FAMILY AND FRIENDS: RURAL HEALTH POLICY IN NORTH CAROLINA

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North Carolina Rural Health Research Program

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RURAL HEALTH POLICY IN NORTH CAROLINA

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INTRODUCTION

Driven by the necessity to provide health care to a predominately rural and diffuse population, North Carolina in recent decades has become a national leader in crafting rural health policy and putting theory into practice.

North Carolina created the first state office of rural health in the United States in 1973. That office was founded with the intention of stimulating the development of locally governed primary care centers and soon evolved into a network of rural health clinics that provided a comprehensive system of support for rural health care in a then poor but progressive Southern state. The ideas behind the centers were as old as the "Dawson Report" from the 1920s and as recent as the community health centers that had just become institutionalized in the federal government. The North Carolina system was the first state-based program in the nation to emphasize clinics organized around a collaborative model that purposely involved the community in their planning and support. The planning also took advantage of the "new health practitioners"—nurse practitioners and physician assistants—professionals whose training was pioneered in North Carolina.

The Office of Rural Health was but one of a list of groundbreaking contributions to rural health originating in North Carolina. The state's Area Health Education Centers program (AHEC), begun in 1972, has served as a model for AHECs across the nation. The nine AHECs in North Carolina act as independent organizations affiliated with medical and other health professional schools but located in community settings—engendering a pattern of distributed responsibility that results from a mutually beneficial compromise worked out among the medical schools and community hospitals. The continuing purpose of the system is to serve the mostly rural practitioners across the state who have limited geographic access to continuing education and professional relationships with their colleagues. From its inception, the program included a purely rural AHEC ("Area L" named after the multi-county planning region) to demonstrate the feasibility of such a widespread multi-county project.

Over time, the Office of Rural Health enlarged its focus to include the support of rural hospitals and assistance to rural communities to help them absorb managed care. It also received

designation as the technical assistance grantee for the U.S. Bureau of Health Care Delivery and Assistance (BHCDA), now called the Bureau of Primary Health Care (BPHC), which offers federal support for Community and Migrant Health Centers and other direct delivery programs. While expanding its functions, the Office has carefully maintained a commitment to community involvement and coordination with other state and federal agencies.

In addition, the Office has assisted in the development of programs designed to increase the numbers and types of practitioners in rural areas. In 1972 the University of North Carolina School of Nursing pioneered the training of family nurse practitioners, who were drawn from rural communities and who would return to provide primary care at the end of their instruction at Chapel Hill. From its establishment in 1974, the East Carolina University Medical School bore the express purpose of preparing physicians for the rural eastern part of the state with an emphasis on training in primary care. The Assistant to the Primary Care Physician Program at Duke University, instituted by Eugene Stead in 1965, was the first of its type in the country, and its supporters soon recognized that graduates would be especially useful in rural areas. As a consequence, government support was soon forthcoming to fund training of such practitioners specifically because they could meet rural needs.

The state's accumulation of accomplishments since 1973 has put North Carolina squarely in the forefront of the making of state-level policy to improve health care for rural communities, a process that did not occur by chance. Indeed, the tradition that has produced the improvement has its roots in the basic character of the state—in the visions of a long line of North Carolinians determined that the people of this once sleepy, rural state deserved an opportunity to lead healthy lives. This monograph describes how North Carolina built its comprehensive and ground-breaking system and describes in detail how that system works and how it might serve as a model for other states faced problems similar to those in the Old North State.

Each of these innovations represents a specific initiative meant to improve rural life in North Carolina. In sum they share the common characteristic of being linked by a shared sense of responsibility to benefit community-based health between health care providers and the communities in which the programs deliver services. An assessment of the state's efforts should note that North Carolina is a politically conservative state not inclined to create large government programs. But citizens, politicians, and health care administrators do not view the rural health initiatives as a big-government sponsored series of well-meant but theoretical experiments foisted on localities against the will of their constituents. Rather, supporters view them as forming a fully functioning partnership between communities and professionals, a partnership owned by the citizens who benefit from it and supported enthusiastically by the General Assembly. This perception arose not from one inspired individual's widely publicized flash of insight; it resulted instead from a long tradition of lawmakers, professionals, and academics devoted to the mission of serving people in their own communities.

The continuing collaboration between institutions to benefit rural North Carolina presents a picture of a "family" of concerned citizens and professionals committed to improve health care delivery and health status in the state. That family has made numerous friends over the years and attracted many new advocates into the extended family that is the North Carolina Rural Health "System." This monograph describes that family and identifies many of its friends, though it is impossible to describe all of the friends of rural health in the state. Nearly every community leader, every politician from the governor to local city council members, every leader of a health professions association, every medical student and numerous students of dentistry, nursing, public health and related disciplines—all have become involved in improving rural health in the state. However, the most important members of the rural health family are the citizens who have voted for local projects, statewide appropriations, and special taxes or levies and those who have given time and crucial support to clinics, hospitals and collaborative projects.

THE NETWORK OF INSTITUTIONS AND ORGANIZATIONS

Although the North Carolina Office of Rural Health and Resource Development is often thought of as the center of rural health policy in the state, it actually functions as part of a loosely connected network of agencies, organizations, and institutions. Through a series of strategic alliances, a rural health policy infrastructure has evolved to support the delivery and financing of health services for rural and underserved North Carolinians. This occurs with a backdrop of rapid urbanization and growth in this sunbelt state.

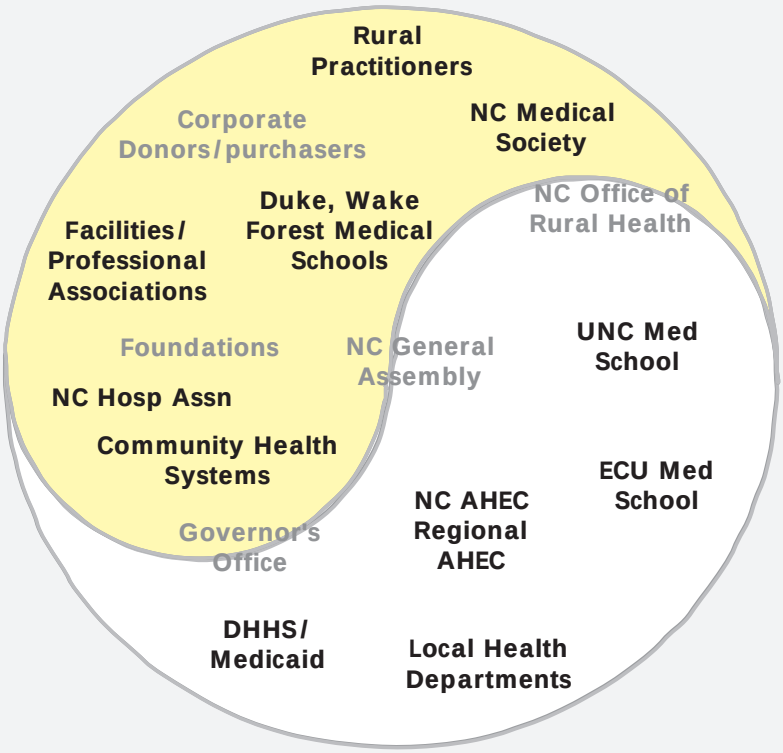
Regions of North Carolina are rapidly gaining national recognition as thriving centers of technology, education, finance and communications. The state also contains a number of rapidly growing urban areas which have become home to major-league professional sports teams—an obvious measure of urban growth. Despite these changes, the perception remains that the state is essentially rural in nature. This is combined with the reality that many rural areas of North Carolina are medically underserved. These persistent conditions continue to push policies forward that attempt to meet rural health care needs.

Figure 1 provides a very rough approximation of the "structure" of the rural health policy network. It can be overlaid on a rural heath services network (Figure 2) with the understanding that the two operate in a changing organic way to meet needs as they are identified or anticipated. Members of the networks will be more active at some times than at others, and the degree of cooperation or linkage will vary according to program emphases, the availability of resources, or the salience of a problem.

HISTORICAL PERSPECTIVE

The following histories of the North Carolina Office of Rural Health, the AHEC program, and other policy initiatives offer a sense of the historical and political context for each initiative and specify those individuals who have been key players in North Carolina's efforts to provide quality health care to rural citizens.

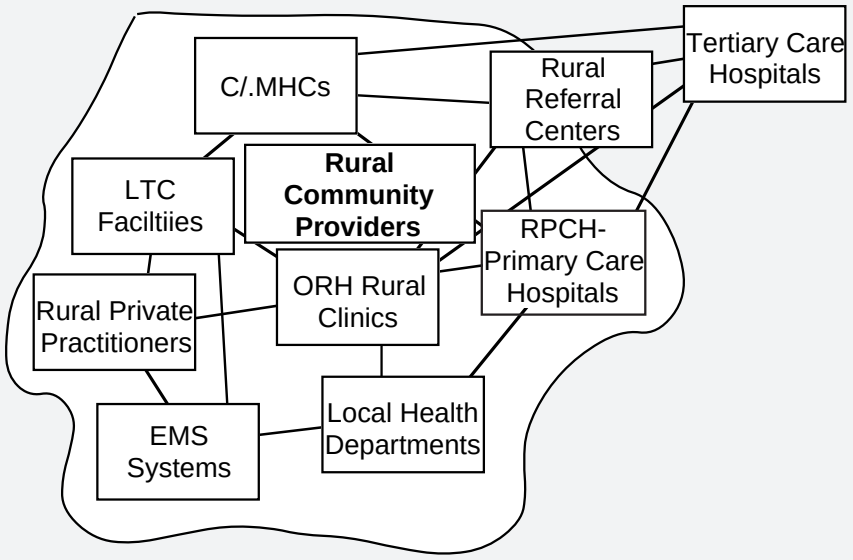
Figure 1. The Rural Health System Policy Actors



The Evolution of the North Carolina "System" for Rural Health

In the last decade of the Twentieth Century in the United States, any useful critique of health care *systems* has to consider the aggressive integrated networks of health care providers established to compete in a very uncertain world. The *system* described here is the informal "system" that has emerged in North Carolina to provide a safety-net for the people of the state's smaller and poorer communities, communities that are most often rural, more often inhabited by African-American citizens. North Carolina's rural communities are also likely to be Appalachian Mountain towns, locales where migrant laborers work part of the year, areas where the demand for cheap labor has brought in new immigrants

Figure 2. The Rural Health System Participants



who do not use English as a spoken language, or districts in which the lure of urban and suburban life has left a legacy of poverty and underemployment for those who choose to remain in their home towns and villages.

Almost all of North Carolina could have been called rural at the end of World War II. The 1940 Census classified 72.7 percent of the population as rural or living in communities with fewer than 2,500 residents. A few cities—Charlotte, Durham, Greensboro, Asheville, Raleigh—had modestly large populations; but no city in the state had a population greater than 110,000. The state's economy was strongly linked to agriculture.

By mid-century, the African-American population had decreased proportionally since 1880 from 38 percent to 27 percent, largely through outmigration to the industrial North and Midwest; and the state, though growing in population, actually had more people emigrating than immigrating. City life in the state was an extension of rural life with major industries such as cigarette production linked to the tobacco farms of the east and Piedmont. The textiles mills of the Piedmont and foothills were usually small and widely distributed among small towns and cities. Virtually no unionization existed, and the social and political structures of the state revolved tightly around conservative farming and merchant families. The state was, in the words of V.O. Key, a "progressive plutocracy."

World War II created an economic stimulus for the state when a large number of military installations were located in North Carolina and more were constructed to support the training of the military, to build liberty ships in Wilmington, and to house prisoners of war in the central and the mountain regions of the state. But the war left another legacy beyond economic benefit, the state had experienced the highest medical rejection rate for its draftees of any state in the Union. The causes were usually chronic problems related to nutrition and poor or unavailable basic medical care and health advice. This embarrassing fact is often cited as the driver of the statewide "Good Health Campaign" promoted in 1949 by prominent North Carolinians, including Kay (Kollege of Musical Knowledge) Kyser, who recruited Dinah Shore, Frank Sinatra, and other radio personalities and Hollywood stars to help raise money and direct attention to the health care needs of the state.

That public effort had a significant impact, but it followed an existing trend in thinking toward the expansion of health resources. For years politicians had been debating whether to assist one or both of the private medical schools in the state (Duke and Bowman Gray) or whether to create a large medical center by expanding the two-year medical school at the state university in Chapel Hill. Governor Melville Broughton appointed a Medical Care Commission in 1944 to study the health and medical needs of the state. That commission recommended the creation of a new, state-supported four-year medical center in Chapel Hill that would share space with the

existing School of Public Health and occupy space adjacent to a new, comprehensive teaching hospital. After years of consideration, the General Assembly supplied construction funds through the Hospital Planning and Construction Act of 1947, the Hill-Burton Act, which was making it possible for smaller communities across the state to build new hospitals.

In 1950 the new medical school combined with the existing schools of pharmacy and public health and the new schools of dentistry and nursing to form a Division of Health Affairs, one of the first true academic health centers in the nation. With the expansion of the medical profession and the rise of specialization already well underway, the relationship between the schools of medicine and public health was strained from the beginning, thwarting the vision of many advocates for a medical system guided by public health principles.

Although health care provision on the whole was woefully inadequate, pockets of effective public health measures had long existed in some communities. In 1909 Dr. Watson Smith Rankin, a past president of the American Public Health Association, became secretary of the State Board of Health, which had accomplished little since its establishment in 1877 by the General Assembly, in large part due to its meager resources. However, the energetic Dr. Rankin, who also served as dean of the Wake Forest School of Medicine during a portion of his tenure, lobbied the General Assembly ardently and was able to expand public health activities dramatically during a period in which annual appropriations rose from $10,500 in 1909 to $340,000 in 1925, the year Dr. Rankin retired.

In urbanized Guilford County, the Greensboro city health department combined with the Guilford County department in 1911 to produce the first full-time county health service. Robeson County set up the first professionally managed rural health department in 1912 when county commissioners appointed a full-time county health director charged with the task of creating an administrative unit of county government to ensure the health of the county's citizens. The state's growing appropriations to the state Board of Health soon allowed other counties to organize their own essentially independent public health units. Nevertheless, despite Dr. Rankin's ties to medicine, voices in the state's medical establishment persistently objected to the state's involvement in medical care or direct services to citizens, but supporting voices spoke as loudly—and backed up their words with deeds.

Walter Hines Page and the Country Life Commission, a national organization committed to "uplift rural folk," helped to bring the problem of hookworm disease in North Carolina and the rural South to the attention of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, which in 1909 began steps to eliminate this debilitating infection as one step toward improving the economy of the South. Because state officials considered the direct involvement of the Rockefeller group to be too intrusive on a population distrustful of wealthy northerners, the State Board of Health set up a cooperative Bureau for Hookworm Control to sponsor the campaign in North Carolina. The combined efforts eliminated the hookworm scourge and in the process created a lasting focus on public health at the county level.

Indeed, the success of the hookworm campaign stimulated the Rockefeller Commission to choose the Wilson County health department as the setting to train a team to conduct a similar hookworm eradication program in the West Indies and prompted the state to create a Bureau of County Health Work under the State Board. Rutherford physician Dr. Benjamin Washburn, who had worked in Wilson County during the hookworm campaign, began forming additional county departments modeled on the Wilson experiment.

Although the need to train local public health workers became apparent soon after the public health system began to grow, politics and the state economy were not conducive to the development of a school for public health similar as those recently created at Harvard and Johns Hopkins. Authorities discussed creating a training center for health officers at the Duke University Medical School, but the state Board of Health preferred to place the school in Chapel Hill.

Other obstacles intervened. In fact, neither the money nor the expertise to create such a school were available, and fierce conflict arose over the creation of a unit of government designed to serve local communities rather than become another division of the academic, research-oriented university world.

On the other hand, the University itself was beginning to establish a role as a service institution to local governments and communities. The creation of the Institute for Research in the Social Sciences by Howard Odum in 1924 and the Institute of Government by Albert Coates in the early 1930s gave the university an outward-looking stance compatible with the vision held by the public health community and the leadership of the Board of Health. Still, University of North Carolina President Frank Porter Graham and adherents on the Chapel Hill campus had to wait for the passage of the Social Security Act in 1935 and subsequent agitation in the Public Health Service for money to become available to create a training center for public health in North Carolina. The Act's Title VI provisions, which earmarked money for public health in poor Southern states and which helped secure the support of Southern Congressmen, supplied federal money to create a Division of Public Health in the University of North Carolina Medical School, a Division patterned to serve as a regional training center for public health in "Interstate Sanitary District Number 2, comprised of Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia and West Virginia." Dr. Milton Rosenau, founder of the Harvard School of Public Health, assumed leadership of the Division in 1936 and oversaw its evolution into an independent school in 1940.

The ties between the University, the medical profession, and public health personnel were not unique to North Carolina, but the individuals involved saw their roles as more interwoven than their counterparts in other states. During the early years of the Board of Health, the tradition grew of having the chairman or the state health director address the annual meeting of the state's Medical Society on the state of health in the state, a tradition that continues as a requirement for the state's health officer, a relationship not repeated in other states. The Board of Health in the 1930s and 1940s participated in discussions concerning the development of a School of Public Health and engaged with members of the medical community who wished to have state institutions support local needs. The state specifically created the Division of Public Health within the context of a University committed to the mission of serving all of North Carolina and engaged in community-based projects even before the foundation of the Division. This commitment set the tone for the next generation of public health and rural health leaders, both academic- and practice-based, who assumed their positions in the 1940s, 1950s and 1960s and who viewed the role and mission of state institutions as one of service outside their walls.

Because the University recruited nationally and did not shy from innovators and activists, many of this new generation were originally outsiders to North Carolina. Milton Rosenau died unexpectedly in April 1946, soon after being elected President of the American Public Health Association. The University's President Frank Porter Graham, who was largely responsible for the service orientation of the University, followed the recommendation of the School of Public Health acting directors and named Edward McGavran to become the new dean in April 1947. McGavran—a graduate of Harvard Medical School, a former county health director, director of a Kellogg Foundation's public health training program, and a professor of Preventive Medicine at the University of Kansas—firmly fit the mold of the "outsiders" who came to North Carolina to encourage creativity in health care delivery and public health. Pragmatically recognizing the nature of state government, McGavran acknowledged, "It takes no political prophet to see that the postwar conservative government will shy away from 'radical' medical care legislation and appropriations."

The addition of two important members of the School of Public Health faculty signaled eventful consequences for the structure of rural health services in the state. In 1947 Cecil G. Sheps joined the faculty as an associate professor

of public health administration, and in 1949 Bernard Greenberg assumed the chairmanship of the Department of Biostatistics. Sheps, a native of Winnipeg, and his wife Mindel, a professor of biostatistics, had been involved in the development of the Saskatchewan health insurance system that became the model for the universal, province-based system of health care financing in Canada. Sheps resigned from the School of Public Health in 1952 to direct program planning in the Division of Health Affairs and later left Chapel Hill to administer the Beth Israel Hospital in Boston, then Beth Israel in New York following a five-year stint with the University of Pittsburgh School of Public Health. He returned to Chapel Hill in the fall of 1968 as the first director of the University's new Health Services Research Center, moving on to the post of vice chancellor for health sciences in February 1971. In a 1953 report to the Medical Society of North Carolina, Sheps maintained that a key ingredient in solving the state's health care delivery problems rested on "the development of a program of an extension of services from the University Health System to the State at large . . . in concert with other similar institutions of the State so far as medical and nursing schools are concerned."

THE NORTH CAROLINA AREA HEALTH EDUCATION CENTERS PROGRAM

General consensus contends that the North Carolina Area Health Education Centers program (NC AHEC) is the model for the nation, a contention that has come to be because of the basic willingness of key stake holders to share control and to place the emphasis of their work on service in the community. The framework for the creation of the NC AHEC began as a commitment on the part of W. Reece Berryhill to fulfill a challenge to the new University of North Carolina Medical School to prepare doctors for the state and to include a healthy portion of rural doctors in that output. Dr. Berryhill had become dean of the School of Medicine in 1941, and following his mandated retirement in June 1964 as he approached age 65, he took on the task of ensuring that the school meet a commitment to the state to train the needed doctors. In 1965, he became director of the new Division of Education and Research in Community Medical Care created jointly by the schools of medicine and public health to work in local communities that were forming working relationships with private practitioners. In 1967 the Division formed affiliations with Moses Cone Hospital in Greensboro, Charlotte Memorial Hospital, Raleigh's Wake Memorial Hospital, New Hanover Memorial Hospital, Tarboro Clinic, and Edgecombe County Hospital. Through the Health Councils of Eastern Appalachia, the Division received a grant from the Regional Medical Program in 1968 to support its community-based training. Prior to the General Assembly's 1969 appropriation for continuing support, the Division also received the assistance of a grant from the North Carolina Regional Medical Program.

The immediate impetus for the AHEC program came in the 1970 report "Higher Education and the Nation's Health" in which the Carnegie Commission on Higher Education, with University of North Carolina President William Friday as a member, called for medical schools to devote more of their clinical training time to community settings using a new kind of entity, the Area Health Education Center. The U.S. Congress responded by authorizing the development of a limited number of AHEC projects under the Comprehensive Health Manpower Training Act of 1971 (P.L. 92-157). That legislation moved forward with input from Representative Richardson Preyer of North Carolina who was briefed in depth by Drs. Carl Lyle and Robert Huntley, members of the UNC School of Medicine faculty and participants in the UNC community-based training program that exerted strong influence on the AHEC concept. Richardson and his staff worked with Stephen Lawton on the staff of the House Commerce Subcommittee chaired by Congressman William Robert Roy of Kansas. By 1975 the federal AHEC program had funded programs in 11 states, including North Carolina, where the concept had already received far ranging attention.

The North Carolina General Assembly appropriated money for the community training

program at UNC in 1969 ($395,000) and again in 1971 for support of the fourth-year medical school clerkships in community hospitals in the affiliated hospitals in Wilmington, Charlotte, Raleigh, Rocky Mount and Tarboro. Following the advent of AHEC, the appropriation from the state for FY 1972/73 was $944,279, and the federal grant for that year was $1,235,856; the state appropriation exceeded the federal grant in 1973/4 state fiscal year.

In 1973 activities in the three original AHECs, centered on Tarboro, Charlotte and Wilmington, prompted community hospitals across the state to ask to how they might become AHECs. UNC President Friday commissioned the Panel of Medical Consultants to study medical education in the state and brought in a group of distinguished medical educators to survey the state and plan for expansion of health professions education. The Panel examined the health status of North Carolinians, the supply of physicians, the production of physicians in existing and expanded medical schools, and the recruitment and retention of additional practicing physicians for the state. Issued in September 1973, its report recommended that the University through its Board of Governors develop a plan to "build upon the concept of AHECs and to develop a statewide system of medical and health education, based in hospitals in all regions of the state." The UNC Board of Governors adopted the proposal in late 1973 and submitted it to the General Assembly in early 1974. Acting on this recommendation for the 1974/76 biennium, the General Assembly appropriated $23,500,000 for capital costs to build regional AHEC centers and $4,548,720 for operating expenses—including $1,125,000 for residency grants and $250,000 for Community Practitioner Stipends. Acting on this recommendation for the 1974/76 biennium, the General Assembly appropriated $23,500,000 for capital costs to build regional AHEC centers, $4,548,720 for operating expenses, $1,125,000 for residency grants and $250,000 for Community Practitioner Stipends. The General Assembly also set targets for training in the AHECs, committing the program to develop 300 new primary care residency positions by 1980.

Simultaneous with the establishment of the AHEC program, the state also began funding family medicine training programs. The University established its Family Medicine Department in 1969, and Bowman Gray School of Medicine in Winston-Salem opened its department in 1974. The General Assembly has continued its support of these programs with $132,683,000 for the ECU and UNC medical schools and $38 million for the NC AHEC program.

At the time NC AHEC was formed, Chapel Hill had no more than 25,000 residents and the state's largest city, Charlotte, had only 250,000. The decision to encourage distributed medical education recognized the state's demographics and gave the University the chance to work with essentially rural hospitals. Significantly, the first two hospitals to join the AHEC movement were in the Tarboro and Rocky Mount communities, both located in the eastern part of the state and undeniably rural in orientation. That initial AHEC focus on rural communities set a pattern for later development and orientation and closely followed the traditions of the University and the state's politics.

Another key element of the rural policy structure fell into place with the Health Services Research Center, created at the University in 1968 to concentrate on primary care and rural health and to serve as a focal point and a stepping stone for several important state-level policies. C. Arden Miller was the principal investigator and John C. Cassell and T. Franklin Williams were co-investigators of the proposal for the Health Services Research Center submitted to the National Center for Health Services Research in March of 1968. C. Arden Miller was then Vice Chancellor for Health Science at UNC-Chapel Hill, John C. Cassell was a professor in and chair of the Department of Epidemiology in the School of Public Health, and T. Franklin Williams was an associate professor of medicine and preventive medicine in the Medical School. The goal of the proposed center was to help develop more effective ways to "deliver personal health services in community settings" by exploring "new roles for professionals" and productive means to change organizational features of health care practice (Miller, 1968).

The Health Services Research Center fit snugly into the rural health policy network because the community-based system it intended to examine was largely devoted to increasing access for rural residents. As sites for its study of experimental comprehensive health centers, the Research Center selected the rural areas of Orange County and all of Caswell, a 100 percent rural county, because they were the service area for an OEO (U.S. Office of Economic Opportunity) Neighborhood Health Center that used nurse practitioners. Community involvement with the Research Center soon spread through the new clinics being established in Walstonburg, Tarboro, and Hot Springs, all of which were located in very rural locations in the eastern and western parts of the state.

When Cecil Sheps left to become Vice Chancellor for Health Sciences in 1971, Conrad Seipp, a colleague of Sheps at the University of Pittsburgh, filled in as interim director until Gordon H. DeFriese signed on as permanent director in 1973. During that early time, two young World Health Organization Global Fellows in Public Health, James Bernstein and Michael Samuels, began study at the University's School of Public Health and focused their concentration on problems relating to rural primary care and the supply of rural health professionals.

Bernstein had graduated from the University of Michigan's hospital administration program and had spent time in New Mexico with a Public Health Service hospital prior to coming to Chapel Hill. His experience in the Public Health Service had stimulated him to explore the best way to provide health services to rural populations, and he chose to pursue a degree in epidemiology at the University in order to study under faculty such as John Cassell, who expressed a strong community orientation. Samuels had spent his undergraduate years at the University of North Carolina at Greensboro before earning a master's degree in public administration from George Washington University. Samuels had then worked with the federal Health Services Administration reorganizing its activities so that the agency might serve rural areas more rationally and effectively. He had conceived the Health Underserved Rural Areas initiative, a joint agency coordinating mechanism, at a time when multiple programs were creating confusion and conflicts in communities. When he came to Chapel Hill for a doctoral degree in health administration, he remained fervently committed to creating better systems for the delivery of health services.

These two young scholars meshed well with the activities accompanying the development of the Health Services Research Center, with Samuels concentrating on problems of professional recruitment and Bernstein on the appropriate community structure for viable rural health services. Samuels graduated in 1975 and went on to a career in the Public Health Service during which he has helped to develop several rural-focused programs and has served as deputy administrator of the National Health Services Corps and the Health Services and Resources Administration.

NORTH CAROLINA OFFICE OF RURAL HEALTH

James Bernstein took advantage of the commitment to rural communities that was the focus of the Health Services Research Center. He convinced two senior faculty, Glenn Wilson and Cecil Sheps, that a state-level program to create community-supported health clinics should be built on the principles of community-oriented primary care and should make use of new primary care professionals in areas where doctors would be hard to recruit. Governor James Holshouser, the first Republican governor of North Carolina since the turn of the century, studied the proposal, concluded that it outlined a viable program, and gave it his full support. He translated that support into an executive order that became part of his legislative agenda. Subsequently, the proposal drew wide support from politicians of both parties, including the Democratic lieutenant governor, Jim Hunt. Convinced that such a program would greatly benefit the state, the General Assembly created the Office of Rural Health with an appropriation of $456,000 in 1973.

Physicians with influence in the Medical Society supplied much of the groundwork for the creation of the Office of Rural Health. Two of them, Drs. Glen Pickard and Ed Beddingfield, induced the Society to support a nurse practitioner practice act acceptable to the physician community, support that helped build the legal structure that allowed the new clinics to open. Even with this broad support, however, gaining acceptance of the Office within state government remained a struggle.

Professionals in the Department of Human Resources, recently created during a general government reorganization to include the traditional public health functions as well as new and old programs related to health services, did not believe the Office would survive beyond the Holshouser Administration. The legislature had placed the Office within the Division of Facility Services, an agency previously responsible for administering the Hill-Burton Program and licensing hospitals. However, Governor Holshouser firmly insisted that the Office was attached to the Division only for administrative purposes and that any policy decisions were to involve consultation with the Governor's office.

Prior to passage of the act and subsequent appropriations, the governor and the principal proponents of the program struck an agreement expressly delineating the direct route to the governor, a surprising agreement since it bucked the current trend toward greater consolidation of government into cabinet departments. This element of policy independence from other agencies in government, consequently, provided the key to the success of the Office and has remained one of its defining characteristic to the present.

The Office appropriation almost tripled in its second year to $1,200,000 and jumped to $1,611,000 in the third year but grew much more slowly afterward as the Office gained recognition as a focused programmatic agency with a bounded set of goals. The Office established strong political stability in large part because succeeding Governor Jim Hunt had been an early supporter of the Office and its concepts and because the Office carefully avoided using its policy independence to threaten other agencies or to map out a path to growth. The Office continued its independent role during a reorganization of health agencies under the administration of Hunt's Republican successor Jim Martin, during which time it was briefly aligned with the state's health planning functions. It became the Office of Rural Health and Resource Development placed administratively within the Department of Human Resources after Jim Hunt was elected for a historically unprecedented third four-year term in 1992, and during his fourth term the influence of the Office of Rural Health promises to grow within the newly planned Department of Health and Human Services. That reorganization occurred with James Bernstein serving as acting Assistant Secretary for Health within Human Resources during the course of the reorganization.

The Office of Rural Health may serve as the focus of policy relating to rural health issues, but it does not exercise formal administrative responsibility for oversight or even coordination of programs in other state agencies that serve rural communities or affect rural health care delivery. Instead, in part through support from private foundations combined with the ability to create special programs from time-limited special appropriations, the Office serves as a resource and brokering agency that stimulates coordination among program directors and exerts its capacity to add value to programs and projects with funding flexibility. Consequently, few programs or initiatives in primary or community-based health care delivery fail to receive some input from the Office, as much because of its experience in working with almost every aspect of the delivery system as for its policy role and its close political ties to the General Assembly and the Governor's office.

THE EAST CAROLINA UNIVERSITY MEDICAL SCHOOL

An important addition to the rural policy and rural health care delivery structure in the state accompanied the founding of the East Carolina University Medical Center in 1967. Predominately rural with an economy based on tobacco-dominated agriculture, eastern North Carolina has long projected an image as the state's poorest region and has lagged behind the

rest of the state in industrial development. Commissions studying methods to expand the supply of physicians had identified North Carolina as a potential candidate for a new medical school, and politicians appreciated an opportunity to develop a stable economic engine for the east as well as to raise the prestige of the regional state university.

The battle to develop the East Carolina School of Medicine began in 1964 when Dr. Ernest Furguson, a general practitioner from Plymouth, NC, and East Carolina College president Dr. Leo Jenkins agreed that ECC should build a medical school. Dr. Jenkins asked local physician Dr. Ed Monroe and ECC professor Robert Williams to conduct a needs assessment, following which Jenkins began an arduous campaign to locate a medical school on his campus.

Originally in 1965, the ECC proposal called for the creation of a two-year medical school that would send students to the School of Medicine at the University of North Carolina at Chapel Hill for the remainder of their education, an idea strongly opposed by the Schools of Medicine at Chapel Hill, Duke and Wake Forest. Jenkins then took the battle to the North Carolina General Assembly, which authorized and appropriated funds in 1965 to plan a two-year medical school at ECC if accreditation could be obtained, ignoring a recommendation from a panel of consultants who preferred to expand the existing ECC allied health programs. When ECC requested in 1967 that the General Assembly grant it independent status as East Carolina University, the legislature rejected that proposal and instead made it one of the constituent universities of the consolidated University of North Carolina system, but it also authorized the creation of a Health Sciences Institute at ECU (which became the School of Allied Health and Social Professions.)

The need for more physicians in the state at that time was evident in statistics: North Carolina ranked 43rd of the 50 states in the ratio of physicians to population and 46th in the ratio of medical students to population; mortality figures identified the state as one of the least healthy regions in the nation. In 1969, a Committee on Physician Shortage in rural North Carolina appointed by the Legislative Research Commission acknowledged the need for better access to medical care and recommended as a solution the expansion of the UNC School of Medicine from 75 to 200 graduates a year and the provision of subsidies to Duke and Bowman Gray to train North Carolina residents.

Popular support for a medical school at ECU continued, however, and in 1970 the General Assembly appropriated funds to develop a two-year medical curriculum at ECU, which then admitted 20 students to a one-year program.

Leaders in the other three medical schools that had heavily invested in training specialists argued that if a crisis in access to primary care existed in North Carolina, it could best be addressed by training physician assistants and nurse practitioners. They also claimed that the problem was not a deficiency of medical students but the lack of capacity for residency training.

In 1972 the UNC Board of Governors appointed a five-member committee headed by Robert Jordan to advise it on health manpower needs. The committee subsequently recommended paying the Duke and Bowman Gray schools of medicine a per-student stipend to train North Carolina medical students ($5,000 in 1975; $6,000 in 1976), continuing to enroll 20 degree candidates in the one-year ECU program, and commissioning a team of national consultants for a feasibility study.

In 1973 the General Assembly appointed two groups to study the problem: the Medical Manpower Study Commission and the Joint Committees on Health. Each found a substantial undersupply of physicians in the state. A third commission found no medical manpower crisis. The 1974 General Assembly appropriated funds to expand the ECU school, adding a second year emphasizing family medicine and encouraging the recruitment of minorities. In November 1974, President William Friday proposed to the Board of Governors that the ECU School of Medicine become a full, four-year medical school, and the 1975 General Assembly appropriated funds to make his proposal a reality. The school assumed a task dedicated to the training of primary care doctors, a term that had just come into common

usage, with the intention of alleviating a severe shortage of physicians in the rural areas of North Carolina.

The eastern interests that dominated Democratic politics in the 1960s believed the region was being slighted by a University system that spent enormous appropriations in the central part of the state. Hence, the decision to build the medical school took on a clear political tinge, and the General Assembly had essentially overruled the leadership of the University when it appropriated funds for planning in 1965 and finally funded an established school in 1970.

THE RURAL HEALTH "SYSTEM" COMPONENTS

Area Health Education Centers

Established in 1972 and dedicated to ensuring an adequate supply and equitable geographic distribution of health professionals of all types, the Area Health Education Centers program is arguably the best of its kind in the nation and certainly one that has created a strong infrastructure for training in all the health professions. The NC AHEC is a cooperative system in which the local AHEC centers are supervised by their own local boards and headed by local directors. The nine AHECs have substantial capital resources, offices, classrooms, staff and support technology to allow them to operate at a state-of-the-art level.

The AHEC Central Office in Chapel Hill at the University of North Carolina provides support services in terms of policy development, program design, coordination of programs with the medical schools, and information systems development. It also serves as a central point for relationships with other units of the statewide UNC system. The AHEC budget is considered within the context of the system and is included in budget requests from the university to the General Assembly. Individual AHECs, however, maintain close relationships with the legislature and with state agencies on their own and operate as independent policy and information resources for local and regional policy makers and representatives.

Like the creation of any regional system, the configuration of the AHEC regions did not occur without political difficulties. The establishment of a completely rural AHEC being high on the priority list when the system was proposed, directors organized Area L to be a rural system enjoying strong support from the medical schools and the central office while maintaining independent local governance. That approach to decentralized control of the AHEC system has been one of its primary strengths and a key to its longevity because not only does the benefit flow out to the distributed centers, but local groups also command a real degree of power and control. This arrangement connects well with local politics and translates to the General Assembly as a local issue, which helps to ensure continued funding.

The AHECs and Rural Health Care

The activities of the North Carolina AHEC system now revolve around six themes:

1. Generalist Physician Education;
2. Training of Mid-Level Practitioners;
3. Health Careers Development;
4. Minority Recruitment into Health Professions;
5. Telecommunications & Information Dissemination;
6. Education in Manpower Shortage Areas.

Each of these themes has a rural connection. The Generalist Physician Education emphasis is channeled toward the development of community-based practices. In 1993 the AHEC system targeted rural communities as part of a six-year primary care strategy that expanded the rotation of medical students through the clinics and physician offices in which they received support from family practice, general internist, and pediatrician residency training programs located in rural areas or having close links to rural communities. A portion of the AHEC appropriations pays for community-based preceptors, and by 1994-95 approximately 1,010 ambulatory-based student-month rotations was making use of 293 preceptors.

In 1995, 280 primary care residency positions at the four schools of medicine in the state and at the individual AHECs received partial support through AHEC appropriations. That year the AHECs received additional funding to include

similar rotations for nurse practitioners and physician assistants. By 1996 each AHEC had created an office of Regional Primary Care Education (ORPCEs). The long-range goal of these distributed educational activities is to "create more primary care providers, especially in underserved and rural areas."

Each of the regional AHEC centers has affiliation agreements with one of the medical schools in the state to support training programs. The UNC Medical School is affiliated with the Area L, Charlotte, Coastal, Greensboro, and Mountain AHECs; the East Carolina University School with the Eastern AHEC; Duke with the Fayetteville AHEC; and Bowman Gray with the Northwest AHEC. In 1995, the General Assembly authorized the creation of a new family practice residency through the Mountain AHEC to be located in Hendersonville, NC, a rural mountain town of 8,263 residents; a similar program is under development in Wilmington, NC, a metropolitan county that serves as a referral and market center for the rural southeastern corner of the state.

Mid-level training originated in North Carolina with the Physician Assistant program organized at Duke University by Eugene Stead. One of the first nurse practitioner programs began at the University of North Carolina at Chapel Hill, which in fact produced the first nurse practitioner graduate in the nation. The AHEC system provides the same degree of support for the nurse practitioner and physican assistant programs, and in 1997 the Fayetteville AHEC and the Eastern AHEC in Greenville, NC, cooperated in the development of a community-based training program for NPs, PAs and CNMs. The state currently has three PA programs: at (1) the Bowman-Gray School of Medicine and (2) Duke University; and (3) a joint training program linking the Fayetteville AHEC with the Southeastern Regional Medical Center in Lumberton, NC, a predominately rural area in the southern part of the state. There are four nurse practitioner training programs: (1) the University of North Carolina at Chapel Hill (family nurse practitioner); (2) Duke University (gerontology adult and pediatric nurse practitioner); (3) the University of North Carolina at Greensboro (gerontological nurse practitioner); and (4) East Carolina University and the Children's Hospital of Eastern North Carolina (neonatal nurse practitioner). The East Carolina University School of Medicine and the Eastern AHEC cooperatively support the certified nurse midwife program in Greenville that began training in 1995. The AHEC mission includes the preparation of nurses with associate and bachelors degree as well as advanced practice nurses, and the structure of these programs have solid links to nurse practitioner programs.

As part of its role in health-careers development, the AHEC system has the further mission of expanding the overall health care work force. NC AHEC publishes a guide to health careers in the state and actively advertises and formally supports a spectrum-wide range of training programs. The system views these various programs as connected and considers the issue of interdisciplinary articulation a natural part of the overall health care training and development system. North Carolina has been the location for three interdisciplinary team training projects supported by HRSA, at Bowman-Gray, East Carolina and UNC-Chapel Hill. NC AHEC has co-sponsored these projects and continues to facilitate student and preceptor travel and materials development. Often thought of as AHEC's primary reason for being, continuing education activity constitutes a large portion of the work of all the AHECs. However, focused developmental programs are underway, such as the health careers development program in the Eastern AHEC, which receives additional support from the Kate B. Reynolds Charitable Trust. That program has built a support network for counselors and health, science, and health occupations teachers in junior highs and high schools in rural eastern North Carolina counties, and it acts in harmony with the "Ventures into Health Careers" work to focus on increasing minority involvement in health professions. The Area L AHEC supports a minority Healthcare Professional Association and has received funds from Abbott Laboratories to hold health career awareness courses for educators and students.

STATE GOVERNMENT

The North Carolina Office of Rural Health and Resource Development

The Office of Rural Health and Resource Development in the Department of Human Resources performs a number of functions to strengthen primary care development in medically undeserved parts of the state. Founded in 1973 as the Office of Rural Health Services, the agency is responsible for provider recruitment to rural and underserved communities and technical and grant assistance to community health care centers. In establishing the Office, the North Carolina General Assembly sanctioned two important structural changes in the state's health care delivery system: the progressive concept of nonprofit boards, comprised of local residents who operate and own their community's health programs; and the use of non-physician primary care providers who prescribe medication and practice in medical offices geographically removed from a physician's back-up and supervision.

Since the inception of the Office, the primary care physician/population ratio in rural North Carolina has decreased by 38 percent. In 1974, for every primary care physician there were 3,200 residents in rural (nonmetropolitan) counties (excluding Pitt County, home of East Carolina University School of Medicine). By 1991, that ratio had fallen to 1:1,969; by 1995 it had dropped to 1:1,858.

The Office began with the more focused goal of creating primary care clinics in rural communities, an endeavor that involved close cooperation with communities and community groups. The early work of planning local medical centers involved recruiting professionals, organizing administrative structures for centers, planning and design, and developing clinical relationships for the centers. Each of these components created a demand for technical assistance skills within the office, and the structure developed to accommodate that demand remains essentially in place. The Office staff continue to be heavily involved in and dedicated to recruitment and retention. Staff also provide planning and architectural support, and business-support staff assist clinics in setting up their administrative structures, including assistance with the legal aspects of primary care practice and the governance of the clinics. The physical plants of the clinics are either purpose-built structures designed by the Office or renovations of existing facilities varying from storefronts to closed hospitals.

Through its Medical Placement Services program, since 1975 the Office of Rural Health and Resource Development has helped to recruit more than 1,600 physicians and health care providers to 96 of the state's 100 counties. In the fiscal year ending June 30, 1997, recruiters brought 108 physicians and other providers to North Carolina. Of those 65 physicians, 23 physician assistants, 20 nurse practitioners and one dentist; almost three-fourths accepted positions in federal designated Health Professions Shortage Areas or Community Health Centers. For the year ending June 30, 1998, the Office of Rural Health Medical Placement Services recruited 137 providers to North Carolina, a record high for the office since it began recruitment efforts in 1975. Of the total, 108 went to Health Professional Shortage Areas. Providers recruited were 85 physicians, three dentists, 34 physician assistants, and 15 nurse practitioners.

Recruitment efforts have taken on added emphasis in the Office because of the growing physician shortage in the primary care fields that are the core of rural practices. At one time, the federal National Health Service Corps served as a major source of physicians for underserved communities, but the number of federally obligated physicians has dwindled substantially since the program suffered severe budget cuts in the 1980s.

Throughout the 1970s most efforts to alleviate physician and health professional shortages were government led. By the 1980s the tide was beginning to turn towards a more market driven economy. That transition combined with the public-private partnerships that began in earnest in the 1990s has forced the Office of Rural Health and the AHEC systems to adapt to the changing environment.

The Office anticipated the rural implications of the growth of managed care early while carrying out its responsibility to help recruit managed

care companies into the state. As part of this effort, in 1981 James Bernstein created the Foundation for Alternative Health Programs, which functions as an adjunct to the Office of Rural Health and initially helped to recruit Kaiser-Permanente into the state as a not-for-profit HMO and helped to develop managed care programs with Blue Cross/ Blue Shield. Kaiser-Permanente flourished to become the largest capitated HMO in the state by the end of the 1980s. Blue Cross developed managed care products along the lines of preferred provider and independent provider organizations (PPO and IPO). However, neither organization succeeded in creating a uniquely rural product or initiative, and the Foundation soon turned its attention and energies to the development of networks and integrated primary care systems.

The networks or relationships among these programs appear outlined in figures at the beginning of the report. The following descriptions emphasize the linkages by which each program, agency, or institution participates in rural areas.

Community-Based Health Centers

Since 1973 the Office of Rural Health and Resource Development staff have employed community-organizing strategies as key components in helping to establish 75 community-based health centers in rural communities across the state. In the initial start-up of the centers, the Office matches each locally-raised dollar with five dollars from its state-funded pool. However, local money must be raised through contributions from 750 households or more, a requirement designed to prove to the state that the nascent rural health center has widespread support in its community. After satisfying that criterion, the Office provides four-to-five-year funding to centers for construction and to offset initial operational deficits that usually occur during the first years of a new health center.

A nine-member staff with extensive experience in primary care delivery provide the primary health centers with sophisticated and specialized technical assistance; however, such assistance is available only on request and in a non-regulatory capacity to the 75 rural health centers and to 35 federally-funded community/migrant health center sites.

The staff's assistance occurs by means of a number of programs. During its tenure, the Office has awarded more than $9.5 million in operating grants and more than $6 million in capital improvement grants to rural health centers. Operating funds have assisted 47 rural communities and funded projects for an average of 4.5 years. Construction grants have financed new construction or renovation in 40 communities, developing projects ranging from a 200,000 square foot hospital renovation in Warrenton, located in one of the state's poorest counties, to a purpose-built 1,200-square foot health center in Ocracoke, a town on a barrier island. The Office has provided quality assurance services through a family nurse practitioner and a physician risk management team to audit the centers; that service is no longer active. If the team detects problems, centers can request technical assistance from the Office. Both the audit and technical assistance are available without charge to the centers. A practicing medical technologist has also established a program to improve laboratory practice by helping rural health centers comply with federal and state regulations. Technical assistance covers areas such as infection control, laboratory practice, practice reviews, market analysis, practice feasibility, medical records systems, and scheduling and patient flow analysis. The Office also provides training on topics ranging from federal health policy to the legal responsibilities of board members.

Professional Recruitment

Recruitment efforts include a national marketing campaign, subsequent interviews, and visits to the community. The Office, with some cost sharing by recruiting communities, provides travel subsidies to the visiting physicians and their spouses, and it provides full assistance to candidates and needy communities so that compatible, long-term matches may be made. The Office believes its recruitment strategy results in placements with stability over time.

The General Assembly has expanded funding available to the Office to create inducements for

providers who agree to serve in medically underserved areas. These incentives include residency stipends and loan-repayment and scholarship programs for graduating physicians, PAs, NPs, and CNMs. Through a federal program, the Office has implemented a Rural Health Scholars program, designed to encourage medical students to pursue rural practice.

The Office of Rural Health and Resource Development has the ability to help employees of non-profit organizations serve as in-kind matching resources, thereby lending assistance to communities and organizations seeking grant support to provide the kind of initial investment required by foundations and governments programs. (N.C.G.S. 143-B-139.4)

Community Hospital Technical Assistance

In 1985 the governor asked the Office to provide technical assistance to small community hospitals, most having fewer than 100 beds. In response, hospital field staff from the Office assist small hospitals in long-range planning, conduct data analysis, coordinate programs with state and federal agencies, provide architectural and design assistance, assist in grant-writing, and examine alternative revenue agencies. So far, more than 25 hospitals have requested and received assistance under this program. Through the Office in September 1991, the federal Essential Access Community Hospital (EACH) program chose North Carolina as one the states selected to provide grants and other assistance to small rural hospitals so that they may make the transition from acute care services to primary health care services. As part of its EACH plan, the Office has helped to develop five Rural Health Networks, with a total of 11 participating hospitals.

Hospital field staff also participate in an ongoing project of coordinating cooperative ventures between neighboring hospitals in three regions. Those three rural hospital alliances serve a total of 16 hospitals located in northwestern, south-central and northeastern regions of the state. With technical assistance from the Office's field staff, the hospitals have embarked on joint projects that include converting a hospital to primary care and establishing a Community Alternatives Program for home health care, outpatient rehabilitation programs, shared senior services, and various efforts to enhance financial viability.

Farmworker Health Program

The Office administers a federal grant to provide comprehensive, community-oriented primary care to seasonally-employed farmworkers through contracts with local health providers in high-impact areas throughout the state, excluding those areas directly served by federally-funded migrant health centers. In 1994 eight sites received contracts to provide daily and evening/weekend access to farmworkers for primary and preventive health care. That number has expanded to more than 10 sites.

Communication With Other Rural Health Professionals

The Office takes an active role in supporting other state and national rural health organizations by becoming involved with other state offices of rural health that are supported by the Federal Office of Rural Health Policy. Staff at the Office are also active in national organizations, serving as officers or board members of organizations such as the National Rural Health Association, the National Association of Community Health Centers, and the National Association for State Health Policy.

The N.C. Foundation for Alternative Health Programs

The North Carolina Foundation for Alternative Health Programs, Inc., is a statewide non-profit organization charged with the mission of increasing the availability and affordability of health care for North Carolina residents. The Foundation, established in 1982 on the recommendation of a special legislative commission studying the issue of health care costs in the state, serves as a catalyst for programs that improve the quality of and access to health care while controlling costs. It works with business, medical, and civic leaders throughout North Carolina to

explore solutions to health care problems and to develop specific approaches that meet community needs.

The first major initiative by the Foundation in the early 1980s helped to expand the quality and number of competing alternative health plans available to North Carolina residents. As part of that effort, the Foundation worked to bring health maintenance organizations (HMOs) to North Carolina for the first time. The Foundation was also instrumental in establishing Preferred Provider Organizations (PPOs) in the state. Finally, the Foundation encouraged the formation of locally-formed alternative health plans.

Through the hospital-based Rural Health Project, funded by the Robert Wood Johnson Foundation from 1986-1992, the Foundation helped to organize three hospital alliances, which assisted small rural hospitals in developing more cost-effective methods of maintaining and expanding appropriate medical services. The primary objectives of this program were to improve the financial stability of participating hospitals through the development of programs to improve market share, to enhance reimbursement options, and to increase the quality of, access to, and cost-efficiency of health services for rural residents. As an outgrowth of this project, the Foundation has also developed a model to assist small rural hospitals in their transition from acute care medical centers to primary care and specialty care providers. Our Community Hospital in Scotland Neck, NC, has converted a 20-bed acute care unit into a 100-bed medical center offering nursing home care and specialty care for senior citizens as well as emergency care and augmented primary care services for the general population.

The Foundation teamed with the Health Insurance Trust Commission to recommend that a Community Health Access Program and a tax credit incentive plan be adopted in order to reduce the real cost to employers for providing health insurance. To address motivation and incentive issues, the Foundation and the Commission developed an employer purchaser guide, an educational campaign, and a volunteer assistance program to educate employers about the provision of insurance. The team endorsed the concept that the state should adopt pooling mechanisms for high risk individuals in order to maintain coverage while minimizing cost.

In 1988 the Kate B. Reynolds Charitable Trust with technical and organizational assistance from the Foundation established Health Connections, a rural, community-oriented, health promotion program targeted at adolescents. The purpose of this comprehensive, school-based demonstration project was to increase access to affordable health providers for the adolescent population, a traditionally underserved group. The traditional underservice of this group was further complicated in Northampton County by the high percentage of the target population who were either poor or members of minority groups. Originally intended as an education, advisory, and referral program to provide students with access to a comprehensive range of medical and mental health services and information, the program evolved over its three year lifespan into an umbrella organization for all health education, mental health counseling, and academic advising in the entire county school system.

Maternity Case Management Technical Support Program

North Carolina has consistently fallen among the worst states in national infant mortality rankings. Research has suggested, however, that case management may be an effective intervention strategy against poor birth outcomes. The Foundation helped to implement a maternity case management strategy in rural community-based centers. Established in 1988 with funding from the Kate B. Reynolds Health Care Trust, the Maternity Case Management Technical Support Program hired staff specialists with a high level of technical expertise to help 22 primary care centers maximize the effectiveness of their perinatal care services. As a result of these efforts, high quality, comprehensive perinatal care, as well as childbirth and parenting classes, are now available to some of the most isolated, economically disadvantaged women in the state.

In addition, the specialists became involved in developing a computerized management infor-

mation system, a manual, and program guides, all of which have proven invaluable in implementing the Baby Love-Medical Assistance Program in cooperation with the Division of Maternal and Child Health and the Division of Medical Assistance. Baby Love features a maternity case management approach to psychosocial problems facing low-income pregnant women. Over time as these case management activities have become integrated into the state's Medicaid program, the infant mortality rate has improved, although it is still among the nation's worst.

One Foundation effort to improve the infant mortality rate developed a maternal outreach worker program targeted at Medicaid eligible pregnant women and mothers with children under one-year old to provide support and to reinforce positive health behaviors. Beginning in 1990 with funding from the Kate B. Reynolds Charitable Trust, the Foundation directed a 20-member statewide planning group designing a $2.8 million state lay health advisor network targeted to serve at-risk mothers and pregnant women enrolled in Medicaid. Now implemented in more than 30 counties, the program provides pregnant women with a community-based advisor who gives them social and health education support.

Carolina ACCESS

The Foundation was instrumental in the development of Carolina ACCESS-Statewide Medicaid Managed Care. With funding from the Kate B. Reynolds Health Care Trust, the Foundation first implemented ACCESS in 12 sample counties. In the participating counties, the program contracted with primary care providers to render care to the target population, which included those receiving AFDC payments, Medicaid Indigent Children, the aged, blind and disabled, and those covered by Medicare. Each eligible recipient selects a primary care provider to act as "gatekeeper" to manage the recipient's individual health care needs. By linking recipients to a primary care provider, the program has been able to foster more efficient arrangements for delivering and coordinating health care for Medicaid recipients.

Carolina ACCESS is now an institutional part of the Division of Medical Assistance and is expanding statewide with continuity and quality of care for the medically underserved as its primary goals. The Division has recently launched an expansion of the ACCESS program to include the development of Community Care Networks that combine private practitioners, public health agencies, hospitals and other providers into a coordinated system of care. The Division will contract with the CCN setting specific community-wide goals for the managed care structure. These goals will be outcome-based.

Carolina Alternatives

In a like manner, the Foundation used funding from the Kate B. Reynolds Health Care Trust in 1992 to establish Carolina Alternatives—a Mental Health Managed Care Program—to address the jump in Medicaid payments for youth inpatient psychiatric hospitalization from $15 million in 1988 to more than $34 million in 1991. A behavioral health managed care model, Carolina Alternatives explores ways to improve the provision of mental health services to children; and, building on the managed care approach of Carolina Access, it provides case management services to Medicaid eligible adolescents in need of mental health services. The Division of Mental Health, Mental Retardation and Substance Abuse Services piloted the Carolina Alternatives program, which now operates in 32 counties through ten regional mental health, developmental disability, and substance abuse programs and is being implementing statewide.

With funding from the Kate B. Reynolds Health Care Trust, the Foundation in 1991 joined the leadership in several North Carolina counties to originate a project to develop community-based, primary health care centers to serve the medically indigent. While leaders in these counties were committed to developing a localized system to deliver primary care in each of their communities, they lacked the experience and necessary technical expertise. The Foundation was able to provide the essential technical assistance necessary for building the community partnerships these projects required.

The Robert Wood Johnson Foundation provided funds that allowed the Foundation to serve as the national program office for Practice Sights, a plan to spur states to improve the distribution of primary care providers in medically underserved areas. The Foundation provided direction and technical assistance for the 10 states selected competitively to receive support in its implementation stage.

Like other Foundation sponsored programs, Practice Sights has also been instrumental in funding research on rural health and seeks to encourage collaboration among state agencies, communities, provider groups, and health professional schools in achieving the following goals: increasing the number of primary care physicians, physician assistants, nurse practitioners, and nurse midwives providing care in medically undeserved areas; improving the reimbursement, policy, and practice environments in underserved communities to advance their ability to recruit and retain providers; and increasing the capacity of the states to support and enhance primary care delivery.

Department of Health and Human Services

By the end of 1997 a transition was underway in state government to merge health related programs with human services programs. Initially public health services comprised a department within state government. Over time, offshoots of Public Health-Mental Health, Substance Abuse Services, and related agencies became separate departments. In a vast 1973 government reorganization, health and human services programs moved into the Department of Human Resources. Environmental programs joined Natural Resources and Community Development. A 1985 governmental reorganization led to the movement of public health from Human Resources into a reformed Natural Resources Department newly named Environment, Health and Natural Resources.

Increased escalation of health care costs led to close scrutiny of all aspects of health management within state government. Subsequently, both a legislative commission and an administrative management consulting firm recommended a governmental reorganization to house all health related services under one roof. A Department of Health and Human Services was announced in 1997 with David Bruton, MD, a pediatrician, as the first secretary. That department joined most of the health related functions of the old DEHNR in with the Department of Human Resources which housed the state's Medicaid agency, the Office of Rural Health and Resource Development, and other agencies and offices dealing with health planning and facilities licensing along with mental health and associated programs.

State government maintains a number of health related services. Health Promotion encompasses health education development on such subjects as AIDS/HIV, epilepsy and neurological disorders, home health services, human tissue donation, hypertension, and kidney disease programs. The Migrant Health Program of the Office of Rural Health and Resource Development partners with the North Carolina Primary Care Association and the North Carolina Farm Worker Alliance in assuring that adequate health services are available for migrant farmworkers in the state. A refugee health program works to assure effective resettlement of newly arrived refugees by identifying health problems and coordinating their treatment. Other services include health assessments, outreach, translation services, immunization, and screening for tuberculosis and hepatitis B virus.

The Chronic Disease Section encompasses breast and cervical cancer control, providing comprehensive care for breast and cervical cancer in all 100 counties in the state. More than 20,000 low-income women have received screenings, and in 1994 alone the Cancer Control Program provided financial assistance to over 2,000 indigent persons for diagnosis and treatment services.

In 1996 the Diabetes Control Program began to act jointly with related organizations, to work with insurers, and to provide funding for education and control strategies. The American Diabetes Association, the North Carolina Association of Local Health Directors, the North Carolina Medical Society and the Office of Minority combine forces under the auspices of the

Diabetes Advisory Council to address diabetes through leadership, advocacy, and coordination for control of the disease.

Currently a Centers for Disease Control pilot program (Project DIRECT-Diabetes Intervention Reaching and Educating Communities Together) operates in Wake County addressing the higher rate of diabetes among African Americans.

Other programs include Older Adult Health, designed to foster prevention and early intervention among elderly citizens, and pharmacy consultation, designed to address issues relating to pharmacy practice, health care, health promotion and public health policy.

The Disease Prevention Section administers Strike Out Stroke, a program that targets congregations in African American churches and clients of local health departments. Project ASSIST, or Americans Stop Smoking Intervention Study for Cancer Prevention, conducts a statewide health education program specifically directed to curb the use of tobacco. The Governor's Council on Physical Fitness and Health strives to improve the rate of participation in physical fitness programs in the population at large. Other health promotion activities include working with black churches in the state to improve overall health and working with employers to improve employee health.

The Generalist Physician's Medicaid Assistance Program (GPMAP)

Founded in 1992, the Generalist Physician's Medicaid Assistance Program came into existence due to the efforts of three entities: the North Carolina Office of Rural Heath and Research Development, the Division of Medical Assistance, and the North Carolina Primary Care Coalition. The North Carolina Academy of Family Medicine administers the program; the Office of Rural Health and Research Development provides finance and—through an administrative agreement with the Division of Medical Assistance—assumes responsibility for coordination. The Z. Smith Reynolds Foundation, Inc., has awarded the program a one-year grant for $20,000, and in May 1995 the Primary Care coalition hired Managed Care Consulting to assume operational responsibility for GPMAP. Dedicated to promoting Medicaid services through provider and patient educational efforts, on the state level GPMAP represents the perspectives of physicians in an effort to ease physician participation in Medicaid's many programs. This program has three primary goals:

- To recruit physicians who currently practice in underserved, targeted areas for participation in Medicaid programs;
- To identify problems and concerns that may be remedied through administrative or policy attention at the state level, systems review at EDS, or internal education at the practice level;
- To serve as a liaison between the provider community, state agencies such as the Division of Medical Assistance, and fiscal agents such as EDS.

Health Check

Formerly called EPSDT (early periodic screening diagnoses and treatment), Health Check is a concentrated effort to promote and sustain preventive, routine health care for many of North Carolina's children. GPMAP staff recruit providers to participate in the program.

Carolina ACCESS and ACCESS II

The Division of Medical Assistance began working with managed care in 1986 when it negotiated its first contract with Kaiser Permanente, which allowed a limited number of Medicaid clients in three counties to select Kaiser as one of their options for care. From 1986 to 1995, any managed care organization could have contracted with Medicaid clients on a voluntary basis. When federal block grants were proposed for Medicaid, managed care became more popular as a financial option because it limited the state's risk.

North Carolina's approach to managed care can be characterized more as a cautious advance than a bold campaign since the state ranks at about mid-point among the states in the development of Medicaid managed care. In North Carolina, most of the progress made on Medicaid managed care has occurred in a 50-county pro-

gram entitled Carolina ACCESS, a primary care case management system (PCCM) that began in 1991 under a federal 1915 (b) waiver. Currently 318,331 people participate, and the state anticipates the statewide expansion of Carolina ACCESS. Under this plan, Medicaid clients select a primary care doctor, who then provides all primary care and prescribes specialist care and inpatient hospital care.

Primary care physicians receive a small management fee for these services, for which they must provide 24-hour access. In PCCMs providers collect payment on a per-service basis. Under Carolina ACCESS, the coverage is not capitated; that is, coverage is not provided for a fixed per capita fee. While capitation is sometimes described as an incentive for providers to save money, it can also offer an incentive to reduce services. In spite of the payment of fee-for-service by Carolina Access, savings have resulted from reduced emergency room use and stable hospital costs.

ACCESS II will test partially or fully capitated managed care across North Carolina under a proposed system of Medicaid managed care that retains the physician as case-manager. Offered as an upgrade to existing ACCESS I programs, ACCESS II offers exciting possibilities for those counties that participate. Described as the Community Care Plan, ACCESS II will capitate some services for specific groups of eligible participants and introduce new ways to reimburse other providers. ACCESS II will concentrate on improved service and health care provision through such strategies as disease management, targeted case management, additional weekend and evening office hours, and more sophisticated authorization and referral processes.

Local providers such as physicians, hospitals, health departments, and community health clinics will be encouraged to form community-based and controlled integrated delivery systems that will maintain the health care safety net they now offer. The major feature of such systems will be to keep medical decisions in the hands of medical practitioners and patients, and in the process Access II will allow the networks a great deal of flexibility in addressing their singular community problems. Among the cost savings management practices that may be considered and purchased for use by the local networks could be case management, advice nurses, computerized record keeping, or a management company to deal with length of stay and other complex questions.

Anticipated savings can in a variety of ways pay to cover uninsured children. Among a larger assortment of possibilities are the following: to purchase a number of Caring Program for Children units; to establish a medically indigent children fund based in the Division of Social Services; or to ask the General Assembly to authorize care for children at elevated levels of poverty. A number of pilot programs will test promising concepts.

In the counties it covers, Carolina ACCESS will invite HMOs to compete for Medicaid recipients with plans based on quality and access, not just cost, an invitation that will extend to all counties when Carolina ACCESS becomes operational statewide. The program requires no new waiver authority as long as its payments to the HMOs do not exceed the cost to the Division of Medical Assistance for providing those same services on a fee-for-service basis. The process used by most states, including North Carolina for a Mecklenburg County project, will set the HMO rate.

In 1996 a project titled Health Care Connections began in Mecklenburg County. It is a capitated mandatory managed care program for all Medicaid families and children that will be expanded in the next biennium to cover the disabled and some recipients in Mecklenburg County institutions. Health Care Connections uses fully capitated HMOs that began enrolling patients in July 1996, and so far it has met expectations for enrollment and beneficiary satisfaction. Mecklenburg County has some unique features that made setting up such a program possible. Mecklenburg has the state's largest concentration of Medicaid clients at almost 50,000; it has 35,600 citizens eligible to enroll in Health Care Connections, 30,725 of whom are now enrolled. In addition to ACCESS II and the Mecklenburg model, several additional new initiatives provide incentives to improve health and save costs.

Since Medicaid is a large payer in the health care marketplace, Medicaid improvements can fuel further improvements across the health delivery spectrum. One of the primary new initiatives in Medicaid managed care is Carolina Alternatives, the behavioral health managed care model described above. For many years, Medicaid has been a primary purchaser of mental health and substance abuse services in the state, and Carolina Alternatives provides a capitated managed care model to purchase these services.

The purpose of capitated behavioral managed care is to encourage competition and cost savings by encouraging providers to find the least costly and most effective means of providing care, generally within the community rather than in a hospital. When it is in place statewide, Carolina Alternatives will invite private behavioral managed care companies to compete.

Pilot programs that offer the possibility of organizing long-term care delivery are also underway in two areas of the state. Both programs are studying and testing ways to create a more seamless system capable of saving money and offering consumers choices other than nursing homes. Emphasizing home health and links across the entire health care delivery spectrum, the programs' designers hope to develop new approaches to publicly funded programs such as a Medicaid/Medicare managed care plan. These pilots, both of which are locally conceived and managed in close collaboration with the state, are known as CHOICE—Choosing Health Options In Serving Seniors.

CHOICE has received a three-year grant from the Kate B. Reynolds Charitable Trust that began in January 1997 as well as Medicaid funding. A research and demonstration project designed to devise a homegrown approach to providing care, the program is being developed through a consortium of local interests including providers, consumers, and government officials. Located in the northeastern corner of the state, the first CHOICE project will serve five counties: Pasquotank, Perquimans, Chowan, Camden, and Currituck.

Working closely with the state, those CHOICE counties will test several key elements of a long-term care strategy that basically seeks to achieve moderation in the growth of public spending through the development of options for more affordable long-term care. The plan calls for an affordable package of home and community services to help patients remain independent as long as possible, for a provider network established through the leadership of local public agencies, and for risk-based public financing methods to encourage efficiency and community reinvestment of a portion of the realized savings into new and improved services.

Administered with a similar approach, although it receives funding through the Department of Human Resources, the second CHOICE region encompasses four mountain and foothill counties: Catawba, Burke, Caldwell and Alexander. When fully developed, both programs will emphasize prevention of institutionalization and case management services to assure that a proper level of care is being provided in the full spectrum of long-term care from in-home services to nursing homes. The programs will also conduct individual needs assessments.

The CHOICE plans should extend statewide during the next decade with the goal of streamlining care delivery and avoiding unnecessary institutional expenditures if workable models can be found to manage treatment of the long-term-care population (including preventive health services) and to coordinate and/or combine Medicaid and Medicare funding for these populations.

Currently, states administer Medicaid to pay for physician services, hospitalization, and the vast majority of the costs for both nursing homes and pharmaceuticals. The Medicare program stands to save money by placing clients in nursing homes or drug programs as opposed to hospitals or facilities falling under other medical models. Another way to address the cost problem is to find ways for Medicaid and Medicare jointly to share in cost savings.

All of the Medicaid Managed Care concepts currently underway share some key common goals designed to allow physicians more direct access to patients and more time to focus on outcomes by reducing the bureaucratic and administrative burdens the current system has imposed.

Smart Start

Smart Start is a comprehensive public-private initiative designed to help North Carolina children enter school healthy and prepared to succeed by providing quality day care and health care. In the process of expanding to all 100 North Carolina counties through a $22.3 million legislative appropriation, Smart Start is now operational in 55 counties. Through the initiative, counties receive child care subsidies to increase the availability and quality of child care centers, preventive health screening, and state-supplied immunizations.

Counties may use the subsidies in a multitude of ways. Smart Start funds a doctor visit to a Jones County health clinic one day a week to help families keep their young children healthy. Partnership for Children in Burke County uses Smart Start money to hire bilingual social workers to work with migrant families. Seven western-mountain counties combine Smart Start with state and federal transportation funds to buy vans used to link families with child care, health care and other services.

Migrant Health

The number of migrant farmworkers and their dependents in North Carolina is an estimated 142,144 (Farmworker Legal Services, 1995). North Carolina has access to several federal and state health funds targeting migrant farmworkers. The Office of Rural Health and Resource Development administers one federal grant directed toward migrant health. Federal migrant health grants directly fund three migrant and community health centers: the Blue Ridge Community Health Center in Hendersonville, the Goshen Medical Center in Faison, and the Tri-County Community Health Center in Newton Grove.

North Carolina is one of the few states to appropriate state funds for migrant health services. The Division of Adult Health Promotion in the former Department of Environment, Health and Natural Resources administers these funds to reimburse private doctors, dentists, clinics, pharmacies, and hospitals for essential ambulatory care and medical and dental services provided to migrant farmworkers employed within the prior 24 months and to the dependents of qualified migrant farmworkers, who make a co-payment. Because these funds meet only a portion of health care needs, health departments, hospitals, health centers, and private physicians also play major roles in migrant health.

North Carolina Farmworker Health Alliance

The North Carolina Farmworker Health Alliance provides coordination for health services for farmworkers and their dependents, primarily through the Division of Adult Health Promotion that administers the state migrant health funds and the Office of Rural Health and Research Development that represents migrant and community health centers. Those organizations receive guidance from the North Carolina Farmworker Health Advisory Group, made up of members representing farmworkers, public and private community agencies that serve migrant farmworkers, state and local health and social service agencies, the North Carolina Medical Society, and the Hospital Association. The Farmworker Health Oversight Committee plans, coordinates, and evaluates migrant health services on a statewide basis.

Statewide Migrant Health Programs

The Migrant Health Program of the Office of Rural Health and Research Development awards small grants yearly on a competitive basis to local health departments and nonprofit agencies for primary care services to farmworkers in high-need areas. The agency also employs migrant health funds to support Nash Regional Migrant Health Center.

The North Carolina Primary Care Association represents both migrant and community health centers throughout the state by providing technical consultation to agencies serving farmworkers, providing in-service education, and assisting in statewide strategic planning for farmworker health services in the state.

The Migrant Health Program in the Division of Adult Health Promotion administers the state

migrant health funds. It provides fee-for-service reimbursement to private dental and medical providers and to hospitals for ambulatory care, and it maintains a statewide toll-free Spanish interpreter services for providers.

Each local health department has a Migrant Health Nurse Liaison who assists migrant farmworkers in accessing health services available at the health department and who makes referrals to providers in the community for additional services.

NC Department of Agriculture Food Distribution Program

The Food and Consumer Service of the United States Department of Agriculture administers nine programs in rural areas and underserved communities that provide nutritional support through public schools, charitable institutions, soup kitchens, the Emergency Feeding Assistance Program (TEFAP), the Food Distribution Program on the Indian Reservation (FDPIR), the Commodity Supplemental Food Program (CSFP)-elderly feeding program, the Area Agency on Aging (in Mecklenburg County), and Summer Camps.

North Carolina Water and Sewer Project

With a total of 75,000 residents who lack complete plumbing, North Carolina ranks third in the United States in the number of rural households without sufficient plumbing. Through an agreement with the U.S. Department of Agriculture, the North Carolina Rural Development Council and the North Carolina Rural Economic Development Center coordinate a project to remedy the lack of capital improvement plans for upgrading water and sewer services. The Water and Sewer project calls for an inventory and assessment of water and sewer needs and the establishment of a plan to guide strategic planning and analysis for capital improvements.

Kate B. Reynolds Charitable Trust

The Health Care Division of the Kate B. Reynolds Charitable Trust, headquartered in Winston-Salem, North Carolina, provides grants to serve the health and medical requirements of North Carolinians in need of financial assistance. In 1995, the Division approved 110 grant requests totaling $13,214,066, many for projects serving rural communities. Grants during 1995 endeavored to

- Increase the availability of health services in rural areas;
- Decrease infant mortality and the incidence of low birth weight;
- Promote good health practice and prevent illness;
- Support other programs of the Division.

Good Health Program

The Kate B. Reynolds Charitable Trust Health Advisory Board selected the University of North Carolina Center for Health Promotion and Disease Prevention in 1995 to institute a Good Health Program to "develop, administer, and evaluate a program to improve the delivery of preventive health services to low income populations in North Carolina." The poor in North Carolina suffer from a disproportionate share of health problems when compared with the middle class, and the purpose of the project is to address the needs of the poor within the context of primary health care and preventive service delivery systems. The specific goals are (1) to improve the health status of low-income individuals through the successful provision of effective preventive health services and (2) to make more effective use of the limited health resources and personnel available to care for low-income populations.

Through a competitive proposal process, the Good Health Program has selected 13 health care delivery organizations across North Carolina to receive a total of $2 million. Good Health Programs address matters such as infant low-birthweight, child dental care, child immunization coverage, breast and cervical cancer screening, incidence of heart disease, and diabetes-related morbidity and mortality.

Rural-Focused Good Health Program Projects

Blue Ridge Community Health Services, Inc., Hendersonville. Henderson County has

received federal designation as a Dental Manpower Shortage Area for the dentally indigent, who include Medicaid-eligible and low-income residents as well as migrant and seasonal farmworkers. This project addresses the shortage of oral health education and prevention services for the children and youth in the at-risk target population with the goal of reducing the incidence of untreated oral health problems and improving oral health status. Project personnel have screened 2,800 high-risk children and youth for oral health problems and have either referred or covered for dental care when needed.

Bowman Gray School of Medicine Ob-Gyn Department, Winston-Salem. This program endeavors to integrate positive outcomes from a research project into prenatal care at Reynolds Health Center. The research studies the effects of a nursing telephone intervention in which women receive telephone calls from a nurse from two to four times a week from 24 to 37 weeks gestation. The content of the calls includes assessment of the presence of uterine contractions, other pregnancy changes, rest, exercise, diet, fetal movement, smoking, alcohol and drug use, and the color of urine as an index of hydration. The telephone interventions plus regular clinic contact will generate appropriate documentation for evaluation and should result in a significant reduction in low birth weight infants in a vulnerable population.

Caswell County Health Department, Yanceyville. Caswell Family Medical Center, Inc., and the Caswell County Health Department conduct a collaborative grant-funded program to increase delivery of key preventative health interventions within Caswell County. The objectives of the project are (1) to improve immunization rates among children, (2) to improve rates of screening for cervical cancer among women, and (3) to increase the number of mammograms obtained by women aged 50 and above. The grant allows for an expansion of hours, the implementation of a reminder system, an upgrading of patient education including the use of videotapes and low-literacy materials, and a closer working relationship between the two agencies directed toward an expansion of community outreach efforts.

Chowan Hospital, Edenton. The collaborative Adolescent Parenting Program includes Chowan Hospital, the PPCC District Health Department, the Chowan County DSS, Edenton-Chowan Schools, the Eastern Carolina Women's Center, and the Chowan Medical Center. The program's health team will address measures to reduce adverse health outcomes that result from poor parent skills of adolescents in Chowan County. Approximately 18% of Chowan Hospital's annual deliveries are to adolescent mothers. The program seeks to promote continuity within each portion of a fragmented system with the goals of ensuring referral, treatment, and follow-up of appropriate services and resources and of decreasing the school drop-out rates of young mothers through individual and family counseling, proven parenting education programs, and peer support groups in schools, the community, and the home. School nurses will provide coordination.

Hot Springs Health Program, Mars Hill. The Madison County Diabetes Education Project intends to reduce diabetes-related morbidity and mortality by coordinating and enhancing the care given by three primary care providers in the county. The diabetes mortality rate in Madison is well above the state average and the third highest cause of death in the county. The Hot Springs Health Program, the Madison County Health Department, and the Madison Community Health Consortium will develop a unified system for identifying people suffering from diabetes who will then be offered/provided medical treatment, nutritional counseling, health education, and instruction in physical fitness activities. The overall objective is to reduce the long-term impact of diabetes by providing early identification and treatment combined with education on nutrition, exercise, and other means to focus on preventive care, thereby lessening the need for more costly curative care while also improving patient quality of life.

Mountain Area Health Education Foundation (MAHEC), Asheville. The Mountain Area Mammogram Project (MAM) is a collaborative effort among four medical care sites that serve the majority of low-income women in

Buncombe County: the MAHEC Departments of Family Medicine and Obstetrics and Gynecology, the Buncombe County Health Department, and the Asheville-Buncombe County Christian Ministries Free Clinic. Its primary objectives are to increase by 20% the breast cancer screening of low-income female patients ages 50-75 years and to develop and implement an outreach program for increasing mammogram utilization among Buncombe County's medically underserved population through the existing outreach ministries of one project site. Additionally, Buncombe County is the site of Health Partners, a community-wide collaboration to increase medical care access for uninsured people.

New Hanover Regional Medical Center, Wilmington. The Community Charge on Cancer (CCOC) project intends to increase the provision of mammography screenings and cervical Pap tests to low-income women in New Hanover County and rural Pender County who typically underutilize these screening services. CCOC will coordinate referrals and services with existing primary care providers including a community health center, two local health departments, and several free standing clinics as well as the Breast and Cervical Cancer Control Program.

Pasquotank-Perquimans-Camden-Chowan (PPCC) District Health Department, Elizabeth City. Diabetes mellitus is a serious chronic disease that affects thousands of residents and results in approximately 60 deaths annually in the four-county rural area of northeast North Carolina served by the PPCC District Health Department. Within the PPCC District, 5.4% of the total population of 63,078 have been diagnosed with diabetes mellitus, and an estimated additional 3,000 persons have undetected diabetes mellitus. The PPCC District Health Department Diabetes Care Program, established in 1994, is a community awareness program that seeks to detect the signs and symptoms of diabetes by offering a screening program for low-income patients, but it is inadequate to meet current needs because of the inability of existing resources to provide adequate staff, educational materials, and supplies. The general goal of the project is to improve the quality of life for patients and their families through the control of diabetes and the prevention or control of its complications.

Pitt County Health Department, Greenville. The Pitt County Health Department is initiating a collaborative community-based education and intervention project targeting low-income African-Americans at risk for preventable cardiovascular disease and related cancers. This outreach project concentrates on four behaviors that significantly affect these diseases: diet, exercise, smoking, and an appropriate utilization of regular medical care. The program will be developed by the training of "lay health advocates" to continue positive applications. Pitt County, although an MSA county, is the market center for 25 agricultural-based, Coastal Plains counties.

Roanoke-Chowan Alliance, Ahoskie. The Roanoke-Chowan Alliance seeks to lower the risk of heart disease for adult at-risk members of the low-income minority population in Hertford County, a rural, agricultural, minority-abundant county in the northeastern portion of the state. The Roanoke-Chowan Hospital will collaborate with the Hertford-Gates Health Department and churches in the West Roanoke Missionary Baptist Association as well as other interested minority churches to establish sites in the community to screen and identify at-risk individuals. The project expects to screen approximately 4,000 minority, low-income individuals during a three-year period to identify those at risk for heart disease and invite them to participate in a wellness program called Healthy For Life, which will provide educational programs, support groups, and follow-up and referral for those identified at risk for heart disease. Directors anticipate that by the end of the first year of the program 75% of participants following education and monitoring will have made lifestyle changes resulting in measurable improvement in at least one of the identified high-risk areas.

Toe River Health District, Yancey County. The Yancey County Health Department (a division of the Toe River Health District) in collaboration with the Yancey Community Medical Center endeavors to lower the risk of cardiovascular disease among low-income residents by providing smoking-cessation counseling to every

smoker who receives medical care at these two sites and by offering nutrition/fitness education to every patient who has three or more risk factors for cardiovascular disease. The goals are to increase the percentage of primary care patients who quit smoking, to achieve weight loss or decrease in the percent of body fat in obese patients, to decrease blood pressure in hypertensive patients, and to raise fitness levels in sedentary patients.

Wilson Community Health Center, Wilson. Wilson Community Health Center serves a predominantly rural population overwhelmed by poverty and the chronic diseases often associated with limited resources. A program underway intends to increase the number of patients served by the Wilson Community Health Center by 15 percent and to decrease the presentation of heart disease and hypertension by 5%. Care givers will accomplish those goals by providing education information to existing patients, distributing educational materials and brochures within the targeted community, and providing individual counseling sessions to patients in the center. This project will hire a full-time patient education and outreach coordinator to develop educational programs for low-literacy and non-English speaking populations and to counsel individuals, families, and small groups about lifestyle modification for the management of heart disease and hypertension. The coordinator will specifically address obesity, smoking, drug-alcohol abuse, and stress reduction.

Community Practitioner Program

Working closely with the AHEC program and the Office of Rural Health and Research Development, the Community Practitioner Program strives to fill gaps in service in the for-profit sector by providing advice regarding the need for community medical providers, advice regarding community efforts in recruiting medical providers, assistance in recruiting physicians and mid-level providers through loan repayment, and assistance in scheduling coverage for practitioners who are on vacation or taking educational leave. The original program coordinator was Harvey Estes, former chair of the Department of Family and Community Medicine at Duke University and a former president of the North Carolina Medical Society. Dr. Estes has relinquished the leadership to Dr. Frank Leak, a family practitioner from Clinton, North Carolina and he is assisted by Barbara Matula, for 14 years the Director of the State's Medicaid Program, joined the program in 1996. The program operates in offices of the North Carolina Medical Society and receives support from the Society and its Primary Care Committee.

Building for the Future Program

With grant money totaling $2.1 million to improve facilities and acquire new equipment, 14 rural and community health centers across North Carolina are increasing their capacity to provide primary health services in response to the recognized need for local centers to work more closely with state and federally supported health centers.

The North Carolina Student Rural Health Coalition

The North Carolina Student Rural Health Coalition resulted as a response to the success of the Tennessee Student Health Coalition that began at Vanderbilt University in 1969 and developed into a group of effective family of student activist organizations that included the Appalachian Student Health Coalition and the West Tennessee Student Health Coalition. While he was a fourth-year medical student at Vanderbilt, Grady Stumbo directed a related but more professionally oriented project sponsored by the Student American Medical Association (SAMA) to assist Appalachian communities. Those projects grew out of a general medical-student dissatisfaction with the relationship between organized medicine/medical education and the needs of communities. The contrast between the theoretical component of a medical education at Vanderbilt or the University of Tennessee and the reality of the lives led by Appalachian residents in the late 1960s was too stark to be overlooked by concerned students in a period when social activism was the prevailing ethic. Richard Couto

describes the origins and development of those Tennessee projects in *Streams of Idealism* (New York: Teachers College Press, 1982), a title drawn from commentary by Robert Coles (*For American Youth,* 1976), who also figured in the development of social activism among health care professionals at the University of North Carolina and Duke and who remains active in both universities working with medical students and faculty. Donald Madison, who played a substantial role in the development of the North Carolina Rural Health Center movement, also figured in the channeling of student and professional altruism and in the developing the Tennessee projects (Madison & Shenkin, 1980).

In the same period other student-run programs meshed to some degree with the rural health coalition to set up black lung projects, environmental awareness groups, and community development projects. Following such leads, in the early 1980s students from a mix of health sciences schools organized the North Carolina Student Rural Health Coalition in the Durham-Chapel Hill area, with activity centered at Duke and the University of North Carolina. The Coalition subsequently sponsored health fairs in rural communities, helped place students and professionals in underserved towns and villages, supported public health awareness in rural communities, and agitated for more attentiveness to the rural health care and community development needs of rural North Carolina. Eventually, students from the East Carolina School of Medicine and North Carolina Central University combined to create the current structure of the coalition, which also includes students from the University of North Carolina School of Public Health and the University of North Carolina and Duke nursing schools.

By 1987 the Coalition had a year-round staff working with rural communities to address their health care needs on a continuing basis. By 1996 the coalition was involved in five major projects.

People's Clinics. Medical students from East Carolina University, The University of North Carolina, and Duke University and nursing students from North Carolina Central University offer free medical check-ups and other medical services in five community-managed clinics in eastern North Carolina: Fremont in Wayne County; Shiloh in Wake County; Garysburg in Northampton County; Bloomer Hill, which straddles the Nash-Edgecombe county lines; and Tillery in Halifax County. All five clinics are in rural, deprived, predominately minority communities with few if any medical care resources, very high infant mortality rates, and severe economic problems. They serve more than 1,200 people per year providing pre/post natal consultations, cholesterol counts, Pap smears, physicals, and screenings for diabetes.

Community Health Committees. Each of the five clinic communities has formed a local health committee that the coalition supports with a community organizer from the Coalition staff who recruits community-based coordinators. The committees have organized health fairs, conducted cleanup campaigns targeting water supplies, and intervened to reduce environmental public health risks. The clinic and health committee in Tillery won the first annual Merrill-Dow Healthier Communities awarded, beating out 81 nominees worldwide.

Student Chapters. The four currently active student chapters help staff the clinics and also participate in a range of other activities such as the development of health-professions student-awareness programs, support for targeted courses and curricula that incorporate rural health issues, and participation in fund drives and awareness programs for selected issues, including occupational health and safety and the reduction of infant mortality.

Healthy Church. The coalition supports the recruitment and training of volunteers from 20 churches in the clinic communities and elsewhere who conduct screenings for hypertension and diabetes and provide counseling and monitoring for fellow parishioners.

Pre-Health Career Interns. Fifteen to twenty exceptional high school students from the clinic communities receive exposure to the rewards of clinical careers through hands-on experiences in clinical settings. Working with local schools and community clinics, the Coalition helps to support and coordinate these clinical experiences by

teaming interns with the Health Committees in a given community to help students become aware of community needs and the process of community-linked care. The interns project has developed a scholarship fund to help participants in the program move into medical, nursing, or public health schools and careers.

The Coalition has links with the Office of Rural Health and the universities through its boards of advisors and directors and has won recognition as being part of the solution to the health care needs in rural communities.

Telemedicine and North Carolina Rural Health

Under the leadership of the governor and with the support of the General Assembly, North Carolina has developed a general-purpose telecommunications infrastructure, the North Carolina Information Highway. The health care component is coordinated by the North Carolina Health Care Information Alliance, a public-private partnership involving key telecommunications industries, information companies, public and private health care providers, units of state government, and university-based research and development units. The Alliance is developing standards and testing models for the use of telecommunications to improve health care delivery with the explicit objective of creating systems, technologies, and linkages to overcome the distance barriers that isolate rural providers and rural patients.

The telemedicine linkages operate through networks developed by the providers themselves; the Alliance assists by providing coordination and communication between the telecommunications industry and potential and actual users. The North Carolina Information Highway operates a fiber-optic backbone distributed throughout the state and supplemented by lines and links purchased or leased by individual providers. The number of telemedicine links reaches well into the hundreds counting those in various levels of use within the system. The use of full-motion, high resolution video links has been a priority.

Three university-based telemedicine linkages currently exist in North Carolina.

1. The East Carolina University Medical School in Greenville has one of the largest telemedicine system in the state linking six hospitals, one clinic and one prison. The ECU Medical School in conjunction with the Eastern AHEC developed and currently operates the project using grant moneys from the Federal Office of Rural Health Policy and other sources. The project employs medical school staff.

2. The University of North Carolina-Chapel Hill connects the UNC Hospitals and the UNC School of Medicine to five active telemedicine links (four with hospitals and one with a pathology laboratory in western North Carolina). Various programs or departments within the Medical School separately administer each telemedicine project, all of which receive funding from separate grant mechanisms.

3. North Carolina Baptist Hospital has eight telemedicine programs affiliated with Wake Forest University's Bowman-Gray School of Medicine through a separate corporate entity, Wake Forest University Physicians. Only one of the eight programs is financed with grant money; the remaining seven are self-sustaining.

In addition to the university-based projects, Carolinas Medical Center operates a telemedicine program at the Watauga Regional Medical Center Cancer Project and is planning expansion of that system.

UNC School of Medicine

The Community Health Project (CHP). The CHP elective at the University of North Carolina School of Medicine is the most fully realized service-learning course within the UNC School of Medicine. Working with a preceptor from the community as well as a faculty preceptor, CHP students design projects that will be useful to the community while meeting the students' personal learning objectives. Through a required journal that they keep during the course, CHP students reflect on the meaning of their work as they both learn to serve and serve to learn. Some examples of CHP student projects include travel to the homes of pregnant and postpartum patients in five counties for interviews as part of patient-

feedback evaluations; and a CHP student-team development of four health education modules presented to high school biology classes: healthy lifestyles and doctor-patient relationship, smoking and tobacco use, drug and alcohol abuse, and sexually transmitted diseases and AIDS. One student has conducted follow-up research on the attrition rate and appointments missed at a child health clinic and is now designing an educational program on available health services to be implemented through community agencies, shelters, churches and public service announcements; another student developed a program to educate non-parenting teens about reproductive health issues and to provide a safe after-school environment; a third student has developed and executed a series of evening dental clinics and a mobile clinic for migrant workers in Person and Caswell counties.

Medical Practice and the Community (MPAC). This UNC School of Medicine project will comprise 20% of the coursework of first- and second-year medical students. Weekly three-hour meetings on campus of small groups with faculty tutors combine with six one-week experiences (three in the first year, three in the second) in North Carolina communities with 160 primary care preceptors for each class. The designs of both the on-campus and the community-based portions of the course lay a foundation for understanding and working with patients, with medical practices, and with the community.

The Family Medicine Clerkship. The third-year clerkships have increasingly moved into community settings, boosting the Department of Family Medicine's pioneering concept of placing students in practices in which they are taught by community physicians. One day each week during the clerkship, students travel for clinical instruction at the nearest clerkship campus—Asheville, Charlotte, Greensboro, Fayetteville, Rocky Mount, Wilmington, or Chapel Hill. Under a grant from the Bureau of Health Professions, two of those campuses—Asheville and Greensboro—conducted a 1997 pilot program featuring an enhanced curriculum focused on prevention that taught age-specific screening and prevention counseling using the Readiness to Change model.

Medicine Clerkship. The Department of Medicine has incorporated community settings into the medicine-clerkship training. For some students, the clerkship may include a month in a private practice; for others, a month in an Area Health Education Center teaching center; for still others, the clerkship may include both experiences.

Pediatric Clerkship. Nearly all third-year pediatric students have a week of experience in one of 18 participating private pediatric practices.

Ambulatory Care Selective, a required rotation. All fourth-year students must spend a month with a preceptor in a community practice in one of six specialties: family medicine, internal medicine, pediatrics, psychiatry, obstetrics-gynecology, or surgery. Students divide their time among clinical experiences (50%), exploration of community disorders (30%), and the execution of a project of value to the preceptor's practice (20%).

The Small Community Education Project. The Mountain Area Health Education Center (MAHEC) provides this two-week summer program for two dozen students placed with preceptors in small community practices in the mountain region, in which they become acquainted with the concepts, issues, and realities of providing medical care in community settings.

Medical Education and Community Orientation. Students may spend four to six weeks during the summer between their first and second years of medical school in a family practice anywhere within the United States engaging not only in clinical work but also in conducting community needs assessments from a public health perspective.

Principles and Practices of Alternative and Complementary Medicine. This new course sends student teams into the community to observe alternative practices and to interview practitioners and patients.

Program on Aging. This Department of Medicine program teaches the course Rural Health: An Interdisciplinary Approach to students in medicine, allied health, nursing, public health, pharmacy, dentistry, and social work. The course applies an interdisciplinary team approach

to solving rural health problems, and it is part of the Rural Health Link program, which has as its goal the provision or improvement of access to health care in rural areas through the education and training of health care professionals.

Community Health Activism. Students from the schools of dentistry, medicine, nursing, pharmacy, public health, and social work join to learn how to address a concrete community need. Since its inception, the course has focused on HIV and AIDS-related projects planned and implemented by interdisciplinary student teams.

Community Voices: Partners in Health. This interdisciplinary course is an outgrowth of the Kellogg-sponsored Community-Based Public Health Initiative, an academic-agency-community partnership that involves representatives from the schools of medicine and public health.

Rural Health Scholars. This program is designed to increase interest by University of North Carolina at Chapel Hill and East Carolina University first-year medical students in careers as rural practitioners. Following their selection as scholars, students spend five to six weeks in a preceptorship with specially selected faculty who are practicing rural physicians.

STEP (Students Teaching Early Prevention) on AIDS. STEP has restructured the curriculum that medical students teach to seventh graders in area schools to focus on small group activities such as role playing and teaching proper refusal techniques.

DOC (Doctors Ought to Care). DOC has undertaken several major projects related to tobacco-abstinence projects and alcohol abuse.

The Community Health Initiative. This branch of the interdisciplinary North Carolina Student Rural Health Coalition on a monthly basis provides primary care, lab services, and health education at free clinics for low-income, rural, predominately African-American clients in the Bloomer Hill and Garysburg communities. The Bloomer Hill clinic has received a private donation to renovate the facility and is currently upgrading services through such measures as giving clients set appointment times.

The Family Medicine Interest Group. The Group has joined with the North Carolina Medical Society and the American Medical Association Student Section to conduct a number of projects concerning AIDS awareness, diabetes and heart disease education and screening, and referrals to student-run free clinics. As a part of the MED.ED project, medical students went to areas classified as health professional shortage areas to educate secondary students about their communities' need for primary care physicians and the opportunities for medical careers.

The Student Health Action Coalition clinic. The oldest student-run health organization in the United States, the Student Health Action Coalition each year serves approximately 350 low-income patients from Orange County and surrounding area, providing free ambulatory care, women's health services, well-baby exams, full physicals, and health counseling on 35 Wednesday nights annually.

STTAR (Students Teaching Teens at Risk). STTAR is a health education program designed for eighth and tenth graders on the Qualla Indian Reservation near Cherokee. The curriculum focuses on the prevention of pregnancy, sexually transmitted diseases, and AIDS.

East Carolina University

Since its establishment in 1975, the East Carolina University School of Medicine has pursued a three-fold mission: to produce primary care physicians to serve the state; to increase opportunities for minorities to pursue a medical education; and to enhance the system of health care in eastern North Carolina. The school graduated its first class of physicians in 1981, and it now annually ranks among the national leaders in the percentage of graduates who choose to specialize in the three primary care disciplines: family medicine, general internal medicine, and general pediatrics. It also ranks among the top schools nationally in the percentage of underrepresented minority students.

In addition to education programs, the school focuses on patient care and research. In partnership with Pitt County Memorial Hospital, it is the principal source of advanced referral medical care for citizens of eastern North Carolina and is

an important source of primary care for citizens of Greenville and Pitt counties. ECU research scientists study a wide-ranging set of problems, many with special significance to the region. The school has five multidisciplinary academic service centers, including the Leo Jenkins Cancer Center, the East Carolina University Diabetes and Obesity Center, the Center for Cardiovascular Diseases, the Center for the Study of Alcohol and Drug Abuse, and the Center for Allergy, Asthma and Immunologic Diseases.

The service area of the School of Medicine encompasses 29 counties in eastern North Carolina. ECU has a close working relationship with the Eastern Carolina Health Systems Agency, and a joint staff from that affiliation working with the North Carolina Office of Rural Health have assisted in the creation and operation of over a dozen eastern-area health clinics in Ocracoke, Swan Quarter, Maysville, Benson, Newton Grove, Greenevers, Hollister and Essex, Oak City, Bethel, and Columbia.

Dr. James G. Jones, founding chair of the East Carolina Department of Family Medicine, has been instrumental in establishing rural residency training sites at small rural hospitals in Williamston, Ahoskie and Clinton. Through Dr. Walter Shepherd, ECU has helped develop the Community Health Advocacy Program to train lay people as community health leaders and service volunteers.

East Carolina originated the first nurse practitioner certificate program in the state and trained over 100 graduates between 1977 and 1982. ECU introduced nurse midwifery training in 1990. In 1997 the Robert Wood Johnson Foundation funded the University, in conjunction with Duke University, to develop a program to train nurse practitioners, physician assistants, and nurse midwives in local community programs throughout eastern North Carolina. The goal of this program is to induce local nurses and persons with the requisite science preparation to upgrade their skills and receive licenses or certification as primary care providers so that they may remain as practitioners in their rural, eastern North Carolina communities.

Wake Forest University School of Medicine (formerly Bowman Gray Medical School)

The Bowman Gray/Baptist Hospital Medical Center is one of 126 academic medical centers in the United States. It is a regional referral center providing tertiary care for patients from a rapidly developing region, and it is the principal referral center for the Piedmont area and western North Carolina, southwestern Virginia, eastern Tennessee and portions of South Carolina, an area including approximately five million people. Patients from 35 states and several foreign countries visited the medical center for care last year.

In 1887, Wake Forest College became one of the first institutions in the United States to recognize the need for premedical training when it introduced courses designed primarily to prepare students for the study of medicine. The college established a two-year school of medicine in 1902 that operated until 1941 when it moved from Wake County to Winston-Salem to become a four-year medical school in partnership with North Carolina Baptist Hospitals, changing its name to the Bowman Gray School of Medicine in recognition of the benefactor who made the expansion possible. Today, with a 806-bed licensed capacity, Baptist Hospital continues as the main teaching hospital of the medical school. The organization's partnership is now known as The Medical Center, which offers ambulatory services in more than 70 general and specialty areas. Nearly 400 Wake Forest University Physicians serve as The Medical Center's board-certified faculty.

After the North Carolina Baptist Hospital leased rural Stokes-Reynolds Hospital in Stokes County and its King clinic in 1992, the Medical School assisted the hospital and clinic in expanding services to provide greater access to imaging technologies and on-site specialists.

The Bowman-Gray Comprehensive Cancer Center also supports the Reaching Out for Cancer Care (REACH) program in a seven-county area around Goldsboro, North Carolina, in a rural Coastal Plains region of the state, using an oncology nurse and the efforts of a cooperating Medical Oncology group to improve the diagnosis and appropriate referral of cancer patients to spe-

cialists for state-of-the-art care. Research reveals that rural patients often have their cancers diagnosed at a later stage than urban patients and are far less often included in state-of-the-art care or experimental therapies.

The North Carolina Hospital Association

The North Carolina Hospital Association created the North Carolina Rural Center in 1996 to help its rural member hospitals cope with the special pressures they face. The Center musters the resources of current Association members, private consultants, state government agencies, and university faculty to provide support and advice to rural hospitals and communities. The Center follows the philosophy that strengthening rural communities is the best route to ensuring viable, effective hospitals.

The Duke Endowment

One of the largest private foundations in the United States with $1.653 billion in assets in 1995, the Duke Endowment devotes part of its primary focus to the support of hospitals in North and South Carolina. It provided over $17 million in health grants in 1995 and supported almost every rural hospital in North Carolina with funds to cover indigent care and with special project money, including grants to upgrade emergency medical services in Ashe County in the rural mountains and to develop a school-based pilot program in Dunn in eastern North Carolina. The Duke Endowment awarded $290,000 to Cleveland Memorial Hospital in Shelby, North Carolina, to support the development of satellite primary care clinics in nearby rural communities and the creation of a primary care clinic in the Cleveland County Health Department. The latter project, CLECO, involved the coordinated support and technical assistance of the North Carolina Department of Environment, Health and Natural Resources, the Office of Rural Health, the Division of Medical Assistance, the Hospital Association, the Cleveland County Health Department, the local EMS system, local physicians, and the county and state medical societies, along with other groups. CLECO is indicative of the regular coordination of effort that is the hallmark of rural health projects in North Carolina. The Endowment also supported the creation of a rural family practice residency program in Hendersonville, North Carolina, a project that involved the joint efforts of the Central and Mountain AHECs, the North Carolina Medical Society, the state's four medical schools, other tertiary care hospitals in the region, and the Hospital Association.

Models for Rural Health

Roanoke-Amaranth Community Health Group, Inc., is a local, community based, comprehensive health alliance that deserves special attention in this report because it represents the best of local rural systems of health care. The alliance originated from a Citizens Health Assistance Program (CHAP) established in the early 1970s to address Northampton County's growing problem of physician shortage. The board of CHAP determined that the county needed a private nonprofit, community-oriented primary health care clinic and worked with the North Carolina Office of Rural Health toward that end. The clinic began operating with a grant from the Robert Wood Johnson Foundation and its Rural Practice Project Program, which teams administrators with clinical directors to solidify health services in underserved rural communities. The original physician, Joseph Berry, and the first and current administrator, Bill Remmes, created a comprehensive approach to health care that recognized the need to coordinate services and expand capacity and service offerings wherever possible. The Office of Rural Health provided ongoing technical assistance and helped CHAP develop a nursing home and affiliations with nearby hospitals. The program has expanded into neighboring Halifax County due to similar conditions in that county.

Through a single, multi-community board the Roanoke-Amaranth Community Health Group currently operates three clinics: a medical complex in Jackson, a full-service clinic in Weldon, and an ob/gyn office in Roanoke Rapids.

Roanoke-Amaranth also shares coverage with

three other nearby independent clinics, which merged in the late 1980s and early 1990s with those already under its control to form the Rural Health Group, Inc. All associated physicians work for Rural Health Group, Inc.; and the clinics, which retain their individual boards of directors, contract with Rural Health Group for physician services. A single Rural Health Group, Inc, board of directors, with representatives from the individual clinic boards, sets general policy.

This program has emerged as a model for other rural community-based systems of coordinated care. The current medical director, Jane McCaleb, continues to work with administrator Bill Remmes to support training programs offered by the University of North Carolina and East Carolina University, to collaborate with the North Carolina Telemedicine Network, and to participate in the Rural Interdisciplinary Team Project at the University of North Carolina at Chapel Hill.

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