Family Medicine Residency Training in Rural Areas: How Much Is Taking Place, and Is It Enough to Prepare a Future Generation of Rural Family Physicians?

by

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ABOUT THE CENTER

The WWAMI Rural Health Research Center (RHRC) is one of six centers supported by the Federal Office of Rural Health Policy (FORHP), a component of the Health Resources and Services Administration (HRSA) of the Public Health Service. The major focus of the WWAMI RHRC is to perform policy-oriented research on issues related to rural health care. Specific interests of the Center include the training and supply of rural health care providers and the content and outcomes of the care they provide; the availability and quality of care for rural women and children, including obstetric and perinatal care; and access to high-quality care for vulnerable and minority rural populations.

The WWAMI Rural Health Research Center is based in the Department of Family Medicine at the University of Washington School of Medicine, and has close working relationships with the WWAMI Center for Health Workforce Studies, Programs for Healthy Communities (PHC), and the other health science schools at the University, as well as with other major universities in the five WWAMI states: Washington, Wyoming, Alaska, Montana, and Idaho. The University of Washington has over 25 years of experience as part of a decentralized educational research and service consortium involving the WWAMI states, and the activities of the Rural Health Research Center are particularly focused on the needs and challenges in these states. The WWAMI RHRC also works closely with the associated Area Health Education Centers.

The Rural Health Working Paper Series is a means of distributing pre-publication articles and other working papers to colleagues in the field. Your comments on these papers are welcome, and should be addressed directly to the authors. Questions about the WWAMI Rural Health Research Center should be addressed to:

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The WWAMI Rural Health Research Center is supported by the Federal Office of Rural Health Policy, Health Resources and Services Administration, Public Health Service (grant #1U1CR00035-03, $871,500, 100%).

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March 2002

This WWAMI Rural Health Research Center study was performed with funding from the Federal Office of Rural Health Policy of the Health Resources and Services Administration, U.S. Department of Health and Human Services. We thank the Robert Graham Center for Policy Studies in Family Practice and Primary Care, the American Academy of Family Practice, and the Association of Family Practice Residency Directors, who provided invaluable assistance in designing the surveys and obtaining high response rates. A brief research letter based on a component of this study appeared in the Journal of the American Medical Association (2002, 288[9]:1063-1064) entitled “Family Medicine Training in Rural Areas.”
ABSTRACT

Background: The supply of rural physicians is in part determined by the number of family physicians who receive their residency training in rural areas. This paper explores what proportion of all family medicine residency experience actually takes place in rural areas in the United States.

Methods: Surveys were mailed to all 453 civilian family practice residencies in the United States in January of 2000. After two additional mailings and telephone reminders, usable responses were obtained from 435 programs, 96 percent of the total. Programs were asked to indicate the extent to which training rural physicians was part of their core mission and to specify where all residency training sponsored by their programs took place. Using the Rural-Urban Commuting Areas, the ZIP codes of these locations allowed us to determine the relative rurality of all U.S. family practice residency training.

Results: Only 33 family medicine residency programs (7.4%) are located in rural areas; these programs are predominantly in community hospitals with no other residency programs. Most of the training sponsored by these rural programs occurs in rural areas. Although over one-third of the urban programs listed rural training as an important part of their mission, only 2.3 percent of the training they supported took place in rural areas. For the nation as a whole, 7.5 percent of family medicine residency training occurred in rural areas, although 22.3 percent of the U.S. population lives in rural places.

Conclusions: Very little family medicine residency training actually takes place in rural areas, largely because very few residencies are located in rural America. To the extent that there is a link between the place of training and future practice, the lack of rural training contributes to the shortage of rural physicians. Unless significant efforts are made to increase rural residency training, rural physician shortages are likely to persist.
BACKGROUND

Physician maldistribution—the tendency of physicians to disproportionately settle in urban areas—is one of the most deep-seated characteristics of our health care system (Geyman et al., 2000). As a result, there has been a relative deficit of rural physicians in the United States since people first began to track the distribution of health care professionals (Council on Graduate Medical Education, 1998). Physician maldistribution is closely related to physician specialty: the more specialized the physician, the more likely he or she is to choose urban practice (Amundson & Rosenblatt, 1991; Rosenblatt et al., 1992).

The discipline of family medicine was created in the early 1970s, partially as a way to improve the supply of rural physicians. Because 22 percent of recent family physician graduates settle in rural areas, a much higher percentage than any other discipline, increasing the number and proportion of family doctors reliably augments the supply of new rural physicians (American Academy of Family Physicians, 2002). But even within family medicine there are differences among residency programs, both in the emphasis they put on rural practice and on their effectiveness in encouraging their graduates to establish themselves in rural areas (Rabinowitz, 1993).

An important element of the equation is the extent to which residency training occurs in rural areas. Because it has long been known that physicians tend to practice in areas near where they trained—and because rural training experiences provide physicians with the educational experiences they need to become confident and competent rural doctors—it makes sense to train future rural doctors in rural areas (Denton et al., 1989; Dorner et al., 1991; Rosenthal, 2000; Rosenthal et al., 2000). However, very little is known about the extent to which family practice residency training actually occurs in rural areas.

This study explores this issue through a survey of all family practice residency programs in the United States. Specifically, we address the following questions: What proportion of all family practice residency training occurs in rural settings? Which educational experiences tend to be located in rural areas? Do programs with a self-proclaimed mission of preparing future rural physicians preferentially locate their training experiences in rural areas?
METHODS

The University of Washington Rural Health Research Center, the Robert Graham Center for Policy Studies in Family Practice and Primary Care, and the Association of Family Practice Residency Directors, with funding from the Federal Office of Rural Health Policy, collaborated to conduct a survey of family practice residency programs. A 16-item questionnaire was developed to determine the precise locations of all family medicine training in the nation and the proportion occurring in rural areas. The questionnaire was reviewed and pretested by the University of Washington-affiliated family practice residency network directors and modified accordingly.

In January 2000, questionnaires were mailed to the 453 civilian family practice residency programs located in the United States and listed in the 1998 American Academy of Family Practice (AAFP) Directory of Family Practice Training Programs that had active residents in 1999. Two subsequent mailings were sent to nonrespondents (March 2000 and May 2000), and investigators personally contacted the remaining nonrespondents. Useable responses were provided by 435 of the programs, for a response rate of 96 percent. The geographic location of nonresponding programs did not differ significantly from those that responded. None of the nonresponding programs were located in a rural area. All analysis that follows is based on the 435 responding programs, except where otherwise noted.

The questionnaires asked each program director the extent to which preparing future rural physicians was an important part of their mission. We also collected detailed information about the ZIP code and geographic location of every rural training experience offered by each residency, including the location of the model family practice, rural training tracks, block rotations, or other more intermittent rural experiences. Each of these locations' ZIP codes was geocoded using the Rural-Urban Commuting Area (RUCA) classification system, a method that assigns each ZIP tract area within the United States to a spectrum of rural and urban locations, based not only on the size of the place but its work commuting relationship to surrounding larger places (Economic Research Service, 2002; Morrill et al., 1999; WWAMI Rural Health Research Center, 2002). We assigned each training location to one of four mutually exclusive categories: urban areas (A), large rural city areas (B), small rural town areas (C), and remote smaller rural town areas (D). This approach approximates the Office of Management and Budget (OMB) metropolitan-nonmetropolitan dichotomy but has the advantage of accurately
classifying subcounty-sized communities and identifying those small places that are suburbs of larger cities.°

**RESULTS**

A large number of family medicine programs in the United States consider training rural physicians to be their central mission; 120 programs (28%) considered rural training to be very important, and an additional 58 programs (13%) had the dual mission of training both rural and urban underserved physicians. Not surprisingly, the geographic location of the parent program is strongly related to mission. All five of the programs located in small rural towns had a rural training mission, as did 67.9 percent of the programs in large rural areas. No programs were located in remote small rural towns.

Very few programs are actually located in rural areas. 92.4 percent of all programs—representing 94.8 percent of all the family medicine residents in the country—are located in urban areas. As noted above, only five programs are actually situated in small rural areas, and they train only 0.6 percent of residents.

Programs based in rural areas are quite different from their urban counterparts, as seen in Table 2. 87.9 percent of rural programs are the only residency program within their sponsoring hospital, in contrast to training programs in urban areas, where more than half of family medicine residencies coexist with other disciplines. Only 2 of the rural programs are situated in academic health centers (AMCs), as compared to the 55 urban programs that operate within the walls of an AMC. Rural programs were more likely to sponsor rural training tracks (RTTs) than their urban counterparts.

Programs with a predominantly rural mission differ systematically from those with an urban mission, as seen in Table 3. The typical residency with an exclusively rural mission is the only residency in a community hospital; about 17 percent have an affiliated rural training track. By contrast, urban-oriented programs tend to be in hospitals with other residency programs, very rarely have a rural training track (2%), and are more likely to be in an academic health center. Sixty-one percent of the programs hosting rural training tracks list only rural training as their

° The RUCA coding system is available at http://www.fammed.washington.edu/wwamirhrc/descript.htm.
central mission, with most of the balance belonging to programs with both a rural and an urban mission.

Even though the vast majority of family medicine training programs are located in urban areas, it is clear from the previous tables that some urban-based programs have a rural emphasis. The majority of programs with a rural training track (28 of 33 or 84.8%) have their home base within an urban area. And while most urban programs do not have a rural mission, most programs with a rural mission are located in urban areas, simply because the preponderance of family practice residency programs are located in urban areas. Perhaps more important than the location of the parent program or its stated mission is where the training actually occurs, which is explored in Table 4.

We were able to determine the actual training locations of virtually all the residents in training reported by the 435 programs that responded to our survey. As seen in Table 4, the results support the conclusion that slightly more training occurs in rural areas than would be apparent from the location of the parent programs. 7.5 percent of the time the residents spent in training took place in rural areas, even though only 5.4 percent of the residents who were in training in July of 1999 attended programs that were located in rural areas. A substantial amount of all rural training—28.9 percent of all training that took place in rural areas—can be attributed to rural training experiences of residents coming from urban programs. Despite that, most rural training experiences in the United States (71.1%) derive from the 33 rural programs.

The most dramatic difference in the extent of rural training is between programs located in urban areas as compared to those located in rural areas. As seen in Figure 1, the actual proportion of time that urban residents spend in rural training locations is minuscule—2.3 percent (212.9 FTEs) of their total experience. Those rural experiences are split fairly evenly between rural training tracks—which apply to only a few residents out of a much larger group—and other residents who are taking block rotations in rural areas. By the same token, residents from programs situated in rural areas train exclusively in rural places. Most of that training is in their model family practice center, but a total of 14.5 percent (76.3 FTEs) of their training occurs in either rural training tracks, block rural rotations, or rural outpatient clinics.

The picture looks quite different if we examine training location through the lens of the programs' missions. As seen in Figure 2, there is a concordance between program emphasis and the proportion of time spent in rural areas, with programs with a rural inclination much more likely to deploy their residents to rural areas. But even in the 119 programs that listed rural training as very important to their
program, less than 20 percent of the training takes place in rural areas. As we saw in Figure 1, urban programs—no matter what their stated mission—train all but their rural training track residents predominantly in urban areas. Rural programs—most of which avow a goal of training future rural physicians—do virtually all their training in rural areas.

Figure 3 shows the discrepancy between the distribution of the United States population and the location of family practice training experiences. 22.3 percent of the U.S. population lives in areas designated as rural using the RUCA approach, but only 7.4 percent of the family medicine training occurs in these areas. It is interesting that about one-third of the so-called "rural" training experiences reported by urban programs actually do not take place in areas that are considered rural using the RUCA approach. While programs located in rural areas almost never miscategorize training locations as rural, urban programs obviously consider some smaller urban training locations to be rural training opportunities from their vantage point. Not adjusting for this misclassification would result in a 60.0 percent overestimate of rural training.

DISCUSSION

Very little family medicine training in the United States occurs in rural areas. Although 40.9 percent of all the family medicine programs in the country list training rural physicians as central to their missions, only 7.4 percent of the programs are actually located in rural areas, and only 7.5 percent of residents’ total training experiences occur in rural areas. To the extent that actual rural training is a critical determinant of future practice location, the paucity of rural training experiences may explain why only nine percent of the nation’s physicians are located in rural areas (Council on Graduate Medical Education, 1998; Denton et al., 1989; Dorner et al., 1991).

As bad as the situation is for family physicians, it is undoubtedly much worse for other disciplines. With the exception of family medicine, very few other allopathic residency programs are located in rural areas at all. Residency training tends to be an urban-centered activity, with nearly all of the training resources located in our nation’s cities. However, one of the visions of family medicine has been to base a greater proportion of training in rural places, using such innovative educational vehicles as the rural residency track. Although this model has proved to be extremely effective in predicting future rural practice, the tiny number of residents engaged in such training (1.4% of all training) means that it will have little
impact on the larger problem of physician maldistribution (Rosenthal, 2000; Rosenthal et al., 2000).

These data suggest that we have largely failed to move residency training out of the urban center, a result very similar to that found in an earlier study (Bowman & Penrod, 1998). Although a large proportion of family medicine training occurs in the community hospital setting, these community hospitals are predominantly in urban areas. Decentralized training—including rural training tracks, block rotations, and decentralized continuity clinics—account for a very small proportion of all residency training (Saver et al., 1998). As the economic vitality of smaller hospitals is increasingly threatened by changes in the reimbursement system, even these small contributions to rural training may disappear.

This study represents the first precise quantification of the extent of rural family medicine residency training in the United States and establishes a baseline from which to measure future trends. The portrait is ominous for those concerned about the future of rural medical care. Given decreasing numbers of graduating medical students entering family medicine, the financial difficulties of some rural health systems, and the small amount of rural residency training, physician maldistribution is likely to increase (Medicare Payment Advisory Commission, 2001; Mohr et al., 1999; Pugno et al., 2001; Pugno et al., 2000). And to the extent that physicians trained in rural settings are more adept at rural medicine, one must be concerned about the quality and cultural competence of future rural practice.

What can be done to address this problem? This study demonstrates that very little rural family practice residency training is taking place in the United States. Very few programs are located in rural areas, in part because rural hospitals themselves have neither the educational nor the financial resources to support complex and expensive residency training programs (Ellis, 2000; Geyman et al., 2000). Only 3.1 percent of rural hospitals even receive Graduate Medical Education (GME) payments from Medicare (Slifkin, 1999). The recent passage of the Balanced Budget Act of 1997 (BBA) exacerbated the situation, establishing caps on the number of residents in training and further eroding the financial stability of small hospitals (Frenzen, 1997). The amendments of the Balanced Budget Refinement Act of 1999 (BBRA) and Medicare Benefits and Improvement Act (BIPA) mitigated the impact of the BBA somewhat, but rural hospitals remain financially tenuous and are not likely to become a significantly larger source of training for future rural physicians (Iglehart, 1999; Lewin Group, 2000).

Urban hospitals with a rural training mission remain a promising source of future rural physicians. Nearly a quarter of them state that their main mission is training rural physicians, and urban hospitals already account for 28.9 percent of the
family practice residency training that occurs in rural areas. Changes in federal funding formulas both through Medicare reimbursement and through educational grants (Title VII) might be very effective in moving more training into rural areas. Rural training tracks, in particular, have proven to be extremely effective tools, and urban hospitals have demonstrated the capacity to initiate and support successful rural training tracks (Crittenden, 1999; Malaty, 2000; Rosenthal, 2000; Rosenthal et al., 2000). Despite this potential, it is clear from this study that we have not yet been successful in moving family medicine residency training into rural areas.
REFERENCES


Table 1: Location of U.S. Family Medicine Training Programs with Differing Training Emphases

<table>
<thead>
<tr>
<th>Location of Parent Program* **</th>
<th>Training Mission (%)</th>
<th>Number of Responding Programs</th>
<th>Percentage of All Programs (n = 435)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural Very Important</td>
<td>Urban Underserved Very Important</td>
<td>Both Rural and Urban Underserved Important</td>
</tr>
<tr>
<td>Small rural</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Large rural</td>
<td>67.9</td>
<td>0.0</td>
<td>14.3</td>
</tr>
<tr>
<td>Urban</td>
<td>23.8</td>
<td>25.9</td>
<td>13.4</td>
</tr>
</tbody>
</table>

* The RUCA code aggregations were as follows: urban (1.0, 1.1, 2.0, 2.1, 2.2, 3.0, 4.1, 5.1, 7.1, 8.1, and 10.2), large rural (4.0, 5.0, and 6.0), small rural (7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, and 9.2), and remote small rural (10.0, 10.2, 10.3, 10.4, and 10.5).

** No parent programs were located in remote small rural areas.
Table 2: Characteristics of Programs by Rural-Urban Location of Parent Program

<table>
<thead>
<tr>
<th>Location of Parent Program</th>
<th>Urban (n = 402)</th>
<th>Large Rural (n = 28)</th>
<th>Small Rural (n = 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs with only family medicine residency in hospital (%)</td>
<td>45</td>
<td>93</td>
<td>60</td>
</tr>
<tr>
<td>Programs in community hospitals (%)</td>
<td>86</td>
<td>96</td>
<td>80</td>
</tr>
<tr>
<td>Programs in academic health centers (%)</td>
<td>14</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Programs with rural training track (%)</td>
<td>7</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>
**Table 3: Characteristics of Programs by Rural-Urban Training Emphasis**

<table>
<thead>
<tr>
<th>Rural Training Mission</th>
<th>Rural Very Important (n = 120)</th>
<th>Urban Underserved Very Important (n = 104)</th>
<th>Both Rural and Urban Underserved Important (n = 58)</th>
<th>Neither Important (n = 153)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs with no other residencies in hospital (%)</td>
<td>70</td>
<td>32</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>Programs in community hospitals (%)</td>
<td>90</td>
<td>81</td>
<td>81</td>
<td>91</td>
</tr>
<tr>
<td>Programs in academic medical centers (%)</td>
<td>10</td>
<td>19</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Programs with rural training track (%)</td>
<td>17</td>
<td>2</td>
<td>14</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 4: Percentage of Family Medicine Training in Rural and Urban Places, by the Location of the Sponsoring Program*

<table>
<thead>
<tr>
<th>Training Location</th>
<th>Location of Sponsoring Program</th>
<th>Rural:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban (n = 402)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large Rural (n = 28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small Rural (n = 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model family practice</td>
<td>0</td>
<td>4.1</td>
<td>0.4</td>
<td>4.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural training track</td>
<td>0.9</td>
<td>0.3</td>
<td>0.1</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block rotations</td>
<td>1.1</td>
<td>0.1</td>
<td>0.1</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity clinics</td>
<td>0.2</td>
<td>0.1</td>
<td>0</td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All rural training</td>
<td>2.2</td>
<td>4.6</td>
<td>0.8</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>92.5</td>
<td>0</td>
<td>0</td>
<td>92.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>94.6</td>
<td>4.6</td>
<td>0.8</td>
<td>100.0**</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Rows and columns may not add because of rounding errors.
** Represents 9,793 full-time equivalent residents.
Figure 1

Rural & Urban FP Residence Training by Program Location

Location of Training in FTEs:

- Rural Training
- Urban Training

(Percentages add to 100 for each residency location type)
Figure 2

Rural Training by Reported Residency Program Mission
(2000 Family Practice Residency Director Survey, n=435)

Percent of Training in Rural Areas

- Rural: 18.7
- Urban Underserved: 0.8
- Both Rural and Urban Underserved: 7.9
- Neither: 3.1

Residency Program Mission
Figure 3

Rural-Urban Distribution of the U.S. Population as Compared to the Location of FP Residency Training

(2000 Family Practice Residency Director Survey, n=435)

- Urban Areas: 92.5%
- Large Rural City Areas: 5.3%
- Small Rural Town Areas: 1.8%
- Remote Smaller Rural Town Areas: 0.4%

FP Training | 1998 Population

Primary Residency Location


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