

# Do Residencies That Aim to Produce Rural Family Physicians Offer Relevant Training?

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**BACKGROUND AND OBJECTIVES:** Rural family physicians are in short supply. Rural training can promote rural practice, but the number of family medicine residencies with a rural focus, geographic distribution of training, and training content are poorly understood. This study identified rural-centric family medicine residencies, their training locations, and rurally relevant skills training provided.

**METHODS:** The authors identified family medicine residencies offering rural tracks or in rural locations using FREIDA Online®, the American Osteopathic Association “Opportunities,” and the American College of Osteopathic Family Physicians Residency Finder online databases. Program personnel completed a survey in 2013 about training locations and content.

**RESULTS:** Of 583, 171 (29%) family medicine residencies met inclusion criteria. A total of 131 returned surveys (77%). Fifty-eight programs (44% of respondents) required at least 8 weeks of rural training; results describe these rural-centric programs. Programs reported a mean of 43.6 weeks (SD 49.7) of required rural block rotations. Mean hours per week in required rural continuity clinic sessions were 14.3 (SD 12.2). Thirty-nine percent of block rotation sites, 31% of clinic sites, and 21% of full-time training sites reported as rural were urban according to Rural-Urban Commuting Area codes. Over 90% of programs provided training in orthopedic care and emergency skills. Fewer than 60% provided endoscopy and operative obstetrics training.

**CONCLUSIONS:** Though numerous family medicine residencies seek to produce rural physicians, most programs required fewer than 8 weeks of rural training. Programs varied substantially in rurally located training and rurally relevant content. Students seeking rural training should examine program curricula carefully.

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are more than double the number of physicians per 10,000 people in US metropolitan areas compared with US non-metropolitan areas (31.2 versus 13.1 from 2008 to 2010).<sup>6</sup> The mean physician age increases with rurality<sup>7</sup> such that looming retirements further threaten future workforce supply. An aging rural population and expanded insurance coverage due to the Affordable Care Act may exacerbate the rural physician shortage as health care demand grows.<sup>8,9</sup>

Rural areas of the United States rely on family physicians to provide the majority of their physician care.<sup>10</sup> Despite recent minor increases, the current number of US medical students matching into family medicine residencies remains substantially lower than in the mid-1990s.<sup>11</sup> Many family medicine residents reporting a preference for rural practice choose to work in an urban setting following training.<sup>12</sup>

To address rural physician workforce needs, numerous family medicine residency programs include rural training in their curricula. The most studied model is the “1-2” rural training track (RTT).<sup>13-15</sup> Residents in RTTs typically spend up to

The persistent paucity of rural physicians is among the most vexing problems in the United States health care system.<sup>1,2</sup> While nearly 20% of the US population resides in rural areas,<sup>3</sup> only about

10% of physicians practice in these communities.<sup>4</sup> Eighty-five percent of US rural counties have included federally designated primary care Health Professional Shortage Areas (HPSAs).<sup>5</sup> It is estimated that there

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1 year in a traditional urban hospital setting followed by 2 years in a rural training site. This strategy has proved successful in producing rural family physicians, but the number of RTT graduates is not sufficient to remedy the rural physician shortage.

Little is known about other family medicine residency rural training configurations. Design variations, clinical skill content, and quantity of rural site training remain uncharacterized. American Osteopathic Association (AOA) singly accredited programs have not been examined despite growing numbers of rurally located osteopathic graduates. This study describes the rurally relevant content and locations of training provided by rural-centric allopathic and osteopathic family medicine residencies.

## Methods

### Participants

Using the publicly available FREIDA Online<sup>®</sup>, the American Osteopathic Association (AOA) Opportunities and the American College of Osteopathic Family Physicians (ACOFP) Residency Finder online databases, we identified and surveyed US allopathic, osteopathic, and dual-accredited family medicine residencies in rural locations or offering rural tracks. Survey inclusion criteria included any of the following:

(1) The program had a rural ZIP code according to Rural-Urban Commuting Area Codes 4.0, 4.2, 5.0, 5.2, 6.0, 6.1, 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2, 10.0, 10.2, 10.3, 10.4, 10.5, and 10.6 (RUCAs; 2006 version 2.0 ZIP approximation)<sup>16</sup> or was in a nonmetropolitan county according to Urban Influence Codes (Codes 3-12).<sup>17</sup>

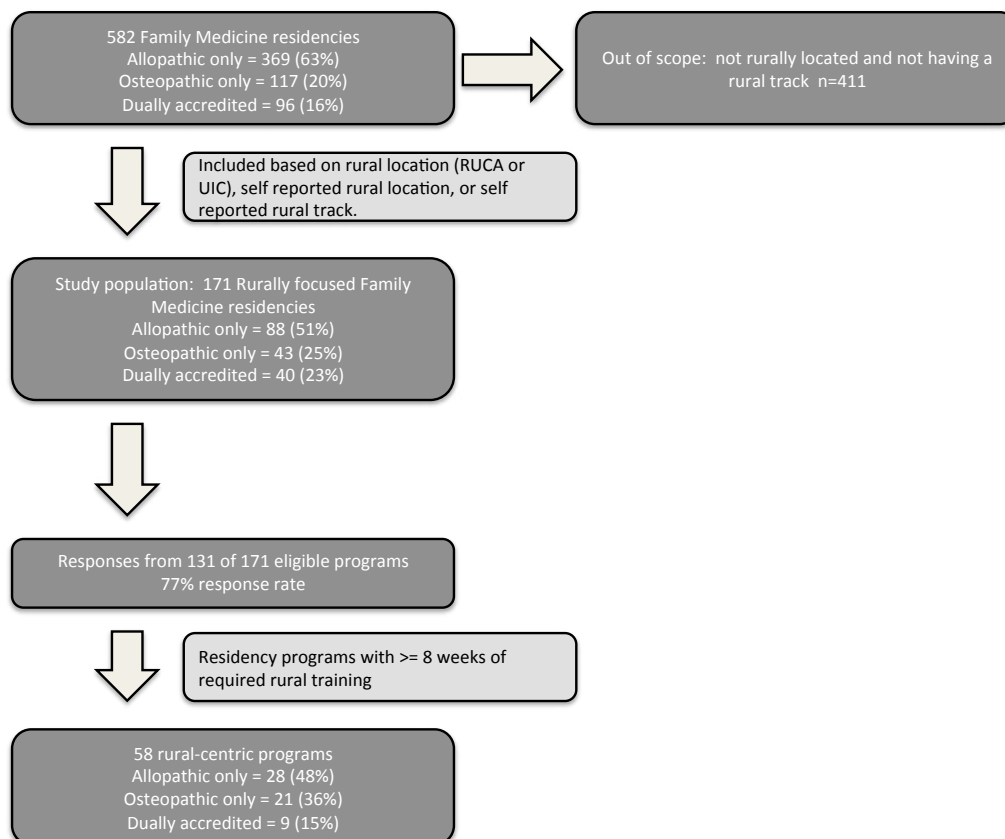
(2) The program reported that it was in a “rural setting” in the ACOFP database.

(3) The program reported having a “rural track” in FREIDA Online<sup>®</sup>.

The program reported in a screening phone call that it had a “rural track” (singly accredited osteopathic programs only, since this information was not available in the AOA Opportunities or ACOFP databases).

FREIDA Online<sup>®</sup> allowed allopathic and dually accredited residency programs to designate themselves as offering a “rural track.” It was necessary to screen 117 osteopathic programs by telephone to determine if they offered a rural track because this information was not available in the AOA Opportunities or ACOFP Residency Finder databases. Of this group, only osteopathic programs requiring at least 8 weeks of required rural training were surveyed because

**Figure 1: Flow Diagram of Sample Inclusion Criteria and Survey Response**



this was the screening criterion used on the survey sent to other programs to determine if they should respond to additional questions about content and locations of training. Figure 1 displays sample construction and survey response.

### Survey Instrument

The survey questionnaire was developed by the research team, which included two allopathic physicians, one of whom is an assistant dean in an osteopathic medical school and graduate medical education (GME) system (Osteopathic Postdoctoral Training Institution [OPTI]). We based questions on residency surveys used in several previous studies,<sup>10,18,19</sup> as well as collective experience in practice, education, and research in rural family medicine residency training. Three osteopathic physicians involved in resident education reviewed the questionnaire to ensure its content was applicable to osteopathic training. They also provided suggestions on content, clarity, and ease of use.

The survey requested basic descriptive information of all programs. Programs requiring at least 8 weeks of rural training for some or all residents were queried about location of training. Additionally, programs were asked about rurally relevant content taught at their programs. The survey instrument is available from the corresponding author on request.

To assess training location we asked respondents to list up to five ZIP codes each for required rural continuity clinic and required rural block rotations in each year of training. We also asked respondents to list up to three ZIP codes for rural full-time training, defined on the questionnaire as “training based full-time in rural practice,” in each year of training.

Content questions were based on a 2008 joint statement of the National Rural Health Association (NRHA) and the American Academy of Family Physicians (AAFP) recommended skills for rural family physicians.<sup>20</sup> For clarity in reporting, survey

modifications to the skills cited in the joint statement were made based on the collective experience of the research team but did not substantially differ from the joint statement in letter or spirit.

### Data Collection

We sent Web surveys to all programs meeting study criteria, making up to 10 contact attempts by email or a mailed survey to program contacts, including program directors and coordinators. We made up to five follow-up phone calls to nonresponding programs. Data were collected from August to October, 2013.

### Statistical Analysis

We classified training site ZIP codes as rural or urban using RUCA codes and performed *t* tests and chi-square analyses as appropriate using SPSS Version 21 (IBM Corporation, Armonk, NY) and significant findings are reported at  $P < .05$ .

The University of Washington Human Subjects Division determined that this study was not human subjects research.

### Results

Of 171 eligible family medicine residencies, 131 responded to the survey, for an overall 77% response rate. Not all programs answered all questions. Results are reported based on responses to each question. A total of 107 of 122 (88%) programs actively recruited applicants with an interest in rural family medicine. A total of 81 of 110 (74%) required rural training for some or all residents. Of the 131 programs that responded to the survey, 58 (44%) required at least 8 weeks of rural training over 3 years. It is this group, referred to as “rural-centric” family medicine residency programs, that is the subject of subsequent analyses. There was no difference between the proportions of allopathic only, osteopathic only, and dually accredited programs that did not offer 8 weeks of rural training. Table 1 shows the characteristics of responding

rural-centric and non-rural-centric residencies.

### Rural-Urban Training

#### Configurations

The main locations of rural-centric programs were evenly split between urban and rural areas. Forty-three percent of the continuity clinic ZIP codes listed were in rural settings in postgraduate year (PGY) 1 and 53% in years PGY2 and PGY3. Overall, 72% of the block rotation ZIP codes were rural (61% in PGY1, 79% in PGY2, and 72% in PGY3). In PGY1, 34% of inpatient training locations were in rural settings and 56% in PGY2 and PGY3.

Overall, 78% of full-time training was in rural areas. Seventy-five percent of the ZIP codes listed were in rural settings in PGY1, 79% in PGY2, and 79% in PGY3.

A substantial portion of training sites reported by programs as rural actually occurred in urban sites according to RUCA designations. Figure 2 displays the proportions of programs that reported rural training locations that were all urban, mixed urban and rural, or all rural according to RUCAs. For rural block rotations, eight of 43 programs (19%) listed locations that were all urban according to RUCAs. For clinic sessions, 10 of 41 programs (24%) listed locations that were all urban. For full-time rural training, six of 30 (20%) programs listed locations that were all urban. Two programs listed only urban ZIP codes for all three types of training, indicating that all of their training was in an urban location. For 13 programs, at least one of the three types of training occurred in all urban locations.

Figure 3 shows mean weeks in required rural block rotations and mean hours per week in required rural continuity clinic sessions in each successive year of training. The mean number of weeks in rural block rotations was 13.8 (range 0–52, SD 18.6) in PGY1, 18.2 (range 0–52, SD 19.5) in PGY2, and 18.0 (range 0–52, SD 20.1) in PGY3, with a total mean of 43.6 weeks over 3

**Table 1: Characteristics of US Rural-Centric\* and Non-Rural-Centric Family Medicine Residency Programs, 2013**

	Rural-Centric* (n=58)	Non-Rural-Centric (n=73)	Total (n=131)
Program type			<i>P</i> =.35
Community based, non affiliated	9 (17.3%)	13 (18.3%)	22 (17.9%)
Community based, medical school affiliated	24 (46.2%)	43 (60.6%)	67 (54.5%)
Community based, medical school administered	9 (17.3%)	7 (9.9%)	16 (13.0%)
Medical school based	9 (17.3%)	6 (8.5%)	15 (12.2%)
Military	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other	1 (1.9%)	2 (2.4%)	3 (2.4%)
Total	52 (42.3%)	71 (57.7%)	123
Accreditation			<i>P</i> =.15
Allopathic only	28 (48.3%)	39 (53.4%)	67 (51.1%)
Osteopathic only	21 (36.2%)	16 (21.9%)	37 (28.2%)
Dual accredited	9 (15.5%)	18 (24.7%)	27 (20.6%)
Total	58 (44.3%)	73 (55.7%)	131
Year of initial accreditation			<i>P</i> =.02
Before 2000	23 (51.1%)	32 (74.4%)	55 (62.5%)
2000–present	22 (48.9%)	11 (25.6%)	33 (37.5%)
Total	45 (51.1%)	43 (48.9%)	88
Census region			<i>P</i> =.69
Northeast	11 (19.0%)	14 (19.2%)	25 (19.1%)
Midwest	11 (19.0%)	18 (24.7%)	29 (22.1%)
South	22 (37.9%)	29 (39.7%)	51 (38.9%)
West	14 (24.1%)	12 (16.4%)	26 (19.8%)
Total	58 (44.3%)	73 (55.7%)	131

\* Rural-centric residencies are those requiring at least 8 weeks of rural training for some or all of their residents.

years (range 0–156, SD 49.7). Fifteen percent of programs had zero weeks of required block rotations in PGY1, 10% in PGY2, and 12% in PGY3. The mean number of hours per week devoted to rural continuity clinics was 12.5 (range 0–50, SD 14.8) in PGY1, 17.2 (range 0–50, SD 12.4) in PGY2, and 19.4 (range 0–50, SD 12.4) in PGY3, with a mean over the 3 years of 14.3 (range 0–50, SD 12.2).

#### Scope of Training

Figure 4 shows the percentage of allopathic-only, osteopathic-only, and dual-accredited residencies that provided queried rurally relevant skills. Of the 15 queried rurally relevant skills, allopathic-only accredited residencies offered training in a mean of

10.6 skills. Osteopathic-only accredited residencies provided training in a mean of 8.7 skills and dual-accredited residencies a mean of 9.7 skills. The median for all three accreditation categories was 10 skills. These differences were not statistically significant. Rurally located programs did not differ significantly from urban-based programs with respect to number of skills taught (9.7 skills versus 9.8 skills, respectively). Over 90% of programs offered training in adult and pediatric advanced life support, orthopedic care, and prenatal/delivery care. Less than 60% of programs offered endoscopy, surgery, trauma, surgical gynecological care, or operative obstetrics.

#### Discussion

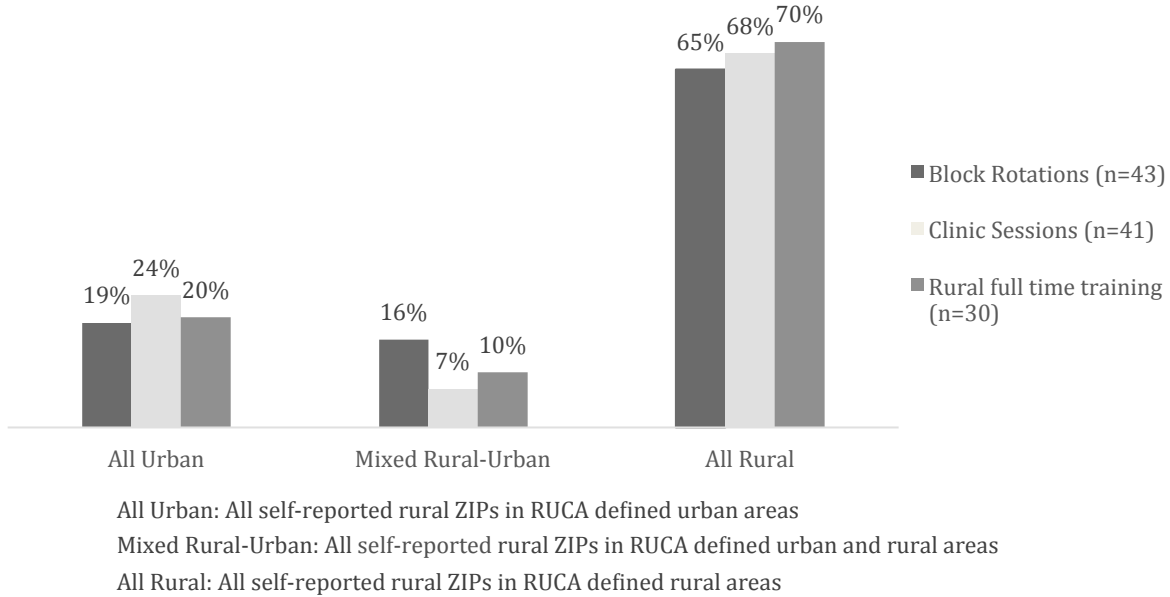
This study examined the quantity of rurally located clinical training and the rurally relevant content offered by “rural-centric” US allopathic, osteopathic, and dually accredited family medicine residency programs.

A minority (44%) of rural-centric programs required at least 8 weeks of rurally located training over 3 years. Only 50% of programs that required at least 8 weeks of rural training were themselves located in a rural area. A substantial number of programs reported training as “rural” that actually occurred in urban environments according to RUCFA definitions.<sup>16</sup>

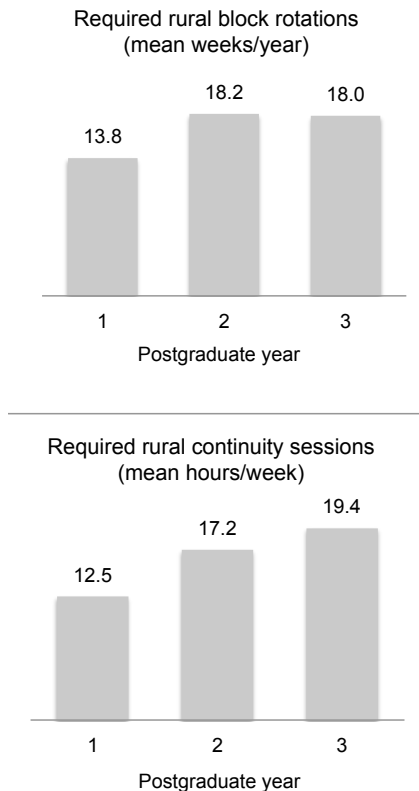
The reasons that some rural-centric residency programs do not

**Figure 2: Reported Rural Training Experiences in Rural-Centric US Family Medicine Residencies by Rural-Urban Commuting Area (RUCA) Codes, 2013**

Residency Programs Reporting Rural Locations



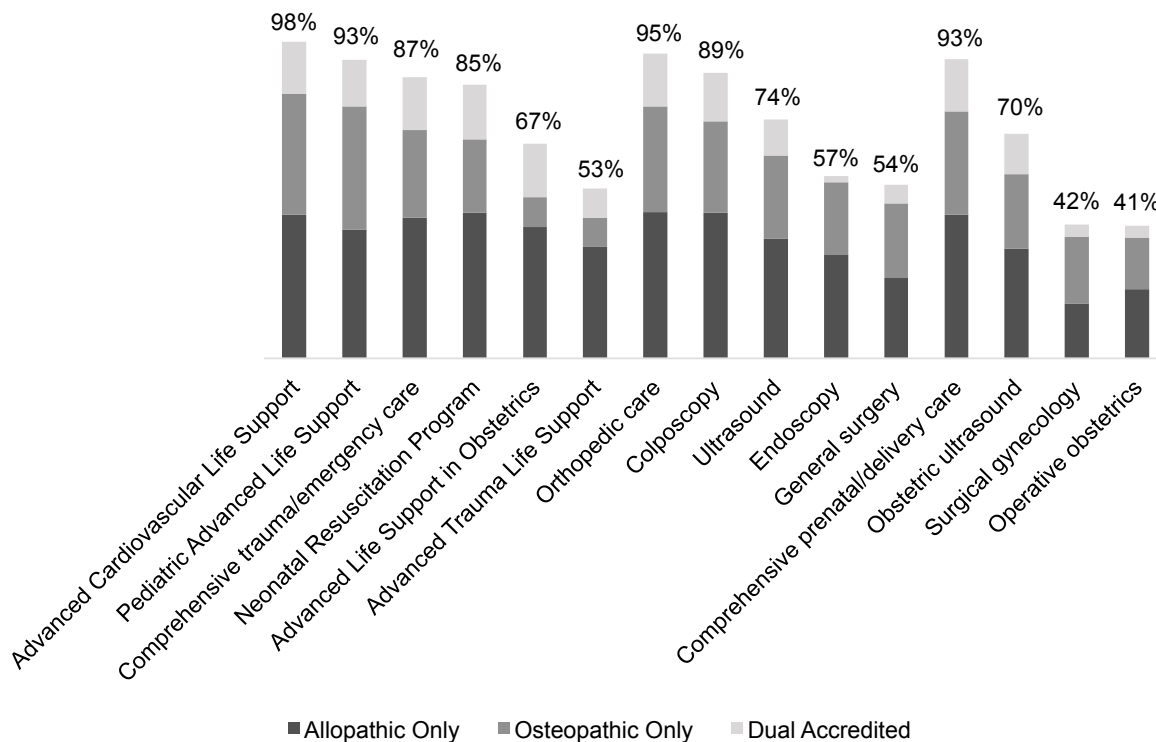
**Figure 3: Time in Required Rural Block Rotations (Mean Weeks/Year) and Required Rural Continuity Clinic Sessions (Mean Hours/Week) in Rural-Centric US Family Medicine Residencies, by Year of Training, 2013**



offer more rurally located training experiences is not understood. Programs may view the location of training as secondary to the quality or content, particularly if facilities treat large numbers of rural patients. It may be cost prohibitive to send residents to distant clinical sites, or programs may lack quality rural preceptors. Lack of clarity in the definition of rural could result in incorrect respondent classification of training experiences. Programs may believe their training experiences to be in rural areas even though these locations did not meet the RUCA definitions of rural used in this study. These are all areas for further research.

The literature suggests that the quantity and location of residency training matters.<sup>13,14,21</sup> The learner who trains solely in an urban environment misses experiencing the cultural aspects of rural life. Only by living and training in a rural community can a resident begin to comprehend the full scope of practice, the joys of a close-knit community, and the challenges of professional

**Figure 4: Percentage of Rural-Centric US Family Medicine Residencies Providing Training in Rurally Relevant Clinical Skills, 2013**



isolation and workload inherent in rural practice.<sup>22,23</sup>

Additionally, this study found that rural-centric family medicine residency programs offered varying constellations of rurally relevant skills training recommended by the NRHA and the AAFP.<sup>20</sup> None of the programs offered all of the identified rurally relevant skills. Particularly lacking were surgical and procedural training.

Rural communities need physicians trained in emergency services, obstetrical care, surgical care, and screening studies. Because rural communities often can neither attract nor support the practices of specialist clinicians who provide these services in urban areas, well-trained generalists equipped with specific rurally relevant skills are needed in rural areas.

To our knowledge, this study is the first in-depth national examination of the program characteristics of rural-centric family medicine residency programs. It is also the first

study to evaluate training location and educational content among allopathic, osteopathic, and dually accredited residency programs. The high response rate of 77% (131/171) lends credibility to our findings.

This study has limitations that must be noted. Though we used multiple databases to determine program eligibility, it is possible that we missed some rural-centric programs. Programs might use classifications different from our criteria to define their rural experiences. Although the survey was sent to residency program contacts or directors as listed in the online residency databases, we do not know if surveys were completed by the residency program directors or by other residency personnel. Survey responses are subject to acquiescence and recall bias. It continues to be difficult to train and attract primary care physicians to practice in rural areas. An adequate pipeline of medical trainees is important, and rurally inclined medical students need postgraduate training sites

to prepare them for rural practice. Multiple organizations and academic journals, including the Institute of Medicine, the Council on Graduate Medical Education, the American Academy of Family Physicians, and the National Rural Health Association have called for more and better rural residency education.<sup>20,24-28</sup> This study highlights the scarcity of rural training experiences offered even in rural-centric residency programs. Our findings further point out the lack of consensus among programs in skills that are necessary to care for rural populations.

We recommend that residency programs interested in training doctors for careers in rural family medicine critically evaluate their curricula. Specific attention should be given to the amount of block and continuity training in rural areas, the location of rural curricular offerings, and the recommended rurally relevant content offered in their curricula. Students interested in rural careers should be prepared to ask

specific questions of program faculty and pay careful attention to the training locations and content offered in residency curricula.

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