrospective, cross-sectional workforce study completed in 2026 examined the practice location distribution of graduates from the University of Kansas School of Medicine (KUSM) Family Medicine Residency Programs. As the study used publicly available data and did not involve direct human subjects' interaction, the University of Kansas School of Medicine–Wichita Institutional Review Board determined it to be exempt from review.

Eligible participants included physicians who graduated from the three Wichita-sponsored residency programs between 1972 and 2025 and were actively practicing medicine as of October 2025 (n = 1,068). Graduates of two Kansas City-sponsored residency programs from 2008 through 2025 who were actively practicing in October 2025 were also included (n = 153). Of the five residency programs with graduates that were included, two were located in rural areas as defined as locations having a Rural–Urban Commuting Area (RUCA) code of 4.0 or greater. The differing start dates reflect program establishment timelines and accessibility of complete graduate records.

Current practice city and state were obtained from publicly available physician licensure databases and verified using state medical board registries and the National Provider Identifier database when needed. Medical school attended and degree type were also recorded.

Timing of acquisition of an unrestricted medical license permitting independent clinical practice was recorded for each graduate. Because direct measures of clinical activities performed under unrestricted licensure were not available, licensure timing was used as an indicator of eligibility for independent clinical practice during residency.

Graduates were categorized by medical school type (allopathic, osteopathic, or international) and unrestricted licensure during residency and as early (<10 years from residency graduation), mid (11–20 years from residency graduation), or late (>20 years from residency graduation) career. Practice locations were classified using RUCA codes to determine rurality. Those practicing in a location with a RUCA code of greater than or equal to four were classified as rural. Straight-line distance between residency training site and current practice location was calculated using publicly available geographic distance tools. Additionally, practice location was categorized as in-state versus out-of-state from residency training location.

Physicians without an active medical license in any state as of October 2025 were excluded. Individuals with incomplete location data were excluded from geographic analyses.

RESULTS

A total of 1,221 residency graduates met inclusion criteria. Of these, 624 (51.1%) currently practice in Kansas and 11 (0.9%) practice internationally. Overall, 495 (40.5%) practice in rural communities, both in Kansas and across the United States.

Physicians practicing internationally were excluded from geographic and rural analyses. However, of those practicing internationally, eight were graduates of international medical schools.

The mean straight-line distance between residency training location and current practice location was 329.4 miles and the median straight-line distance was 153.8 miles. Just over one-third (38.3%) of graduates practice within 100 miles of their training location (Table 1). Nearly one-fifth (19.1%) practice in the same city as their training location (Table 1).

Distance from residency location did not differ significantly across career stage groups (early, mid, late; $\chi^2[2, n = 1210] = 1.30$; $P = 0.522$). Additionally, the percentage of graduates practicing in-state did not differ significantly across career stage ($\chi^2[2, n = 1210] = 3.22$; $P = 0.200$). Although there is a shift with more than half (51.5%) of late career family physicians practicing out of state (Table 2).

Distance differed significantly by medical school type ($\chi^2[2, n = 1210] = 49.71$, $P<0.001$); however, the magnitude of this difference was small ($\varepsilon^2 = 0.040$). Post hoc Dunn tests with Bonferroni adjustment indicated that international medical graduates practiced significantly farther from their residency location (M = 716.6 miles, SD = 583.1) than both allopathic (M = 293.5, SD = 407.0) and osteopathic graduates (M = 313.3, SD = 406.7). No significant difference was observed between allopathic and osteopathic graduates.

Physicians who obtained unrestricted licensure during residency (n = 919) practiced significantly closer to their residency location than those who did not (M = 282.3 miles, SD = 381.2 vs M = 478.2 miles, SD = 553.7; U = 106,001.5 z = −5.35; $P<0.001$). The effect size was small to moderate (r = 0.154). Similarly, those who obtained unrestricted licensure during residency were more likely to practice in Kansas than those that did not (57% vs. 34%; $\chi^2[2, n = 1210] = 45.42$; $P<0.001$), with a small to medium association observed (Cramér's V = 0.194).

TABLE 1. Total Number and Proportion of Family Physicians Remaining Near Their Residency Training Site

	n (%) within 100 miles	n (%) within 50 miles	n (%) within 5 miles
Total (N = 1,210)	464 (38.3)	376 (31.1)	231 (19.1)
Early (N = 387)	166 (42.9)	133 (34.4)	73 (18.9)
Mid (N = 347)	131 (37.8)	105 (30.3)	67 (19.3)
Late (N = 476)	167 (35.1)	138 (29.0)	91 (19.1)

TABLE 2. Total Number and Proportion of Family Physicians Remaining in Kansas

	n (%) practicing in Kansas	n (%) practicing outside of Kansas
Total (N = 1,210)	624 (51.6)	586 (48.4%)
Early (N = 387)	211 (54.5)	176 (45.5)
Mid (N = 347)	182 (52.4)	165 (47.6)
Late (N = 476)	231 (48.5)	245 (51.5)

Rural practice location (RUCA≥4) did not differ significantly by career stage ($\chi^2[2, n = 1210] = 4.37$; p = 0.113).

Rural practice differed significantly by medical school type ($\chi^2[2, n = 1210] = 29.55$; $P<0.001$), with a small association observed (Cramér's V = 0.156). International medical graduates were less likely to practice in rural areas (13, 14.1%) compared with allopathic (383, 43.2%) and osteopathic graduates (99, 42.9%). No significant difference was observed between allopathic and osteopathic graduates.

Those who trained in a rural community were more likely to practice in a rural community ($\chi^2[2, n = 1210] = 61.23$; $P<0.001$), with a medium association observed (Cramér's V = 0.225). Of the 495 graduates currently practicing in rural areas, 21.4% (106) trained in a residency program located in rural community. Similarly, 70.2% of the graduates of the programs located in rural communities practiced in rural communities compared with only 36.7% of graduates of programs located in nonrural communities.

Physicians who obtained licensure permitting moonlighting during residency were more likely to practice in rural areas than those who did not (411, 47.7% vs 84, 28.9%; $\chi^2[1, n = 1210] = 22.99$, $P<0.001$), with a small association (Cramér's V = 0.138).

DISCUSSION

This study examined practice location patterns among family medicine residency graduates at KUSM programs and identified several factors associated with workforce distribution. Because rural communities often rely on family physicians to deliver broad-spectrum care, workforce distribution may have important implications for the future scope of family practice. The mean distance between training

location and practice was 329 miles with only 38.3% of graduates practicing within 100 miles of the training program and 19.1% practicing within five miles. Interestingly, while Fagen, et al also noted that 19% of graduates in their 2012 analysis practiced within 5 miles of their training site, they reported a much higher portion (55%) of family physicians practicing within 100 miles of the training program.[9] Further research is needed to elucidate the reasons for the greater distance observed in this study. However, geographic characteristics of Kansas and the surrounding Great Plains region may contribute to these findings. Compared with more densely populated states, physicians in Kansas often serve communities separated by substantial distances, and workforce shortages may require relocation to underserved areas located far from residency training sites. Consequently, greater distance from training location may reflect successful workforce distribution across a largely rural region rather than reduced retention. In our study, approximately half of graduates remained in Kansas, reinforcing the critical role KUSM Family Medicine residency training programs play in supporting the state's primary care workforce.

Allopathic and osteopathic medical school graduates were more likely to practice in Kansas than international medical school graduates. Similarly, allopathic and osteopathic medical school graduates were more likely to practice significantly closer to their training sites than international medical graduates, where distance between practice and training site averaged 700 miles. It should be noted that prior studies have suggested that attending both medical school and residency in the same state increases the likelihood of in state practice.[6] More than 50% of the residents included in the analysis attended both medical school and residency training within Kansas.

Individuals who obtained full licensure during training were also more likely to practice in state and closer to their training program than were individuals who did not obtain full licensure during training. Unlike other studies, our study noted no change in mean distance from training location or percentage of in-state practice among early, middle, and late career physicians. While individuals may move throughout their career, these findings suggest that the movement creates a net zero effect. Further work is needed to determine what factors promote movement closer to and away from training sites and how these factors could be utilized to help encourage equitable physician distribution.

While likelihood of rural practice did not change with career stage in our study, both international medical graduates and residents who did not obtain full licensure were less likely to practice in rural areas. Furthermore, 70.2% of graduates of residency programs located in rural areas practiced in a rural area. This may reflect a tendency for rural programs to recruit candidates already committed to rural practice. It may suggest that training in a rural area during residency promotes rural practice postresidency or increases confidence in ability to practice in a rural location with a different support structure than a more urban location. Further research is needed to better understand these possible contributing factors. However, we should not discount that nearly 80% of those individuals practicing in a rural community trained in a nonrural community during residency. These findings suggest that residency location contributes to future rural practice but should be considered one component of a broader workforce development strategy that includes recruitment, rural exposure, mentorship, and support for early-career physicians. Although the magnitude of associations found in this study were modest, the findings suggest that experiential factors during residency, including opportunities that expand clinical autonomy and exposure to community-based practice settings such as moonlighting, may influence both geographic retention and rural workforce participation.

These findings have important implications for workforce planning and residency program design. The strong association between rural training location and eventual rural practice suggests that expanding rural residency training opportunities may be an effective strategy for addressing persistent rural workforce shortages. Simultaneously, the observation that many rural physicians trained in nonrural programs indicates that rural workforce development should not be viewed solely as the responsibility of rural residency programs. Exposure to rural practice experiences, community-based clinical training, and opportunities for graduated autonomy may help prepare residents for practice in underserved communities regardless of training site. Policymakers and graduate medical education leaders should consider how training environments, funding priorities, and workforce incentives can be aligned to encourage practice in communities with the greatest need.

Although scope of practice was not directly measured, the substantial proportion of graduates practicing in rural communities is noteworthy given evidence that rural physicians often maintain broader scopes of practice.[11] Consequently, factors associated with rural practice may have downstream implications for the sustainability of comprehensive family medicine.

There are several important limitations to this study. First, full licensure during residency training was used as a surrogate marker for autonomous practice during training which may overestimate those residents. Additionally, the information used was publicly available; there may be unmeasured personal factors such as family ties or spouse employment that influence practice location decisions. Additionally, our study is limited to graduates of Kansas family medicine residency programs, who may be influenced by state-specific loan repayment programs or other policies that would limit generalizability of these results to other family physicians.

This study demonstrates that family medicine residency programs contribute substantially to the Kansas primary

care workforce and that training experiences are associated with future practice location. Efforts to strengthen rural training opportunities, increase exposure to underserved communities, and support progressive clinical autonomy during residency may help improve workforce distribution and sustain access to comprehensive family medicine care. These findings can inform graduate medical education planning and workforce policies aimed at addressing persistent rural physician shortages.

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