

## Chapter 13

# Strategies To Recruit and Retain Rural Health Professionals

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# Strategies To Recruit and Retain Rural Health Professionals

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## INTRODUCTION

Faced with threatened or actual shortages of health care professionals, rural communities respond by attempting to retain existing professionals and recruit new ones (box 13-A). The economic, geographic, and social disadvantages of some rural areas, however, continue to limit their ability to compete effectively for health professionals. The previous chapter examined factors that may influence the specialty and location decisions of health professionals. This chapter examines and evaluates various strategies that have been used to recruit and retain health professionals in rural areas. These include focused educational strategies (e.g., primary care and rural-oriented health professions education), strategies to reduce professional isolation (e.g., telecommunications networks for rural health personnel), strategies to address economic concerns (e.g., improving reimbursement to rural and primary care physicians), and targeted strategies for the most severe shortage areas (e.g., service-contingent loans and scholarships and the development of satellite clinic networks).

## EDUCATIONAL STRATEGIES: PREPARING HEALTH PROFESSIONALS FOR RURAL PRACTICE

This section examines educational strategies to recruit and retain rural health professionals and describes Federal programs that may contribute to such strategies. It also describes specific projects that do not necessarily receive Federal funding but may be models for new or expanded Federal and State initiatives.

### *Medical Education Strategies*

Special experiences during medical education can have a strong positive influence on physicians' decisions to practice primary care and to practice in a rural area (72,165,212,442,443376). These experiences include primary care-oriented undergraduate curricula, rural preceptorship and residency rotations, and other types of decentralized educational models. The true impact of particular educational

interventions on physicians' choices of specialty and practice location is difficult to determine. Many programs that use such interventions, however, place a large percentage of their graduates in rural practice sites. Available evidence suggests that comprehensive programs are more successful than brief rural preceptorship or residency rotations in influencing the decision for rural or primary care practice (150).

In addition to providing targeted funding to health professions training programs, the Federal Government has also sponsored a number of student assistance programs, including the Exceptional Financial Need Scholarship Program, the Health Professions Student Loan Program, and the Health Education Assistance Loan Program. The Federal Government also provides student assistance indirectly through traineeship grants to educational institutions (see ch. 3, table 3-1). These programs affect both urban and rural students, but information regarding the numbers of rural participants is not available. The Health Careers Opportunity Program and other programs administered through the Bureau of Health Profession's (BHP's) Division of Disadvantaged Assistance have supported training for more than 50,000 disadvantaged and minority students since 1977 (675). These programs have effectively encouraged disadvantaged and minority students to enter health professions training programs and helped retain them in such programs.

### Undergraduate Medical Education

**The Federal Role**--Federal support of undergraduate primary care medical education is limited to family practice. Section 780 of the Public Health Service Act authorizes grants to establish, maintain, and improve departments of family medicine in medical schools. Funding under this section decreased by 30 percent between 1981 and 1988 (from \$9.5 million to \$6.6 million) (671).

**Examples of Rural-Oriented Undergraduate Programs**--some schools require students to participate in rural-oriented training. The University of Nebraska School of Medicine requires an 8-week rural preceptorship during the junior or senior year, where students work in a rural medical practice under the supervision of a local physician "precep-

**Box 13-A—Wanted: Rural Physician**

**Parkers Prairie, Minnesota:** In the summer of 1989, the district hospital in the farming town of Parkers Prairie, Minnesota (population 917) offered a \$5,000 reward to anyone who could find a family practitioner (472). A "wanted" poster and a cover letter were sent to every doctor and medical student in Minnesota, Nebraska, North Dakota, and South Dakota; the poster was put up in strategic places from Parkers Prairie to Minneapolis, advertising the \$50,000 to \$75,000 position (472). The bounty and advertised salary were apparently not high enough, and after several months the hospital was forced to hire a recruiting firm (581). The firm will charge from \$12,000 to \$20,000, regardless of whether it succeeds in finding a physician, and is urging the hospital to increase the salary to \$125,000 (581). As of March 1990, Parkers Prairie still had not found a physician. It had also lost its administrator to a neighboring hospital that offered a better salary and benefits (581).

The 21-bed hospital's sole physician reports that the hospital is heavily in debt and is in imminent danger of closing (581). With three physicians, the hospital might be able to generate enough patient revenue to survive. The presence of larger hospitals in neighboring communities may also contribute to the hospital's financial difficulties by drawing local patients away. If the hospital does close, its physician plans to remain in the community in private practice, referring patients to a hospital 20 miles away (581).

According to a survey conducted by the Minnesota Hospital Association, 78 percent of Minnesota's rural hospitals were actively recruiting physicians in 1989 (173). Like Parkers Prairie, few of them were successful; on the average, hospitals had been searching for 17 months (173).

**Delta, Utah:** The administrator of a medical center in the desert town of Delta, Utah (population 8,000) also resorted to a bounty system to find a physician. One of the town's three physicians had left, and during the 4 months without a replacement, the other two doctors were "worked to death" (259). After professional recruitment firms failed to find a physician, the administrator enlisted the entire Delta community in the search, offering \$5,000 as finder's fee for a family practitioner who would agree to practice in Delta for at least 3 years. The community succeeded. All three attractive candidates who emerged within 2 months after the bounty was announced were relatives of Delta residents. The reward went to a man whose father-in-law agreed to move his general practice from Slidell, Louisiana to the Utah town in September of 1989 (259). Slidell, a community of over 12,000 residents, remains adequately served by 13 primary care physicians (156).



**\$5,000 REWARD**

For a Family Practice Medical Doctor.

*Graphics reprinted with permission of Administrator, Parkers Prairie District Hospital, Parkers Prairie, MN*

tor." A survey of past participants found that the preceptorship 'had been-a significant factor in the choice to enter residencies in a primary care specialty (72). The Kirksville College of Osteopathic Medicine in Kirksville, Missouri requires senior students to complete a 4-month rotation in a rural satellite clinic (165). The clinics are located in eight communities that have no resident physician, and students are supervised by faculty preceptors who visit each site daily. The rural clinics experience was found to be the most influential factor in the choice for malpractice location among graduates of the college. Other factors associated with the choice of a rural practice location were rural origin and

experiences with preceptor faculty (165). At the University of New Mexico, all medical students must spend at least 1 month of clerkship time in a rural area (573).

Other schools offer rural-oriented training on an elective basis. The University of New Mexico School of Medicine offers a special Primary Care Curriculum track as an alternative to the more traditional curriculum (573). The special curriculum emphasizes self-directed learning and patient problem analysis in order to better prepare the physician to practice with confidence in remote settings where trained consultants may not be available. During the

first year of study, a student spends a full 4 months in a rural area of the State under the direction of an approved preceptor, learning what it is like to live and work in a rural area (573). Thirty-one percent of the students in the special track have chosen family practice as a specialty, compared with 10 percent of students in the traditional track (353).

Another example of an elective program is the Rural Physician Associate Program at the University of Minnesota Medical School. Created in 1970, the program provides a 9- to 12-month rural clinical preceptorship for third-year medical students (702). Of all former program students in practice in 1986, 57 percent were in communities of 10,000 or fewer residents. The program has played a major role in improving the primary care physician-to-population ratios in Minnesota's rural (nonmetropolitan) counties. Studies comparing program and nonprogram students at the medical school indicate that students participating in the program have higher levels of confidence in behavioral, surgical, verbal, and interpersonal skills than do nonparticipating students, as well as higher degrees of computer literacy (702).

To reduce isolation and improve the quality of education received by students at remote training sites, schools can use telecommunications networks to link these sites directly to the sponsoring institution. For example, the University of Utah School of Medicine's rural family practice preceptorship program uses microcomputers to provide students in remote sites with the opportunity to conduct active medical literature searches (235). Participating students reported feeling less concerned about their ability to keep up-to-date on the latest medical knowledge, and felt more confident in their own skills (235).<sup>1</sup>

In addition to providing rural clinical training opportunities, some schools have decentralized the most basic components of medical education in order to influence the location choices of their graduates. Perhaps the best known example of a decentralized medical education program is the WAMI program (see box 13-B). Since the program began in 1975, it has largely achieved its original goal of improving the geographic distribution of physicians in the four-State area. A recent study showed that 23 percent of graduates with WAMI

### **Box 13-B—The WAMI Program**

In 1971, the WAMI (Washington-Alaska-Montana-Idaho) Program was established to improve the geographic distribution of physicians within the four-State area, which encompasses almost one-fourth of the total landmass of the United States(4). The University of Washington in Seattle, having the only medical school in the entire region, agreed to accept 20 students each from Montana and Idaho and 10 students from Alaska into each year's medical school class. In 1975, the program was decentralized in order to further improve distribution of general/family practitioners throughout the region. The first 2 years of training are now taken at the University of Washington School of Medicine in Seattle and at smaller institutions such as the University of Alaska at Fairbanks and Montana State University in Bozeman. During the third and fourth years, or the "clinical phase" of the program, all students participate in clerkships in family practice, internal medicine, obstetrics and gynecology, pediatrics, and psychiatry in Seattle as well as in 17 more remote towns throughout the WAMI region. Graduate residents in family practice, pediatrics, internal medicine, and psychiatry at the University of Washington also rotate service in rural areas throughout the WAMI region (4).

A study of 42 WAMI alumni practicing in Alaska in 1986 (179) found that 52 percent were practicing in small towns and 91 percent were in family practice. The amount of time spent in Alaska clerkships positively correlated with the number of graduates choosing to practice in small Alaskan towns. Of graduates in small towns, 36 percent reported that without the WAMI program they would have been unable to attend medical school (179).

program experience were practicing in rural areas in 1981, compared with 13 percent of all U.S. physicians (4). Of graduates with WAMI experience, 61 percent were in primary care practice (family practice, general practice, general internal medicine, or general pediatrics), compared with 35 percent of all U.S. physicians (4).

**Selective Admission of Rural Students—**Another strategy used by some medical schools is selective recruitment of students predisposed to rural practice (e.g., students with rural backgrounds).

<sup>1</sup>This project was funded in part by the National Library of Medicine.

Medical schools that have changed admission policies to favor rural students have increased the number of graduates who chose rural and underserved practice (154,375,498,499). For example, graduates from the Physician Shortage Area Program at Jefferson Medical College in Philadelphia, which recruits such students, were 7 to 10 times more likely than other graduates to practice family medicine in rural or underserved areas (499).

A study of the rural-oriented primary care medical school curriculum at Michigan State University's Upper Peninsula campus found that most Upper Peninsula graduates were themselves from rural areas (100). Graduates were more likely than their "down state" counterparts to choose rural practice and family practice (100). At the Kirksville College of Osteopathic Medicine in Missouri, about 50 percent of the students who graduated between 1930 and 1984 came from towns of fewer than 25,000 residents (165). In 1981, students from smaller towns were much more likely than students from larger towns to be practicing in rural areas (165).

Unfortunately, rural youth may be discouraged from choosing a medical career because of poorer secondary educational resources in some rural areas (325) or because of the high costs of medical education. As noted in chapter 12, the proportion of enrolled medical students who are from rural areas decreased by almost one-third between 1978 and 1986 (500).

#### Graduate Medical Education

***The Federal Role***—The Federal Government, through the Medicare program, funds graduate medical education (GME) in all specialties by reimbursing hospitals for costs associated with such education. In addition, the Federal Government subsidizes both undergraduate and graduate primary care training programs and demonstration projects in rural areas.

Medicare reimbursed hospitals approximately \$3 billion in 1988 (672).<sup>2</sup> Recent and proposed reductions in Medicare reimbursement for GME costs (138) have caused particular concern among primary care residency programs. Studies have shown that family practice (FP) residency programs—especially those in ambulatory care settings—cannot usually cover their costs through patient care revenues (128,139,305,464). Reduced funding may lead hospitals to reduce the number and size of their residency programs; if so, those programs most likely to be discontinued are primary care residencies, which contribute the least to hospital revenues (113,138).

Critics of the current medical education system have recommended that more primary care specialty training programs be moved to the ambulatory care setting, where most primary care medical practice occurs (338,521,606). Development and maintenance of ambulatory care training programs would probably require further targeted funding to help offset some of their additional costs.<sup>3</sup>

Federal funds to encourage the production of primary care physicians have decreased considerably over the past decade. Federal grants to FP residencies decreased by 25 percent from 1980 to 1988, from \$27.1 million to \$20.2 million<sup>4</sup> (676). Federal grants to general internal medicine and general pediatric residency programs decreased by 28 percent during the same period, from \$19.3 million to \$13.9 million (68).<sup>5</sup>

The Omnibus Budget Reconciliation Act of 1987 (OBRA 87)<sup>6</sup> authorized a program to fund four Rural Health Medical Education Demonstration Projects. Under this program, hospitals sponsoring residency programs apply for grants to develop 1- to 3-month clinical experiences at small rural hospitals for physicians who have completed 1 year of residency training. Participating residents receive stipends and benefits based on the reimbursement rate of the

<sup>2</sup>This amount included nearly \$1 billion in direct costs (e.g., teaching costs, residents' salaries, administrative expenses) and just over \$2 billion in indirect costs (additional operating costs assumed to be associated with the teaching function—e.g., increased use of ancillary services; increased cost of high-tech testing and treatment facilities).

<sup>3</sup>Certain GME costs may be higher in ambulatory care settings, due to differences in the logistics of teaching in these settings. For example, fewer students may be involved in an ambulatory visit than during a lengthier hospitalization, and the increased duration of ambulatory visits due to student involvement may decrease the total patient volume of the facility hosting the program (672). Before 1986, Medicare only reimbursed for outpatient care education if it was provided in hospitals. The Omnibus Budget Reconciliation Act of 1986 (Public Law 99-509) broadened reimbursement to include educational costs in any outpatient care settings where a hospital incurred "all or substantially all" of the training cost.

<sup>4</sup>Funding is authorized under section 786(a) of the Public Health Service Act. Figures do not include funding for faculty development projects.

<sup>5</sup>Funding is authorized under Section 784 of the Public Health Service Act. Figures do not include funding for faculty development projects.

<sup>6</sup>Public Law 100-203.

sponsoring hospital rather than that of the small rural hospital, and payment to the sponsoring hospital is adjusted for additional costs unique to the program. The demonstration objectives are to determine appropriate components for rural residency programs and to show how such programs can be duplicated in other areas at minimal cost. The Omnibus Budget Reconciliation Act of 1989 (OBRA 89)<sup>7</sup> expanded the number of demonstration projects to 10. Projects began in mid-1989 and last for 3 years.

#### *Examples of Rural Oriented Graduate Programs—*

A unique program in Montana, a State with no FP residency program of its own, provides satellite rotations in rural Montana communities for FP residents from about 80 out-of-State programs (442,443). Participating residents complete their rotations under the supervision of board-certified physicians. The program has not only enabled Montana to attract residency graduates from other States, but it has also helped to improve the geographic distribution of physicians within the State (442,443).

A pediatric residency program at a medical center in Hanover, New Hampshire places medical residents in rural pediatric practices viewed as “teaching laboratories,” where they are exposed over a 3-year period to various aspects of rural practice. Of the first 14 residents to complete the program, 12 were in primary care practice in 1985 and 8 were practicing in rural locations in various States (309). A general surgery residency program at the University of Louisville in Kentucky provides optional rotations in rural areas. A survey of physicians who graduated from the program between 1972 and 1981 found that a significantly larger percentage of those who were practicing in rural than in urban areas had participated in the optional rotations (57).

A program launched in 1979 at the Marshall University School of Medicine allows FP residents to take 1-3 years out of their training to practice in underserved communities while earning masters’ degrees in community health. The program director believes that “this program has accounted for more years of physician service in underserved areas of

West Virginia than any program besides the National Health Service Corps” (533).

Decentralized residency programs also provide unique opportunities for faculty and can contribute to the well-being of both sponsoring and local hospitals. A rural teaching practice operated through the Department of Family Medicine at the State University of New York at Buffalo is composed of a four-physician group practice serving two rural communities (529). The four physicians are full-time faculty at the university, and the group practice provides unique rural educational experiences for medical students, residents, and fellows. The practice more than covers its annual costs, represents a substantial portion of the primary care referral base at the university teaching hospital, and has contributed to stabilizing the occupancy rates of local rural hospitals (529).

### *Educational Strategies For Other Health Professionals*

#### *Midlevel Practitioners (MLPs)*

**The Federal Role—**The Federal Government has supported PA training programs for nearly two decades (table 13-1). Since a major decline in 1982, funding has remained relatively stable. Approximately three-fourths of the 52 PA training programs in operation in 1989 received Federal support (192). Some of the federally funded PA programs have a rural focus, and all are mandated to encourage their graduates to practice in health personnel shortage areas. Continued support of PA training programs, particularly those with a rural orientation, is likely to have a positive effect on rural PA supply.

The Federal Government also supports the training of certified nurse-midwives (CNMs), nurse practitioners (NPs), and certified registered nurse anesthetists (CRNAs) through the Nurse Practitioner and Nurse Midwifery grant program and the Nurse Anesthetist Traineeships and Programs grant program. Although these programs are not entirely dedicated to the training of students for rural practice, they do fund some rural-focused projects. Funding for the Nurse practitioner and Nurse-Midwifery grant program changed little between 1980 and 1990—from \$13.0 million to \$13.4 million

<sup>7</sup>Public Law 101-239.

<sup>8</sup>Classification of a federally funded nurse training project as “rural-focused” is based on the appearance of the term “rural” in the program description.

Table 13-1—Federal Support for Physician Assistant Training Programs, Fiscal Years 1972-1989

Authority <sup>a</sup>	Fiscal year	Amount funded	Total number of programs
HMEIA Contracts Section 774(a)	1972	\$ 6,090,109	40
	1973	6,208,999	39
	1974	8,129,252	43
	1975	5,994,002	40
	1976	6,247,203	41
Section 701(8) and Section 783(a)(1)	1977	\$ 8,171,441	39
	1978	8,685,074	42
	1979	8,453,666	42
	1980	8,262,968	43
	1981	8,019,000	40
	1982	4,752,000	34
	1983	4,752,000	34
	1984	4,414,850	34
	1985	4,442,076	37
	1986	4,548,000	36
	1987	4,275,000	36
	1988	4,549,973	37
	Sections 701(8) and 788(d) 1989	4,452,000	38

<sup>a</sup>Public Health Service Act.

SOURCE: U.S. Department of Health and Human Services, Resources and Services Administration, Bureau of Health Professions, Physician Assistant Program, Rockville, MD, August 1989.

(table 3-1).<sup>9</sup> It funded 11 rural-focused NP projects and one rural-focused nurse-midwife project in fiscal year 1988. Most of the grantees were family practice, primary care, or geriatric care NP training programs providing rural clinical experiences and rural-oriented curricula for their students. Of the 208 NP training programs operating in 1984, almost one-half received some support from the Federal Government (671). The Nurse Anesthetist Traineeships grant program<sup>10</sup> received \$1.1 million in appropriations in 1990, an increase over 1989 appropriations (see table 3-1). The number of rural programs funded is not known.

**Examples of Rural-Oriented MLP Training Programs**—NP and PA training programs with rural-oriented curricula have been highly effective in placing their graduates in rural and underserved communities (209,230,337,509,535). Some of these programs selectively recruit students who already have job commitments in the local area once their training is completed. A certificate-level NP training program at East Carolina University in North

Carolina has been very successful in placing graduates in rural practice (337). A similar program at Georgia Southern College has also been successful (see box 13-C). The Primary Care Associate Program based at Stanford University and Foothill College in California trains PAs and NPs to provide services in medically underserved areas (230). The program has community-based training sites that recruit their own students locally and have succeeded in retaining over 70 percent of their graduates in the local areas (230).

Decentralized education programs have been hailed as highly effective means of improving recruitment and retention of MLPs and other health professionals in rural areas, but the degree of decentralization required has been debated (230). Completely decentralized programs (i.e., those that provide all components of the educational process at the remote site) have higher operating costs than those that decentralize only the terminal (or clinical) phase of training, and they may not be any more

<sup>9</sup>Funding is authorized under Section 822(a) of the Public Health Service Act

<sup>10</sup>Funding is authorized under Section 831 of the Public Health Service Act.



**Box 13-C—Example of a Rural-Oriented Training Program for Nurse Practitioners**

Georgia Southern College's certificate program for family nurse practitioners (FNPs) emphasizes development of strong generalist skills and an understanding of cultural and health care beliefs of rural populations in southeast Georgia (209). It provides rural clinical experience under the supervision of faculty experienced in rural practice. Admissions policies favor students living or practicing in rural areas, or who have expressed a commitment to practice in rural areas on completion of the program. Of the 75 FNPs who graduated from 1981 to 1988, 74 percent were working in medically underserved rural areas in 1988, providing care to populations characterized by low income, low education, and high mortality rates. A 1985 survey showed that over 90 percent of program graduates were still in Georgia, and 83 percent were employed as NPs (209,535). This program received Federal grant funding from 1982-87, without which the continuation of the program would have been "highly unlikely" (209,535).

The program has had difficulties recruiting students in recent years due to a change in the American Nurses' Association (ANA) certification policy (209). Beginning in 1992, the ANA will require a baccalaureate degree in nursing for NP certification (263). Not all States require ANA certification for NP practice, but Georgia does, and a lack of baccalaureate-prepared registered nurses in the area has caused marked decreases in program enrollment (2@+.

effective at retaining graduates in those areas (230).<sup>11</sup>

A new barrier to the recruitment of rural nurses into NP programs is the recent change in American Nurses Association (ANA) NP certification policy. The ANA now requires a bachelor's degree for NP certification (263). In States that require ANA certification for NP practice, decentralized training programs that recruit local nurses may not be viable due to a relative lack of registered nurses (RNs) with

bachelors' degrees in rural areas (see table 10-43, box 13-C).

**Nurses**

Rural experience during basic training may help to better prepare nurses for general hospital as well as rural practice. Nursing students participating in elective rural rotations report that these experiences are more valuable than those available in urban facilities because they allow students to practice a wider range of skills with a greater degree of independence (482). Nursing students in a rural hospital preceptorship program who later took employment at the hospital reported feeling more comfortable with patients and less overwhelmed by the orientation process (599).

To make rural nursing more attractive, to improve retention of nurses who are already in rural areas, and to improve the rural supply of nurse MLPs (NPs, CNMs, and CRNAs), rural nurses need access to advanced training programs that will allow them to upgrade their skills without having to leave their families or place of employment.

The Federal Government supports general nurse training through the Advanced Nurse Training, Nursing Special Projects, and Nursing Demonstration Project grant programs. None of the grant programs are entirely dedicated to rural training, but all fund some rural-focused projects.<sup>12</sup>

Funding for the Advanced Nurse Training grant program increased from \$12.0 million in 1980 to \$17.3 million in 1988, but it decreased to \$12.8 million in 1990 (table 3-1).<sup>13</sup> In fiscal year 1988, this program funded three rural-focused projects in Georgia, North Dakota, and Wyoming (679). These projects involved rural nurse specialty training programs and expansion of a master's level program in rural nursing. The Nursing Demonstration Project grant program funded four rural-focused projects in fiscal year 1988 (679).

Funding for the Nursing Special Projects grant program decreased from \$15.0 million in 1980 to \$12.9 million in 1990 (table 3-1).<sup>14</sup> This program

<sup>11</sup>The Primary Care Associate Program in California, for example, trains NPs and PAs through both pathways and has found post-graduate retention rates among students who took only the terminal phase of training at the satellite center to be even higher than among students who took the entirety of their training at those sites (230).

<sup>12</sup>See footnote 8.

<sup>13</sup>Funding is authorized under Section 821 of the Public Health Service Act.

<sup>14</sup>Funding is authorized under Section 820 of the Public Health Service Act.

funded 39 rural-focused projects in fiscal year 1988 and 40 such projects in fiscal year 1989 (679). Projects included:

- continuing education programs for rural nurses on a variety of nursing topics;
- outreach and off-campus programs to provide baccalaureate degrees to RNs in rural areas;
- programs to upgrade licensed practical/vocational nurses (LP/VNs) to RNs;
- geriatric, home health, critical care, family, community, and preventive nursing training programs; and
- nursing preparatory education projects (679).

Some of the special projects used telecommunications to provide nursing education in remote areas (679).

#### Allied Health Professionals

Rural-oriented training has also been effective in recruiting allied health professionals (AHPs) to rural areas. A linkage program between the University of Alabama at Birmingham and several of the States' junior colleges provides clinical training opportunities for AHP students in underserved sites (91). Students receive their first year of training at a junior college, and the second year at the University of Alabama Medical Center in Birmingham. Their last weeks of clinical training are completed at smaller health care facilities throughout the State (91). After 11 years of the program, a study found that 66 percent of graduates returned to their home counties to work (143). Other schools that offer rural training opportunities to AHP students include the University of Wisconsin Medical Technology program and Kentucky Southern Community College (288). The relatively short length of most AHP training programs presents an excellent opportunity for local recruitment of students. The development of decentralized training programs such as these appears likely to improve AHP supply in participating communities.

Rural-oriented training of AHPs with a single skill, however, will not satisfy the unique staffing needs of many rural facilities. What are needed are programs that teach students a broader range of skills and offer eligibility for dual or multiple certification. One such program, which was started with the help of a Federal grant in the early 1970s, is located at Southern Illinois University at Carbondale. Originally, students in the Carbondale program pursued a

primary area of study (e.g., radiography) with the option to pursue certification eligibility in a second area (e.g., medical technology) through an additional year of course work (424). After administrators found that many students were not utilizing their multiple competencies due to strict departmental lines in hospitals, the program was redesigned to combine complete competencies in either radiography or cardiorespiratory care with competencies in emergency medical services/technology, health care management, gerontology, or computer science (424).

Although demand for multiskilled AHPs is considerable (see ch. 10), only a small number of formal cross-training programs are currently in existence (424). A documentation project conducted by the National Multiskilled Health Practitioner Clearinghouse of the University of Alabama at Birmingham in 1988 identified only 75 programs nationwide offering multiple competency training. These programs are located primarily in community colleges and 4-year or graduate institutions. The study identified only four programs located in hospitals. Programs can be generic, preparing students in two or more areas of practice, or they can be "add-on" programs that expand the competency of individuals already certified in one area (424).

Federal funding of AHP training has declined considerably since its peak in the 1970s (table 13-2) (288,674). In 1974, nearly \$30 million was awarded in grants, cooperative agreements, and contracts in allied health. In 1986, the figure was zero. Lack of data has prevented assessment of the impact of Federal funding in allied health (288). OBRA 89 (Public Law 101-239) approved \$750,000 for the Allied Health Special Projects grants program, and \$726,000 was appropriated. The program is designed to improve allied health program administration and expand enrollments in allied health programs. Only 7 to 10 grants were to be awarded in August 1990, but by mid-January 1990, the BHP had received almost 1,000 inquiries about the program (43).

OBRA 89 also authorized a new grant program entitled Interdisciplinary Traineeships for Rural Areas. This program, funded at \$2.25 million in 1990 (table 3-1), will support interdisciplinary health professions training programs in rural areas, and it could conceivably serve as an additional source of support for the training of certain AHPs.

Table 13-2—Federal Grants and Cooperative Agreements Awarded in the Allied Health Area, Fiscal Years 1967-1990

Fiscal year	Awards (in millions of dollars)						Total
	Advanced traineeships	Training institutes	Special improvements	Special projects	Basic improvements	Other	
1967. . . . .	0.24	0	0	0	3.29	0	3.53
1968. . . . .	1.20	0	0	0.80	9.75	0	11.75
1969. . . . .	1.55	0	0	1.23	9.75	0	12.53
1970. . . . .	1.54	0	0	1.23	9.70	0	12.47
1971. . . . .	2.46	0.48	0	4.48	9.70	0	17.13
1972. . . . .	2.59	0.32	10.50	7.63	0	0	21.04
1973. . . . .	1.95	1.14	7.00	5.64	0	0	15.73
1973a. . . . .	0	0	10.50	0	0	0	10.50
1974. . . . .	2.56	1.00	16.00	10.13	0	0	29.69
1975. . . . .	2.61	0.96	10.19	6.87	0	0	20.62
1976. . . . .	2.56	1.00	10.50	8.20	0	0	22.26
1977. . . . .	2.33	0.64	8.91	8.41	0	0	20.29
1978. . . . .	1.44	0.92	0	14.35	0	0	16.71
1979. . . . .	1.49	1.01	0	8.15	0	0	10.65
1980. . . . .	0.89	0	0	4.25	0	0.74 <sup>b</sup>	5.88
1981. . . . .	0	0	0	0.51	0	0.37 <sup>b</sup>	0.87
1982. . . . .	0	0	0	0	0	0	0
1983. . . . .	0	0	0	0	0	0	0
1984. . . . .	0	0	0	0	0	0.91 <sup>c</sup>	0.91
1985. . . . .	0	0	0	0	0	0.88 <sup>c</sup>	0.88
1986. . . . .	0	0	0	0	0	0	0
1987. . . . .	0	0	0	0	0	0	0
1988. . . . .	0	0	0	0	0	0	0
1989. . . . .	0	0	0	0	0	0	0
1990. . . . .	0	0	0	0.73	0	(2.25) <sup>e</sup>	0.73 <sup>f</sup>

<sup>a</sup> ~~Related~~ <sup>Related</sup> ~~impounded~~ <sup>impounded</sup> funds.

<sup>b</sup> Military Experience Directed Into Health Careers (MEDIHC) cooperative agreement funds.

<sup>c</sup> Grants for allied health personnel in health promotion and disease prevention.

<sup>d</sup> Figures represent appropriations and not award amounts. Award amounts were not yet available at the time of this study.

<sup>e</sup> Rural Health Interdisciplinary Traineeship grant appropriations. Not all of this money will go towards traineeships in the allied health professions.

<sup>f</sup> Excludes Rural Health Interdisciplinary Traineeship program funds.

SOURCE: Institute of Medicine, *Allied Health Services in Crisis* (Washington, DC: National Academy Press, 1989), table 5-4; U.S. Department of Health and Human Services, Public Health Service, Health Resources and Services Administration, Bureau of Health Professions, Division of Associated and Dental Health Professions, Rockville, MD, unpublished data provided by F. Paavola in 1990.

### *The Area Health Education Centers (AHEC) Program*

The AHEC program<sup>15</sup> encourages training of health personnel in primary care and emphasizes the relationship between educational experiences and health care delivery. AHECs provide decentralized clinical education experiences for a variety of health professional trainees by linking academic resources of medical schools with local health facilities and agencies. AHECs also provide continuing education for health professionals in remote communities (677}

Federal funding of an individual AHEC may not exceed 9 years (see ch 3). The wide impact and success of AHEC-sponsored programs (box 13-D) indicate that Federal investment in these programs has encouraged State and local participation in activities addressing the geographic maldistribution of all varieties of health professionals. Each Project must contribute at least 25 percent in matching funds from State or other sources, and some have contributed considerably more (627,677). Twenty-three AHEC programs are now functioning without Federal funding, and 18 more are moving towards

<sup>15</sup>See ch. 3 for a description of AHEC program authorization and funding.

### ***Box 13-D—Selected Area Health Education Center (AHEC) Activities***

**Arizona:** AHECs in Arizona provide rural training experiences for medical residents, nursing students, health educators, and other health professions students at clinics serving Arizona's migrant farmworker population. Health professionals already serving migrant populations also have access to continuing education programs through the AHECs (380).

**Arkansas:** *Programs* of the Arkansas AHEC have contributed to improvements in the geographic distribution of physicians in the State. Since 1981, recruitment of family practitioners through AHEC-sponsored residency programs has been responsible for the elimination of physician shortages in 9 previously designated shortage areas. Over one-half of the graduates of these residency programs locate in towns of fewer than 20,000 residents (151).

**North Carolina:** A survey of all physicians who settled in rural North Carolina in 1976, 1977, and 1978 found that activities of North Carolina's AHEC program had been instrumental in those physicians' location decisions. The State has experienced dramatic improvements in physician-to-population ratios during the past decade (376). Seventy-three percent of all physicians who participated in a rural-oriented family practice residency program operated by the Mountain AHEC in Asheville since its inception in 1978 remained within the region to practice (582). Over one-half of these practitioners are located in communities of 10,000 or fewer residents (582). The AHEC has also been involved in developing off-campus baccalaureate programs for registered nurses, clinical training sites for both undergraduate and graduate nursing students, and continuing education opportunities for nurses and other health professionals in rural areas (101).

**Oklahoma:** *The* Oklahoma AHEC program provides preceptorship opportunities at Indian Health Service clinic sites and tribally operated clinics and hospitals for a variety of health professions students (231).

**South Carolina:** *An AHEC in rural* South Carolina coordinates with educational directors in hospitals throughout the region to determine the continuing educational needs of hospital employees. Programs to address identified needs are conducted at the facilities demonstrating greatest need, or at central locations where health professionals from all facilities attend. The AHEC program also serves the continuing education needs of nonhospital-based pharmacists, dietitians, nutritionists, nurses, and emergency medical personnel within the region (729).

**Texas:** AHECs in Texas are creating telecommunication linkages between health science centers and small rural hospitals for consultation and patient referral. The health science center provides the hardware, and the AHEC provides the health care specialists and information sources required to meet the needs of participating institutions. Other cooperative projects of the AHEC include joint pharmaceutical and supply purchasing, emergency transport information, and shared provider services (170).

**Virginia:** *The* Western Tidewater AHEC on Virginia's Eastern Shore provides multidisciplinary experiences in health promotion/disease prevention among migrant farm worker populations for students in dentistry, dental hygiene, medical technology, nursing, and medicine (712).

**WAMI:** *The* WAMI/AHEC program (serving the States of *Washington, Alaska, Montana* and *Idaho* through the University of Washington School of Medicine in Seattle) operates a Rural Hospital Project funded by the W.K. Kellogg Foundation. Its purpose is to examine the plight of rural hospitals within the region. This project represents an expansion beyond the typical AHEC program goals, involving administrative, planning, and policy personnel in addition to health care practitioners (44).

independence (table 13-3) (677). The first generation of AHECs (table 13-3), although intended as multidisciplinary efforts, devoted the greater portion of their resources to physician education (210). In the second and third generations, and in the continuing activities of first generation projects, a greater emphasis has been placed on nonphysician educational interventions (210). Federal funding for AHECs has remained relatively stable during the past decade (table 13-4) (677).

AHECs may cover portions or all of a State. While partial-State AHECs may be rural or urban, State-wide AHECs can encompass both rural and urban projects. Figure 13-1 depicts the distribution of the various types of AHECs across the country (677).

AHECs are involved in a wide variety of educational and service activities, ranging from rural clinical experiences for health professions students to research on the financial viability of rural hospitals (box 13-D). AHECs in Arizona, New



**Table 13-4-Federal Funding of the Area Health Education Centers (AHEC) Program, Fiscal Years 1978-1990; and Impact of the AHEC Programs, Fiscal Year 1988**

Fiscal year	Appropriation <sup>a</sup> (in \$ millions)
1978 .....	\$17.0
1979 .....	20.0
1980 .....	21.0
1981 .....	21.0
1982 .....	18.2
1983 .....	17.9
1984 .....	17.9
1985 .....	18.0
1986 .....	17.2
1987 .....	18.0
1988 .....	18.0
1989 .....	16.9
1990 .....	18.5 <sup>b</sup>

Funding and impact, fiscal year 1988	
<b>AHEC programs (Sec. 781(a)(1))</b>	
Amount awarded .....	\$15.5 million
Number of projects .....	18
Number of regional centers .....	43
Number of States served .....	21
<b>Special initiatives<sup>c</sup> (Sec. 781(a)(2))</b>	
Amount awarded .....	\$1.7 million
Number of projects .....	28
Number of States served .....	10

<sup>a</sup>\$87.9 million were awarded as contracts under the HMEIA authority from 1972 through 1976.

<sup>b</sup>A separate but similar program, the Health Education Training Centers Program, was authorized in 1988 (Public Law 100-607) and was appropriated \$4.0 million in 1990. The program focuses on the training of health professionals in areas along the U.S.-Mexico border. The \$18.5 million AHEC appropriation here is exclusive of that \$4.0 million.

<sup>c</sup>See ch. 3 for an explanation of AHEC special initiative funding.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, "The Area Health Education Centers Program: Town and Gown Working Together to Improve the Nation's Health," app. II, Rockville, MD, 1988. Updated by OTA.

Mexico and Texas emphasize recruitment of health professionals to serve Hispanic communities (677). Other AHECs focus on training of health professionals to serve Native American and black populations. AHECs operated through Meharry Medical College, Morehouse School of Medicine, and Charles R. Drew University have demonstrated success with increasing the number of black health professions students in the AHECs' underserved clinical train-

ing sites (677). An AHEC in Washington State has established an office of rural health that engages in numerous research and service activities relating to the States' rural health care needs (426).

The goals and priorities of AHECs differ depending on their geographic location. While urban AHECs concentrate on graduate medical education, health professions career opportunity programs, health education and nutrition programs, and undergraduate medical education, rural AHECs tend to emphasize nursing education and continuing professional education (210). Rural AHECs also have devoted a substantial portion of their resources to providing support for area National Health Service Corps (NHSC) providers and career mobility for nurses (210). A recent national study found that nonmetro counties with AHECs--especially counties not adjacent to metro counties--had greater growth in primary care physician supply between 1975 and 1985 than counties without AHECs (281).

Although response to local needs undoubtedly dictates some of the differences between rural and urban AHECs, differences in opportunities to conduct certain types of training programs may be another important factor. For example, compared with urban AHECs, rural AHECs may allocate fewer resources to undergraduate medical education programs because they are more remote from medical schools and have fewer local resources (210). Also, rural communities may not consider student training programs as important as the need for *trained* physicians in the area, especially if there is no guarantee that these students will return to the area to practice (210).

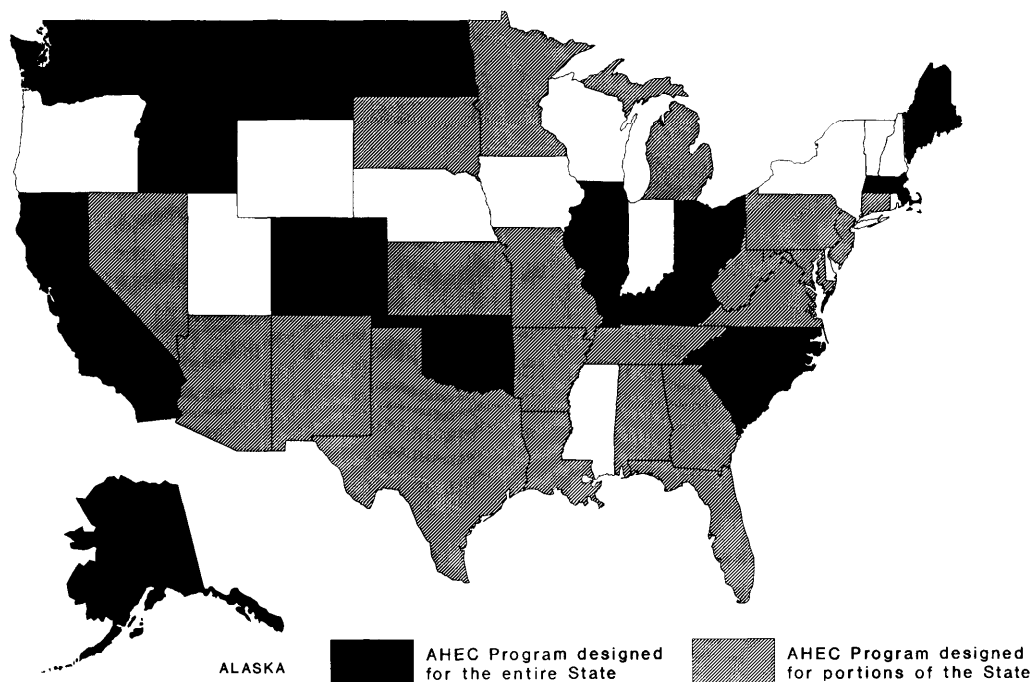
## STRATEGIES TO REDUCE PROFESSIONAL ISOLATION

### *Consultative and Educational Opportunities Through Telecommunications*

One means of increasing the professional resources available to rural practitioners is improvement of telecommunications networks, through which health professionals have access to consultants, literature databases, new technologies, and continuing education programs.

The KARENET system, operated by Texas Tech University's Health Sciences Center, places a computer terminal by each patient bed in participating rural hospitals, enabling direct consultative contact

**Figure 13-I—Distribution of Area Health Education Center (AHEC) Programs by State, 1988**



SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, "The Area Health Education Centers Program: Town and Gown Working Together to Improve The Nation's Health," Rockville, MD, 1988.

with specialists at the Health Sciences Center in Lubbock (268).<sup>16</sup> Another project, MEDNET, will be a two-way interactive video network linking Texas Tech specialists to rural physicians. The use of these programs is expected to decrease traveling time for patients and health providers, as well as improve occupancy rates in rural hospitals that would otherwise be obliged to refer problem cases to the Health Sciences Center (268).

Teleconference networks, such as the South Dakota Medical Information Exchange (SDMIX), established in 1981 at the University of South Dakota at Sioux Falls, are capable of reaching hundreds of people across hundreds of miles at relatively low cost (259). Strictly an audio system, SDMIX offers a series of 1-hour continuing medical education programs for physicians and additional programming for medical support staff. Unlike some teleconference networks, SDMIX is not a fixed network and thus can accommodate any site with a

telephone, no matter how distant. Users at up to 57 sites can participate simultaneously (259).

A recent initiative at the National Library of Medicine (NLM) focuses on making NLM products and services available to health professionals in isolated rural and inner city areas (422). The NLM's Regional Medical Library Program is a computer-accessed network of nearly 3,000 medical libraries serving all 50 States. Libraries participating in the network have agreed to provide services to help health professionals identify, locate, and obtain information (422).

Health professionals in rural areas, however, may not have ready access to computers and telephone lines that enable them to use the service (422). Purchase of required hardware (e.g., computers, satellite sending and receiving equipment) may also be a major barrier to utilization of telecommunications technology, particularly for solo providers in isolated rural areas. (Some people have suggested third-party reimbursement for patient care-related

<sup>16</sup>The program was funded by the W.K. Kellogg Foundation, and hardware was provided by AT&T.

telecommunications costs (83).) Other disadvantages of telecommunications technologies are their level of complexity and the training they may require on the part of physicians and other users. NLM has recommended additional funding for a program that would bring individual health professionals into the network, as well as for expansion of a grant program that would bring NLM's products and services to a larger number of isolated medical facilities (422).

### *Opportunities for Vacation and Educational Leave*

Some rural health professionals may be unable to take professional or personal leave because there is no one to replace them while they are absent. The "burnout" problem may be particularly severe for solo practitioners in isolated rural areas who are on call continuously. To address this problem, some States have developed special *locum tenens* services to provide relief for rural practitioners. For example, a Robert Wood Johnson Foundation-tided project in Montana is developing a registry of providers available for temporary placement in rural Montana communities (126).

Satellite clinic networks and physician-midlevel team practices can also help to reduce professional isolation. These strategies are discussed later in this chapter.

## FEDERAL STRATEGIES TO ADDRESS ECONOMIC CONCERNS

The Federal Government has taken steps to increase Medicare payments to primary care and rural physicians. Other strategies to address economic concerns of rural practice<. g., Federal and State educational loan repayment programs and other private sector efforts-are discussed later in this chapter.

### *The Resource-Based Relative Value Scale (RBRVS)*

A number of statutory changes in Medicare payment to physicians have been aimed at increas-

ing payment to primary care providers **at the** expense of payment for secondary care services. OBRA 87 (public Law 100-203) introduced a number of incremental changes **that** included:

- permitting maximum annual increases in physicians' charges **to** Medicare **to** be higher for primary care services than for other services,
- setting minimum levels for prevailing charges for primary care services,<sup>17</sup> and
- authorizing bonuses above and beyond what Medicare 'would normally pay for physician services delivered in designated Health Manpower Shortage Areas (HMSAs) (see below).

OBRA 89 (Public Law 101-239) introduced more general payment reforms to further increase payment for primary care services. This law established a resource-based relative value scale (RBRVS) as the basis for Medicare physician payments as of January 1, 1992, to be phased in fully by 1996. Under the RBRVS, differences in payment among different types of physician specialists for the same service will be eliminated gradually over time, and a higher relative value than in the past will be placed on "evaluative and management services" -the types of services most often performed by primary care physicians (475). Unlike the current system, which bases payments on "customary, prevailing, and reasonable" charges for specific services within specified prevailing charge localities (see chs. 3 and 12), payments under the new system will be determined by a relative value scale that is based on three components: work, practice expenses, and malpractice expenses. Geographic adjustments<sup>18</sup> will be applied fully to practice expenses and malpractice, but only to one-fourth of the work component (which represents approximately 60 percent of each fee) (475).

Detailed projections of the impact of the RBRVS on physicians and beneficiaries **cannot** be made at this point because the new fee schedule has not yet been developed. The Physician Payment Review Commission (PPRC) predicts that rural physicians will fare well under the new plan because they are mostly primary care physicians, and because the geographic cost of living adjustment will only apply to one-fourth of the work component (475).

<sup>17</sup>For most services, the Medicare fee is determined according to the prevailing charge for a particular service within a given locality. Under this legislation, however, the minimum allowable payment for primary care services is based on 50 percent of the national average prevailing charge, regardless of the local prevailing charge.

<sup>18</sup>Geographic adjustments lower payments in areas with lower costs of living.



**Table 13-5-Changes in Physicians' Medicare and Total Revenues Under Medicare's Resource-Based Relative Value Scale (RBRVS), by Specialty**

Specialty	Percent change in Practice revenues from:	
	Medicare <sup>b</sup>	All sources <sup>c</sup>
<b>Medical</b>		
Internal medicine. . . . .	17	4
Family practice. . . . .	38	6
Dermatology. . . . .	1	NA
<b>Surgical</b>		
Ophthalmology. . . . .	-16	-8
General surgery. . . . .	-10	-5
Orthopedic surgery. . . . .	-7	-3
Urology. . . . .	-5	NA
Thoracic surgery. . . . .	-20	-9
Otolaryngology. . . . .	6	NA
Obstetrics/gynecology. . . . .	2	0
<b>Hospital-based</b>		
Radiology. . . . .	-21	-7
Pathology. . . . .	-? <sup>d</sup>	NA

NOTE: NA = not available.

<sup>a</sup>These estimates are based on an earlier version of RB/RVS and do not reflect the effect of the geographic cost of living adjustment which will apply to 25 percent of the work component under the version adopted in Public Law 101-239.

<sup>b</sup>Medicare program payments are exclusive of balance bills (see text).

<sup>c</sup>Includes revenues from all payers. RBRVS only applied to Medicare revenues. Medicare assignment rates are assumed to be unaffected by the new RBRVS fee schedule and 100 percent of balance bills (at 120 percent of the prevailing charge) are assumed to be collected. Estimates of non-Medicare revenues are unavailable for some specialties.

SOURCE: Physician Payment Review Commission, Annual Report to Congress, 1989 (Washington, DC: PPRC, 1989), table 9-8.

Based on a simulated model, PPRC predicted that under the new system, specialties that will receive the greatest increases are those that engage in a greater proportion of "evaluative and management" as opposed to "procedural" services--e.g., family practice and internal medicine (table 13-5) (475). Surgical and hospital-based specialties (e.g., ophthalmology, radiology, and pathology) will lose the most. Within specialties, the impact of the new fee schedule will depend on the proportion of evaluative and management services performed (475).

Changes in overall Medicare reimbursement to physicians will probably be greater in rural than in urban areas, with the greatest increases in the smallest rural areas (475). Medical specialties as a group will increase their Medicare income in all but

**Table 13-6-Change in Medicare Payments Under Medicare's Resource-Based Relative Value Scale (RBRVS) in Metropolitan and Nonmetropolitan Areas<sup>a</sup>**

Area <sup>b</sup>	Specialty group	Percent change <sup>a</sup>
<b>Metro county</b>		
-----		
<b>3,000,000+ population</b>		
	Medical	10
	Surgical	-15
	All physicians	-4
<b>1,000,000 to 3,000,000</b>		
	Medical	14
	Surgical	-14
	All physicians	-5
<b>Fewer than 1,000,000</b>		
	Medical	2
	Surgical	-9
	All physicians	1
<b>Nonmetro county</b>		
-----		
<b>25,000+ population</b>		
	Medical	28
	Surgical	-5
	All physicians	12
<b>Fewer than 25,000</b>		
	Medical	34
	Surgical	-8
	All physicians	13

<sup>a</sup>Estimated changes reflect the difference between average 1988 charges (under reasonable charge payment) and fee schedule charges under the version of RBRVS adopted in 1989 (Public Law 101-239).

<sup>b</sup>Metro and nonmetro counties accounted for 84 and 16 percent (respectively) of Medicare allowed amounts in 1988.

SOURCE: Physician Payment Review Commission, Annual Report to Congress, 1990 (Washington, DC: PPRC, 1990), table 2-3.

the largest urban areas; medical specialists in rural areas will have the greatest increases (table 13-6) (475).

Restrictions on balance billing will go into effect before the new fee schedule. "Balance billing" is the difference between what Medicare will pay (the "allowed charge") and what the physician actually charges the patient (the "billed charge"). Under the 1989 legislation, no physician will be permitted to charge beneficiaries more than 115 percent of the Medicare allowed charge. The full restriction will apply beginning in 1991 to physicians who charged within this limit in 1990, but it will be phased in more gradually for physicians who charged outside the limit in 1990 (limits will be 125 percent in 1991,

120 percent in 1992, and 115 percent thereafter) (475).

Balance billing restrictions are likely to have a somewhat negative effect on the income of physicians who have historically charged outside of newly allowed limits.<sup>19</sup> For example, a physician who gets \$12 from Medicare for a visit and who charged \$24 in 1990 will only be able to charge \$15 in 1991—a 40 percent reduction in total income for that visit. Although beneficiaries in rural areas report balance billing to a slightly lesser extent than their urban counterparts (475), rural areas in which physicians balance bill more extensively undoubtedly exist. A preliminary analysis by PPRC found that Medicare income reductions due to balance billing limits will occur more frequently for primary care practices and practices in rural areas than for others, but that very few of these practices would experience reductions in excess of 5 percent of current Medicare revenues (475).

Because it could make primary care practice more economically attractive to physicians, the RBRVS may be a powerful long-range strategy for improving the supply of primary care specialists. This could, in turn, improve the rural supply of physicians by expanding the pool of specialists most needed in those areas. On the other hand, its impact on the geographic distribution of primary care physicians may be limited due to competing urban demands for these providers (e.g., by health maintenance organizations).

### *Medicare Bonus Payments*

OBRA 87 (Public Law 100-203) authorized a 5 percent bonus on Medicare reimbursement for all physician services provided in nonmetro class I and class II geographic primary care HMSAs (see ch. 11 for discussion of HMSAs). The objective was to increase access to physician services for Medicare beneficiaries residing in these areas by: 1) attracting physicians to these HMSAs, and 2) inducing physicians already in the areas to stay by offering them

higher fees. OBRA 89 (Public Law 101-239) increased the bonus to 10 percent and expanded area eligibility to all rural primary care HMSAs (including population and facility designations), effective January 1, 1991.

As of January 1989, all Medicare carriers<sup>20</sup> were required by the Health Care Financing Administration (HCFA) to post information about the bonus provision in their periodic bulletins, which are distributed to all physicians practicing within their area (110). The bulletins listed qualifying HMSA counties within each carrier's area. Once physicians have identified qualifying sites of service, they indicate by special codes on their claim forms which services were provided at those sites. The bonus is then automatically paid to the physician or physician group on the claim form.<sup>21</sup> Individual claims are not verified by the carrier, although HCFA requires that carriers conduct an annual audit of a random sample of at least 10 claims for the top 3 percent of eligible physicians to determine the validity of those claims (110).

The bonus program entails a number of problems and uncertainties. First, it is not clear whether a 10 percent bonus on Medicare payments is sufficient to attract or retain physicians in HMSAs (242). Although physicians have been found to respond to increased Medicare and Medicaid reimbursement by accepting more Medicare and Medicaid patients or by providing increased care to patients they already see (161,266,395,508,564), the strength of the incentive will vary depending on the Medicare or Medicaid caseload of the physician. The increase in payment rates should result in increased income for many physicians, however. One analysis of rural physician reimbursement found that a 7 percent increase in reimbursement rates (from all sources) would produce a 26 percent increase in income (710).<sup>22</sup>

Second, the primary care HMSA may not be the most suitable tool for identifying areas where Medicare beneficiaries have poor access to services.

<sup>19</sup>Studies have shown that balance billing is strongly related to beneficiary medical costs. A large proportion of balance billing is concentrated among a small group of beneficiaries with high medical costs (475). The geographic locations of these beneficiaries have not been studied.

<sup>20</sup>Medicare Part B reimbursement is paid through 48 insurance carriers. Physicians submit their claims to the carriers for reimbursement, and the carriers in turn submit reimbursement totals to the Health Care Financing Administration (HCFA) on a quarterly basis.

<sup>21</sup>Physician services provided in certified Rural Health Clinics (RHC) do not qualify for the bonus. RHCs receive cost-based rather than prospective reimbursement for physician services under Public Law 95-210 (see ch. 3).

<sup>22</sup>The parameters used in this model were based on only one of the case study sites, so the exact figures will not apply to all rural practices. The finding that a given increase in reimbursement rates can produce a greater increase in physician income, however, applies generally.

Legislatively, the bonus program applies to all physician services rendered in the designated areas, regardless of the physician's specialty. Primary care HMSA designation criteria however, do not consider the presence of all physician specialists. In particular, they may fall short of identifying areas with low availability of nonprimary care services. The criteria include specialists who are less likely to see Medicare patients (e.g., pediatricians and obstetricians) but exclude nonprimary care specialists who may have large Medicare caseloads.<sup>23</sup> HCFA and the Bureau of Health Care Delivery and Assistance (BHCA) have received complaints from psychiatrists in designated psychiatric HMSAs<sup>24</sup> who felt they should also be receiving the bonus.

As currently implemented, it is likely that the program is affecting a large number of subspecialists who travel *to* qualifying areas and provide services, as well as physicians whose practices are actually located in these areas. From the information provided to HCFA by the carriers, however, it is impossible to determine what types of physicians are receiving the bonuses.

Third, identification of HMSA boundaries has been problematic, since they do not always conform to easily identified county boundaries. Physicians in sub-county HMSAs must determine which of their service sites are eligible based on maps provided by HCFA (110). These maps must be frequently updated to reflect changes in HMSA designations (110).

Fourth, the effectiveness of the incentive maybe reduced by the instability of the HMSA designation. HMSAs are reviewed at least once every 3 years (see ch. 11), and since designation is dependent on physician-to-population ratios, physicians locating in an HMSA<sup>25</sup> could in fact precipitate its redesignation, discontinuing eligibility for the bonus. In at least one instance, a rural physician with a large Medicare caseload who had been receiving the 5 percent bonus decided to leave the area when it lost its designation (and eligibility for the bonus) (430).

Finally, evaluation of the program is seriously hampered by lack of data regarding the number and percentage of qualified physicians receiving the bonus. In the third quarter of 1989, when the program was fully implemented, \$425,000 were spent on bonus payments (456).<sup>26</sup> Carriers report to HCFA the total number of checks written each quarter, but the total number does not distinguish between checks to individuals and checks to groups of physicians (110). Carriers could provide information to DHHS regarding the types of services for which physicians are receiving bonuses, since such information is included on computerized claims forms, but they are currently not required to do so.

## TARGETED STRATEGIES FOR AREAS OF ACUTE AND CHRONIC SHORTAGE

Scholarship and loan repayment programs tied to a service obligation have been used successfully by both the Federal and State governments to influence the supply of health professionals in rural and underserved areas. A 1971 study of 11 such State programs operating between 1958 and 1969 found that 60 percent of participating students served their obligations by practicing in rural areas, 38 percent bought out of their obligations,<sup>27</sup> and 2 percent defaulted on their obligations (372). At the Federal level, the NHSC has provided service-contingent scholarship and loan repayment opportunities, and a separate program has provided service-contingent scholarships to NPs. A 1986 study by the BHP concluded that service-contingent student aid programs with high buyout penalties were successful mechanisms for short-term recruitment of health professionals to rural areas and areas identified as being medically underserved (685). This study also found that programs paying attention to the continuing needs of obligated professionals in such areas may be more likely to retain those professionals past the period of obligation (685).

<sup>23</sup>See ch. 11 for a description of primary care HMSA designation Criteria.

<sup>24</sup>Psychiatry and primary care are the only physician specialties for which the Federal Government currently designates HMSAs (see ch. 11).

<sup>25</sup>Or NHSC physicians completing their obligated service who decide to stay in the HMSA and are then considered in the physician-to-population ratio calculation (see ch. 11).

<sup>26</sup>This figure may be an overestimation since it includes some second quarter payments which were delayed due to processing difficulties.

<sup>27</sup>Scholarship and loan funds under all of these programs were repayable at the original amount plus interest. Due to the large percentage of students choosing to buy out of their obligation, some State and Federal programs have increased the buyout penalties to double or triple the original loan or scholarship amount plus interest.

Other strategies for addressing the needs of remote communities include increased use of MLPs and satellite clinics.

### ***The National Health Service Corps***

The NHSC has been the single most direct Federal program addressing health personnel distribution during the last two decades. Since 1971 it has placed over 16,500 health professionals<sup>28</sup> in federally designated HMSAs (663). The genesis of the program was the Emergency Health Personnel Act of 1970 (Public Law 91-623), which authorized the Secretary of the Department of Health, Education, and Welfare (DHEW) to assign commissioned officers in the Public Health Service in areas designated as having critical shortages of health manpower and services. In 1971, 20 physicians in the Public Health Service Commissioned Corps located in these areas. To expand this small corps of health professionals, Congress authorized a scholarship program in 1972 (Public Law 92-585) that obligated professionals to similar service. In 1987, a small authorization was made available for two loan repayment programs: one administered by the Federal Government, and the other administered by the States. In 1988, funding for the scholarship program was largely discontinued,<sup>29</sup> and a Volunteer Program was established to recruit non-obligated health professionals to HMSAs.

#### **Sources of NHSC Personnel**

***The Scholarship Program—The NHSC*** Scholarship Program was first funded in 1974 at a level of \$3 million (table 13-7) (618). Funding peaked at \$79.5 million in 1980, with over 6,000 new or continuing scholarships, and then decreased steadily until 1989, when no new funds were appropriated. Scholarship recipients undergo an average of 6 years of education before they are available to serve (346); consequently, the peak number of professionals serving their obligation occurred in 1986 (table 13-7) (618). Over 13,000 students have been awarded scholarships under this program, and approximately 10,400 eventually served (or are serving) their obligation in the field (689). Some 70 percent of

these served in “rural” areas (including those in Indian Health Service sites), and 30 percent served in “urban” areas (689).<sup>30</sup>

The overwhelming majority of scholarships were awarded to medical students (both allopathic and osteopathic); the rest went to students in a variety of other health professions (including dentistry, nursing, pharmacy, optometry, and veterinary medicine) (662). Students could qualify for up to 4 years of scholarship if they indicated an interest in primary care and promised to serve 1 year in a federally designated HMSA for each year of scholarship received, with a minimum 2-year service obligation. Payback began when students had completed their training, although some physicians opted to serve before or during specialty training (662). As of January 1990, 80 percent of scholarship recipients had served or were serving their obligation, 16 percent had repaid their scholarship awards,<sup>31</sup> and 4 percent had defaulted (346). The default rate is expected to decline with a new amnesty program, which permits defaulters to pay back their obligation through service (662).

***The Loan Repayment Program—1987*** legislation (Public Law 100-177) authorized the creation of two programs through which the Federal Government would subsidize the repayment of educational loans health professionals in return for service in designated HMSAs.

The Federal Loan Repayment Program recruits providers and repays their loans at a rate of up to \$20,000 a year if they provide primary care health services in a qualifying HMSA (661). Participants must serve from 2 to 4 years (661). The program placed 132 participants in 1988 and 1989 (table 13-7) (659).

The State component of the program provides Federal monies to States for the repayment of health professionals’ student loans. States must cover all administrative costs, and they must provide at least 25 percent of total loan repayment funds (661). Qualifying areas for State loan repayment placements are determined by the individual States,

<sup>28</sup>As of December 31, 1989, the total number of health professionals placed through the NHSC since the beginning of the program was 16,560. This includes all health professions disciplines and all recruitment categories (i.e., volunteer, obligated, and commissioned corps) (663).

<sup>29</sup>A small amount of money was available for scholarships in fiscal year 1989 due to reprogramming of certain loan repayment funds (see table 13-7).

<sup>30</sup>The NHSC defines “rural” as nonurbanized areas, some of which are located within metro counties (1).

<sup>31</sup>In the early years of the program, scholarship recipients who did not serve in HMSAs had to repay the principal plus interest; in later years, the penalty was increased to triple the principal plus interest (689).

**Table 13-7—National Health Service Corps: Funding and Participants in Field, Scholarship, and Loan Repayment Programs, Fiscal Years 1971-89**

Fiscal year	Field Program <sup>a</sup>		Scholarship Program <sup>b</sup>				Loan Repayment Program <sup>c</sup>	
	Appropriation (\$ thousands)	Year-end field strength <sup>d</sup>	Appropriation (\$ thousands)	New	Continuation	Total	Appropriation (\$ thousands)	Awards
1971.....	\$3,000	20	NA	NA	NA	NA	NA	NA
1972.....	12,574	181	NA	NA	NA	NA	NA	NA
1973.....	11,000	330		NA	NA	NA	NA	NA
1974.....	9,787	405	\$3,000	372	0	372	NA	NA
1975.....	14,055	488	22,500	1,499	365	1,864	NA	NA
1976.....	28,662	600	22,500	1,759	3,442	5,201	NA	NA
1977.....	24,354	690	40,000	2,092	1,481	3,573	NA	NA
1978.....	39,696	1,425	60,000	3,150	1,907	5,057	NA	NA
1979.....	62,969	1,826	75,000	2,380	4,029	6,409	NA	NA
1980.....	74,075	2,080	79,500	1,772	4,387	6,159	NA	NA
1981.....	84,739	2,338	63,400	162	4,175	4,337	NA	NA
1982.....	95,078	2,782	42,500	160 <sup>e</sup>	2,289	2,449	NA	NA
1983.....	93,391	2,865	15,458	144 <sup>e</sup>	793	937	NA	NA
1984.....	91,000	2,609	6,300	69 <sup>e</sup>	98	167	NA	NA
1985.....	75,000	2,958	2,300	37 <sup>e</sup>	12	49	NA	NA
1986.....	58,500	3,304	2,201	36 <sup>e</sup>	7	43	NA	NA
1987.....	39,884	2,742	2,300	46 <sup>e</sup>	3	49	NA	NA
1988.....	37,442	2,097	2,202	3 <sup>e</sup>	4	40	915	20
1989.....	39,866	1,948 <sup>f</sup>	2,953 <sup>g</sup>	43 <sup>e</sup>	6	49	3,953	112

NOTE: NA = not applicable.

<sup>a</sup>The **NHSC fieldbudget** funds the salaries of federally employed assignees, the travel costs of new and current assignees, various clinical support activities, technical assistance to States, and recruitment and retention activities of the program. From 1971 through 1978, **all NHSC** field placements were **NHSC-salaried**. Since 1979, there has been a trend away from **NHSC-salaried** positions and towards other types of placement. From 1983 through 1988, portions of the original **NHSC** Field Program appropriations were reprogrammed into the budget for **Community** and Migrant Health Centers to help pay the salaries of **NHSC** assignees in those centers. Field Program appropriations in this table exclude reprogrammed amounts.

<sup>b</sup>The **NHSC** scholarship program provided scholarships to health professions students in exchange for service in a designated 'hortage area when they completed their training. The minimum service obligation was 2 years, and the majority of scholarships went to medical students.

<sup>c</sup>Figures in this table refer only to the Federal Loan Repayment Program.

<sup>d</sup>The number of **NHSC** personnel in the field at the end of the calendar year. Includes personnel in all health disciplines, both volunteer and obligated, in both **NHSC** and **IHS** sites.

<sup>e</sup>Multiyear awards.

<sup>f</sup>This figure was quoted over the telephone by **NHSC** staff in January 1990.

<sup>g</sup>Reprogrammed from State loan repayment funding for 1989. Originally, no funding was appropriated for new scholarships in 1989, but since only 1 million of the 3.9 million appropriation for the State Loan Repayment Program was used in 1989, the remainder was used to award 43 new scholarships for exceptionally financially needy medical students.

SOURCES: U.S. Congress, Office of Technology Assessment, Clinical Staffing in the Indian Health Service, Special Report (Washington, DC: OTA, February 1987); U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, unpublished data provided by G. Goubeau, Nov. 9, 1989.

**Table 13-8—Volunteer Placements Made Through the National Health Service Corps (NHSC) Recruitment Branch, 1988 and 1989**

Type of placement	1988 <sup>a</sup>			1989		
	Physicians <sup>b</sup>	Other <sup>c</sup>	Total	Physicians <sup>b</sup>	Other <sup>c</sup>	Total
NHSC <sup>d</sup> . . . . .	191	4	195	234	44	278
NHSC Loan Repayment <sup>e</sup> . . . . .	18	2	20	97	15	112
Indian Health Service (IHS) <sup>f</sup> . . . . .	62	476	538	123	540	663
Other . . . . .	8	53	61	17	253	270
Total volunteer placements . . . . .	279	535	814	471	852	1,323

<sup>a</sup>Figures for 1988 are estimates, since the program database had not yet been established.

<sup>b</sup>Includes MDs and DOs.

<sup>c</sup>Includes all nonphysician health personnel (e.g., nurse practitioners, physician assistants, dentists, nurses, pharmacists).

<sup>d</sup>Includes individuals matched to Federal community and migrant health centers (C/MHCs) or to NHSC freestanding sites. Most individuals are hired by the C/MHC, but a small proportion may be salaried directly by the Federal Government. Individuals at freestanding sites establish their own practices.

<sup>e</sup>All NHSC Federal Loan Repayment recipients are recruited through the NHSC recruitment branch. They are not true "volunteers," because they are under obligation to serve in HMSAs, but are included in the official volunteer placement count.

<sup>f</sup>Includes all volunteer health professionals recruited to IHS facilities and service areas through the NHSC recruitment branch and through IHS recruitment efforts, but excludes those participating in the IHS Loan Repayment Program.

<sup>g</sup>Includes (a) individuals matched to non-federally funded sites in HMSAs where the community is able to support the practitioner's salary; (b) individuals placed in the Bureau of Prisons or other Federal program sites besides C/MHCs and freestanding NHSC sites.

<sup>h</sup>All categories may include individuals recruited into the Public Health Service Commissioned Corps through the NHSC volunteer recruitment program.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA on Dec. 18, 1989 and Jan. 18, 1990.

although the criteria are subject to approval by BHCDA (662). States also set their own priorities concerning types of health personnel to recruit. In fiscal year 1988, approximately \$1 million was awarded to seven State programs (661). In 1988, the State programs placed 74 physicians, 2 MLPs, and 5 RNs, falling short of the 110 total placements anticipated for that year (689).

**The Volunteer Program—**Some providers may not be interested in or eligible for scholarships and loan repayment but may still be interested in practice in rural or underserved areas. The NHSC Volunteer Program, officially begun in 1988, acts as a recruitment service for the NHSC, the Indian Health Service, other Federal facilities and programs (e.g.

Federal prisons, federally funded community and migrant health centers), and other HMSA facilities or communities (662). The program is advertised by the regional offices, which make lists of placement sites available to medical residency programs and other health professional schools. These lists include all HMSAs, regardless of degree of shortage grouping or priority ranking. Although higher priority HMSAs are included on the volunteer placement list, volunteers, with few exceptions, tend to go to the lower priority sites (662).<sup>32</sup> In 1989, the program matched 1,323 volunteers, of which 36 percent were physicians, to qualifying sites (table 13-8) (663). Most physicians recruited are placed in NHSC sites, while most other health personnel are placed in Indian Health Service sites (table 13-8) (663).<sup>33</sup>

<sup>32</sup>See ch. 11 for a description of the various placement opportunity lists used by the NHSC for scholarship, loan repayment, and volunteer personnel.

<sup>33</sup>This may be due in part to the fact that Indian Health Service sites tend to be hospitals, which have a greater need for nurses and other nonphysician health personnel than NHSC and other sites (662). Also, as noted in the table, the IHS figures include volunteer matches made through recruitment efforts other than NHSC.

**Table 13-9--Federally Salaried<sup>a</sup> Personnel in the National Health Service Corps (NHSC) by Obligation Status, 1989**

Employment status	Obligation Status		
	Scholarship obligors	Nonobligated <sup>b</sup> or loan repayment	Total
Commissioned corps. . .	20	118	138
Civil service. . . . .	124	16	140
Total . . . . .	144	134	278

<sup>a</sup>Personnel in the NHSC who receive their salaries directly from the NHSC.

<sup>b</sup>Includes some scholarship recipients who completed their service obligation but decided to stay on in the NHSC commissioned corps.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA Jan. 24, 1990.

**Commissioned Officers in the NHSC**--Commissioned officers in the NHSC are a subset of the Public Health Service (PHS) Commissioned Corps. They are a mobile cadre of health professionals who receive their salaries directly from the NHSC and are deployed in high priority HMSAs. NHSC scholarship or loan repayment recipients as well as nonobligated volunteers can choose to join the NHSC Commissioned Corps if positions are available. Like other PHS Commissioned Corps personnel, however, they are subject to periodic transfer from one site of service to another.

As funding for the NHSC Field Program has decreased, so have the number and proportion of NHSC commissioned officers and other NHSC-salaried personnel.<sup>34</sup> While commissioned officers once represented the majority of field staff, they now makeup only a small percentage. of the 1,948 total field staff in 1989 (table 13-7) (6.59), only 278(14 percent) received their salaries through the NHSC (table 13-9) (663). Of these 278, approximately one-half were commissioned officers and the remainder were civilian employees (table 13-9)(663).

#### Placement of NHSC Personnel: The Field Program

The NHSC Field Program places personnel from scholarship, loan repayment, and volunteer pro-

**Table 13-10--National Health Service Corps Providers by Discipline, 1981 and 1989<sup>a</sup>**

Provider discipline	Fiscal year	
	1981	1989
Physicians. . . . .	7,272	2,187
General practice . . . . .	1,098	84
Family practice. . . . .	2,038	614
Internal medicine . . . . .	2,088	671
Pediatrics. . . . .	968	286
Obstetrics/gynecology. . .	454	242
Psychiatry. . . . .	417	215
Other . . . . .	209	75
Dentists . . . . .	957	98
Nurse practitioners. . . . .	319	17
Physician assistants. . . . .	111	0
Nurse-midwives. . . . .	68	1
Podiatrists. . . . .	111	27
Other . . . . .	319	17
Total . . . . .	9,157	2,347

<sup>a</sup>Numbers in this table differ from year-end field strength numbers in table 13-7 because they reflect the number of providers serving at any time from Oct. 1, 1980 to Sept. 30, 1981 or from Oct. 1, 1988 to Sept. 30, 1989 rather than the number of providers present in the field at the end of the calendar year. Numbers include both obligated and nonobligated providers.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA Feb. 7, 1990.

grams in qualifying sites. The majority of field placements have been and continue to be physicians (table 13-10) (663). MLPs (nurse-midwives, NPs, and PAs) represented a significant proportion of the total field staff in 1981, but their numbers have dropped to almost zero (table 13-10) (663). The number of dentists as a proportion of all NHSC providers has also decreased (table 13-10)(663).

The four basic mechanisms used to place NHSC personnel are:

- **Federally Salaried**--providers receive their salaries directly from the NHSC;
- **Private Practice Assignment ("PPA")**--providers are salaried through facilities that have Federal grant money (from non-NHSC sources) dedicated for that purpose (e.g., fed-

<sup>34</sup>In addition to NHSC commissioned officers, some civilian NHSC personnel also receive their salaries directly from the NHSC.

erally funded Community and Migrant Health Centers);

- **Private Practice** Salary-providers are salaried through projects or facilities that *do not* have Federal grant money dedicated for that purpose, but who are located in qualifying areas;
- **Private Practice Option** (“PPO”)--providers set up their own private practice in an HMSA, without any financial assistance from the Federal Government (662).<sup>35</sup>

Until 1979, the year in which the first large group of scholars came out of the “pipeline,” the majority of field placements were volunteers or commissioned officers (662). In 1979, the field strength more than doubled due to the addition of obligated scholars. It peaked in 1986, with 3,304 NHSC personnel<sup>36</sup> practicing throughout the United States. Field strength decreased by 36 percent from 1986 to 1988 (table 13-7) (618,659), and it will continue to decrease as the “pipeline” dries up and current personnel complete their service obligations. NHSC Field Program funding has declined dramatically since its peak in 1983 (table 13-7) (618,659). The number of HMSA designations and the number of physicians needed to remove these designations, however, have remained relatively stable during this time (see ch. 11).

#### Problems and Changes Over Time in NHSC Programs

Over the years, changing needs of underserved communities, changing preferences of health professionals, and reductions in the NHSC budget have caused the NHSC to adapt its recruitment and placement strategies.

**Sources of NHSC Personnel**—To earn scholarships, students make commitments from 4 to 8 years (the average has been 6 years) before they are due to serve (346). However, during the course of their studies many factors (family characteristics, career interests, etc.) can change their ultimate specialty and location preferences. In some cases, NHSC scholarship recipients changed their primary care preference to nonprimary care specialties (662), undermining chances that communities with small

service populations would be able to retain them beyond their period of obligated service.

Part of the rationale behind the transition to loan repayment was that commitments near the end of training would prove more valid than early commitments as indicators of enduring interest in primary care and practice in an undeserved community (689). In addition, a loan repayment program would recruit personnel to the field immediately, while a scholarship program has along “pipeline” between receipt of scholarship and start of service. Moreover, since potential loan repayment participants would be aware of the specific placement opportunities available *before* signing a contract, they might make more informed decisions and be less likely to “default” on their obligations (689).

Loan repayment and scholarship programs may attract different types of providers (689). Physicians and other health professionals with high educational debts may find NHSC loan repayment an attractive incentive. Scholarship programs may be more effective for recruiting nurses, MLPs, and allied health professionals because their educational costs and associated debts are lower than those of physicians. The NHSC Scholarship Program also attracted many minority and disadvantaged students who otherwise might not have been able to afford medical school. Of scholarship recipients who completed their obligations and for whom data are available, 17 percent were black, and 9 percent were from other minority groups (689).

Although the Federal Loan Repayment Program gave priority to NPs and CNMs, 115 of the total 132 placements in 1988 and 1989 were physicians, because few CNMs and NPs had applied (662). Although one explanation for their lower application rate is the lower debt burden of CNMs and NPs,<sup>37</sup> it is likely that lack of information was also a major reason for the lack of candidates. It has been reported that over one-half of CNM training program directors had not heard of the program as of fall 1989 (191).

The State Loan Repayment Program was intended to improve recruitment by decentralizing efforts and encouraging State investment in loan repayment

<sup>35</sup>Technical assistance in site development and practice management is provided through regional and State NHSC offices.

<sup>36</sup>The “year-end field strength” column in table 13-7 includes commissioned and obligated NHSC field staff in all health professional fields.

<sup>37</sup>Some contend that MLPs, because their professional income is considerably lower than that of physicians, may find loan repayment an attractive incentive even with relatively small debt burdens (191).



activities. The 25 percent matching requirement, however, may dissuade some of the neediest States from applying. This concern, as well as others within BHCDA about the success of the program during its first year, prevented the planned expansion of the program in its second year.

In fiscal year 1989, BHCDA officials requested congressional permission to redirect \$2.9 million originally appropriated for new State Loan Repayment programs to Federal NHSC scholarships (224). During the first year of the program, the original seven State grantees had difficulty finding sufficient numbers of participants to use awarded funds (689). According to State grantees, however, BHCDA had given them insufficient time in which to recruit participants and make awards. States were notified about the program in September of 1988, and they had only 1 month to identify qualifying health professionals.<sup>38</sup> Inability to use funds for repayment of undergraduate loans, a low maximum allowable yearly repayment rate, and a lack of candidates with sufficient levels of debt have also been cited as possible reasons for States' limited success during the first year (689).

The new NHSC Volunteer Program has succeeded in attracting a significant number of personnel since its inception in 1988, but it might have a greater impact if additional incentives were available to practitioners serving in HMSAs. As of 1991, physicians locating in rural primary care HMSAs will be eligible for a 10 percent bonus on Medicare reimbursement (Public Law 101-239). Additional incentives might include reimbursement for travel for practitioners and spouses making site selection visits, and tax breaks or lump-sum bonuses for health personnel who practice in HMSAs. Volunteer recruitment is also hampered by a lack of recruiting staff in the Federal and regional offices (662).

**Methods of Placing NHSC Personnel—Most** field placements were NHSC-salaried up until 1979, but thereafter a shift toward other salary sources occurred (224). In 1988, only 15 percent of NHSC field positions (excluding those at Indian Health Service sites) were NHSC-salaried; 54 percent were PPA; 23 percent were private practice salary; and 8

percent were PPO (659). The changing pattern of salary and placement mechanisms reflects a variety of concerns.

In the early 1980s, policymakers supported the use of the PPO as a way of reducing the Federal financial burden accruing from the growing number of obligated scholars emerging from the pipeline. However, in the mid-1980s, the NHSC reduced the number of PPO placements in response to concerns about the short-term and long-term viability of independent private practices in small, remote communities (662).

The NHSC had once also held that the PPO would improve retention by increasing physicians' personal investment in a location (78), a position which has since been questioned. Originally, PPO obligors were only permitted to locate in areas with economies sufficient to sustain a private practice, but this requirement was eliminated in the Health Programs Extension Act of 1980 (Public Law 96-538), presumably to allow PPOs to fill the gaps left by the decreasing number of NHSC-salaried physicians. Faced with drastic decreases in funding for the NHSC field program, scholarship graduates were sometimes told that the PPO was their only option short of triple-indemnity repayment or default (78). (Practice management and other technical assistance were presumably available through a State contractor's office or through the regional office, but the degree of support from these offices may have varied greatly.)

During the 1980s, use of the private practice assignment (PPA) increased in response to the growing need for physicians and other health personnel in federally funded community and migrant health centers (C/MHCs), as well as to the same budgetary concerns that inspired the increased use of the PPO placement (662).<sup>39</sup> The shift to PPA placements also reflected concerns raised by experience with the PPO. The NHSC had come to believe that placing personnel within structured systems of care was more stable than placing them in solo practice in communities unable to support such practices (662).

<sup>38</sup>Information on specific State programs was gained through telephone conversations with program administrators.

<sup>39</sup>To cover the salaries of the growing number of PPA personnel, substantial portions of the original NHSC Field Program appropriations were reprogrammed into the budget for C/MHCs from 1983 through 1988 (224). For example, in 1987, \$15.5 million were reprogrammed to C/MHCs. NHSC-salaried personnel are present in some C/MHCs, but the majority of NHSC personnel in these facilities are PPA. Some C/MHCs are not in designated HMSAs, but maybe approved for NHSC obligated personnel placement if they demonstrate sufficient need (662).

As a result, C/MHCs have come to depend heavily on the NHSC for physicians. PPAs accounted for more than one-half of all NHSC placements in 1988 (659), and obligated NHSC physicians accounted for over one-half of all physicians in C/MHCs in 1989 (411,414). Even within the more structured PPA settings, however, retention of NHSC personnel is a problem. Financial constraints prevent PPA sponsors from offering salaries competitive with those in the private sector; consequently, PPAs often leave C/MHCs once their periods of obligation end (414).

***The Changing Role of Commissioned Officers in the NHSC***—In the late 1970s and early 1980s, physicians whose obligations were ending were told they could remain on salary in their communities if they joined the NHSC as commissioned officers, and a number of them did so (662). In 1985, however, the Public Health Service (PHS), as part of a general effort to revitalize its Commissioned Corps, reassigned all commissioned officers, including those in the NHSC (662). Many opted to leave the Corps when asked to move (78). This reaction brought to light what might be an inherent contradiction between the goals of the NHSC and the PHS Commissioned Corps. While the major goal of the NHSC is to recruit and retain health professionals in areas of need, the goal of the PHS Commissioned Corps is to maintain a mobile cadre of health professionals who can be transferred as needed. Some critics have proposed that the PHS waive the transfer requirement for NHSC commissioned officers currently serving in remote, high-need areas (e.g., some frontier counties) (389).

#### Evaluating the Impact of the NHSC

NHSC success varies depending on its perceived goal. If the goal is to place providers in high-need areas, without regard to their length of service in these areas, the NHSC has been very effective; 80 percent of scholarship recipients completed their obligation or were still serving in 1990 (346). Until the mid-1980s, communities served by NHSC providers could rely on NHSC replacements if these providers decided to relocate on completion of their

obligations. Such communities might lack continuity of service, but they were at least assured personnel. However, recent declines in the number of NHSC personnel will result in fewer replacements for these communities. The Scholarship Program placed approximately 200 practitioners in 1988 and approximately 120 in 1989 (662).<sup>4</sup> In 1991, only 74 scholars will be available for placement (716).

If the goal is to create lasting systems of care, the NHSC could also be regarded as having been reasonably effective. Thirty-five percent of NHSC scholarship recipients who completed their obligations in fiscal year 1989 either remained at their service site or relocated to another HMSA (346).<sup>41</sup> A national survey of physicians practicing in small (fewer than 10,000 residents) rural counties found that 15 percent of these physicians were either currently or formerly affiliated with the NHSC (405). A study of Virginia PPO physicians who completed their obligations between 1981 and 1986 indicated a practice site retention rate of close to 45 percent (704).<sup>42</sup>

The Volunteer and Loan Repayment Programs have been unable to fill the gap left by the dwindling supply of obligated NHSC scholars. The 635 physicians<sup>43</sup> recruited to HMSAs through the Volunteer Program in 1988 and 1989 (table 13-8) (663) represent only 15 percent of the estimated number of physicians needed (4,104) to remove all primary care HMSA designations in 1988 (see table 11-5). The 115 physicians placed under loan repayment during the same period represent only an additional 3 percent of physicians needed. MLPs can substitute for physicians in some of these sites, but the NHSC has recruited very few in recent years (table 13-10) (663).

#### ***Service-Contingent Scholarships for Nurse Practitioners and Nurse-Midwives***

From 1978 through 1981, the Federal Government provided \$3.2 million to NP and nurse-midwife training programs to fund service-contingent scholarships for students (720). Just over 400 students were awarded scholarships over the 3-year period.

<sup>40</sup>Numbers include nonphysician personnel.

<sup>41</sup>A telephone survey in late June 1989 of all physicians due to complete their obligation in July asked whether or not they were re \*gin their current practice, or moving to an HMSA or non-HMSA.

<sup>42</sup>Seven of the 29 PPO physicians departed to enter specialty programs.

<sup>43</sup>Excludes Federal Loan Repayment program participants.

Although administratively separate from the NHSC, receipt of scholarship under this program was also tied to a service obligation in a primary care HMSA. Unlike the NHSC program, however, the burden of finding a placement site was on the participant, and many participants had considerable difficulty finding sites where they could serve.<sup>44</sup> Participants complained that their schools had not made explicit the requirements of the scholarship contract and sometimes had even given them false information (720). In spite of the reported difficulties, however, from 70 to 75 percent of the students served their obligations, approximately 15 percent repaid their awards, approximately 4 percent were granted waivers, and only 5 percent defaulted (720).

### *Satellite Clinics and Increased Utilization of MLPs in Rural Areas*

*The* satellite clinic model can address the health care needs of small and remote communities while offering the economic and professional advantages of group practice arrangements. In this model, physicians or MLPs from a group practice located in a more urbanized community travel to remote sites to see patients for a few days each week. Alternatively, some practitioners may staff the satellite clinics full-time to reduce the time spent in transit between sites. The physician-MLP team model can successfully address the needs of remote rural communities (see box 13-E). It can also help to ease the professional isolation and long work hours of rural physicians, MLPs have been found to increase physician productivity (617).

Historically, MLPs have been more likely than physicians to locate in rural and underserved areas, but increasing demand for their services in urban settings may change this (see ch. 10). In some States, restrictive nurse practice acts or reimbursement policies also influence the practice arrangements of MLPs and may discourage them from rural practice altogether (see ch. 12). In other States, MLP-staffed clinics can be very effective (box 13-E).

Although overall trends in the numbers of rural clinics staffed only by MLPs are not known, a study of 44 such clinics which had existed in 1975 found that many had either closed or converted to physician-

only or physician-MLP staff structures (103). The clinics with physicians on staff saw more patients per week, charged higher fees, and relied to a lesser extent on nonrevenue funding sources than those staffed solely by MLPs (103).

## **RECRUITMENT AND RETENTION IN THE PRIVATE SECTOR**

### *Local Hospitals*

#### Physicians

Rural hospitals, which rely on local physicians for patient referrals, have a vested interest in the availability of office-based physicians within their service areas. Hospitals may encourage physicians to locate or to stay in the area to stay by offering them various types of assistance, including low-interest loans, subsidized office space, and guaranteed income levels (see ch. 7).

Because such arrangements can be viewed as compensation to a physician from an entity to which he or she refers patients, they may technically fall within the proscriptions of Medicare's antikickback provisions (see ch. 7).<sup>45</sup> Many rural hospitals had hoped that recently proposed "safe harbor" regulations would provide some certainty in this area and would uphold the legality of recruitment and retention strategies that have proven essential for institutional survival. As discussed in chapter 7, however, the proposed regulations (issued in January 1989) offered little protection for any of these strategies.

#### Nurses

A study of nurses in rural Mississippi hospitals (453) attempted to identify retention strategies nurses perceived as potentially effective. Those most frequently mentioned included opportunities for upward career mobility, tuition reimbursement for educational upgrade, bonuses based on years of service, improved pension plans, 24-hour clinical consultations, higher salaries for night and weekend shifts, and conflict management and resolution mechanisms (453). A recent study found that wage increases have repeatedly succeeded in reducing past nurse shortages but have not kept pace with the present nursing shortage (7).

<sup>44</sup>Reasons mentioned included: competition for sites with NHSC personnel, who were placed through Federal and regional offices and were given priority; inability of facilities in qualifying areas (e.g., community health centers) to pay participants' salaries; and unwillingness of participants to relocate to qualifying sites (720).

<sup>45</sup>Sec. 1128B of &e Social Security A @ 42 U.S.C. §1320a-7b.

**Box 13-E—Examples of Midlevel Practitioner and Satellite Clinics in Rural Areas**

Oregon—Sixteen of Oregon's 44 **rural** primary care clinics were staffed solely by NPs or PAs in 1988 (81). Oregon law permits NPs to own and operate their own clinics and to practice without direct physician supervision. Legislation passed in Oregon in 1979 enabled PAs in State-designated medically disadvantaged areas to practice with off-site physician supervision and to prescribe and dispense certain medications. Medicare and Medicaid reimburse for the services of PAs, NPs, and CNMs in clinics certified under the Rural Health Clinics Act (Public Law 95-210), and all private insurance plans in Oregon are required by statute to reimburse for NP services. Although some private plans do not cover the services of PAs, legislation currently pending in Oregon would require them to do so (81).

A clinic in Condon, a town of 750 people that is 70 miles from the nearest full-service hospital, is staffed by two full-time PAs who are supervised by a family physician 90 miles away (81). The supervising physician sees patients at the clinic for four hours once every two weeks, and maintains daily telephone contact with the PAs. The PAs, who offer a wide range of basic primary care services, are accessible on a 24-hour basis. X-rays are read initially by the PAs and diagnosis is confirmed by appropriate specialists. A radiotelephone is used to transmit EKGs to cardiologists in Portland for final interpretation. The clinic is certified under Public Law 95-210 and is supported through a special tax district. It has attracted a dentist and a mental health specialist who lease office space and see patients in the clinic 1 or 2 days a week (81).

A clinic in Dexter is owned by two NPs and is staffed by the owners and an additional NP (81). Annual increases inpatient visits continue, indicating a high level of acceptance of the clinic staff by the community. Mental health services are provided on a contractual basis by a mental health NP in a nearby town. Unlike the Condon clinic, the Dexter clinic is not supported through a special tax district, and with 40 percent of its service population uninsured, it has had to adopt strict payment requirements. Financial constraints limit the scope of primary care services it can provide. For example, X-rays must be taken at the consulting physician's office until the clinic raises enough money for its own equipment (81).

Kentucky—A physician in Hyden, Kentucky works in a joint practice team with six NPs in a network of 4 rural clinic sites, a hospital, a home health agency, and an advanced school of nursing (602). The joint-practice arrangement greatly expands the number of patients the physician can treat directly or indirectly. It is not unusual for one of the satellite clinics to serve as many as 500 patients a month (602).

A typical week for the physician involves 300 miles of driving to the hospitals and clinics. Each day begins with patient rounds at the hospital and proceeds with services at one of the clinics. On Friday, the physician sees patients at the two busiest clinics, and then spends the afternoon at the home health agency or in administrative meetings. The physician is also responsible for making home visits to assess the condition and needs of patients whose care is then assumed by home health nurses (602). This unique and largely successful team approach is hampered by some regulatory obstacles. For example, due to Kentucky laws that prohibit NPs from prescribing medication, they must contact the physician by telephone whenever such medications are needed.

**Allied Health Professionals**

A study of AHP supply and recruitment in Florida's small rural hospitals (572) found that, compared with urban hospitals, rural hospitals were paying higher salaries to laboratory and radiographic personnel and higher entry-level salaries to nuclear medicine technologists and respiratory therapists. Although most rural hospital AHPs were local residents, a substantial proportion of laboratory and radiologic personnel commuted from urban areas. More importantly, rural hospitals recruited most of their new AHP staff from urban areas. Consequently, to compete with urban facilities for qualified personnel, small rural hospitals had increased

salaries and benefits, instituted scholarship programs, improved management training, hired national recruiting firms, and established committees to address employees' concerns (572).

**Community and Migrant Health Centers**

Approximately 800 NHSC physicians will complete their obligations at C/MHCs in 1990-91, but due to a decline in obligated NHSC scholarship recipients, fewer than 250 replacements will be available (414). Physician shortages may be particularly severe in smaller rural C/MHCs that are more sensitive to the loss of a single physician and have greater difficulty finding a replacement (414).

To stem the projected physician shortfall, C/MHCs must either retain NHSC physicians past the term of their obligations, or they must successfully recruit non-NHSC physicians. The average salary of C/MHC primary care physicians is considerably lower than what those physicians would make in the private sector (411), and financial constraints limit the ability of C/MHCs to compete with the private sector for the physicians they need.

A 1987 study comparing recruitment and retention strategies used in health maintenance organizations (HMOs) and C/MHCs found that C/MHCs lagged well behind HMOs in the breadth and extent of their activities (411). Only 48 percent of the compensation components (e.g., pensions, association membership, cost of living increases, loan repayment) and only 19 percent of the incentive provisions (e.g., extra compensation for weekend work, teaching) used by HMOs were used by C/MHCs (411). Many HMOs use productivity-based incentives to attract and retain staff, but the Department of Health and Human Services has reportedly discouraged C/MHCs from this practice (411). C/MHCs that do employ such strategies, however, have found them to be very effective (411). For example, the Southern Ohio Health Services Network, a private, nonprofit organization providing health services in 14 rural Appalachian communities, modified its physician compensation plan by linking annual salary increases to quality and productivity (725). The development of this plan was viewed as a significant factor in the retention of 70 percent of the Network's NHSC physicians after their obligations had been completed (725). HMOs also use loan repayment plans to recruit and retain physicians, but C/MHCs cannot use their Federal grant funds for such purposes (411).

C/MHCs do engage in preceptorship programs to a greater extent than HMOs and have found that they aid in staff retention (411). Preceptorship programs not only give C/MHC physicians the opportunity to teach but also help link C/MHCs to the academic resources of educational institutions. In addition, these programs provide the centers an opportunity to recruit participating students (411).

In fiscal year 1989, the Bureau of Health Care Delivery and Assistance (BHCDA) awarded approximately \$22 million in grants to C/MHCs to improve personnel recruitment and retention (662). It is too early to evaluate the effectiveness of this initiative on the retention of NHSC physicians in or the recruitment of new personnel to C/MHCs.

## STATE EFFORTS IN HEALTH PERSONNEL DISTRIBUTION

Where Federal and local efforts are unsuccessful in overcoming shortages of health personnel, States may step in. In fact, in an OTA survey of State rural health activities conducted in 1988, States most frequently ranked personnel issues as the greatest problem for the health of their rural populations (see ch. 4). Although respondents noted that provider recruitment and placement activities had addressed some needs, many felt further program development was warranted.

Table 13-11 shows how State officials rate certain Federal programs for improving the availability of health services to nonmetro HMSAs and Medically Underserved Areas.<sup>46</sup> The programs most frequently listed as effective were the NHSC (35 States), C/MHCs (33 States), the Rural Health Clinics Act (21 States), and AHEC activities (15 States). Ironically, the program most frequently listed as ineffective was also the Rural Health Clinics Act (10 States); it was followed by Medicare Physician Bonus Payments (9 States) and AHEC activities (9 States).<sup>47</sup> Responding officials in a number of States were not familiar with Federal support of primary care education programs, loan repayment programs, or the Medicare physician payment bonus.

### *State Activities*

The number of health personnel distribution activities varies considerably from State to State (table 13-12) (685). Programs most commonly used in States to improve the geographic distribution of health professionals are placement services (43 States), service-contingent loans and scholarships (36 States), service-contingent educational loan repayment programs (27 States), targeted primary care training opportunities (28 States), preceptor-

<sup>46</sup>These data are from OTA's 1989 Survey of State Health Personnel and Medically Underserved Area Designations. See app. D for a copy of the survey instrument and a description of survey methods.

<sup>47</sup>Of the nine States listing AHECs as "ineffective," five did not have an AHEC, one had just started an AHEC in 1988, and three did have AHECs.

**Table 13-11-States Officials' Ratings of the Effectiveness of Selected Federal Programs in Improving the Availability of Health Services in Nonmetropolitan Health Personnel Shortage and Medically Underserved Areas<sup>a</sup>**

Federal program	Number and percent of States rating the program as:						
	VE	E	I	VI	NF	DK/NO	NR
National Health Service Corps. . .	14( 32% )	21( 48% )	6( 14%)	0 (0%)	0 (0%)	2 (5%)	1 (2%)
Support of primary care educational programs. . . . .	2 (5%)	9(20%)	6(14%)	1 (2%)	5(11%)	16(36%)	5(11%)
Area Health Education Center (AHEC) activities. . . . .	3 (7%)	12(27%)	5(11%)	3 (7%)	1 (2%)	14(32%)	6(14%)
Community health centers. . . . .	21(48%)	12(27%)	2 (5%)	1 (2%)	2 (5%)	4 (9%)	2 (5%)
Rural Health Clinics Act. . . . .	5(11%)	16(36%)	8(18%)	2 (5%)	2 (5%)	8(18%)	3 (7%)
Medicare physician bonus payments . . . . .	4 (9%)	5(11%)	5(11%)	4 (9%)	3 (7%)	19(43%)	4 (9%)
Other . . . . .	3 (7%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	40(91%)

NOTE: VE = very effective; E = effective; I = ineffective; VI = very ineffective; NF = not familiar with Federal program; DK/NO = don't know or no opinion; NR = no response. Data from OTA'S 1989 survey of States on health personnel shortage and medically underserved area designation (see app. D).

<sup>a</sup>Only 45 States responded to the survey.

<sup>b</sup>Other Federal programs specified included Cooperative Agreement Fund and Rural Primary Health care Initiative. Two States specified State Programs: State physician training programs and State loan repayment programs.

SOURCE: Office of Technology Assessment, 1990.

ships (24 States), and AHECs (25 States) (table 13-12).<sup>48</sup> Other methods include malpractice insurance subsidies, bonuses to physicians in rural shortage areas, and recruitment travel assistance (627). Physicians made up the bulk of providers actually recruited by respondents to OTA's survey, but recruitment efforts were reported for a wide range of health professionals. Many States tried unsuccessfully to recruit NPs and PAs (see ch. 4, table 4-6).

To target resources to areas of greatest need, States may identify areas of health personnel shortage or medical underservice. While some States have developed their own shortage area designation criteria, many States lack the resources or the foresight to implement a designation program and rely on Federal designations to identify areas and populations of need. Three-fourths of States (34 of 45) responding to a second OTA survey on shortage area designation activity<sup>49</sup> used some type of shortage area designation (either Federal or State), to target their placement activities<sup>50</sup> and 21 of these

were using their own designations to implement the programs (see ch. 11).

A 1986 BHP study found that in only one-half of the States was a State's level of effort in health professions distribution (as measured by number of programs, number of program participants, and program funding) related to the size of its underserved and rural populations (table 13-13)(685). State budget constraints, political climate, and number of slots in health professions training programs also can affect a State's level of effort (685). The same study found that financial support for non-Federal health professions distribution programs increased substantially from 1980 to 1985 (figure 13-2)(685). In nominal dollars, total support increased by 75 percent during this time (from \$42 million in 1980 to \$73 million).

### *Characteristics of Program Success*

The 1986 BHP study identified 113 health professions distribution programs in 42 States (figure 13-3) (685).<sup>51</sup> In general, integrated strategies

<sup>48</sup>Numbers of States reflect responses to three separate studies carried out between 1986 and 1989 (see table 13-12). Some programs may have been discontinued, and programs in some States may not be reflected.

<sup>49</sup>See app. D.

<sup>50</sup>Ten respondents indicated that their States did not have any health personnel distribution programs using shortage area designations; and 1 respondent answered "don't know."

<sup>51</sup>These programs are also reflected in table 13-12.

Table 13-12-State Health Professions Distribution Programs<sup>a</sup>

	Targeted primary care training opportunities (e.g., residencies)	Educational programs				Financial incentives during training				Aid in practice				Other		
		Seat purchases	Preceptorships	Area Health Education Centers	Other curriculum changes or educational programs	Service-contingent loans and scholarships	Other loans	Other scholarships	Other financial incentives	Placement	Guaranteed income	Loans	Service-contingent educational loan repayment	Malpractice insurance subsidy	Other aid in practice	Other programs
Alabama						X	O									
Alaska		X				X										
Arizona			O	O		X	O			O						
Arkansas	O		O	X	O	X	O			O						
California	X					X	O			A		X			O	O
Colorado						A										
Connecticut																
Delaware						A										
Florida	X		O	O	O	X	O		O	X			O			
Georgia	X					X	O			X						
Hawaii																
Idaho	O	X		O		O										
Illinois	X	O				X	O		O				A			
Indiana						A				A			A		O	
Iowa	X					O										
Kansas	X		X	X		X	O			X						
Kentucky	X	O	O	X	X	X	O			O		O	A			
Louisiana																
Maine	O	X	O	X		X	O		O				A			
Maryland	O	O	O	O		X	O		X				O			
Massachusetts	X	X		X		X				X						
Michigan	X		X	O						X						
Minnesota			X			O				A						
Mississippi	O		O			X	O			O		O				
Missouri	O			O		X	O			A			O			
Montana		X														
Nebraska	O		O			X	O			O		O				
Nevada	O					O										
New Hampshire											X					
New Jersey	X	O	X	O	O	O							A			
New Mexico	O	O	X	O	X	X	O			X		X	O			O
New York	X	O	X	O	X	X	O			O			O			
North Carolina	O		O	X		X	O			X			O			
North Dakota																
Ohio	O		X	O		O										
Oklahoma	X	O	O	X		X	O			X			A			
Oregon	X		O			X	O			X			O			O
Pennsylvania			X		X			X								
Rhode Island		X														
South Carolina	O			X		X	O			X		O				
South Dakota				O				O		O					O	
Tennessee			X	X						O		O				
Texas	X	O	O	O		X		X					O			
Utah			O			O				X			O			
Vermont													A			
Virginia				X		X			O	X						
Washington	X	O	O	O		X	O						O			O
West Virginia	O		O	X		X				O			O			
Wisconsin										X						
Wyoming						X	A			A			A			
Total X	15	8	9	11	4	25	3	1	0	15	1	3	0	0	0	0
Total O	20	5	20	21	2	27	4	1	1	16	2	6	13	5	3	4
Total A	0	0	0	0	0	23	0	0	0	37	0	0	24	0	0	0
Total overall	28	11	24	25	6	36	7	2	1	43	3	8	27	5	3	4

<sup>a</sup>Data are based on three separate surveys conducted in 1986, 1988, and 1989 (see legend below). Activities captured by one survey may not have been captured by another for various reasons. Not all surveys included the same activity categories or grouped them in a similar fashion. Also, the 1986 Bureau of Health Professions survey contacted health professions distribution programs directly, while the two Office of Technology Assessment surveys (1988 and 1989) contacted State officials. All States responded to the 1988 Office of Technology Assessment Survey, but only 45 States responded to the 1989 Survey (see app. D). Finally, some programs may have been established or discontinued between 1986 and 1989.

## LEGEND:

"X" = Data from: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

"O" = Data from: Office of Technology Assessment, 1989 Survey of States on Health Personnel Shortage and Medically Underserved Areas (see app. D).

"A" = Data from: Office of Technology Assessment, 1988 Survey of State Rural Health Activities (see app. D).

SOURCE: Office of Technology Assessment, 1990.

**Table 13-13--States' Level of Effort in Health Professions Distribution Compared With Their Unserved and Nonurban Populations**

State	Level of effort <sup>a</sup>	Unserved population (in thousands) <sup>b</sup>	Percent nonurban population
Alabama . . . . .	4	362	40
Alaska . . . . .	3	74	36
Arizona . . . . .	2	135	16
Arkansas . . . . .	3	177	48
California . . . . .	2	751	9
Colorado . . . . .	4	66	19
Connecticut . . . . .	4	70	21
Delaware . . . . .	4	18	29
District of Columbia . . . . .	4	65	0
Florida . . . . .	1	608	16
Georgia . . . . .	1	592	36
Hawaii . . . . .	4	18	14
Idaho . . . . .	2	128	46
Illinois . . . . .	3	909	17
Indiana . . . . .	4	210	36
Iowa . . . . .	3	78	41
Kansas . . . . .	1	33	33
Kentucky . . . . .	1	247	49
Louisiana . . . . .	4	551	31
Maine . . . . .	2	218	16
Maryland . . . . .	2	177	20
Massachusetts . . . . .	2	49	53
Michigan . . . . .	3	353	29
Minnesota . . . . .	4	73	33
Mississippi . . . . .	4	395	53
Missouri . . . . .	4	444	32
Montana . . . . .	2	70	47
Nebraska . . . . .	4	60	37
Nevada . . . . .	4	76	15
New Hampshire . . . . .	4	24	48
New Jersey . . . . .	4	187	15
New Mexico . . . . .	3	230	28
New York . . . . .	1	562	19
North Carolina . . . . .	1	461	52
North Dakota . . . . .	3	68	51
Ohio . . . . .	3	554	27
Oklahoma . . . . .	1	111	33
Oregon . . . . .	3	164	32
Pennsylvania . . . . .	3	558	31
Rhode Island . . . . .	3	31	13
South Carolina . . . . .	2	253	46
South Dakota . . . . .	4	84	53
Tennessee . . . . .	3	291	40
Texas . . . . .	1	864	20
Utah . . . . .	4	61	16
Vermont . . . . .	4	31	66
Virginia . . . . .	2	283	34
Washington . . . . .	1	126	27
West Virginia . . . . .	4	282	64
Wisconsin . . . . .	4	273	36
Wyoming . . . . .	2	38	37

<sup>a</sup>Level of effort is derived from a combination of three variables: (1) number of programs, (2) funding, and (3) number of participants in the programs. "1" indicates the highest level of effort, while "4" indicates the lowest level of effort.

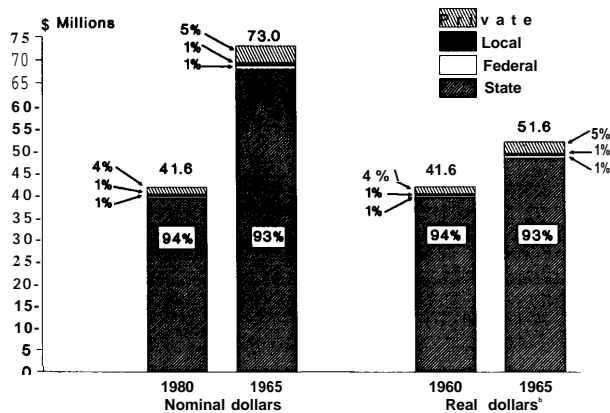
<sup>b</sup>The estimated unserved population is computed by multiplying the number of practitioners in designated Health Manpower Shortage Areas by the population-to-practitioner cutoff ratio of 3,500:1 (in special cases, 3,000:1) and subtracting the figure from the area population.

<sup>c</sup>Percent of State population residing in nonurban areas, 1980 census.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Compendium of State Health Professions Distribution Programs, 1986, DHHS Pub. No. ODA-2-87 (Washington, DC: U.S. Government Printing Office, 1986), table 4.



**Figure 13-2—Funding Levels and Source of Funding for State Health Professions Distribution Programs, 1980 and 1985<sup>a</sup>**



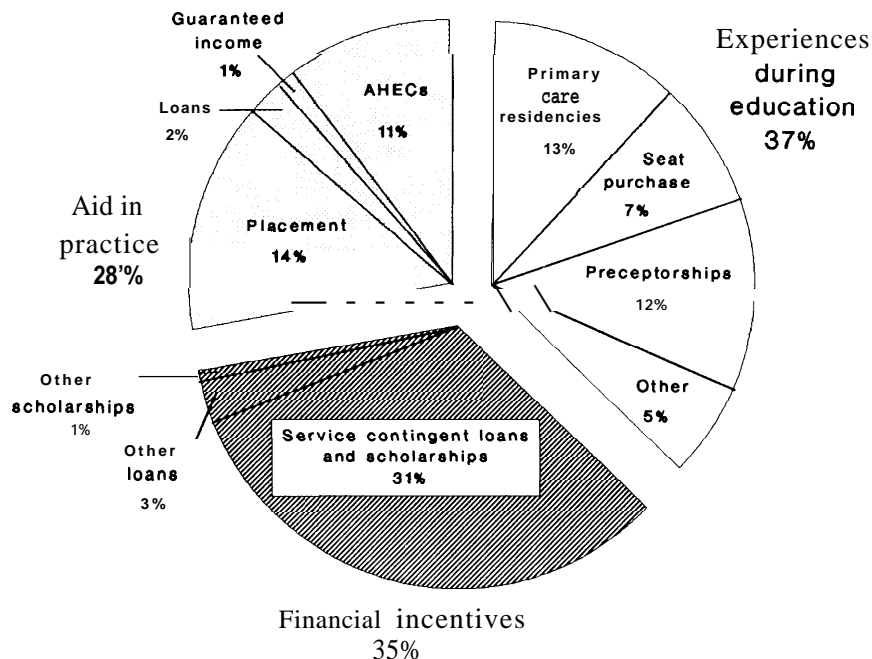
<sup>a</sup>68 programs reported funding levels and sources in 1980 and 1985.  
<sup>b</sup>Adjusted for inflation.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

using a number of different incentives were found to be more successful than programs using only a single strategy to increase the presence of health professionals in underserved communities. Combining educational and financial practice incentives with selective recruitment of students and practice site development were found to reinforce health professionals' choices of specialty and practice location both during their education and throughout their career. As of 1986, however, many States were still pinning their hopes and funding on separate, single strategies (685).

Of the 39 financial incentive programs identified in the BHP study, 35 required service in designated shortage areas (685). In general, service-contingent programs were found to be an expensive but successful means of attracting providers to rural and underserved areas. The programs with strict buyout provisions (e.g., high interest rates or other penalties) had the greatest success in getting students to fulfill their service obligations. Selective recruitment of students predisposed to rural practice (e.g.,

**Figure 13-3—Focus of 112 State Health Professions Distribution Programs Identified by the Bureau of Health Professions, 1986**



SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

students who grew up in rural areas) also improved the success of service-contingent programs (685).

During the past 2 years, a number of States have passed legislation creating or expanding service-contingent scholarship, loan repayment, or tuition reimbursement programs for health professionals in rural and underserved areas (118,196,197,208,283,301,311,358,364,365,366,371,393,434,435,454,568,596,598,703,722). Oregon recently passed a law requiring the Oregon Health Sciences University to selectively recruit medical students predisposed to rural practice (454). Scholarships or loan repayment for underrepresented minorities have been approved recently in Louisiana (357) and California (118).

Programs to provide assistance to practitioners establishing or maintaining practices in underserved communities are also common (table 13-12) (685). The BHPr study found that the effectiveness of these programs depended on the level of ongoing support once a practitioner had been placed (685). Programs providing financial assistance for establishing a practice as well as technical assistance in managing and maintaining it had greater success in retaining personnel in underserved areas than programs that simply acted as a placement service (685). Recent State activities include 1989 Oregon legislation establishing tax credits for physicians practicing in certain rural areas (454) and legislation in North Carolina and Arizona authorizing compensation or malpractice insurance subsidies for physicians providing prenatal and obstetric care in rural and underserved areas (53,444).

Many States use educational strategies to address rural health personnel needs. Thirty-nine States have public medical schools, many of which were designed to produce more primary care physicians for the State and to increase educational opportunities in certain areas (685). Graduates of public medical schools are more likely to choose primary care and practice in underserved areas than graduates of private schools (168,455). The BHPr study found that 8 States without their own public medical schools purchased seats in other State schools. Of these, programs with a service commitment produced proportionately more students who returned to their home States (685).

Some schools offer more specialized distributional programs. Eleven States in the BHPr study

had developed programs with targeted primary care training opportunities in rural and underserved areas (685). Most of these programs reported that the majority of their graduates remained in the State to practice. Eighteen programs in 10 States provided special educational experiences (mostly rural preceptorships) to undergraduate medical students (685). Recently, Texas, Nevada, and Hawaii have passed legislation authorizing the planning or establishment of rural-oriented health professions training programs (240,434,597). Maine and Florida have passed legislation to establish special allied health training programs (198,365). Other curricular innovations include enrichment programs to increase the number of students from minority and rural backgrounds, and the various activities of AHECs (685).<sup>52</sup> For example, 1989 Oregon legislation mandated that the State AHEC provide continuing education for rural physicians (454).

## SUMMARY OF FINDINGS

### *General Strategies for Rural Recruitment and Retention*

***Exposure to rural practice during health professions training can influence location decisions as well as better prepare health professionals for the realities of rural practice.*** Decentralized educational programs that offer training opportunities at rural sites are not only beneficial to the students, but they may contribute to retention of providers already in the area. These programs have demonstrated success in placing their graduates in rural and underserved areas. Selective recruitment of students from rural areas has also been found to increase the proportion of graduates who locate in rural areas.

***Cross-training programs may improve the ability of rural facilities to hire certain allied health professionals as well as improve the attractiveness of rural practice for these personnel.*** Training could be provided in a formal educational setting or on the job. State licensing laws and hospital staffing requirements that present barriers to the training and use of multicompetent allied health personnel will have to be made more flexible before such strategies can be adopted.

The Federal Government, through Medicare, subsidizes GME. ***Medicare funding of GME does not***

<sup>52</sup>The 12 AHECs in the BHPr study were originally federally funded, but now operate mostly on State fire.

*distinguish among medical specialties on the basis of undersupply, oversupply, or other indicators. If anything, Medicare reimbursement of GME puts primary care training at a relative disadvantage, especially when the education takes place in ambulatory care settings.*

The Federal Government also provides some targeted funding to primary care health professions education programs. *With the exception of certain nurse and advanced nurse training programs, however, such funding has decreased considerably during the past decade. Since 1980,* targeted funding of primary care graduate and undergraduate medical education has decreased by more than 25 percent. Federal support of PA training programs is approximately one-half of what it was in 1981. A scholarship program for NPs and nurse-midwives who agreed to serve in HMSAs was discontinued in 1982. Federal support for allied health education peaked at \$30 million in 1974, but in 1990 only \$726,000 were appropriated for allied health grants and contracts.

*AHECs are a source of innovative programs in rural-oriented health professions education, and they have been successful in recruiting and retaining health personnel in rural areas.* AHECs have tended to emphasize physician rather than nonphysician training. The unique funding mechanism of AHECs make them a model for Federal-State cooperation in health professions training and distribution efforts. Some AHECs have come to play a central coordination and research role for rural health in their home States.

### ***Medicare Reimbursement Strategies***

*The implementation of RBRVS for physician payments under Medicare will probably enhance the incomes of most rural physicians. The full impact of the new payment system will not be felt for several years, and it is not yet possible to predict its impact on rural physician supply.*

*The impact of the Medicare Physician Bonus Payment Program, recently expanded to provide a 10 percent bonus on Medicare payments for all physician services provided in all rural primary care HMSAs, is also unknown.* Current reporting requirements are too minimal to enable an evaluation of the program's impact. A 10 percent bonus on Medicare payment may be a sufficient incentive for physicians to stay in HMSAs, but it is not likely to

be sufficient to attract new physicians to HMSAs. Furthermore, the effectiveness of the program may be reduced by the instability of the HMSA designation. Small changes in the number of practitioners in a HMSA can result in existing physicians in that HMSA becoming ineligible for the bonus.

Telecommunications networks can be used to alleviate professional isolation for rural practitioners, providing them with consultative opportunities as well as continuing education. *Locum tenens* services that provide temporary replacements for health professionals in remote rural areas can help to alleviate concerns over lack of vacation and professional leave time.

### ***Strategies for Acute and Chronic Shortage Areas***

*Service-contingent scholarship programs and loan repayment programs have helped recruit health professionals to shortage areas* and have been used by a number of States as well as the Federal Government. The most effective programs have been those that provide ongoing support to participants during their service obligation. *Satellite clinic networks that use MLPs can also improve the availability of health services in remote areas.* In some States, however, practice acts and reimbursement restrictions prevent the use of MLPs in autonomous settings.

Funding for the NHSC, which has placed more than 16,500 health professionals in underserved areas since its inception in 1971, has decreased dramatically in recent years. This decrease will mean a drastic reduction in the number of NHSC field staff available for placement in a relatively stable number of designated shortage areas.

- *The NHSC Scholarship Program, which has been almost entirely defunded, was highly successful in placing personnel in shortage areas.* The Scholarship Program may be a particularly appropriate incentive for health professionals who would not be candidates for loan repayment due to lower levels of educational debt (e.g., MLPs, nurses). The scholarship program also provides valuable opportunities for students who are economically disadvantaged. Targeting scholarship funds to MLPs rather than to physicians might increase the total number of scholarships awarded without increasing overall expenditures.

- The NHSC Federal Loan Repayment Program has placed mostly physicians; probably due to poor information dissemination, it was unsuccessful in attracting many MLPs.
- The NHSC State Loan Repayment Program has not been adequately tested. Only seven States have been awarded funds, and they had insufficient time in 1988 to award contracts.
- The NHSC Volunteer Recruitment Program, which began in 1988, has had notable success in placing physicians and other health personnel in lower priority HMSAs, but it might have a greater impact if additional incentives were available to providers to locate in these areas and if additional recruitment staff were available.

In 1988 and 1989, the 750 physicians recruited through the NHSC Federal Loan Repayment and Volunteer Programs represented only 18 percent of the estimated number of physicians (4,104) needed to remove all primary care HMSA designations in 1988. The Scholarship Program will place only 74 practitioners (including nonphysicians) in 1991. Reductions in the number of NHSC commissioned officers and NHSC-salaried civilian field staff also seriously limit the ability of the NHSC to place personnel in areas of the most critical need. Many NHSC sites--particularly federally funded C/MHCs—are faced with the impending loss of obligated NHSC physicians for whom there will be no replacements.

### ***Private Sector Strategies***

Rural hospitals may use financial incentives to attract physicians to the area. Such incentives include guaranteed income, free office space, and loans; but the current vagueness of Medicare's antikickback provisions can make these strategies dangerous for hospitals. Faced with the threat of future nurse shortages, hospitals are also focusing on nurse retention issues. For rural areas, key issues for hospital nurse recruitment and retention include access to continuing education and opportunities for career advancement.

Federally funded C/MHCs, faced with the impending loss of 800 NHSC physicians in 1990, are

adopting new strategies to recruit and retain medical and other staff. To date, however, many of these strategies (e.g., linking salaries to productivity) have been limited by financial and administrative constraints. It is too early to evaluate the impact of Federal grant funds made available to C/MHCs in fiscal year 1989 for recruitment and retention activities.

### ***State Activities***

***States responding to an OTA survey ranked personnel issues as the most pressing rural health problem.*** Thirty-eight of 50 States responding to the survey were involved in personnel recruitment activities, most of which were directed at physician recruitment. Several States reported unsuccessful attempts to recruit NPs and PAs.

***States use a wide range of recruitment methods,*** including service-contingent loan forgiveness and scholarship programs, other financial incentives, rural-oriented health professions education, selective recruitment of students, technical assistance in practice development and maintenance, and placement services. ***The most effective State programs are those that employ multiple strategies--e.g., a scholarship or loan repayment program which both places personnel in needy areas and provides them with ongoing financial or technical support.*** Service-contingent programs with high buyout penalties seem to be effective for temporary recruitment of health personnel to shortage areas, but retention of these personnel may require additional commitment of resources. Cooperation among existing programs is key to program success.

State level of effort in rural health personnel recruitment and retention varies widely and does not correlate with measures of ruralness or measures of need. State activity in and contributions to health professions distribution programs have increased significantly during the last decade, but many States still rely heavily on Federal dollars to fund these efforts. When asked what Federal programs had been effective in improving health services availability in rural shortage areas, State officials most frequently mentioned the NHSC, C/MHCs, the Rural Health Clinics Act, and the AHEC program.