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# **Barriers to Residency Training of Physicians in Rural Areas**

by

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**WUWAMI RURAL HEALTH  
RESEARCH CENTER**

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## ABOUT THE CENTER

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The WWAMI Rural Health Research Center (RHRC) is one of five centers supported by the Federal Office of Rural Health Policy, a component of the Health Resources and Services Administration 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 investigations into trends in health personnel in rural America, investigation of the changing patterns of obstetric and neonatal care in rural areas, and the impact of the restructuring of health care on rural provider availability, clinical performance, and outcomes.

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 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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## **Executive Summary**

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Despite the rising number of physicians in the U.S., even relative to the size of the population, physicians continue to disproportionately locate their practices in urban areas. In 1965, there was one nonfederal, patient care physician for every 807 persons in the U.S.; this ratio had reached one patient care physician for every 455 persons in 1996 (Randolph, 1997). Rural communities, however, have not shared equitably in that increase. While 24% of Americans live in nonmetro counties, only 11% of patient care physicians practice in those counties; this proportion has fallen since 1980 (Randolph, 1997). Consequently, residents of rural areas are far more likely to live in health personnel shortage areas than are urban residents. Although allopathic and osteopathic family medicine residency graduates are much more likely than other primary care residency graduates to locate in rural areas, the proportion and number of family medicine graduates doing so have been declining over the past decade (American Association of Medical Colleges, 1995). Many factors contribute to the imbalance in the distribution of physicians, including: the type of training chosen, the location of medical training sites, physicians' lifestyle preferences, and aspects of rural communities such as the strength of their economies and health care delivery systems.

Training physicians in rural areas has been advocated as one strategy to attempt to increase the numbers of rural physicians. This report summarizes what is known about rural graduate medical education (GME) in family medicine, general internal medicine, pediatrics, obstetrics and gynecology, and general surgery. It identifies barriers to rural graduate medical training and proposes actions that might be taken to reduce or remove those barriers.

### ***Literature Review — Limited Published Data; Most Rural GME in Family Medicine***

A review of the literature reveals a dearth of information on either allopathic or osteopathic graduate medical education in rural areas. Several case-reports describe elective rotations and rural continuity clinics in general internal medicine and pediatrics residencies, and a few of these offer anecdotal reports of outcomes concerning the practice locations of the graduates of these programs. We found no published reports of organized rural training experiences in general surgery or obstetrics and gynecology. The literature did show that 15% of physicians in small rural counties are osteopathic physicians, despite their comprising only 5% of all U.S. physicians (Simpson & Simpson, 1994). Allopathic and osteopathic family practitioners are equally likely to choose rural practice, but only 11% of allopathic graduates become family practitioners, whereas 46% of osteopathic graduates do so.

A larger, but still quite modest, literature reports on rural training experiences in allopathic family medicine. About half of all family medicine residencies offer some type of rural experience and 40% have a required rural rotation (Bowman & Penrod, 1998). Family medicine has developed both three-year residencies based entirely in rural areas with the expressed mission of training physicians for rural practice, and "rural training track" (RTT) residency programs. In RTTs, residents spend their first year of training in a larger, more urban setting, then spend their last two years training in a much smaller, rural setting, though they usually rotate back to the larger setting for some experiences in these latter two years. The limited evidence available indicates that most RTT graduates establish practices in rural areas. A survey of 96% of all family medicine residencies suggested that being located in a more rural state, being located in a smaller population center, having an explicit mission for rural health

care, and having a required rural rotation all increased the likelihood that graduates of a program would locate in a rural area (Bowman & Penrod, 1998).

## ***Interviews with Persons Involved with Rural GME***

We interviewed persons involved with rural graduate medical education at a number of sites. Most of the people interviewed were in family medicine, as most rural training activity appears to occur in family medicine, but we also spoke with persons involved with rural training in general internal medicine, pediatrics, and general surgery.

### **Financial barriers related to Medicare GME funding are the biggest problem**

By far, financial obstacles present the greatest identified barriers to increasing rural training opportunities. All GME programs depend on Medicare GME funding paid to teaching hospitals. GME funding is directly related to the hospital volume of Medicare patients and goes predominantly to states with large urban populations through urban hospitals. For example, for every Medicare enrollee in New York, hospitals receive \$62 in GME payments, while the comparable amount for Idaho hospitals is \$1.02.<sup>1</sup> Many aspects of the GME funding structure were cited as barriers: funding is paid to hospitals and not to residency programs; funding is dependent on hospital volume of Medicare patients; funding acquisition requires substantial expertise and effort via negotiations with Medicare intermediaries that might change during the process; and funding is subject to an initial delay, creating additional financial stress on new programs. A number of family medicine RTT programs were not receiving some or all of the GME payments for which they were eligible. The only allopathic rural general surgery program that we discovered was never able to get started because of these issues. Since the costs of applying for GME payments are the same for small and large hospitals and are independent of the size of a hospital's Medicare population, small hospitals and others with small Medicare populations are effectively discriminated against because of the linking of GME payments to Medicare payments. For residencies that are primarily based in the outpatient setting, such as family medicine, linking GME payments to inpatient volume and to hospitals does not appear to make sense.

The cap on new residency programs in the Balanced Budget Act of 1997 contained an exception for new programs in underserved rural areas. However, how these areas will be defined is as yet unknown, and could forestall the development of significant numbers of new rural programs, whether RTTs, independent residencies, or satellite programs (three-year programs affiliated with a larger program but having all three years of clinic and some other training taking place in the more rural "satellite" location). If RTTs and rural satellite programs do not qualify as new programs, then two prime mechanisms for creating new rural residency positions will have been eliminated. Reductions in indirect medical education (IME) payments from this act and the lack of guidelines for adequately supporting training in ambulatory sites may destabilize fragile rural programs and inhibit the creation of new ones.

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<sup>1</sup> Calculated from the AMA Physicians Characteristics and Distribution, 1996/97 edition and the AAMC Government Relations Resource Guide for Medical Education and Research, May, 1997.

## **Other financial barriers**

How the costs of RTTs compare to those of traditional residencies appears to vary from site to site. Some interviewees felt that family medicine RTT programs were no more expensive, and perhaps less expensive, than other programs. Others felt they were more expensive, citing the extra expenses associated with administrative support at both sites, travel and lodging costs for residents and faculty, and costs for telemedicine links. A recent study does suggest that there are substantial costs associated with training in ambulatory settings (Boex et al., 1997).

The need for funding of rural faculty development was cited by a number of persons. To date, only one Bureau of Health Professions training grant has focused on rural faculty development.

## **Residency Review Committee requirements create additional barriers**

Many persons interviewed cited Residency Review Committee (RRC) requirements as significant barriers to rural GME training. A Residency Review Committee consists of representatives appointed by the American Medical Association, the appropriate specialty board, and, in some cases, a national specialty organization. Each specialty has a separate and independent RRC. Requirements for multiple residencies in a hospital, for minimum numbers of residents in programs, and for supervisors of residents to be from specific specialties rather than having specific expertise were among the barriers cited to establishing training programs in rural areas. In family medicine, requirements for block experiences (e.g., one continuous month of gynecology), not always available at rural sites, conflicted with requirements for continuity of care (i.e., being at one practice location for extended periods of time). For family medicine programs not located in rural areas, restrictions on the amount of time residents may spend away from their programs limit the time that residents can spend on rural rotations. New regulations governing the size of RTTs and restricting the ability of RTT faculty to carry out additional tasks while precepting will increase costs of rural training in the future.

## **Other barriers**

Several persons interviewed cited other barriers to training residents in rural areas, including: difficulty in attracting and retaining faculty, the inherent fragility of small rural programs, and difficulty in attracting residents. The last of these barriers emphasizes the point that increases in graduate medical training in rural areas are dependent on the availability of medical students desiring to participate in such rural programs. There is a need to support and expand undergraduate medical education programs that select and nurture students with a particular interest in rural medicine.

## **Conclusions and Recommendations**

The majority of interest and activity in graduate medical education in rural areas aimed at preparing physicians for rural practice appears to be in family medicine. However, other specialties are also providing—or interested in providing—some rural exposure to residents. Financial concerns remain the prime barrier to training larger numbers of residents in rural areas, and much, though not all, of the concern is traceable to the current method of relating funding for GME to Medicare and to hospitals. Other identified barriers relate to restrictive RRC requirements—greater flexibility on the part of the RRCs and using more outcome-based evaluation criteria, rather than structural criteria, need to occur. Some problems relate to inherent structural problems associated with rural areas. Clearly, a need exists for a greater

understanding of the factors that can promote rural practice location choices of residents and for carefully-planned trials of interventions targeted at inducing greater numbers of residents to locate in rural areas. Specific suggestions for consideration include:

- de-linking Medicare GME payments from hospitals and from Medicare inpatient volume;
- simplifying the process of obtaining Medicare GME funds for small rural programs;
- clarification of the exception to the ban on Medicare funding of new graduate medical education programs in the Balanced Budget Act of 1997 to allow new rural residency programs with expressed missions to supply practitioners to underserved rural areas, even if the programs themselves are not based in underserved rural areas (since underserved rural areas will be least able to support new residency programs);
- ensuring that federal and other funding continues to exist for the development of new rural training programs; programs in fields outside of family medicine may need special help, having few or no peer programs to ask for advice or to model themselves on;
- targeting enhanced Title VII funds to residency programs proposing innovative efforts aimed at increasing the training, location, and retention of female physicians in rural areas;
- providing faculty development funds targeted to rural programs;
- revision of RRC requirements to allow greater flexibility in the training setting and in resident supervision; and
- revision of RRC requirements to address competency more than measures of structure and process, and to be more flexible in terms of how, where, and when residents get specific training experiences.

A complete list of the 26 recommendations is at the end of the report on pages 26-29.

## Overview

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This report summarizes the results of our studies of issues relating to the graduate medical education of physicians in rural areas for rural practice. It includes a summary of available published and unpublished literature as of Fall 1997 and the results of our interviews with persons involved with rural residency training. The report summarizes what is known about rural residency training, including costs and outcomes, difficulties, and barriers to the creation of programs. The report emphasizes efforts in family medicine because family medicine has been far more active in the rural training arena than other specialties. Only 8-10% of internal medicine, pediatrics, and obstetrics and gynecology residents choose rural locations, and these tend to be locations that are not underserved (National Rural Health Association, 1992). A second report later this year will review more fully what is known about the effectiveness of rural training programs.

## ***Background on Physician Training***

Physician training takes place in two stages: undergraduate and graduate medical education. Undergraduate medical education occurs in medical schools and involves a combination of classroom learning and clinical education. While not the focus of this report, studies suggest that special admission and training programs can increase the numbers of students who choose rural practice (Rabinowitz, 1993). Students expressing interest in practicing in towns of under 10,000 persons were more likely to have come from such towns and were more likely to be interested in locating their practices in socioeconomically deprived areas (60%) than their fellow medical students (11.5%) (American Association of Medical Colleges, 1995). Efforts to increase numbers of physicians training and practicing in rural areas should address the entire educational continuum, from pre-professional preparation (e.g., facilitating interactions between interested high school students in rural areas and local physicians), to medical school, to residency, through the establishment of practices in rural areas and programs to retain these practitioners.

Graduate medical education, also known as residency, typically involves three to five years of training after medical school and occurs predominantly in clinical settings—typically hospitals, though there has been a gradual shift in emphasis toward training in outpatient settings, particularly for primary care specialties. The Area Health Education Center (AHEC) program, for example, was initiated as a response to the 1970 report of the Carnegie Commission on Higher Education, which recommended that undergraduate and graduate medical education be decentralized and that some training take place in rural areas (Carnegie Commission on Higher Education, 1970). For each physician specialty, there is a Residency Review Committee (RRC) that sets the conditions for residency accreditation.

Family medicine, since its inception as a specialty, has placed a much greater emphasis on training in outpatient settings than other specialties. Many programs have offered or required some training in rural settings. A 1987 survey of U.S. family medicine residency programs found that 49% of the 293 responding programs offered elective rural rotations, but only 31% of programs (n=84) required them (Blondell, Smith, Byrne & Higgins, 1989). A more recent survey of family medicine residencies, with a 96% response rate (352/367 programs), found that 40% of programs required rural rotations, 8% offered ambulatory rural experiences, and 5% offered rural fellowships to physicians who had finished their residency training (Bowman & Penrod, 1998). Over the past decade, family medicine has seen the appearance of some “rural training track” (RTT) residency positions. In these programs, rather than spend all three years of



residency in the same setting, residents spend their first year of training in a fairly large, usually urban hospital, with the majority of their time spent on hospital-based rotations. They then spend most of their remaining two years of training in a rural location, typically based in a rural practice, utilizing a rural hospital for their inpatient and emergency room training but having the majority of their education occur in a rural outpatient setting. They usually rotate back to the larger setting for some experiences during these latter two years.

Fewer allopathic family medicine graduates are entering rural practice now than 10 years ago, despite an increase in the number of residents. The number of RTT programs is too small to allow a projection of whether a dramatic increase in their number could reverse this trend. Family medicine graduates were three times more likely than other primary care residency graduates to locate in a rural area from 1975-1985, but this has decreased to a twofold difference (American Academy of Family Physicians, National Rural Health Association, 1992); the absolute number of family medicine residency graduates locating in rural areas has decreased from 680 per year a decade ago to 580 per year more recently (American Association of Medical Colleges, 1995). This may relate in part to the increasing proportion of female medical students and residents and the smaller likelihood of female physicians choosing to practice in rural areas (Doescher, Ellsbury & Hart, 1998).

### ***The Need for Rural GME to Address Physician Shortages in Rural Areas***

There are two primary goals of training residents in rural areas: producing greater numbers of physicians who will practice in rural areas and producing physicians who are better prepared for the demands of rural practice. These two are clearly related, as providers who are better trained to deal with the clinical demands of their practices will be more satisfied with and more likely to stay in their practices. As long as medical students can freely choose which sites they will apply to for their residency training, it will be difficult or impossible to know whether some persons without a strong interest in rural practice can be induced to choose it through training in rural locations. There is a strong feeling among educators involved in rural physician training that, if trained in rural areas, some physicians will avoid developing ties to urban areas that might divert them from their initial intentions to practice in a rural location. This contention is bolstered by reports that 76% of graduates from the 13 identified family medicine RTTs existing in 1996 have started practicing in rural areas (Rosenthal et al., 1998).

The need for greater numbers of physicians to practice in rural areas is clear. For example, in 1975, rural counties in the U.S. held 24% of the population but only 16% of its primary care physicians. By 1990, this had slightly worsened to 23% of the population but only 14% of primary care physicians. This occurred despite a 75% increase in the number of primary care physicians during this time period, while the overall population grew only 17% (U.S. General Accounting Office, 1994). The unmet need for rural physicians varies dramatically across the rural landscape, with the unmet needs of rural populations in small remote places being most critical (COGME, 1998).

A recent survey of 96% of the family medicine residencies in the U.S. identified a number of factors associated with graduates entering practice in a rural area. The most significant program factors included being located in a more rural state, having an explicit mission to prepare residents for rural practice, having required rural experiences (clinics and rotations) for residents (see Table 1), being located in a less populous area, and requiring more months of obstetric training (see Table 2) (Bowman & Penrod, 1998).

Some evidence from Canada suggests that training specialists in rural areas may lead to substantial numbers choosing rural practice, though again the question of how much of this is the result of the self-selection of applicants remains unanswered (Gray, Steeves & Blackburn, 1994).

**Table 1. Number of required months of rural residency experiences and rural practice choice among family medicine residency graduates.**

Required rural months	0	1	2	3	4-6	> 22
Number of programs	212	82	29	15	4	11
% of graduates locating in rural areas	24%	37%	46%	52%	51%	69%

**Table 2. Number of months of required obstetrics and rural practice choice among family medicine residency graduates.**

Number of obstetrical months	2	3	4	> 4 months
Number of programs	141	111	71	30
% of graduates locating in rural areas	24%	31%	34%	42%

## **Graduate Medical Education in Rural Areas**

### ***Summary of Allopathic Activities Outside of Family Medicine***

A goal of this report is to summarize the rural GME training activities for specialties providing aspects of "generalist" care in rural areas (i.e., family medicine, general internal medicine, general pediatrics, obstetrics and gynecology, and general surgery). However, review of the literature, key informant interviews, and email postings to listservs for educators in several of these specialties and for rural medical education suggest that the vast majority of the graduate medical education activity taking place in rural areas to train practitioners for rural practice is taking place in family medicine. Therefore, much of this report focuses on family medicine. As an example of the lack of emphasis on training for rural practice outside of family medicine, the Society for General Internal Medicine published a directory of primary care internal medicine residencies in 1992 (Society of General Internal Medicine, 1992). The directory listed a modest number of residencies located in rural counties (non-Metropolitan Statistical Areas [MSAs]). Most of these were residencies for large, multispecialty groups headquartered in rural areas (e.g., Guthrie, Sayre, and Geisinger) and all highlighted the size of their referral areas and the advanced technology available in their hospitals. References to their rural locations involved

avoiding the hassles of living and working in big cities, and none mentioned preparation for rural practice as a goal.

Some programs in fields other than family medicine do offer elective or rotational exposure to less urban environments (though some of these are still located in metropolitan counties, such as the Delano, California rotation of the Bakersfield, California general surgery residency and the Toppenish rotations of the University of Washington internal medicine and pediatrics residents). The University of Washington WAMI (Washington, Alaska, Montana, Idaho) program was one of the pioneers in providing rural experiences to residents, and currently internal medicine sends up to 20 residents per year on 1-2 month rotations to 5 different sites; pediatrics also uses several sites. Overall, the literature provides sparse documentation of rural training experiences in internal medicine (Crandall, Reynolds & Coggins, 1978; Parenti & Moldow, 1995), pediatrics (Kairys & Newell, 1985), and general surgery (Asher, Martin, Richardson & Polk, 1984). There is some suggestion, but no clear evidence, that these experiences may lead to an increased likelihood of starting in rural practice (Asher et al., 1984; Kairys & Newell, 1985).

The University of South Alabama attempted to start a residency track oriented toward preparing surgery residents for the practice of rural general surgery. This track, somewhat analogous to family medicine RTTs, was approved by the Residency Review Committee (RRC) for general surgery and would have had residents in their third and fourth years of training leave the University setting and be trained in community hospitals (a number of them modest-sized rural hospitals) in which there were no surgical subspecialty residents. This would have allowed them to gain experience that would otherwise not have been available to them in gynecology, operative obstetrics, urology, orthopedics, and otorhinolaryngology, to learn skills they would need in rural practice. Their first two years and final year of training would still have taken place in the traditional University teaching hospital. However, because of the University's inability to obtain GME funding for the community hospital rotations, and because the University hospital's Medicare base was too small for the University hospital to support resident time away, the program never progressed to the point of being able to accept residents (J. Raymond Fletcher, M.D., University of South Alabama Department of Surgery, personal communication, 10/24/97). The Oregon Health Sciences University is considering the implementation of a residency track oriented toward rural general surgery, but this has not progressed beyond the early planning stage (Karen DeVeney, M.D., Oregon Health Sciences University Department of Surgery, personal communication, 11/4/97). We could not find evidence of any other efforts to train allopathic general surgeons for rural practice.

### ***Allopathic Rural Family Medicine Training, Including Rural Training Tracks and Three-Year Residencies***

In contrast, family medicine has a substantial number of training opportunities in rural areas. Some residency programs are located in rural locations; some of these are located in the same multispecialty clinics offering rurally-located primary care internal medicine residencies, though the descriptions these programs offer in the Directory of Family Medicine Residencies (American Academy of Family Physicians, 1997) generally do emphasize preparation for rural practice. As discussed above, over half of all family medicine residencies offer some sort of rural experience and 40% have a required rural rotation. Some offer the option of a satellite site using an office in a nearby area with rural characteristics as the site of a resident's continuity clinic. Furthermore, according to listings in the 1998 Directory of Family Practice Residency Programs, 14 programs offer rural fellowships for physicians who have finished their residency training but wish to seek additional training to better prepare themselves for rural practice

(Norris & Acosta, 1997). By examining all entries in the Directory of Family Medicine Residencies and an informal list of all approved "1+2" rural family medicine programs (programs with their first year in one location and last two years in another) obtained from the family medicine Residency Review Committee, we have assembled a list of approved family medicine RTTs, residencies located in rural areas (non-MSA counties), and all other programs claiming to offer some rural experience. This information is summarized in Appendix A.

To elucidate what the critical issues for RTTs and three-year rural residencies were, we conducted telephone interviews with persons involved with both types of programs. The interviews were more heavily weighted toward RTTs (n=10) than rural residencies (n=3) as RTTs are a relatively new phenomenon in family medicine and the issues for them are less well-known than for traditional, three-year residencies. Also, the RTTs are training residents in smaller, more remote locations than the three-year rural residencies. This could lead to more and different problems than seen in three-year programs. The interviews and the authors' experiences revealed many problems common to both programs, and some problems unique to each program.

To get started, both types of programs require several years of planning and development, and significant start-up funding (Damos et al., 1998). This funding was variously supplied by state and federal grants and the involved hospitals. Potential loss of Title VII funding (residency development and support grants from the Bureau of Health Professions) for family medicine residencies was cited by a number of persons interviewed as a barrier to establishment of new RTTs. Three-year residencies tend to build their own facilities and create their own practices, though they often hire one or more local practitioners as faculty and utilize their practices as the base of the residency practice. RTTs may use this model, but more frequently (in our sample) functioned in the setting of an already-existing practice, with the partners in the practice serving as faculty and one of them being the site director. The vulnerability of the RTTs to changes in the local practice they were using emerged as an issue several times. For instance, if the site director became too busy or lost interest, this could result in the practice withdrawing from program participation and the site closing. In the larger, three-year programs, since the practice was part of the residency, faculty teaching time was more protected and the teaching load spread across more providers. While faculty might choose to leave and replacing them was often difficult, such changes were less likely to threaten the viability of the program than in RTTs.

Approximately 70% of RTTs have been reported to use telemedicine links (Rosenthal et al., 1998), and this high usage rate was borne out in our interviews. Most programs had telemedicine links to the "parent hospital" of the program (the site where residents do their first year of training and which sponsors and administers the RTT). In many cases, programs were able to take advantage of pre-existing telemedicine linkages (e.g., clinical and administrative outreach efforts from the parent hospital to surrounding rural hospitals). In some cases, grant funds were obtained specifically for telemedicine links. Some programs felt that ongoing support of established telemedicine links would not be a problem, while others stated that, if grant funds disappeared, they would be unable to afford the ongoing operating costs of their link.

Telemedicine links were being used primarily to bring didactic teaching sessions to the RTT site from the parent program. In many cases, some or all of these sessions were also open to physicians other than the residents at the remote sites and continuing medical education credit could be obtained by attending these sessions. One site was hoping to obtain approval from the Residency Review Committee to use a telemedicine link to allow a resident at an RTT to be precepted by a physician at the parent program. Some programs were hoping to provide specific faculty development curriculum for RTT faculty via telemedicine links.

## ***Osteopathic Residencies and Rural Training and Practice***

Proportionately, osteopathic physicians are more likely than allopathic physicians to practice in rural areas. This appears to be the result of their much greater likelihood of choosing family practice as a specialty—46% of osteopathic medical graduates versus 11% of allopathic medical graduates. However, osteopathic and allopathic family physicians are equally likely to choose rural practice. In 1996, there were almost 600,000 allopathic patient care physicians, but patient care osteopathic physicians comprise only about 5% of the number of allopathic physicians, or about 30,000 osteopathic physicians. Thus, while 18.1% of osteopathic physicians practice in rural areas versus 11.5% of allopathic physicians, even in rural areas, allopathic physicians vastly outnumber osteopathic physicians (COGME, 1998).

The majority of accredited osteopathic medicine residency programs are family medicine residencies. Overall, there are 24 sites offering osteopathic GME that are located in nonmetropolitan counties (see Appendix B). There are three osteopathic obstetrics and gynecology residency programs, two internal medicine programs, and one general surgery program located in rural areas. Schools such as the West Virginia School of Osteopathic Medicine and the Oklahoma State University College of Osteopathic Medicine are located in states with few metropolitan areas, and have well-established rural family practice programs to support their states' rural and underserved populations. The new Pikeville College of Osteopathic Medicine in Pikeville, Kentucky, has already established a plan to develop rural residency training in family practice, pediatrics, and general internal medicine. John Strosnider, Dean of the Pikeville college, anticipates no resistance to establishing "new" residency programs under the new regulations governing the Balanced Budget Act of 1997. Because of the school's rural location and the college's avowed mission to produce physicians for the Appalachian region, the new residency programs support the intent of the new law as defined in the 1997 Balanced Budget Act. Strosnider expects the three rural residency programs to be ready to accept residents by July, 2000, a full year before the college's first graduating class (Zuger, 1998).

The osteopathic medical profession is also moving to create Osteopathic Postdoctoral Training Institutions (OPTIs)—GME consortia that will establish large-scale, multi-disciplinary rural residency training programs. The OPTI structure will attempt to create a seamless transition between the medical school curriculum and the clinical training experiences throughout residency, with the medical school and the residency program working in tandem to rationalize and improve the quality and continuity of the education experience. An OPTI must include at least one hospital accredited by the American Osteopathic Association (AOA) and at least one AOA-accredited college of osteopathic medicine. OPTIs, as fully-organized GME consortia, are intended to function as the organizational hubs for all GME activity and serve as conduits for GME payment distribution in a rural setting. However, many of the proposed OPTIs—designed to connect several colleges of osteopathic medicine and provide opportunities for students across the nation—will extend beyond a single geographic wage area, and thus run counter to regulation in the Balanced Budget Act of 1997. The OPTI are structured to include an institution that operates affiliated programs at various sites nationwide, and a group of community-based hospitals that together provide for residency training in conjunction with a medical school. Given the purpose of these consortia, the osteopathic profession would recommend that regulations recognize a formally organized GME consortium without geographic limit.

## ***Other Programs Enhancing the Choice of Rural Practice***

During the past decade, a dozen accelerated allopathic family medicine residency programs were created that accept a few, select fourth-year medical students into university-based residency training as first-year family practice residents. In Nebraska, this program emphasizes rural practice. Third-year students interested in rural practice go through an orientation and interview process. Those accepted into the program satisfy both fourth-year medical school and first-year family practice residency requirements in the same year. These residents also commit to rural practice, receive stipend and loan benefits, and take a fourth-year rural fellowship as part of the program. This effectively reverses the usual four years of medical school and three years of residency to a "3+4" year program. It accelerates the learning process by moving clinical responsibilities earlier. In the fourth year of residency, the residents do procedural training in community hospitals outside of Omaha. This program graduates between 60% and 80% of its residents into rural practice.

A different program at Nebraska, operated through the internal medicine department, begins in the fourth year of medical school and allows students to choose an internal medicine or family medicine residency program in Nebraska through the usual method of applying to multiple programs and being "matched" to one through the National Resident Matching Program. Most of the graduates of this Primary Care Track (18 total as of 1997) have chosen rural training tracks in family medicine residencies, with from 75% to 100% of each four-person group choosing rural practice.

Both of these programs have helped to keep some of Nebraska's most promising medical students in the state rather than losing them to training programs in other states. The development of such tracks has greatly enhanced the recruitment of rural training track residents and greatly increased the procedural training of the graduates.

Oklahoma has increased the salaries of its family practice residents, especially ones who choose rural Oklahoma communities early, to accomplish the same goal of keeping trainees in the state. Thus, by accelerating the location decisions of graduates, states and institutions may be able to encourage more of them to choose rural practice.

Similar "bridging techniques" could be used to help bring students with rural backgrounds into early admission programs in medical schools with the hope that they will be more likely to enter rural practice. Some programs start even before college. For example, the Washington Academy of Family Physicians has a program to promote medical careers among high school students in rural areas of Washington State. Residencies may bridge the gap between residency and practice by involving residents in rural communities or by involving communities more actively in the residency with recruitment fairs, lunches, dinners, precepting, and ambulatory clinics. The major impediment to long-term commitments and bridging techniques is that it is impossible to predict whether the persons recruited into these programs will end up having spousal or other ties that preclude locating in a rural area when it comes time to choose a practice location.

## ***Short-Term Rural Training***

Rural rotations can be formally arranged and required by the training program or arranged as an elective by the program or resident. Elective rotations often are used by residents to evaluate a potential practice site. Formal arrangements offer practice sites a consistent stream of residents, enabling them to have appropriate staffing to support the residents as regular team

members. Rural rotations may aid practitioners with after-hours coverage. Ideally, programs might have two- or three-month rural rotations at specific sites, with another month available for residents to evaluate potential practice sites. Because communities benefit from a dependable source of health personnel, they are more likely to support the salary, benefits, and travel costs of residents under such circumstances. Residents carrying out rural rotations provide services in shortage areas and help stabilize overloaded, small rural practices that might otherwise be in danger of having practitioners "burn out." Interactions with residents can also help to assuage the sense of isolation often felt by rural practitioners.

## **Financial Issues**

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Rural graduate medical education, like urban graduate medical education, requires money. This is true both for rurally based residencies and for rural rotations undertaken by residents at urban programs. This report focuses on funding for rural residencies primarily because the federal government has not played a significant role in fostering the rural rotations of residents at urban programs, even though over 3700 months of required family medicine residency rotations occurred in 1994 (Bowman & Penrod, 1998) and probably at least 5000 months this year. Many more months of rural training/service occur through electives and rural satellite clinics. Ambulatory clinics, rural rotations, fellowships, and other rural programs must obtain funding from local hospitals, the state, or practice revenues. The Rural Health Medical Education Demonstration Project of the Bureau of Health Professions attempted to remedy this funding problem by providing indirect medical education (IME) payments for rural experiences of residents in the participating residency programs. A preliminary evaluation of the program found that a number of initial applicants withdrew from the program and participating residencies complained about the lack of payment for start-up costs, overhead costs, and the rural hospitals' costs (Ricketts & Woods, 1994). In addition, since the sponsoring teaching hospitals—not the residencies or the rural hospitals—received the IME payments, the program provided no real incentive to the residencies for participating.

### ***Start-Up Costs for Rural Family Medicine Residencies***

As mentioned above, substantial start-up costs are associated with developing a rural training site, whether a three-year residency or an RTT (Damos et al., 1998). We were not able to obtain estimates of start-up costs in our interviews, but both types of programs required substantial start-up funds and several years to progress from initial planning to full implementation. Starting an RTT is clearly much more like starting a new residency than adding a couple of residents to an existing program, and the costs are probably similar to those of starting a new program. One interviewee did note that, while the start-up costs for their first RTT site were similar to those for starting up a new residency program, start-up costs for their additional RTT sites were substantially lower as they could take advantage of the existing infrastructure at the parent program for the additional RTTs as well as their experience from the first RTT site (i.e., there may be economies of scale associated with starting multiple RTT sites from one parent program). Start-up funds were obtained from a variety of sources, particularly the federal government through Title VII grants, state government grants, funding from sponsoring hospitals or the hospitals' parent organizations, and private grant funds.

## ***Ongoing Costs for Rural Training Tracks — Unclear Whether They Cost More, Less, Or the Same as Traditional Residencies***

There was no clear consensus as to whether training residents in RTT programs was less expensive, about as expensive, or more expensive than training them in traditional residency settings. Estimates of the annual cost per resident in four programs ranged from \$61,000 to \$100,000 in 1991 (Rosenthal et al., 1992). In general, little is known of the costs of training residents in ambulatory settings (Boex et al., 1997).

### **Spokane — lower costs, but new RRC requirements may increase costs**

For 1997-98, the Family Medicine Spokane residency program has estimated the annual cost per RTT resident to be \$79,202, less than half the estimated annual cost (~ \$166,000) for a resident at its Spokane (urban-based) core program. Reasons cited by the Spokane program for these lower costs include being able to take advantage of existing facilities in their RTTs rather than having to build them for their Spokane residency and lower personnel costs. The personnel cost savings were attributed to having the major "fixed costs" of practice personnel already paid for by the existing practices at the RTT sites, with the addition of one or two residents resulting in only modest marginal cost increases. These cost savings can be very sensitive to the number of residents. For instance, one resident may not require the hiring of additional personnel, while a second resident might create enough additional work to require new personnel. It should be noted that the Spokane program, as the first RTT program in the country, was given greater flexibility by the RRC, including the ability to have only one resident at some sites at any one time (i.e., a new resident every other year). If some of the low costs reported by the Spokane program are the result of the one-resident sites, this will not be reproducible in other programs and will disappear from Spokane now that the RRC has required all RTT sites to have at least one resident each year (i.e., no less than two residents at a time).

### **Other sites — costs felt to be higher**

Others, however, felt that there were substantial additional costs to running an RTT. Telemedicine links were often used to reduce the need for faculty to travel to RTT sites from the parent programs, but had substantial start-up and maintenance costs. Parent program faculty still generally visited the RTT sites once or twice a month. RTT residents also had to travel back to the parent program anywhere from weekly to once every three months for didactics and, in some cases, rotations lasting one or more months. Programs paid these travel expenses and often the lodging costs for the residents and their families as well. Costs of faculty development at RTT sites were significantly higher than at urban programs.

Some felt that residents were roughly financially neutral for a practice (Maudlin, 1997), with decreased productivity by faculty roughly offset by the productivity of the residents. Others felt that there was a significant cost to the sponsoring practice, particularly with new family medicine RRC rules concerning supervision of residents that require a preceptor supervising one resident to have his or her schedule reduced 50% and one supervising two residents not to be seeing any patients on their own during that time. It should be noted that there is no literature relevant to the actual amount of time needed by faculty to supervise one or two residents appropriately. However, a recent study did suggest that ambulatory sites used for health professional student training did have significantly higher costs than nonteaching ambulatory sites (Boex et al., 1997).



## ***Funding Sources for Rural Residencies***

### **Medicare GME funding**

The vast majority of GME funding comes from Medicare direct medical education (DME) and indirect medical education (IME) payments. In fiscal year 1995, Medicare spent about \$2 billion on DME and \$5 billion on IME (Vladeck, 1997), for a total of over \$7 billion. These funds dwarf the fiscal year 1997 appropriations of \$293 million for the Bureau of Health Professions, which provides some support to primary care residencies through Title VII funding. DME funds are intended to compensate for direct, added costs related to teaching, such as resident stipends, faculty salaries, and allocated overhead. IME funds are tied directly to Medicare reimbursement of hospitals and are intended to compensate teaching hospitals for factors raising their costs of providing care, such as the greater complexity of their patients and increased costs of patient care related to teaching. DME payments provide the salary for one full-time faculty member for every 12 residents. Since faculty members also earn clinical revenue from seeing patients an average of about 30% of the time, this means that DME payments provide funding for one faculty member for every eight to nine residents. Residencies need and have more faculty than this, generally supported by funds from their sponsoring hospitals—which usually pass on to the residencies some, but not all, of the IME funds they receive—as well as state governments, often through state university appropriations. IME payments are related to the hospital volume of Medicare patients and go predominantly to urban states and urban hospitals. For example, for every Medicare enrollee in New York, \$62 is paid for GME, but in Wyoming and Idaho, approximately \$1.25 and \$1.02 respectively is spent on GME per Medicare recipient.<sup>2</sup>

Only 5% of teaching hospitals are located in rural areas and, because these are small hospitals, far less than 5% of residents are located in rural areas. A recently completed study of Medicare GME funding in rural hospitals found that from 1989-1994, the number of rural (nonmetropolitan) hospitals receiving any Medicare GME funds was fairly stable at 61-70 hospitals. Of the 70 such hospitals in 1994, 19% were in towns with less than 5000 people, 19% were in towns with 5,000-10,000 people, and 19% were in towns with 10,000-20,000 people. Fourteen percent of these hospitals had fewer than 50 beds, 18% had 50-100 beds, and 39% had 101-200 beds; three hospitals had more than 400 beds. These three largest hospitals accounted for 55% of all residents being trained in rural areas and \$47 million of the \$80 million total Medicare GME funds disbursed to rural hospitals; the other 67 hospitals received a mean of \$206,000 dollars in DME payments and \$365,000 in IME payments. There were no rural hospitals receiving Medicare GME payments in the Southwest U.S., and very few in the Midwest or the West (Slifkin, Popkin & Dalton, 1998). There are over 2,000 rural community hospitals in the U.S.

The calculation of GME payments including IME and DME is dependent on historic costs or comparisons with peer institutions. Rural hospitals that act as sites for residency training have historically lower patient care payments and education costs than institutions in urban areas, exacerbating the asymmetric flow of GME funds to urban areas. RTTs are estimated to receive only 25% to 50% of the IME payments per resident that traditional residency programs receive.

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<sup>2</sup> Calculated from the AMA Physicians Characteristics and Distribution, 1996/97 edition and the AAMC Government Relations Resource Guide for Medical Education and Research, May, 1997.

Thus, there are serious questions regarding the equity of GME funding per rural and urban populations.

Sources of funding for ongoing expenses were a significant problem at some sites, but not a problem at all at others. The most commonly-voiced complaints related to Medicare GME funding. Some RTTs receiving only DME funds reported that their rural hospitals lacked the expertise to apply for IME funds, or the ability to pay a consultant to help them. Some interviewees commented that it did not seem worth applying for IME funds because the IME payments would be too small to be worth the effort. Two reasons were cited for this: first, the rural hospitals were so small that they treated few Medicare patients, making their Medicare bases quite small, and second, the residents spent much of their training time outside of the hospital and it was not clear whether this time qualified for IME payments. Basing GME payments on these factors was felt to be prejudicial against small rural hospitals and primary care training programs—the costs of applying for IME funds are similar whatever the size of the hospital and regardless of the setting(s) where training takes place. Therefore, the fixed costs of applying are a much greater burden on small hospitals and outpatient-focused residencies.

Interviewees also reported conflicts with their state Medicare carriers about defining a program's Medicare base. For example, one program was fighting to have both the costs of building its family practice center and recruiting faculty considered as educational expenses and thus as part of its base, but their carrier was denying this. Another program reported that, just after they had reached agreement with their state's Medicare carrier, the carrier changed and this new carrier refused to recognize the agreement with the former carrier.

The recent uncertainty over what changes would be made to Medicare GME payments was not cited by most programs as an issue. Of course, since many of them receive only DME funding, this is not too surprising. A representative of one program that had just folded stated that, while several issues contributed to the program's demise, uncertainty over GME funding was one major factor. Another program director felt strongly that continuing stable levels of reimbursement for rural training sites was essential for the continued stability of rural programs. While Title VII funds support primary care residency program development, the tens of millions of dollars available pales in comparison to the billions provided through Medicare GME payments.

### **Other sources of revenue and support**

The fact that Medicare GME payments all go directly to the hospital, not the program, was an issue for RTTs. Unlike traditional, hospital-based residencies, RTTs are based primarily in ambulatory practices. In addition, rural programs depend on volunteer community faculty to provide teaching for specialty care, as there are not other nearby residency programs that they can take advantage of for teaching their residents. Some programs expressed concern that, in today's highly-competitive market, they might not be able to continue to obtain this specialty teaching without having funds to pay these community specialists.

Rural hospitals often do contribute funding for RTT residents, though the residencies generally did not know how this compared to the Medicare GME funding received by the hospitals, similar to findings of another study of primary care residency programs (Center for Health Policy Studies, 1996). Residents were felt to provide a significant service to many rural hospitals (Slifkin, Popkin, & Dalton, 1998). For example, they expanded the pool of physicians available to cover the hospitals' emergency rooms. One rural hospital was felt to have been

saved by the initiation of a residency program that provided emergency room coverage, stabilized the base of local physicians, and increased inpatient volume.

Public-private networking has resulted in some unique proposals to increase the amount of rural training. Rural faculty have long noted that many residents find out about rural practice through rural "moonlighting" opportunities. ("Moonlighting" is the practice of working extra nights or weekend days at emergency rooms, hospitals, or physician practices by residents in their latter stages of training in order to earn extra income.) In some programs, networks of rural hospitals and physicians have paid residents a regular additional salary with the promise that the residents will serve network hospitals for two to four weeks in their second or third year. It is hoped that this may attract them away from high-paying urban urgent care centers. This increases the potential for recruitment, gets residents out of the cities, broadens their training, and helps residents develop the confidence to practice on their own, a prerequisite for those considering rural practice.

### ***Other Effects of Medicare and Medicaid***

Some rural sites also have nurse practitioners or physician assistants, and Medicare rules specify that faculty cannot supervise these practitioners at the same time that they supervise residents. Clearly, this requirement impedes all training programs and is particularly burdensome for smaller programs. Given that, in most states, nurse practitioners are licensed as independent practitioners, and that physician assistants, while required to work under the supervision of a physician, can do so many miles away from the supervising physician, this restriction appears to have no sound rationale and could make some otherwise viable programs impossible. Supervision of nurse practitioners and physician assistants probably requires less effort than supervising residents. In addition, such rules discourage rural programs from integrating the training experiences of residents and student physician assistants and nurse practitioners at a time when such integration is increasingly critical in rural practice, especially in remote and underserved areas. This is not strictly a rural issue and can affect all training programs.

Residencies tend to be more dependent on clinical income from seeing Medicaid patients than private practices, with some residencies in poor, rural areas extremely dependent on Medicaid reimbursement. One program director commented on the relatively low Medicaid reimbursement and the frequent denials of payment by their state Medicaid carrier. This is again not a problem limited to rural programs but places a strain on all training programs, especially as cross-subsidization of care for Medicaid and unfunded patients by care for privately-insured patients is disappearing.

### ***Financial Barriers to Rural Residency Training Outside of Family Medicine***

Given the low level of activity related to rural training in specialties other than family medicine, there is relatively little to report on in terms of financial barriers. As mentioned above, one program in general surgery was designed by the University of South Alabama specifically to prepare general surgeons for rural practice. The program was approved by the RRC for surgery and the American Board of Surgery, and endorsed by the American College of Surgeons. However, the parent hospital has a small Medicare base (and a large proportion of patients with Medicaid and no insurance) and could not afford to support the residents at the community hospitals because of its limited GME payments. The community hospitals had neither the

expertise nor the resources to apply for Medicare GME funding while the residents would have been there. Because of this lack of funding, the program was never implemented (J. Raymond Fletcher, M.D., University of South Alabama College of Medicine, Department of Surgery, personal communication, 10/24/97).

While the University of Washington internal medicine program has a relatively large program offering rural electives to residents, restricted funding drastically limits its ability to place residents in rural rotations. Funding for transportation of residents to and from the distant rural sites and the housing costs at these sites has limited the number of sites used and rotations offered, and such funding is becoming more difficult to obtain. Other identified needs to strengthen and expand this program include funding for administrative support, for the development of a defined curriculum with learning objectives, and for links between the university and the sites (e.g., email/World-Wide-Web access to allow residents and their preceptors to communicate with University faculty and access curricular materials and other resources) (Dawn DeWitt, M.D., University of Washington Department of Internal Medicine, personal communication, 10/23/97).

## **Residency Review Committee (RRC)-imposed Barriers to Rural Training**

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### ***RRC-Imposed Barriers to Rural Training in Specialties Other than Family Medicine***

Other than the one exception in general surgery cited above, family medicine appears to be the only specialty whose RRC has been willing to approve rural training track-type programs. For general internal medicine, general pediatrics, obstetrics and gynecology, and general surgery, there are a number of RRC requirements that preclude having a residency located in a small rural hospital, though the surgery RRC was willing to be flexible enough to allow some training to take place in such settings. Some of the major requirements that present barriers to locating a residency for one of these specialties in a rural hospital are summarized in Table 3. For internal medicine, for example, the sponsoring hospital must sponsor at least one other program and be a "significant training site" for residents from still another program—difficult to impossible for a small rural hospital. Pediatrics training requires a pediatrics intensive care unit (ICU) in the sponsoring hospital and four to six months of level II or III neonatal ICU experience, despite the fact that many pediatricians do not utilize such settings in their practices, particularly in rural areas. In fact, there is evidence that the case mix of hospitalized pediatric patients for rural pediatricians and family physicians is similar (Melzer et al., 1995). There is also a requirement for four months of subspecialty training that would be difficult or impossible to obtain in a rural area. For obstetrics and gynecology, the barriers are not so obvious, as explicit definitions of "adequate" numbers of procedures are absent. However, the requirement to have at least two residents/year in each of the four years of training would require a hospital with substantial obstetrical volume, beyond what most small rural hospitals could manage. For general surgery, the requirements for procedural volume would preclude having a small rural hospital as the "sponsoring or integrated institution," though having the final year back at the university program apparently satisfied the surgery RRC about the South Alabama proposed rural general surgery program.

**Table 3. Residency Review Committee (RRC) Barriers to Rural Training in Specialties Other than Family Medicine**

**I. Internal Medicine RRC Requirements:**

- Sponsoring institution must serve as a significant training site for at least 2 other residency programs and must sponsor at least one of these
- All faculty members must be certified by the American Board of Internal Medicine or have equivalent credentials or experience acceptable to the RRC for internal medicine
- The faculty as a whole must demonstrate involvement in research, defined broadly to include biomedical, clinical, educational, and health services research
- The program director plus at least 4 additional faculty who devote at least 20 hours/week to the program must be present
- Facilities must be present including those for bronchoscopy, coagulation studies, gastrointestinal endoscopy, noninvasive cardiology studies, pulmonary function tests, hemodialysis, and radionuclide, ultrasound, and radiologic imaging
- Medical library under the direction of a qualified medical librarian must be present
- Program must have at least 12 residents

**II. Obstetrics and Gynecology RRC Requirements:**

- Program must have at least 2 residents in each year
- OB-Gyn faculty must be in-house 24 hours/day unless residents do not have in-house call
- No explicit definitions given of "adequate" numbers of deliveries, procedures, etc.

**III. Pediatrics RRC Requirements:**

- Training must include ICU management of children
- Strongly encouraged to have at least 12 residents in a program
- 4-6 months level II or III neonatal ICU rotations
- Four 1-month rotations in pediatric subspecialties; must be supervised by board-certified subspecialists

## ***New RRC Regulations Create Additional Barriers for Rural Family Medicine Training***

The Residency Review Committee for family medicine has approved a number of RTTs, starting with those associated with the Spokane, Washington residency about 10 years ago. They have shown significant flexibility, which has allowed the creation of a number of RTTs. Recently, some requirements have been issued for RTTs that some interviewees felt were making some formerly viable sites and programs nonviable, without evidence that there is a need for these new requirements. One commonly-cited new requirement was that preceptors must have at least half of their time freed up to supervise one resident and to be exclusively precepting when two or more residents are seeing patients in clinic. Exclusively precepting for three or four residents in a larger program is more affordable than for only two residents, the maximum number at RTT sites. One suggestion to address part of this problem was to take into account the

multiple preceptors potentially available at an RTT site. Rather than demanding that a specific preceptor reduce his or her clinical effort by 50% when one resident is present or completely eliminate it for two residents, asking that the faculty in clinic collectively reduce their clinical activities by an equivalent amount would allow clinic function to proceed more smoothly and better distribute the teaching load. This approach, while facilitating clinic function, would clearly be more difficult to document and monitor than the current, inflexible RRC requirements.

Another new requirement was for at least two residents to be present at every RTT site (i.e., at least one per year). As far as is known, there is no evidence that graduates of one-resident sites (in which a new resident arrives every other year, when the former resident graduates) are not as well trained, or have had any more problems in residency, as graduates from two-resident sites (in which a new resident arrives every year). Graduates from the one-resident sites of the Spokane program have scored as well on their board exams as other RTT graduates (slightly above the national average). However, the RRC has refused to reevaluate this requirement and to use competency-based outcomes rather than process-based ones in assessing whether such a mandate is needed. The Spokane program has had four sites start as one-resident sites; two have subsequently gone on to accommodate one resident every year, while two have remained as one-resident programs. A new site in Moses Lake (Washington) was planned to initially start as a one-resident site and then expand to two residents after gaining experience with one. Because of this RRC requirement, plans for the Moses Lake RTT have been dropped. The Omak (Washington) site has refused to fund two residents at a time and thus will no longer be an available RTT site, while the Goldendale (Washington) site has agreed to increase to two residents. The Ellensburg (Washington) site closed prior to the institution of this rule for other reasons, but it would also have been unable to accommodate two residents at a time.

Interviewees at both RTTs and three-year rural family medicine residencies commented on another problem related to the Residency Review Committee. The family medicine RRC requires resident experience in a variety of fields to occur in dedicated "blocks" of time. In an isolated rural residency, obtaining such rotations requires the residents to spend months away from the program. This requirement threatens to force programs out of compliance with RRC requirements for continuity of care by residents. Several persons felt that the RRC needed to exhibit greater flexibility on rotational versus longitudinal exposures and on a number of other issues, and that, in general, the RRC needed to be more open to experimentation and innovation, including the use of outcomes-based rather than process-based evaluation criteria.

## **Other Barriers to Training Residents in Rural Areas**

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### ***Faculty Recruitment and Retention***

The difficulties of recruiting, training, and retaining faculty for rural residencies were commonly brought up during our interviews. As discussed above, RTTs tend to be based in existing practices, with the members of these practices becoming the primary teaching faculty for the RTT. The initial recruitment effort for such programs is therefore the process of carefully selecting the right practice in the right town.

In studies of other types of rural training, taking part in a teaching program was felt to stabilize practices. The teaching seemed to be a positive supportive and educational experience that helped to prevent providers from feeling isolated or becoming burned out. The Spokane

program noted that three of their RTT sites have nine faculty who have graduated from either their RTTs or their traditional program in Spokane, and that three other RTT graduates participate in teaching at other sites. A large, national survey of rural hospitals found that the presence of residents led to greater success at recruitment and retention of physicians (Connor, Hillson & Kralewski, 1994). Whether this would extend to rural practices, not owned by a hospital, that train residents is not known. Replacement of faculty who left a practice was felt to be enhanced by the greater attractiveness of a teaching practice and also the possibility that a graduating resident might decide to join the practice. A couple of studies have found that involvement of a rural practice in teaching leads to better success with recruitment and retention (Connor et al., 1994; Krugman, Tabak & Fryer, 1982). However, one study of rural primary care physician retention found that satisfaction with opportunities to achieve professional goals was associated with retention, but involvement in teaching medical students or residents was not associated with satisfaction with perceived opportunities to achieve professional goals (Pathman, 1996).

Difficulty in recruiting faculty was noted at three-year programs. One program director stated that it had taken five years to assemble a full group of faculty. Loss of one faculty member can be destabilizing to a program given that these are small residencies with few faculty. Remaining faculty have great difficulty in filling the gaps left by a departing faculty member. Longer-established programs may be less susceptible to this problem as graduates often practice near the program and may be willing to help out or join the faculty when the need arises. One program noted that 80% of the staff at its hospital were graduates of the program, as were many of the physicians in surrounding communities who referred patients to the hospital.

## ***Rural Faculty Development***

A recurring theme in the interviews concerned the need for faculty development, both at RTTs and three-year residencies. Residencies in university settings or affiliated with nearby universities may have access to local resources for faculty development. For residencies in rural areas, similar local resources do not exist, and faculty development efforts generally require the faculty to travel to distant locations, taking more time away from their programs than might be necessary in an urban location with local resources. Funding for faculty development was another case in which the importance of Title VII funds was cited. Some feel that funding going primarily to large academic centers is of little benefit to those developing or teaching in rural programs.

Only one Bureau of Health Professions grant has targeted rural faculty development. This funded a rural mini-fellowship program that trained five family medicine faculty a year from 1990 to 1992 and spawned the Group on Rural Health of the Society of Teachers of Family Medicine. Materials, workshops, and newsletters initiated with this rural mini-fellowship program continue to assist faculty with rural training track, rural rotation, and rural satellite training center development at a volume of about three to four new contacts a month. This informal "Center for Rural Faculty Development" continues because of the voluntary efforts of rural faculty and the willingness of a handful of medical schools and residency programs to allow faculty to spend more than 25% of their time on rural medical education.

Indeed, most rural medical education programs have been created by former rural physicians either on a voluntary basis or by using their positions as program directors. Few have had fellowship or other educational training. Surveys of rural faculty revealed that only a handful had more than 50% of their time invested in rural medical education. Many physicians choose rural practice to some degree based on their love of clinical medicine and performing

procedures. When such physicians choose to undertake a residency faculty career, most focus on clinical teaching rather than rural research or developing new rural programs. Rural faculty development can help prevent the repetition of common mistakes, pass on critical information on funding and the selection of sites and faculty, provide the peer support needed for isolated rural faculty, and facilitate the necessary funding efforts to make rural programs a reality.

## ***Recruiting Residents to Rural Programs***

Recruitment of residents was felt to be difficult by many, but not all, of those we interviewed. In general, they felt that their applicant pools were smaller than for nonrural residencies (often around 4-5 applicants for a position, versus over 60 per position at the University of Washington's university-based family medicine residency), but these applicants were generally very interested in rural practice. In some cases, the pool of applicants applying to RTTs was noted to have little overlap with the pool applying to the parent programs. One program director remarked that being able to pay a higher resident salary than in urban areas would help with recruitment, but that limited funds would not allow this. Some programs had initially filled their slots with international medical graduates (some of whom intended to stay and practice in a rural area, and some of whom intended to return to their countries of origin), but found themselves getting more U.S. medical school graduates as the programs matured. In 1996, 30% of RTT programs reported empty positions, whereas only 2.2% of all family medicine residency positions were unfilled nationally (Rosenthal et al., 1998), so there does appear to be greater difficulty overall filling RTT positions.

## ***Gender Issues***

While the shortage of physicians has long been one of the most pervasive characteristics of the rural landscape, a new twist to this enduring problem involves both rural residency training and physician gender. While the number and percentage of women medical school and residency graduates have increased quite dramatically during the last decade, women remain much less likely to locate their practices in rural areas than men. For instance, although the most recent 10-year cohort of female physicians is more likely to practice in rural areas than female physicians finishing their training more than ten years ago, they remain underrepresented by from 40 to 80% among family physicians and general internists, depending on the type of rural area (Doescher et al., 1998).

It seems clear that poor access to physicians in rural areas is likely to be exacerbated as women continue to increase as a proportion of medical school graduating classes but are less likely to practice in rural environs. The causes of this phenomenon are complex and not well understood. However, it seems evident that medical schools and rural residency programs need to develop programs that do a better job of producing rural women physicians. Such programs might include the creation of models of rural practice that allow women to better meet their personal and professional goals.

## ***Implications of the Balanced Budget Act of 1997***

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The Balanced Budget Act of 1997 (BBA97) contained a number of provisions that will affect GME in both rural and urban areas. Many of these effects will depend on interpretations



of the wording of the law and are not yet clear, but we will address what appear to be the most significant of these provisions and how they may affect rural GME.

## ***Limitations on Residency Slots***

The BBA97 legislation limits the number of resident positions by limiting each hospital to the number of residents they had on or before December 31, 1996 (Section 4623). This provision could limit new programs in rural hospitals that are designed to address local provider needs. Urban teaching hospitals often have multiple residencies so that, while they cannot increase overall numbers of residents, they can move existing positions from one specialty to another. As most rural teaching hospitals have only primary care residents and usually only one program (i.e., family medicine), capping the growth of the number of residents effectively precludes the expansion of existing rural programs and could prevent the development of new GME programs in rural hospitals. Family medicine has increased its number of residency positions offered from 2412 in 1988 to 3262 in 1997, while categorical and general internal medicine positions actually declined from 3525 to 3206 (Kahn, Garner, Schmittling, Ostergaard & Graham, 1997). The cap on residency slots will presumably stop most expansion in family medicine, the specialty most likely to produce rural practitioners, while having little effect on specialties less likely to produce rural practitioners, as they have generally not been expanding their numbers of positions.

Interpretation of this freeze could also affect some existing small rural programs. For instance, the Goldendale RTT site of the Spokane, Washington program was an approved residency site, generally taking one resident every other year. This site is prepared to take one resident every year and has RRC approval to do so, but had no residents on site on December 31, 1996. While a single resident had been there previously, since the RRC has now banned single-resident programs, the pending regulatory interpretation of the statute could lead either to allowing Goldendale to take one resident every year, or alternatively requiring it to close.

The statute does provide for an exemption to the overall freeze in some rural areas: "the Secretary shall give special consideration to facilities that meet the needs of underserved rural areas." This language applies to programs that began after 1995 and may allow the development of programs in certain rural communities and programs that meet the needs of these communities. However, what constitutes an "underserved rural area" was not defined and will be determined administratively. This administrative interpretation will determine whether this provision allows new rural residency activity in appropriate areas. Many rural residency programs are not located in underserved rural areas because such areas, by virtue of being underserved, generally do not possess the infrastructure to support a residency program. Even if such infrastructure is present, providers in an underserved area may be too overwhelmed by the clinical demands on their time to consider taking on the obligations of starting and running a residency program. However, rural residency programs often produce practitioners who locate in communities surrounding the ones in which their programs were located as well as other rural areas, helping to eliminate and prevent shortage areas. Interpretation of this exception needs to be applied broadly to allow creation of new programs in rural areas that are not, themselves, underserved, but will benefit surrounding underserved communities.

## ***Changes in GME Funding***

The passage of the BBA97 produced a number of changes to Medicare GME funding that will influence rural training programs. First, IME funding was reduced from 7.7% to 5.5% over

the next five years, for an overall 28% reduction. This will affect all residency training programs, but given the disproportionately low share of Medicare GME payments currently received by rural programs as described above, this will “add insult to injury” and further decrease the incentive to rural programs to try to obtain Medicare IME funding and further decrease the attractiveness and viability of starting new rural programs.

The statute did provide for direct payment to certain community clinics and rural health centers, allowing Medicare to pay DME funds directly to community clinics that are certified as federally qualified health centers (FQHCs), to rural health clinics (RHCs) if they sponsor a training program, and to other entities as approved by the Secretary of Health and Human Services. This very important change in policy breaks the long-standing reliance on teaching hospitals as the necessary ingredient for training. However, this will allow only partial funding of training programs in ambulatory settings including rural communities. Without other funding or the IME portion that will still be paid directly to the hospitals, rural residencies will not receive enough funding to function appropriately unless they have support from the hospitals receiving the IME funds. In addition, rural health clinics may not be willing or able to sponsor residents in appropriate locations.

The act does allow teaching hospitals to receive IME payments for residents who rotate to ambulatory sites (Section 4621). Predominantly ambulatory residencies can, therefore, have access to the same level of funding as hospital-based residencies, provided the teaching hospital will share the IME funds.

Finally, the law authorizes a demonstration project that allows the payment of GME funds to an organization composed of at least a teaching hospital and at least one of the following: a medical school, another teaching hospital, an FQHC, a medical group practice, a managed care entity, an entity furnishing outpatient services, or any other entity that the Secretary deems be appropriate. Depending on administrative interpretation and implementation requirements, this could allow rural-based residencies access to increased GME funds if the other listed entities are willing to participate.

### ***Other Provisions that May Affect Rural Health Care***

Several other provisions of the BBA97 may serve to stabilize fragile rural health care systems and to provide additional resources to rural residency programs.

#### **Adjusted Average Per Capita Cost (AAPCC) payment reforms**

As managed care increases in rural communities, more funds will be made available for enhanced benefits or to improve funding of current care because of adjusted average per capita cost (AAPCC) payment reforms that partially correct the current imbalance between rural and urban counties (McBride, 1997). Through a number of manipulations, the formula increases reimbursement for rural residents. In many urban communities, a higher level of funding has allowed expanded benefits and improved payment levels for the providers in those communities (Amending Section 1853 of Title XVIII).

#### **Resource-Based Relative Value Scale (RBRVS) conversion factor**

The RBRVS conversion factor used for calculating payments to physicians is changed, resulting in improved payments to primary care providers by setting up a single conversion

factor (Section 4501) and by factoring in actual office overhead (Section 4505). Because most rural physicians are primary care physicians, these providers will be relatively better reimbursed.

### **Managed care provisions**

Managed care companies may have to ensure that services are available in rural communities. The provision in Section 4001 requiring organizations involved in Medicare Choice to make "benefits and services available and accessible within the plan service areas" could require plans to improve and strengthen rural health systems thereby improving the distribution of physicians and other providers in rural areas. The possible benefit to rural health systems will depend on regulatory interpretation of the general legislative language. GME funds will be carved out from the Medicare payments to managed care companies, but how these funds are to be used has not been specified.

## **Summary and Discussion**

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It seems clear that family medicine allopathic and osteopathic programs with a strong rural orientation, whether RTTs or 3-year residencies located in rural areas, can train well-qualified physicians who are likely to set up practice in a rural area. It is less clear for other specialties because the numbers of programs emphasizing rural practice are so much smaller than in family medicine. Whether these rural programs are primarily keeping the "converted" from being diverted or actually yielding greater numbers of rural physicians than would otherwise be produced is unknown. The disproportionate success of osteopathic medicine relative to allopathic medicine in producing rural practitioners, which appears to result from the much higher proportion of osteopathic medical graduates entering family medicine, is notable and highlights the importance of factors prior to graduate medical education (student selection and undergraduate medical training) in determining eventual practice location.

A number of barriers to training residents in rural locations were identified. Not surprisingly, a large number of these were financial. The costs of the various rural programs depend on multiple factors that can make them more or less expensive. In addition, the structure and administration of GME payments result in significant financial barriers, and many programs do not receive all of the Medicare GME payments for which they are eligible. The structure of Medicare GME funding was the key factor in preventing the University of South Alabama's residency track for rural general surgery from ever becoming operational. Residency Review Committee requirements also pose substantial barriers and new RRC requirements are creating new barriers. The recruitment of faculty and residents and the need for faculty development are challenges for rural programs. Also, many RTT programs utilized telemedicine linkages dependent on grant funding, and a real concern exists that these linkages cannot continue without ongoing local or federal support.

This paper has focused on family medicine graduate medical education, primarily because that is where most rural graduate medical education efforts have occurred. This is not entirely by chance since, particularly for small, remote, rural areas, a family practitioner can be supported but a general internist or pediatrician cannot. For larger rural areas, the population is large enough to support other providers, such as internists, pediatricians, obstetrician-gynecologists, and general surgeons, and a clear need exists for programs to train physicians for practice in such areas.

## **Recommendations to Reduce Barriers to Training Residents in Rural Areas**

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Dr. Robert Talley, dean of the University of South Dakota School of Medicine, made a number of recommendations for changing medical education in 1990 (Talley, 1990). Among his recommendations were:

- (1) To develop a consensus definition of rural and subcategories of rural;
- (2) To educate rural communities about the purpose of residency training, the need for attending physicians to supervise residents, and opportunities to help fund rural rotations for residents;
- (3) The family medicine RRC should support rural rotations of up to six months and more broadly define what a "family practice center" is to allow inclusion of outreach sites;
- (4) RRCs should not make the number of residents at a site a factor in approving it;
- (5) RRCs should judge programs by the quality of their products, not process measures;
- (6) Resident teaching should be defined by competence, not by specialty label; and
- (7) New opportunities for funding residency training in rural settings should be explored.

Dr. Paul Young, executive director of the American Board of Family Practice, wrote a commentary accompanying Dr. Talley's article, agreeing with many of his points, but not with his proposal to allow rural rotations of up to six months duration because of its negative influence on continuity of care. Dr. Young argued that the number of residents training at a site may, in some circumstances, materially contribute to the quality of the educational experience (Young, 1990). Many of our recommendations below echo Dr. Talley's recommendations, as little seems to have changed since he wrote them. Some of our recommendations also parallel those of the Council on Graduate Medical Education (COGME) (see Council on Graduate Medical Education, 1992; Council on Graduate Medical Education, 1994; and especially the most recent report that focuses on rural and underserved areas, Council on Graduate Medical Education, 1998). Of course, many of COGME's recommendations are less narrowly focused than ours on barriers to rural GME. The following recommendations are directed to federal government changes unless otherwise noted. However, it is also often possible for state governments and others to facilitate the implementation of the recommendations.

### ***Fiscal Recommendations***

- Consider replacing the current, cumbersome system of DME and IME payments with a simplified process to cover the costs of graduate medical education and eliminate discrimination against programs utilizing small rural hospitals. Consider targeting such GME payments to locations and specialties where the need is greatest.

- Simplify the process of obtaining Medicare GME funding to pay for residency training. For example, provide technical assistance in the application process to rural residency programs and issue a set of standard interpretations of rules for defining a hospital's Medicare base for all states and Medicare carriers.
- Provide both DME and IME funds directly to residency programs sponsoring rural residencies so that they will not be dependent on the willingness of hospitals to pass through GME funding.
- Consider higher Medicare GME payments for small rural programs to make it worthwhile for them to apply for GME funding—particularly IME funding—and to pay the costs of community faculty who serve as teachers for specialty training.
- Recognize and allow GME payments to “OPTI” consortia of colleges and hospitals of osteopathic medicine that provide graduate medical education to osteopathic medicine residents in rural areas, even if these consortia span state borders.
- Provide greater support through allocation of enhanced Title VII funding and through other funding sources for the development of new three-year rural family medicine residency programs and “1+2” rural training track programs.
- Encourage and support ground-breaking, experimental programs such as the rural general surgery track proposed by the University of South Alabama.
- Provide greater federal support to residency programs for the development and maintenance of rural training experiences and fund careful evaluation of the effects of these experiences on practice location. Family medicine rural fellowships for physicians who have finished their residencies but wish additional training focused on preparation for rural practice should be included in this effort.
- Utilize enhanced Title VII funding to encourage rural faculty development efforts that will support the development of new rural programs as well as enhance the faculty skills of practicing physicians who will be teaching residents. “Centers for Rural Faculty Development” could greatly enhance and organize current unfunded, volunteer faculty development activities for a very modest investment.
- Evaluate the need for continuing or increased support of rural telemedicine links for resident education and faculty development for rural graduate medical education programs as current grant support disappears.
- Relax Medicare restrictions to allow faculty preceptors to supervise up to two nurse practitioners, physician assistants, or similar practitioners at the same time they are supervising residents.
- Medicare GME funds carved-out from the payments to managed care entities should be distributed so that programs successfully training providers for rural, underserved,

and particularly underserved rural communities have a higher priority for these funds than other programs.

- The requirement in the Balanced Budget Act of 1997 for Medicare HMOs to ensure service availability should be applied so that needed rural health services are supported and improved at the most local level feasible rather than requiring unnecessary travel to distant sites. The interpretation of this requirement will be made at the agency regulatory level and will require careful thought so as to strengthen and not harm fragile rural delivery systems.
- The exception in the Balanced Budget Act of 1997 to the Medicare GME cap on residency positions for new residencies in underserved rural areas should be interpreted as broadly as possible to allow new rural residency programs to be created that will benefit underserved rural populations. If this exception is interpreted narrowly, new legislation will be needed to exempt new rural programs from the cap. Similarly, expansion of existing programs in the form of rural satellites or RTT programs should be viewed as creation of new rural programs and allowed under the Balanced Budget Act.
- States currently using some of their Medicaid funds to support graduate medical education should continue to do so. As more and more Medicaid becomes managed care, these GME funds should be carved out from capitation rates and targeted to programs addressing the needs of underserved rural (and urban) communities.

### ***Residency Review Committee (RRC) Recommendations***

- Consider revising RRC requirements for residency programs to allow increased numbers of rural training track-type programs in fields other than family medicine. Encourage further attempts at experimentation, such as the rural general surgery program approved at the University of South Alabama.
- Revise RRC requirements for family medicine programs to permit increased longitudinal exposure rather than required blocks in order to allow these programs to satisfy clinical content requirements without violating continuity requirements. This will also minimize time residents are away from their rural sites and vulnerable to having their attachments with those sites weakened.
- Consider an exception to RRC continuity requirements for residents in urban programs to allow up to four months away when this is used for a longitudinal, rural experience. This will clearly be controversial because of its impact on the provision of continuity care to residents' patients in their "home" program.
- The RRCs should be more flexible in evaluating programs by using outcome and evidence-based evaluation criteria rather than structure/process evaluation criteria.
- Change RRC requirements to allow the faculty load reduction for supervision of residents in rural program clinics to be distributed among the clinic providers rather

than having to come from only one person. The RRCs should consider altering the workload decrease requirements for preceptors based on the level of each resident's training, since residents need less intense supervision as they become more experienced (i.e., a first-year resident would require the most supervision, a second-year resident less, and a third-year resident the least).

## ***Other Recommendations***

- Create incentives for medical schools to take more applicants from rural areas or who otherwise appear more likely to eventually practice in rural areas. In addition, fund demonstration programs aimed at increasing interest in rural medicine both before and during medical school for students from both rural and urban backgrounds. Finally, consider making incentive payments to medical schools based on desired outcomes—for example, proportions of graduating students who practice in rural areas for at least two of their first four years after residency.
- Facilitate the availability and interchange of information about rural training opportunities for programs, medical students, and others, and consider funding a national center with this mandate.
- Further research is needed to study interventions to increase the number of physicians who receive substantial training in rural areas and to evaluate whether they actually lead to increased numbers of physicians practicing in rural areas, especially underserved rural areas. Consideration should be given to “radical” experiments such as offering financial incentives to persons without strong interest in training in rural areas and then evaluating whether, by inducing them to train there, they are more likely to practice in rural areas.
- Assess the need for rural general surgeons, obstetrician/gynecologists, general internists, and pediatricians and facilitate the creation of programs to train these practitioners in locations where they are needed.
- Enhanced Title VII funding should be targeted to residency programs for innovative demonstration projects aimed specifically at increasing the training, location, and retention of women physicians in rural areas.
- A final recommendation, because rural GME activities whose aims are to increase the number of qualified rural physicians cannot be successful unless the rural medical practice environment is stable and professionally attractive: federal and state policies should facilitate the development of stable and attractive rural health care delivery environments.

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APPENDIX A  
Summary of Reported Rural Activities from the 1997 Directory of Family Practice Residency Programs,  
Ordered by Urban Influence Code (UIC)

Urban Influence Codes (UICs) are defined by the U.S. Department of Agriculture. They classify all U.S. counties into nine categories based on the size of the MSA in the case of metro counties, and adjacency to MSAs and size of largest city in the case of nonmetro counties.

**Metro:**

- 1 Large — central and fringe counties of metro areas of 1 million population or more
- 2 Small — counties in metro areas of fewer than 1 million population

**Nonmetro:**

- 3 Adjacent to a large metro area with a city of 10,000 or more
- 4 Adjacent to a large metro area without a city of at least 10,000
- 5 Adjacent to a small metro area with a city of 10,000 or more
- 6 Adjacent to a small metro area without a city of at least 10,000
- 7 Not adjacent to a metro area and with a city of 10,000 or more
- 8 Not adjacent to a metro area and with a city of 2,500 to 9,999 population
- 9 Not adjacent to a metro area and with no city or a city with a population less than 2,500

**Note:** Nonmetro adjacent counties are physically adjacent to one or more MSAs with at least two percent of the employed labor force in the county commuting to central metro counties. The metro-nonmetro definition is based on Office of Management and Budget definition as of June 1, 1993.

Page # in Book	Program	UIC	Other Listed Locations			Hosp Beds	RTT?	Rural Rotation?		Other Comments
			Inner City	Urban	Suburb			Req. Rot.	Opt. Rot.	
202	E Ky FPR, Hazard, KY	8				208	+			Wray RTT
116	N. Colo./Greeley-Wray RTT, CO	8				?	+			Glasgow RTT
265	MT FPR, Glasgow RTT, MT	8				?	+			RTT of Spokane
480.2	Spokane/Goldendale, WA	8				?	+			RTT of Spokane
480.4	Spokane/Omak, WA	8				?	+			RTT, 1st yr. in Grand Junction
115.1	Cortez RTT, CO	8				?	+			Cortez RTT
115	St. Mary's, Grand Junc., CO	7				254	+			Martinsburg RTT
488	WVU, Morgantown, WV	7				350	+			"largest hosp in MS & largest US rural hosp"
257	N. Miss., Tupelo, MS	7				647	+			Hays RTT
195.1	KUMC, Hays RTT, KS	7				?	+			

Page # in Book	Program	Other Listed Locations			Hosp Beds	RTT?	Rural Rotation?		Other Comments
		UIC	Inner City	Urban			Suburb	Req. Rot.	
195.2	KUMC, Junction City RTT, KS	7				+			Junction City RTT
269.1	U Nebraska; Grand Isl&Kearney, NE	7				+			not clear if 1 or 2 RTT's
269.2	U Nebraska; N Platte&Scottsbluff, NE	7				+			not clear if 1 or 2 RTT's
287	UNM/Roswell, NM	7				+			Roswell RTT
480.1	Spokane/Moses Lake, WA	7				+			RTT of Spokane
464	MCV-Blackstone, VA	6				+			6 mo at MCV/30 mo. at Blackstone
213	LSUMC/Homer RTT, LA	6				+			Homer RTT
315	MAHEC/Hendersonville NC	6				+			RTT from Asheville
480.3	Spokane/Colville, WA	6				+			RTT of Spokane
495	U WI/Baraboo RTT, WI	6				+			Baraboo RTT
357	U OK-Tulsa/Bartlesville RTT, OK	5				+			Bartlesville RTT
491	Eau Claire/Menomonie RTT, WI	5				+			RTT in Menomonie (& Augusta?)
309	Rochester, NY	4				+			Finger Lakes RTT (Rushville)
323	ECU Rural; Ahoskie NC	4				+			Ahoskie RTT
297	SUNY/Buffalo, NY	3				+			Olean RTT
146	FPR of Idaho, Caldwell, ID	2				+	+		Accredited 1+2; book lists as RTT
288	Memorial; Las Cruces NM	2				+			ys 2 & 3 at Las Cruces (or San Miguel - still UIC 2)
352	Enid, OK	2				+			UOK RTT
215.1	EMMC/Lincoln, ME	2				+			Affil 1+2 program with EMMC; listed in book as RTT
486	WVU rural FM res.; Harpers Ferry, WV	1				+			Harpers Ferry RTT
113	U Colo, Clinica Campesina, CO	?				+			Don't know where it is located, listed in book as RTT
317	Charlotte/Carolinas, NC	1?		+		+			New RTT
255	Waseca/Mankato, MN	8		+		+			
358	Cascades East; Klamath Falls OR	7				+			
151	SIU, Carbondale, IL	7				+			
147	ISU, ID	7				+			
329	UND, Minot ND	7				+			
169	Quincy, IL	7				+			
192	Mason City, IA	7				+			
67	AHEC S Arkansas	7				+			
485	Clarksburg, WV	7				+			
70	Northeast AHEC, AR	7				+			
245	Munson, Traverse City, MI	7				+			"emphasis on rural practice"
196	Smoky Hill, Salina, KS	7				+			Salina pop. 45K, 175K drawing area
238	Marquette, MI	7				+			
273	NH Dartmouth/Lebanon, Hanover, NH	7				+			Ivy League univ. town
205	Trover Clinic, Madisonville, KY	7				+			tertiary care hospital, 100 MD multispecialty clinic
405	Self Memorial; Greenville SC	7				+			referral population of hospital. >200,000
387	Guthrie; Sayre PA	6				+			"rural setting with 2.5 million pt. base"
366	Geisinger; Danville PA	6				+			mostly managed care
272	NH-Dartmouth, Concord, NH	5				+			
57	Selma, AL	5				+			referral center for 7 counties
302	Mid-Hudson; Kingston NY	5				+			"in a semi-rural community"

Page # in Book	Program	UIC	Other Listed Locations			Hosp Beds	RTT?	Rural Rotation?		Other Comments
			Inner City	Urban	Suburb			Req. Rot.	Opt. Rot.	
214	Maine-Dartmouth, Augusta, ME	5				438				In state capitol
145	U Hawaii, Mililani, HI	2			+	69				"rural medicine focus"
502	Casper, WY	2				150				
98	Salinas, CA	2				159				
503	U Wyoming, Cheyenne, WY	2				170				
87	Merced, CA	2				176				
212	E A Conway, Monroe, LA	2		+		199				
207	Baton Rouge FP, LA	2	+			200				
310	Albany; Schenectady NY	2		+	+	200				
483	Yakima, WA	2				200				"surrounding rural service area"
106	San Joaquin, Stockton, CA	2	+	+		216				
313	Utica, NY	2	+	+		217				
92	Shasta, Redding, CA	2		+		220				
191	U Iowa/Mercy, IA City, IA	2		+		220				
375	Good Sam/PSU; Lebanon PA	2				225				Rural clinic
76	UCSF - Fresno, CA	2				250				"oriented to rural medicine; small town setting"
216	Central Maine, Lewiston, ME	2	+	+		250				Selma Pathway
494	St Francis-Mayo; La Crosse, WI	2		+		250		+		"Rural/urban patient population"
391	Williamsport, PA	2		+		258				
239	MidMich, Midland, MI	2		+		259				
409	Bristol, TN	2				273				"set in a mild, hilly, rural area"
489	Wheeling, WV	2			+	273				"utilizes a semi-rural training site"
361	Sacred Heart; Allentown, PA	2	+			288				
68	NW Ark. FPR, AR	2		+		294				
173	Carle Clinic; Urbana IL	2		+		300			+	"Special experiences for training in rural pract. avail."
501	Wausau, WI	2				321				"strong curriculum in rural medicine, ..."
210	LSUMC-S, Lake Charles, LA	2		+	+	324		?		
59	Alaska FP, AK	2		+		330				
185	Union Hosp, Terre Haute, IN	2		+		343				
168	U IL - Peoria FP, IL	2		+	+	345				
467	Lynchburg, VA	2		+		350				"rural satellite" clinic
362	Allegheny; Altoona PA	2			+	354				
487	Marshall; Huntington WV	2		+		380				
251	St Cloud/Mayo, MN	2			+	389			+	"produce FP's for rural MN"; "introduce residents to nearby rural communities throughout their education"
439	Odessa, TX	2		+		396				
460	Utah Valley;Provo UT	2			+	400				
327	UND, Fargo ND	2		+		404				
407	Rapid City, SD	2				405				tertiary care hospital
413	Johnson City, TN	2				407				university setting
371	Conemaugh Valley; Johnstown, PA	2		+		412				"located in a rural city"
268	Creighton, Omaha, NE	2		+		419				
406	Spartanburg, SC	2			+	420			?	"strong rural... rotations offered"

Page # in Book	Program	Other Listed Locations				Rural Rotation?			Other Comments	
		UIC	Inner City	Urban	Suburb	Hosp Beds	RTT?	Req. Rot.		Opt. Rot.
215	E Maine Med Ctr; Bangor, ME	2				426				Referral hospital
136	SW Georgia, Albany, GA	2		+		450			+	
182	Ball Memorial, Muncie, IN	2		+	+	450			+	
442	Scott&White/A&M; Temple TX	2			+	460				
203	U of KY, Lexington, KY	2		+	+	461			?	"satellite office 13 miles west provides a realistic rural setting"
368	St Vincent; Erie, PA	2		+	+	489				
438	McAllen, TX	2		+		490				
367	Hamot; Erie, PA	2	+	+	+	499				
237	Sparrow, Lansing, MI	2	+	+	+	502				"rural, urban and suburban settings"; 3 family practice centers
301	Wilson; Johnson City NY	2		+	+	511				
271	U Nevada, Reno, NV	2		+	+	523		+	+	Required 2nd year rural rotation
183	Memorial Hosp., S. Bend, IN	2		+	+	526			?	Optional rural-focused curric.
414	Kingsport, TN	2	+	+	+	540				
258	U Missouri, Columbia, MO	2		+	+	555				"practices include suburban & rural settings"
400	Anderson, SC	2				560				
443	U Texas; Tyler TX	2		+	+	560				"training available in... as well as in rural clinics"
463	U VT; Milton VT	2			+	585			+	
194	NE Iowa, Waterloo, IA	2		+		606				
303	SUNY Syracuse, Lafayette, NY	2				612				
316	UNC, Chapel Hill, NC	2			+	650				managed care outpatient facility
412	U Tenn, Jackson, TN	2				659				"special opportunities available in rural practice"
320	Duke/Fayetteville AHEC, NC	2		+		668				
465	U VA, Charlottesville, VA	2		+	+	675				regional medical center, 2 universities in town, ...
404	Greenville FP, SC	2		+	+	687				rural out-reach clinic
360	Lehigh Valley; Allentown PA	2	+	+	+	715				
437	Texas Tech; Lubbock TX	2		+		777		?		
193	Siouxland, Sioux City, IA	2		+	+	855				
235	Kalamazoo, MI	2		+	+	904		+		
484	WVU, Charleston, WV	2		+	+	950			+	"offer experiences in... rural clinics"
250	Mayo Clinic, Rochester MN	2		+	+	1040			?	"rural, community-based outpatient clinic"
177	Ft. Wayne, IN	2	+	+	+	1118				
422	FP Brazos Valley; Bryan TX	2		+	+	N/A				"rural/suburban county"
148	Rush Copley, Aurora, IL	1		+	+	144				
276	Hunterdon FP, Flemington NJ	1		+	+	176				
86	Merrithew, Martinez, CA	1	+	+	+	179				
423	UTMB-Conroe, TX	1			+	200				"emphasizes training for rural-suburban practice"
280	Warren; Phillipsburg NJ	1			+	215				"semi-rural setting between NYC & Phila."
493	St Catherine's; Kenosha WI	1		+	+	249				
120	Middlesex, CT	1		+	+	275				residents assigned to 1 of 3 "rural offices"
374	Latrobe Area Hosp, PA	1			+	280				"OB & rural training strongly emphasized"
359	OHSU, Portland, OR	1		+	+	349				

Page # in Book	Program	Other Listed Locations				Rural Rotation?			Other Comments
		UIC	Inner City	Urban	Suburb	Hosp Beds	RTT?	Req. Rot.	
226	Umass, Worcester, MA	1	+	+	+	375			3 family practice centers, 1 called rural
243	Providence, Southfield, MI	1			+	456			
363	Beaver Falls, PA	1				470			"just 35 miles from Pgh."
149	Belleville, IL	1	+		+	498			
90	UCIMC, CA	1		+	+	500			?
311	SUNY/Stony Brook, NY	1			+	500			
254	United Fam Med, St Paul MN	1		+		572	+		2 mo. rural rotation in year 2
228	Oakwood, Dearborn, MI	1			+	615			"rural and suburban family practice center"
201	St Eliz; Edgewood KY	1	+	+	+	650			
96	Sutter, Sac'to, CA	1		+		719			Davis is "rural" track
227	Umich, Ann Arbor, MI	1		+		872			FPC in "semi-rural Chelsea"
416	Baptist; Memphis TN	1	+	+		1366			
241	Wayne State, Royal Oak, MI	1	+	+	+	1430			"Choice of small town, suburban, urban, inner city offices"
133	Florida Hosp FPR/Orlando, FL	1		+	+	1478			
Programs in list of "either located in rural communities or which offer additional training opportunities in rural medicine" but not claiming "rural" in location:									
481	Tacoma, WA	2	+	+		415			Has rural fellowship
71	Little Rock FP, AR	2		+		300			
417	U of TN/St Francis; Memphis, TN	1			+	651			
434	Hermann/LBJ Hosps; Houston, TX	1	+	+	+	550			

Programs in list of "either located in rural communities or which offer additional training opportunities in rural medicine" but not claiming "rural" in location:

Notes: "Location" refers to the self-description of program location provided by the program in the Directory.

**TOTALS:**

2+1 approved RTT sites:

UIC	#
8	6
7	9
6	5
5	2
4	2
3	1
2	4
1	1
?	1

31 RTT sites, based in 26 programs

5 sites/programs located in counties with UIC 1 or 2

Don't know where U. Colo. Clinica Campesina 1+2 site is

Charlotte/Carolinas "separate rural track" just being approved as an RTT, not included in counts

Non-RTT programs located in counties with UIC>2:

UIC	#
8	1
7	15
6	2
5	4
4	0
3	0

73 programs claiming rural in location but in counties with UIC=2

23 programs claiming rural in location but in counties with UIC=1

4 additional programs claiming additional training opportunities in rural medicine but not claiming rural location (1 is Tacoma with rural fellowship)



APPENDIX B  
Osteopathic Graduate Medical Education Programs Located in Rural Counties

Program	Location	Zip	UIC*	Internships Offered†	Residencies Offered†
UOMHS-COM/Mental Health Inst Clarion Hospital	Cherokee, IA	16214	8		Psychiatry FP
WVSOM/Logan General Hospital	Clarion, PA	16214	8	T, FP	FP
WVSOM/Greenbrier Valley Med Center	Logan, WV	25601	8	T	FP
MSUCOM-Munson City Med. Center	Ronceverte, WV	24970	8	T	FP
Phelps Co. Regional Med. Center	Traverse City, MI	49684	7	T, FP	FP
Kirksville Osteopathic Med Center	Rolla, MO	65401	7	T	
	Kirksville, MO	63501	7	T, IM, OBG	DRM, FP, IM, OBG, OM M, OTP, SG
NYCOM/A. Baron Hepurn Hospital	Ogdensburg, NY	12669	7	T	
WVSOM/Veterans Affairs Med Center	Beckley, WV	25801	7	T	
WVSOM/United Hospital Center	Clarksburg, WV	26302	7	T, FP	FP
UHSOCOM/North Mississippi Medical Center	Tupelo, MS	38801	7		FP
MSUCOM-Comm. Health Center of Branch County	Coldwater, MI	49036	6	T, FP	FP
Carson City Hospital	Carson City, MI	48811	6	T, FP	FP, OBG
PCOM/Geisinger Medical Center	Danville, PA	17822	6	T, PD	PD
Lewistown Hospital	Lewistown, PA	17044	6	T	
WVSOM/Allegheny Regional Hospital	Low Moor, VA	24457	6	T	FP
UNECOM	Biddeford, ME	04005	5		FP, OMM
<i>Maine-Dartmouth Fam. Practice Residency</i>	Augusta, ME	04330	5	T	(FP residency combined with allopathic)
Capital Region Med. Center	Jefferson City, MO	65102	5	T, FP, IM	FP, IM
NYCOM/Mid-Hudson Family Health Institute	Kingston, NY	12401	5	T	FP
OUCOM	Athens, OH	45701	5		DRM
OUCOM/O'Bleness Mem. Hospital	Athens, OH	45701	5	T, OBG	FP, OBG
UHSOCOM/Mineral Area Regional Med. Center	Farmington, MO	63640	3	T, FP	FP
OUCOM/Firelands Community Hospital	Sandusky, OH	44870	3	T, FP	FP

\* UIC denotes Urban Influence Code; larger numbers are "more rural"

† Key: FP=Family Practice; T=Transitional Internship; OMM=Osteopathic Manipulative Medicine; OBG=Obstetrics & Gynecology; IM=Internal Medicine; DRM=Dermatology; OTP=Otolaryngology and Facial Plastic Surgery; SG=Surgery; PD=Pediatrics

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