

## **Academic Models for Practice Relief, Recruitment, and Retention at the University of New Mexico Medical Center and East Carolina University School of Medicine**

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The number of physicians providing patient care in the United States has risen dramatically in recent decades. From 1950 to 1990, the patient care physician-to-population ratio increased 63%, from approximately 112 to 182 per 100,000 population. (1) Specialist physicians accounted for the majority of this increase, rising 121% from 56 to 123 per 100,000 compared with a 13% increase of 59 to 67 per 100,000 for generalists (family physician, general practitioners, general internists, general pediatricians). This increase has been greatest in metropolitan areas for most medical specialties, leaving those who live in rural areas or federally designated health profession shortage areas (HPSAs) with relatively fewer physicians to meet their health care needs. (2) Although physicians in generalist specialties, particularly family physicians, are more likely to practice in nonmetropolitan areas, there has been little overall change in the numbers of physicians choosing these practice sites. (2,3) New Mexico and North Carolina are representative of states with large rural and medically underserved populations: 26 of 33 counties in New Mexico and 82 of 100 counties in North Carolina were considered rural in 1995; 29 counties and 59 counties in New Mexico and North Carolina, respectively, were designated as whole or partial HPSAs. Because of concerns about health status and access to health care in regions with physician shortages, both states have identified provision of health care services for rural and underserved areas as a priority.

Academic medical centers have tried to meet the needs of rural and underserved areas through various long-term initiatives that have included selection of students interested in rural practice and specialized curricula for students interested in primary care. (4-6) To meet acute physician shortages, several academic centers provide locum tenens services to struggling practices, but information in the medical literature is limited. (7,8) The University of New Mexico Health Sciences Center ("New Mexico") and East Carolina University School of Medicine ("East Carolina") have independently developed programs to provide locum tenens services to practices in rural or underserved communities in their states, funded in part by The Robert Wood Johnson Foundation's Generalist Physician Initiative (GPI). This report will describe the locum tenens programs developed at New Mexico and East Carolina and will review the costs, benefits, and outcome measures used to evaluate the programs. Implications for locum tenens programs at other institutions will be reviewed.

## DESCRIPTION

### **New Mexico**

The New Mexico Locum Tenens Program was implemented in 1993 and links the health science center's mission "to improve and enhance the health of New Mexicans" with its high-priority strategic direction to "enhance rural outreach initiatives." The university established partnerships with entities interested in improving care to rural and underserved populations, such as various clinical departments, the New Mexico Department of Health (DOH), federally funded community health centers within the state, a publicly funded recruitment organization serving New Mexico, and local practices. Five objectives were identified for the locum tenens program, which ties the academic mission of the institution with community services: provide practice relief, enhance rural training for primary care residents, improve recruitment of graduates to rural sites, coordinate continuing medical education requests, and expand collaborative relationships with rural health organizations and providers. Locum tenens services are provided by university faculty from several departments (family and community medicine, medicine, obstetrics/gynecology, pediatrics, surgery) and upper-level residents licensed to practice within New Mexico from primary care residencies (family and community medicine, medicine, pediatrics, emergency medicine). The health sciences center is the only tertiary care institution in New Mexico with an affiliated medical school and employs approximately 475 salaried faculty and 450 residents.

Faculty members volunteer to participate in the locum tenens program pending approval by their department chairs. They receive direct and deferred compensation for services rendered. Compensation to faculty is considered part of the annual faculty reimbursement, and typically less than 20% of income received through the program is retained by the parent academic departments. Faculty are not excused from other responsibilities, and locum tenens services must be scheduled to not conflict with other academic obligations. Residents provide services while on annual leave, leave of absences, or other leave and are paid for practice coverage at an hourly rate. All resident moonlighting must be approved by the residency directors, and locum tenens coverage through this program is the only sanctioned moonlighting for primary care residents. Coverage by residents commonly occurs over weekends and cannot interfere with academic activities. Because locum tenens coverage is considered an academic program of the medical center, malpractice coverage is provided by the university for participating residents and faculty. New Mexico law requires new physicians to complete two years of postgraduate training to qualify for a state board medical license, but residents in a board-approved residency training program may apply to the board for a "public service license," thus allowing them to participate in the program.

Partial funding for the program originates through appropriations by the state legislature, although most of the current financial support comes from payment

for locum tenens services by individual practices. Administrative support provided by the university runs at approximately 10% of the revenues. Billings generated by locum tenens physicians remain within the practices. Fees for locum tenens services are set on a sliding scale based on advisory committee recommendations; travel expenses, lodging, and per diem living expenses are paid for by the program.

#### **East Carolina**

Locum tenens programs developed at East Carolina are consistent with the school's mission to meet the health care needs of eastern North Carolina. Alliances between the North Carolina Office of Rural Health and Resource Development and Pitt County Memorial Hospital (the parent hospital for ECU) were critical to the development of two locum tenens programs for regional practices and to recruitment and retention of physicians for the region. The programs are a 12-month Generalist Fellowship in Procedural Skills (GFPS) developed by subspecialty faculty in the Department of Internal Medicine and a faculty locum tenens program through the Department of Family Medicine. Both programs became fully operational in 1996. East Carolina is a medium-sized tertiary care academic institution with 335 salaried faculty and 270 residents. There are three other tertiary care centers affiliated with medical schools in North Carolina.

The goal of the GFPS is to improve residents, procedural and cognitive skills that will be needed in communities where need dictates that generalists do more procedures. In the program, board-certified or board-eligible graduates of residencies in internal medicine, family practice, or medicine-pediatrics spend three months providing locum tenens services and nine months receiving advanced training in cardiology, gastroenterology, and pulmonary/critical care medicine. Three-month block rotations at the East Carolina tertiary care medical center are devoted to each sub specialty area. The three-month locum tenens sites are selected by the NCORH. Trainees either commute daily or live in the community during their rotations.

Primary funding is through the North Carolina Office of Rural Health, with additional support from Pitt County Memorial Hospital and the university (from the Generalist Physician Program, Department of Internal Medicine). The practices covered by the locum tenens program must pay the fellows' travel expenses, lodging, and per diem living expenses, but they do not pay for the locum tenens services. Charges made by fellows are retained by the practices.

The second locum tenens program at East Carolina provides practice coverage by faculty in the Department of Family Medicine. The program is supported primarily by the North Carolina Office of Rural Health, with additional support from the North Carolina Medical Society Foundation's Kate B. Reynolds Trust and the Generalist Physician Program. Faculty participation is voluntary and is encouraged through indirect reimbursement for coverage services.

Approximately two-thirds of the generated income is retained by the department, with one-third provided to faculty for benefits such as books and continuing medical education. Practice coverage is provided primarily during weekdays, during which faculty are excused from other academic responsibilities. As with the generalist fellows, faculty receive direct reimbursement from the covered practices for their travel and per diem living expenses. Unlike the fellows, however, faculty are not required to provide evening, hospital, or weekend coverage. Nevertheless, arrangements for such coverage can be individually negotiated between faculty and the practice sites.

## EVALUATION AND RESULTS

Evaluation of the locum tenens programs has addressed outcomes in seven areas: practice relief, training in rural medicine, recruitment, continuing medical education and/or fellowships, collaborative relationships, public relations, and program costs.

**Practice Relief.** The New Mexico program provided 345 placement days during 1993, the first year of the locum tenens program, and 5,913 days of practice coverage by 111 residents and 35 faculty from 1993 through 1997. Demand for practice coverage has increased and during fiscal year 1997 averaged 180 days per month. Ninety-five practice sites in 30 counties throughout New Mexico have received coverage since the program began.

At East Carolina, 305 days of practice coverage were provided by the generalist fellows and Department of Family Medicine faculty during fiscal year 1997. Four practice sites in four counties received coverage, two sites by fellows and two by faculty. Three fellows and five faculty members participated in the programs.

**Training in Rural Medicine.** The locum tenens programs have helped to strengthen and expand the rural component of the New Mexico's primary care residency program, and East Carolina's Generalist Fellowship in Procedural Skills. At New Mexico, residents have asked for a more formal rural fellowship experience and are involved in the design of the fellowship. -

At East Carolina, the locum tenens component of the fellowship program is evaluated by written questionnaires administered before and after locum tenens experiences and by individual interviews at the end of the fellowship. Because only two of the three fellows have completed the fellowship, any outcomes information are inconclusive about the fellows' knowledge of rural practice and intentions to practice in a rural setting. The interviews indicate that the three fellows were generally satisfied with the locum tenens experience (e.g., orientation, organization, travel and living arrangements, call schedule) and with administrative and social aspects of the fellowship. The fellows suggested,

however, that the locum tenens experience could be improved by giving fellows their own assistants (e.g., nurses) for clinical activities at the locum tenens sites and by briefing fellows on the social environments of remote practices and communities before they go to the sites.

**Recruitment.** Residents from New Mexico often choose their locum tenens sites, and 13 have gone into practice in rural communities where they provided locum tenens services. At East Carolina, one generalist fellow has remained in North Carolina to practice in a rural community, one fellow resumed to her suburban group practice, and the third resumed to his residency site for a cardiology fellowship. All East Carolina faculty who provided locum tenens services have remained in their academic positions.

**Continuing Medical Education/Fellowships.** In the New Mexico programs locum tenens physicians identify unmet continuing medical education (CME) needs among physicians in rural practices and act as a conduit for requests with the university's CME Office. The office has coordinated requests for UNM faculty to provide CME.

At East Carolina, the effectiveness of the generalist fellowship is assessed in six areas: skills, knowledge, confidence, referral patterns, practice location, and clinical practice patterns one year after the fellowship. Data from direct observation checklists developed for each procedure indicate, for example, that the mean percentage of correct steps in performing flexible sigmoidoscopy and upper endoscopy increased from 41.7% to 100% and from 29% to 91.7%, respectively, over the course of the fellowship. Correct answers on standardized written examinations averaged 66% before training and 82% afterwards. Data from questionnaires administered before and after the fellowship showed that the fellows reported greater confidence in performing procedures and reported fewer referrals for procedures learned during the fellowship. Data on the clinical practice and referral pattern of fellows have not been collected because one year has not yet elapsed since the first fellows completed the fellowship.

**Collaborative Relationships.** At both institutions, the locum tenens programs have resulted in closer relationships with numerous external partners, including community health centers, private physicians, local communities, the North Carolina Office of Rural Health, Indian Health Service sites, and the New Mexico Department of Health. For example, in New Mexico, the University and the State Department of Health worked closely in the Locum Tenens Advisory Committee to ensure that rural and medically underserved areas were emphasized. As a result of the closer working relationship, they have jointly applied for and received grant support on several projects and worked to streamline the contracting process between organizations.

**Public Relations.** Newspaper articles describing the locum tenens programs have appeared across their respective states. Given the charges of both institutions to provide physicians for underserved regions, and given that they are state-funded, the programs provide tangible evidence to citizens, local communities, and legislators that the institutions are working to meet that obligation. The programs also demonstrate successful collaboration between the state governments and academic health centers on limited projects to meet health care needs within the states.

**Program Costs.** The New Mexico program has received an annual appropriation by the New Mexico state legislature since its inception, beginning with \$200,000 in 1993-94 and increased to \$299,904 for 1996-97. Collections from practices for locum tenens services have increased from \$132,491 in 1993-94 to \$1,013,331 in 1996-97, while program expenses have risen from \$287,091 for 1993-94 to \$1,323,063 in 1996-97. With state annual appropriations and carry-forward funds from previous years considered as revenue, the program has been profitable for three of four years of operation and posted a net margin of \$81,132 in 1996-97.

The East Carolina program received a subsidy of \$108,000 from the North Carolina Office of Rural Health for three fellowship positions in 1996. Additional support from Pitt County Memorial Hospital and the university (from the Generalist Physician Program, Department of Internal Medicine) amounted to \$72,567. Billings were not collected from locum tenens sites, and billings by fellows for procedures performed during subspecialty rotations at the university were not recorded. Total expenses in 1996 for the program were \$135,987.

## DISCUSSION

The locum tenens programs at New Mexico and East Carolina represent distinct models for providing locum tenens services to struggling practices. Each offers opportunities for practice relief and physician recruitment, training in rural medicine for learners, and improved relationships with program collaborators and others concerned with improving health care in their states. To our knowledge, the New Mexico program is the first to use state legislative appropriations for support and to receive broad institution-wide endorsement from the primary care academic departments for their faculty and residents to participate in the program. Also, the program is unique in limiting primary care residents' moonlighting to the university's locum tenens service. Practices are charged for the locum tenens services based upon location and ability to pay, enabling the program to be self-sufficient while providing 2,092 days of coverage in 1996-97. The annual number of days of locum tenens coverage provided, and the number of physicians from the health science center who provide coverage, make the New Mexico program the largest known locum tenens program administered by a university academic health center.

The locum tenens programs at East Carolina were developed more recently, are smaller, and depend primarily upon annual contracts with a state agency (North Carolina Office of Rural Health) and additional funding from the parent hospital and university. Personnel support is from the departments of internal medicine and family medicine. Administration of both programs is through the Generalist Physician Program, and knowledge of the programs within the university is generally limited to the two departments. The size of the programs and their limited administrative support contrast the New Mexico program but are similar to programs described in the literature. (7,9) Unlike those programs and the New Mexico program, practices are not charged for the clinical services of the locum tenens physicians. The Generalist Fellowship in Procedural Skills is unique in using financial support for locum tenens services to train primary care physicians in procedural skills and related cognitive areas for practice in rural and small communities.

Locum tenens programs are expensive and complex to administer. Adequate funding and political support by providers within the academic institution are essential for their long-term success. The New Mexico program is based on the acceptance of the importance of locum tenens services for meeting the institution's mission to care for the population of the state. Unequivocal support for the program was obtained from health science center's administration and other partners (internal and external to the university), and administrative steps were taken to encourage faculty members and residents to participate in the program. This contrasts with the situation at East Carolina, where institution-wide consensus on the role of a faculty and resident locum tenens service in meeting the institution's mission has not been reached, where support from primary care departments is not uniform because of faculty shortages and other priorities, and where faculty receive limited compensation for their locum tenens work. Consequently, faculty have little incentive to participate in the program and view it as intruding on other academic responsibilities. The situation at East Carolina is complicated further by the relatively small size of the medical center, with fewer faculty and residents available to participate.

The locum tenens programs were conceptualized and implemented through collaboration with representatives and agencies of their respective states. Without this collaboration, neither program would have been possible because of fiscal limitations within the medical centers and lack of other funding options. The need for locum tenens services was understood, and representatives of the academic health centers and state governments worked together to fund the initiatives, New Mexico's through legislative appropriation and East Carolina's through contractual agreement with a state agency. Legislative appropriation offers the advantage of annual budget support with minimal risk of changing financial priorities, as often occurs within state agencies.

The "best option" for other academic health centers to provide needed locum tenens services will depend upon the political and financial forces within their regions. In situations where consensus can be reached among representatives of the academic health center(s), state legislature, private practitioners, and others involved in providing health care services to rural and underserved populations, a model similar to New Mexico's seems ideal. In the more common setting of conflicting financial and political agendas, smaller and lower-profile programs can offer acceptable ways of supporting locum tenens activities. With either model, locum tenens physicians are exposed to the rewards of practice in rural and underserved locations and may choose to pursue careers in these areas.

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