Recruitment and Retention of Health Care Professionals into Rural Communities

Chapter 8

Access to health care professionals is important to the health of North Carolinians. Ensuring that people can get the care that they need is an essential factor in ensuring people's health. Yet some areas of the state have an abundance of health care professionals and health care institutions, and others lack even the most basic infrastructure.

Primary care professionals (PCP) include family physicians, general practitioners, pediatricians, general internists, obstetrician/gynecologists, nurse practitioners, and physician assistants. They typically serve as the entry point into the health care system and provide a wide array of services including preventive, diagnostic, chronic disease management, and urgent care. As noted in Chapter 6, many primary care providers also offer or provide linkages to behavioral health services. Further, some of the more comprehensive patient-centered medical homes also offer some oral health services, and/or pharmacy management.

Primary care providers are the backbone of the health care delivery system, and are often the first point of entry into care. But rural communities need other providers in addition to primary care. Rural communities need nurses, allied health professionals, pharmacists, behavioral health specialists, and dentists to fully meet the health care needs of the population. Rural communities also need access to specialists, but it is often difficult to support certain types of specialty practices because there are not enough patients in many rural communities who need the services.

The North Carolina Institute of Medicine Task Force on Rural Health examined workforce needs in rural areas, and identified four priority areas for rural communities: primary care providers, behavioral health specialists, dental professionals, and general surgeons. Many rural communities would benefit from the addition of other health care professionals, but the aforementioned health professionals are the top priorities for many rural communities.

Primary Care Providers

The primary care workforce has experienced increases in demand due to overall population growth, the aging of the population, and the increasing numbers of people living with chronic illnesses.[1] Additionally, demand is expected to increase as more people gain insurance coverage as part of the Affordable Care Act. Although the primary care workforce has grown over the last 30 years, many areas of the state still have too few primary care physicians to meet population needs.

The federal Health Resources and Services Administration (HRSA) identifies areas of the country that have too few providers to meet the health care needs of the population. These are called Health Professional Shortage Areas (HPSA). A primary care HPSA is an area that has no more than one primary care physician for every 3,500 population (or 1:3,000 if there are unusually high primary

Since 2000, 44 medical students in North Carolina have been awarded scholarships by the North Carolina Academy of Family Physicians Foundation, with 91% entering family medicine residency training programs. Several now serve rural underserved communities including Advance, Taylorsville, Clyde, and Washington, North Carolina. The Foundation is also investing to strengthen the primary care pipeline with the Blue Cross and Blue Shield of North Carolina Foundation. Beginning in 2010, total investment in the NCAFP Foundation's six-year Family Medicine Interest and Scholars program is $1.8 million, with almost $1.2 million from the BCBSNC Foundation and over $600,000 from the NCAFP.

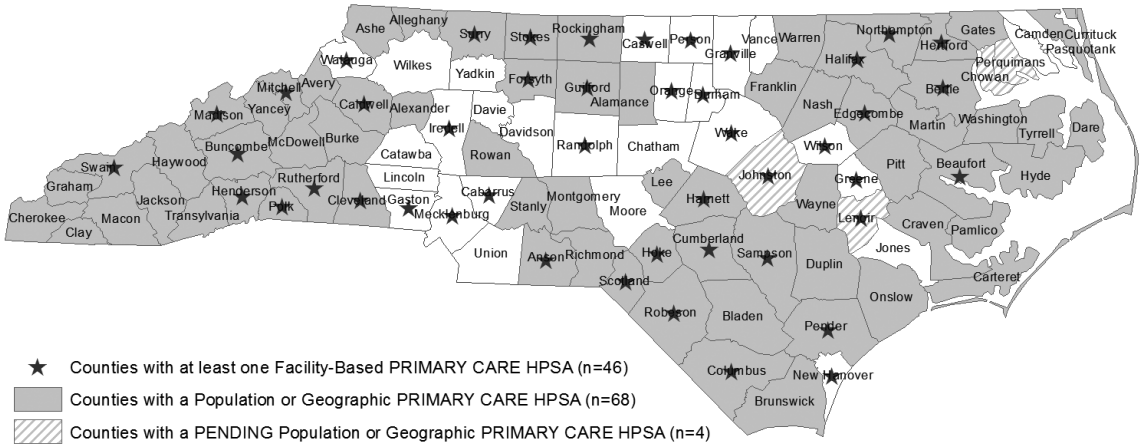
North Carolina Academy of Family Physicians

care needs, such as having 20% or more of the population living in poverty). There are three different types of primary care HPSAs: geographic (either whole or partial counties); population-based (e.g. parts of a county with a high concentration of low-income people with incomes no greater than 200% FPG or federally recognized American Indian tribes); or facility designations (e.g. correctional facilities or FQHCs).[2] Documentation must be submitted to HRSA to get the HPSA designation. It is advantageous to be designated as a HPSA for federal and other funding opportunities. In North Carolina, the Office of Rural Health and Community Care (ORHCC) helps communities, facilities, and population groups seek federal HPSA designations by submitting such data. Because ORHCC does not have sufficient staff to seek HPSA designation for every community, facility, or population group that could potentially qualify, ORHCC prioritizes its work on those communities, facilities, or population groups that request assistance.

North Carolina has one of the strongest state offices of rural health in the country.

North Carolina has one of the strongest state offices of rural health in the country, with strong collaborations with other organizations (e.g. The North Carolina Medical Society's Community Practitioner Program) that also helps with recruitment and retention. As of April 2014, North Carolina had 55 population-based and 17 geographic-based primary care HPSAs in North Carolina.[a] In addition, another 15 counties had a facility HPSA (not including correctional facilities; see Figure 8.1). Counties, or parts thereof, that have been designated as HPSAs in six of the last seven HPSA designations are called Persistent Primary Care Health Professional Shortage Areas (PHPSAs). In 2010, 10 whole county PHPSAs and 31 population or part county PHPSAs existed in

Figure 8.1
Primary Care Health Professional Shortage Areas in North Carolina

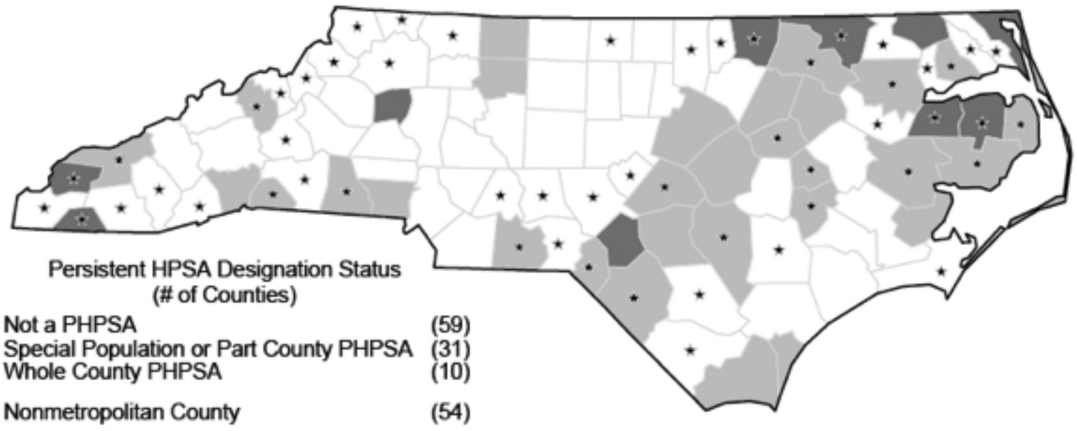


Source:

a Mark Snuggs, MSPH, Office of Rural Health and Community Care, North Carolina Department of Health and Human Services. Email communication. April 1, 2014

North Carolina (see Figure 8.2).

Figure 8.2
Persisten Primary Care Health Professional Shortage Areas (PHPSAs), North Carolina, 2010



Source: North Carolina Health Professions Data System, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, with data derived from the Area Resource File, HRSA, DHHS, various years; US Census Bureau, 2013. Note: Persistent Primary Care HPSAs are those designated as HPSAs by the Health Resources and Services Administration (HRSA) from 2004-2010, or in 6 or the 7 releases of HPSA definition. Core Based Statistical Areas are current as of the February 2013 update. Nonmetropolitan counties include micropolitan and counties outside of CBSAs.

Primary Care Physicians

According to data from the American Medical Association and the United States Census Bureau, there were 8.0 primary care physicians per 10,000 population in North Carolina in 2011.[2,3] This ratio is on par with the 2011 US average of 8.1 primary care physicians per 10,000 population. However, the statewide average masks significant maldistribution issues. Physicians often set up practice close to where they completed their residency or in proximity to large health systems.[4] Thus, there are far more primary care physicians per 10,000 in higher resourced counties—including those with major teaching institutions—than in many other areas of the state. For example, the county with the highest primary care physician to population ratio in 2011 was Orange County, with 23.7 primary care physicians per 10,000 population. Other high resourced counties included Durham (16.2), Pitt (13.8), Forsyth (12.7), and Buncombe (11.9).[3] In contrast, there is one county (Tyrrell) with no active primary care physicians, and another 13 counties—all rural—with fewer than 2.86 primary care physicians per 10,000 population (the amount needed to meet the definition for geographic primary care HPSA).

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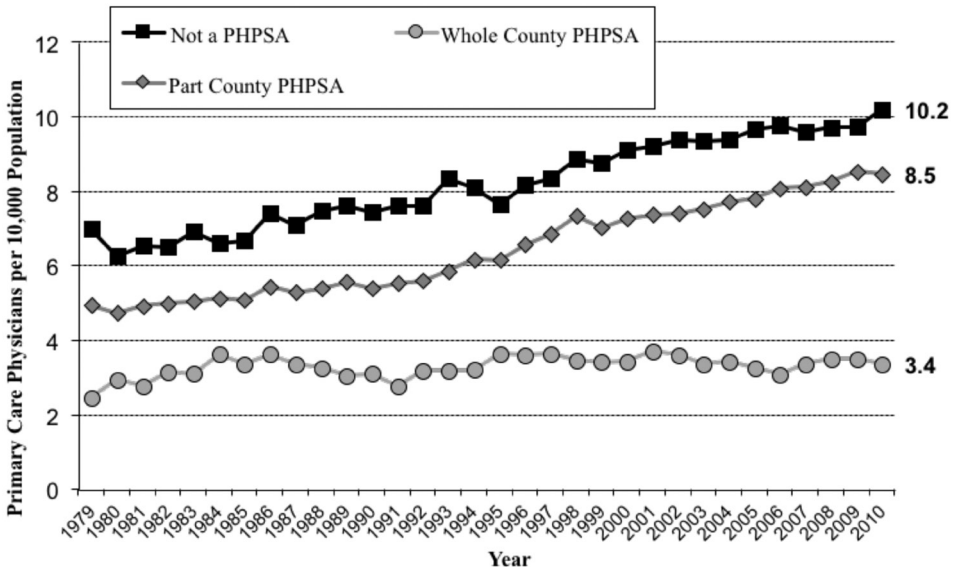
The primary care physician supply per 10,000 population has grown 42% between 1991 and 2010, but the physician growth in PHPSAs has not kept pace with the growth in other parts of the state. The primary care physician supply grew in non-PHPSAs and in part-county or special population PHPSAs, but remained stagnant in PHPSAs (see Figure 8.3).[5]

Figure 8.3
Primary Care Health Physicians per 10,000 Population by Persistent Health Professional Shortage Area (PHPSA) Status, North Carolina, 1979-2010



Notes: Figures include all active, instate, nonfederal, non-resident-in-training physicians licensed as of October 31st of the respective year.
Primary care physicians include those indicating a primary specialty of family practice, general practice, internal medicine, Ob/Gyn or pediatrics.

Less than half of all NPs (43%) and even fewer PAs (39.8%) reported a primary care specialty.

Nurse Practitioners and Physician Assistants

In addition to physicians, nurse practitioners (NPs) and physician assistants (PAs) provide primary care services. Many people have focused on increasing the supply of NPs and PAs to meet the growing need for primary care practitioners, as the typical training program for NPs is two to three years post baccalaureate degree, with a two-year program for PAs. Currently no requirements exist for post-graduate training for NPs or PAs, although individual organizations' transition programs are being developed in some locations to provide additional training and clinical experience to new NP and PA graduates. In contrast, it typically takes seven years post baccalaureate training to train a primary care physician (four years in medical school, and three years in a residency program). In North Carolina, NPs and PAs require physician supervision in order to practice.

There has been a significant growth in the overall number of NPs and PAs. Between 1991 and 2010, the number of NPs grew by 383%, and the number of PAs grew by 214%. The total number of primary care physicians grew 35% during the same time period.[6] While the growth among NPs and PAs has been large, this will not necessarily address the primary care shortage in PHPSAs. Less than half of all NPs (43%) and even fewer PAs (39.8%) reported a primary care specialty.[4] Further, the overall growth masks distribution issues. There has been very little growth in the NP or PA supply per 10,000 population between

1991-2010 in whole county PHPSAs.[5] In short, more needs to be done to attract all types of primary care professionals (physicians, nurse practitioners, and physician assistants), into rural and underserved areas—particularly to those counties or parts thereof that have persistent health professional shortages.

Behavioral Health Specialists

Many types of licensed health professionals are specially trained to address the behavioral health needs of people with mental health or substance abuse problems. These include, but are not limited to, psychiatrists, psychologists, licensed clinical social workers, advanced practice psychiatric nurses, licensed professional counselors, marriage and family therapists, certified substance abuse counselors, and licensed clinical addiction specialists.[7-9] As noted in Chapter 6, the federal Substance Abuse and Mental Health Services Administration household survey on drug use and health showed that 7.3% of the North Carolina population age 12 or older reported dependence or abuse of illicit drugs or alcohol in the past year (2011-2012).[10] In addition, 3.9% of the state's population age 18 or older reported a serious mental illness in the past year, 6.6% reported at least one major depressive episode,[11] and 16.8% reported any mental illness.[12,b] While a significant number of people in the state have mental health or substance abuse problems, few people seek services in the state's publicly-funded mental health system. In 2011-2012, only a little more than 50% of children and adults who needed mental health services, and only about 10% of youth and adults needing substance abuse services obtained care through the state's publicly-funded mental health system.[13]

There are significant maldistribution problems for North Carolina's behavioral health workforce.

People who need, but do not receive, appropriate treatment often end up in other systems of care. As noted in Chapter 6, many people first seek care from their primary care providers. Yet, primary care providers are not trained, nor do they have the capacity, to handle all types of mental health and substance abuse disorders. People with untreated substance abuse or mental health problems also frequent North Carolina's hospitals.[14] And some people with untreated disease end up in North Carolina's jail and prison system.[8]

As with primary care, there are significant maldistribution problems for North Carolina's behavioral health workforce. To address this problem, HRSA has a mental health HPSA designation. To be recognized as a mental health geographic HPSA, the community must meet at least one of the following conditions:

b A serious mental illness is defined as a "diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, that met the criteria found in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and resulted in serious functional impairment." Any mental illness is defined similarly, as having a diagnosable mental health, behavioral, or emotional disorder that is not a developmental disability or substance use disorder that meets the DSM-IV criteria, but does not result in serious functional impairment. A major depressive disorder is defined as having a period of "at least two weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms" as defined in the DSM-IV. Source: Substance Abuse and Mental Health Services Administration. *2011-2012 National Survey on Drug Use and Health: Model-Based Prevalence Estimates (50 States and the District of Columbia)*. Tables 23, 24, and 26. SAMHSA website. http://www.samhsa.gov/data/NSDUH/2k12State/Tables/NSDUHsaeTables2012.pdf. Accessed July 25, 2014.

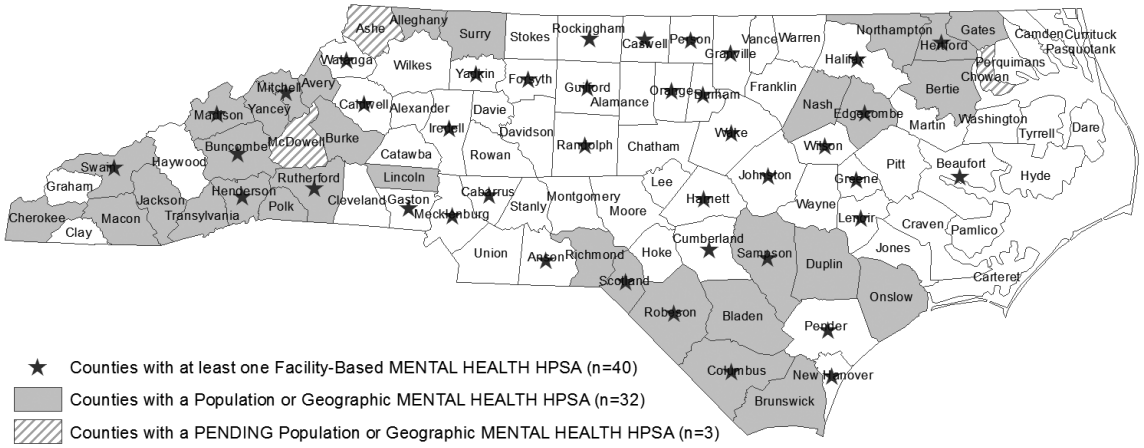
- A population-to-core mental health professional ratio that is at least equal to (or greater) than 6,000 population to one core mental health professional and a population-to-psychiatrist ratio that is at least 20,000:1.
- A population-to-core mental health professional ratio that is at least equal to (or greater) than 9,000 population to one core mental health professional.
- A population-to-psychiatrist ratio that is at least equal to 30,000:1.

In April 2014, there were 35 mental health whole or partial county geographic HPSAs, and population-based HPSA county designations.

Core mental health professionals include psychiatrists, clinical psychologists, clinical social workers, psychiatric nurse specialists, and marriage and family therapists. A community can be recognized as a mental health HPSA with a lower population-to-core mental health ratio if it has unusually high needs for mental health services. In addition, there are different criteria for population group and facility designation. Certain public correctional institutions, mental hospitals, and/or nonprofit mental health facilities can be designated as mental health HPSAs, such as federal or state correctional facilities or state or county mental health hospitals.[15]

In April 2014, there were 35 mental health whole or partial county geographic HPSAs, and population-based HPSA county designations (see Figure 8.4). In addition, another 28 counties had a facility-based designation only (not including correctional facilities).[c] Communities and/or facilities that receive the mental health HPSA designation can qualify for National Health Service Corps funds to pay for loan forgiveness to core mental health professionals willing to serve in mental health HPSAs.

Figure 8.4
Mental Health Professional Shortage Areas in North Carolina



Source:

c Mark Snuggs, MSPH, Office of Rural Health and Community Care, North Carolina Department of Health and Human Services. Email communication. April 1, 2014

Relying on the existing mental health HPSA designations to identify counties with shortages may be somewhat misleading because the state must submit documentation to HRSA to gain the HPSA designation. ORHCC does not have sufficient personnel to proactively identify every community that may meet the federal guideline. Instead, ORHCC waits for communities to seek their services to obtain the designation. Thus, other communities may also lack sufficient behavioral health providers to meet the needs in the community. In 2011, there were 27 counties with no psychiatrists,[d] and another 15 counties with fewer than 0.33 psychiatrists per 10,000 population, the amount needed to meet the federal geographic mental health HPSA designation.[16]

In addition, there are far fewer child psychiatrists. In 2004, 70 counties had no child psychiatrists, and another 7 had fewer than 0.33 per 10,000 population under age 18.[e]

In 2011, there were 27 counties with no psychiatrists, and another 15 counties with fewer than 0.33 psychiatrists per 10,000 population.

The federal mental health HPSA designation does not include a focus on other types of behavioral health specialists needed to meet the needs of people with substance abuse disorders. The North Carolina Substance Abuse Professional Practice Board (NCSAPPB) has the statutory authority in North Carolina to credential substance abuse professionals. NCSAPPB offers six types of substance abuse credentials: Certified Substance Abuse Counselor, Licensed Clinical Addiction Specialist, Certified Clinical Supervisor, Certified Substance Abuse Prevention Consultant, Certified Substance Abuse Residential Facility Director, and Certified Criminal Justice Addictions Professional. The only two types of professionals who can practice independently are Licensed Clinical Addiction Specialists (LCAS) and Certified Clinical Supervisors (CCS).[17] The others must practice under the supervision of another licensed substance abuse professional. Other health professionals such as physicians, nurse practitioners, licensed clinical social workers, psychologists, or marriage and family therapists can provide substance abuse services under their own licensure (e.g. they are not required to obtain a NCSAPPB credential to practice). However, few of these professionals specialize in treating substance abuse disorders.[8] As with other health professionals, there is a wide variation in the availability of licensed or certified professionals to meet the needs of people with addiction disorders. In 2009, the North Carolina Institute of Medicine did an analysis of the population-to-provider ratio for health professionals who provide services to people with substance abuse disorders. The NCIOM included CCS, LCAS (and provisionally licensed LCAS), as well as physicians, physician assistants, nurse practitioners, and nurses with drug or alcohol specialties in this analysis. The population-to-substance abuse professional ranged from a high of one clinician with an additional specialty to every 48 people in Polk County, to a low of 1:3,092 in

d Psychiatrists include any physician with a primary specialty of psychiatry, child psychiatry, psychoanalysis, psychosomatic medicine, addiction/chemical dependency, forensic psychiatry, geriatric psychiatry, or addiction medicine.

e Mark Snuggs, MSPH, Office of Rural Health and Community Care, North Carolina Department of Health and Human Services. Email communication. April 1, 2014

Pasquotank County. There were 10 counties, all rural, that had more than 1,000 population to every one substance abuse specialist: Bertie, Carteret, Greene, McDowell, Mitchell, Pasquotank, Person, Richmond, Sampson, and Stokes.[8]

Oral Health Professionals

Oral health is an important but often overlooked part of health care. Dental caries is the most common chronic infectious disease among children. Most dental disease is preventable with appropriate oral hygiene and routine visits to a dentist or dental hygienist or, for preschool age children, through interventions from primary care providers[18,19] Poor dental hygiene can lead to tooth decay, chronic pain, and loss of teeth. Additionally, dental disease has been associated with exacerbated cardiovascular and chronic respiratory diseases.[20,21] Preventing dental disease through good dental hygiene and addressing disease early can improve the health and well-being of people living in rural communities.

In 2011, 3 counties were without any dentists (Camden, Hyde, and Tyrrell), and another 22 counties had fewer than 2 dentists per 10,000 population.

North Carolina has historically had one of the lowest dentist-to-population ratios in the country, consistently ranking 47th in terms of dental supply. In 2011, North Carolina had 4.3 dentists per 10,000 population compared to the national ratio of 6.0 dentists per 10,000 population.[22] In 2011, 3 counties were without any dentists (Camden, Hyde, and Tyrrell), and another 22 counties had fewer than 2 dentists per 10,000 population, the amount needed to meet the definition of a geographic dental HPSA.[3] More hygienists are located across the state, with 5.6 hygienists per 10,000 population. In 2011, four counties were without any dental hygienists (Alleghany, Camden, Hyde, and Tyrrell), but only five additional counties had fewer than 2 hygienists per 10,000 population.

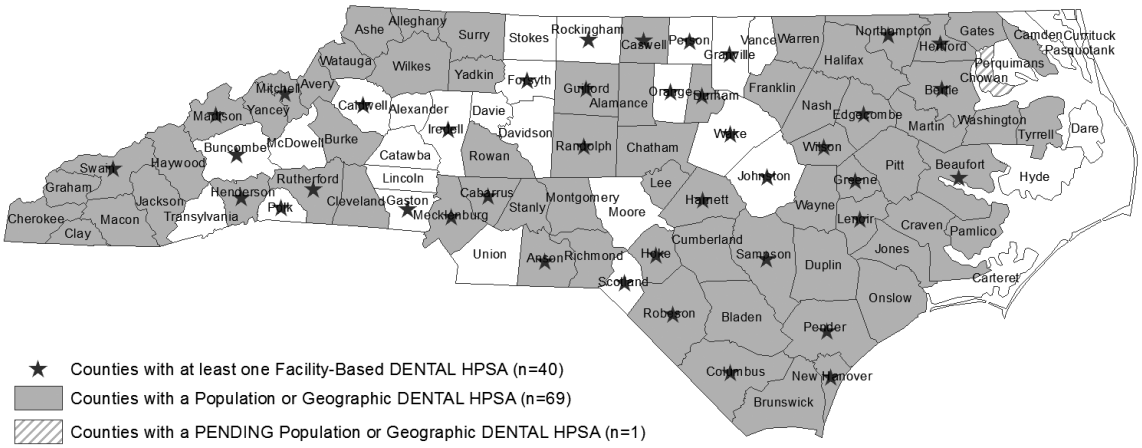
More than two-thirds of North Carolina counties qualify as dental HPSAs. A dental HPSA is defined as having a population-to-full-time equivalent dentist ratio of at least 5,000:1, or at least 4,000:1 and unusually high need for dental services. As with primary care and mental health HPSAs, there are also criteria to designate a population group or facility dental HPSA.[23]

A total of 69 counties have been designated as population-based dental HPSAs, including one that is designated as a geographic-based HPSAs, and an additional 13 counties that have a facility-based HPSA only, not counting correctional facilities.[f] (see Figure 8.5). As mentioned previously, the number of counties that meet the HPSA definition is likely greater, but the Office of Rural Health and Community Care does not have the resources to systematically apply for all of them.

People are unable to access needed oral health services for many reasons, including financial barriers and a lack of dental professionals in their area.[24] Until recently, medical insurance did not often cover oral health services.

f Mark Snuggs, MSPH, Office of Rural Health and Community Care, North Carolina Department of Health and Human Services. Email communication. April 1, 2014

Figure 8.5
Dental Health Professional Shortage Areas in North Carolina



Source:

However, health insurance plans offered in the non-group marketplace must now offer dental services for children (although coverage for adults is not required).[g,h] Beginning in 2015, children will be covered for fluoride varnish in the medical environment as a result of the recent US Preventive Services Task Force (USPSTF) recommendation for this service. Despite this, however, North Carolinians who are unable to access dental care when they need it often end up in the hospital emergency department for untreated dental disease. In fact, North Carolina has a high per capita use of emergency departments for dental disease as compared to other states, and the number has been growing rapidly (2006-2010) (see Figure 8.6).

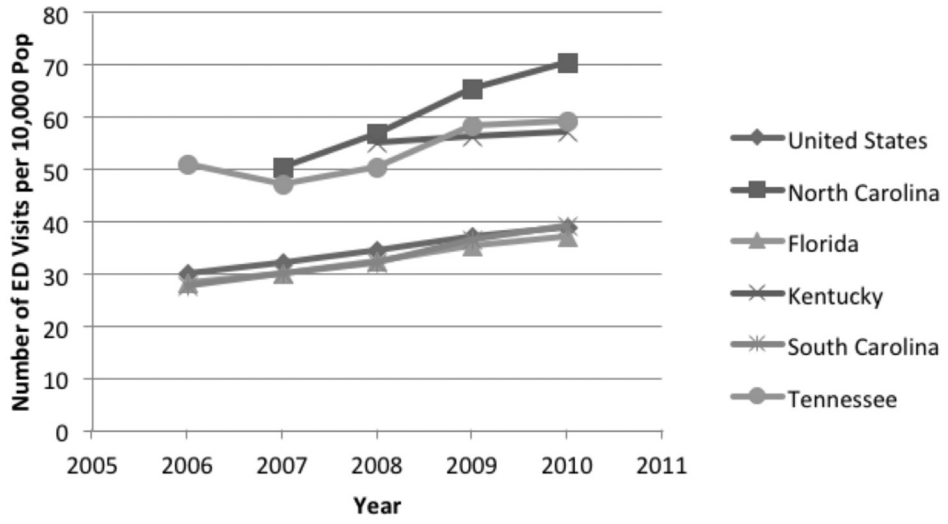
In 2011, 24 counties—almost all rural—had no general surgeons, and another 26 had fewer than 0.5 general surgeons per 10,000 population.

General Surgeons

General surgeons are critical to the financial sustainability of small rural hospitals.[7] They provide needed surgical services in such areas as head/neck, breast/skin/soft tissue, abdomen, alimentary tract, endocrine, and oncology.[25] General surgeons also help with trauma management and care for critically ill patients with underlying surgical conditions; provide needed revenues to the hospital; and serve as a backup to other practitioners. "For the one-quarter of Americans who live outside metropolitan areas, general surgeons are the essential ingredient that keeps full-service medical care within reach. Without general surgeons as backup, family practitioners can't deliver babies, emergency rooms can't take trauma cases, and most internists won't do complicated procedures such as colonoscopies."(David Brown, Washington Post Staff Writer, Thursday, January 1, 2009)[26]

g Separate, stand-alone dental plans may also be offered. These are available for more comprehensive dental coverage including services for adults.
h 42 USC 18022 Sec.1302.

Figure 8.6
Emergency Department Visits for ICD-9-CM All-Listed Diagnosis Code 525.9, Dental Disorder Not Otherwise Specified, per 10,000 Population



Source:

North Carolina has a high per capita use of emergency departments for dental disease as compared to other states, and the number has been growing rapidly.

Just as primary care providers are the backbone of the health care delivery system, general surgeons are integral to the operation of small rural hospitals. However, general surgeons are in short supply in many rural communities and are declining overall. Since 1997, there has been an overall decline in general surgeons in rural North Carolina and across the nation. This is due to a multiplicity of reasons, including increased specialization and the high call burden in rural areas.[27] In 2011, 24 counties—almost all rural—had no general surgeons, and another 26 had fewer than 0.5 general surgeons per 10,000 population.[3]

While primary care professionals, behavioral health practitioners, dentists, and general surgeons are not the only health care professionals needed in rural communities, these were identified by the Task Force as priority areas in many rural areas of the state. The Task Force thus focused on strategies to recruit and retain these health professionals into rural and underserved areas in the state.

Recruitment and Retention Strategies

Past research has shown that certain key strategies help improve the likelihood of recruiting and retaining health professionals in rural areas. While most of the research has focused on recruiting primary care providers into rural areas,[28] other reports suggest that similar strategies are effective for other types of health care professionals.[29] These strategies can generally be divided into three areas: health professional training and residency programs; financial incentives to encourage health care professionals to work in rural areas; and matching recruits and their families to the specific community.

The Task Force also discussed pipeline programs as a means of encouraging rural youth to enter health professions. Pipeline programs expose students to the health professions during middle, high school, undergraduate and post-baccalaureate stages. Studies suggest many positive outcomes associated with students' participation in structured pipeline programs.[30] These studies address interventions across a spectrum of pipeline stages and involve a variety of targeted health professions and health science careers, including medicine, nursing, and allied health.[30] While Task Force members support the implementation of effective pipeline programs, they did not prioritize these programs in the Rural Health Action Plan because the goal of the Rural Health Action Plan was to focus on strategies that can be implemented within three to five years and which would yield positive health impacts. Pipeline programs generally have a longer time trajectory between implementation and the production of new health care professionals for rural areas.

Health Professional Training and Residency Programs

Studies have shown that certain people are more likely to practice in rural areas, including those who grew up in rural areas, and those who have a spouse or partner that grew up in a rural community.[7] In addition, exposing students to rural practice while in health professional training schools can help promote rural practice.[28]

North Carolina medical schools have made a more concerted effort to provide rural training opportunities.

Over the past 20 years, North Carolina medical schools have made a more concerted effort to provide rural training opportunities. For example, at the Brody School of Medicine at East Carolina University, there is a strong preference for people with rural backgrounds as part of the admissions process. (Brody School of Medicine only admits North Carolina residents but gives preference to those from rural areas.) In addition, first and second year students spend time in the practice of a community primary care physician, often in rural areas, to experience the practice of medicine and to learn more about the life of a rural physician during their preclinical training. During the required third year clerkships in family medicine and pediatrics, students are required to spend two to four weeks in the office of a community physician, for a more in-depth experience in clinical office practice and continuity of care, as well as to better understand the role of a physician in their community. Many of these sites are in rural settings. As a result of these practices, the Brody School of Medicine at East Carolina University is consistently above the 90th percentile nationally for percent of their medical school graduates who enter primary care practice (41.8%); percent practicing in state (55%); percent practicing in rural areas (19.5%); and percent practicing in underserved areas (40.8%).[i] In addition, the ECU Department of Family Medicine has developed a longitudinal integrated rural medicine experience for all family medicine residents. Currently over 20 rural sites in North Carolina train residents, with a one week experience

i American Medical Association Physician Masterfile 2014.

Based on the North Carolina Community College System's Personal and Home Care State Training Program, the Allied Health Career Pipeline Program supports a smooth transition for people who have long been unemployed into allied health careers. The program addresses key challenges with support including career guidance, academic program structure, individual supports, and employer collaboration. Nine students who enrolled in the demonstration program in August 2013 are preparing to take the nurses aid exam. Rural partners including Area L AHEC, Turning Point Workforce Development Board, Edgecombe/ Nash NC Works Career Center, and Edgecombe Community College collaborated and leveraged resources to pilot the model. Regional expansion is planned through an Economics Innovations grant from the North Carolina Department of Commerce.

Allied Health Career Pipeline Program

during the first year, a two week experience during the second year, and a four week experience during the third year. Associated with this program is a comprehensive rural recruitment system, including semi-annual rural recruitment opportunities for family medicine residents, as well as an annual Rural Health Day featuring national speakers and student presentation on rural health topics. Since the inception of the program, placement in rural areas has drastically increased among residents. In 2010, 4 of 7 residents remained in North Carolina (57%), with 2 placed in rural communities (29%); whereas in 2013, 7 of 10 remained in North Carolina (70%), with 6 placed in rural communities (60%).[j]

The School of Medicine at the University of North Carolina at Chapel Hill (UNC-CH) provides scholarship support to a small group of medical students who are committed to rural primary care. In addition, UNC School of Medicine has established a rural track to provide a longitudinal curriculum in a rural setting for a small cohort of third and fourth year medical students. UNC Asheville School of Medicine began with its first class of four students in July 2009 with the support of UNC School of Medicine, Mission Health, and Mountain AHEC. Twenty students will start their third year training in July 2014. The foundation of this program and its innovative third year curriculum is similar to the longitudinal Cambridge Model. In 2004, Harvard restructured the third year clerkships to place a cohort of students in outpatient settings for the majority of their curriculum, which allows students to follow "their patients" in all health care settings.[31] The longitudinal integrated curriculum utilizes a smaller number of dedicated teachers and a greater reliance on outpatient teaching. Students have more exposure to experienced practicing physicians and a much greater likelihood of seeing the same patients over an extended period of time and through the continuum of care. The fourth year reverts to block schedules and presents opportunities for rotations including in rural western North Carolina. UNC-CH also offers a residency program for residents interested in practicing with underserved populations. This program operates through Carolinas HealthCare Center in Charlotte. Approximately half of the three year residency program is spent in a federally qualified health center. The remainder of the training is offered in different locations across the state, including Pardee Hospital in Hendersonville (a rural site).

Campbell University has established North Carolina's first new medical school in more than three decades to meet the primary care needs of the state. The Campbell University Jerry M. Wallace School of Osteopathic Medicine (CUSOM) emphasizes the development of primary care physicians and general specialists who will serve rural and underserved areas of North Carolina. On June 1, 2013, CUSOM accepted 162 students for the 2017 charter class: 22% of the students were from rural areas, 25% were from health professional shortage

j Elizabeth G. Baxley, MD, Senior Associate Dean for Academic Affairs, Professor of Family Medicine, Brody School of Medicine at East Carolina University. Email communication. April 8, 2014

areas, and 20% were from medically underserved areas. CUSOM students will spend the third and fourth years of medical school, as well as three to five years of residency training, in community settings where they will be more likely to practice and establish roots. Training students in underserved communities equips them to learn and grow in an environment less dependent upon sub-specialty care and more suited to practicing in a primary care setting. Nationally, a higher percentage of osteopathic medical school graduates choose primary care and 31% of osteopathic physicians practice in rural areas.[k]

Ensuring that medical students have the opportunity to experience rural practice during their undergraduate medical education is important, but not sufficient enough to attract an adequate number of practitioners into rural areas. North Carolina data show that people who complete their residency program in state are more likely to remain in North Carolina to practice than are those who completed medical school outside of North Carolina.[7] Further, physicians are likely to set up practice within 90 miles of where they completed their residency program.[7] The North Carolina Area Health Education Centers Program (AHEC) operates four primary care residencies located in community health settings serving rural and underserved populations: Hendersonville (family medicine, MAHEC), Wilmington (family medicine, SEAHEC), Prospect Hill (family medicine, UNC) and Greensboro (pediatrics, Greensboro AHEC). These residents train in community health centers, private clinics, hospital patient clinics, and other rural community settings. AHEC residency graduates are more likely to practice in North Carolina, remain in primary care, and to practice in rural and underserved areas than their peers in other residency programs in the state.[l,32]

AHEC residency graduates are more likely to practice in North Carolina, remain in primary care, and to practice in rural and underserved areas than their peers.

While more has been done in recent years to promote rural clinical experiences in medical school, this same opportunity is not always available in all other health professional training programs. AHEC helps support clinical rotations for health professional students. Creating strong clinical training in rural community settings can be challenging. Students need housing for clinical rotations in distant communities. Further, rural practitioners who serve as preceptors may require stipends to help offset the patient revenues they lose when they reduce their patient loads in order to precept the students.[7] There is often competition for the limited number of rural training slots that are available. The Task Force recognized the importance of expanding the availability of clinical rotations in rural communities along with funds needed to support this effort

The East Carolina University School of Dental Medicine is expanding access to oral health care and clinical training sites in rural areas across the state. The core of the School of Dental Medicine's community-based educational model involves all senior dental students providing comprehensive care in the Community Service Learning Centers (CSLCs), located within communities of

k 2013 National Center for the Analysis of Healthcare Data Enhanced State Licensure.
l American Medical Association Physician Masterfile 2011.

need across the state of North Carolina. Beginning in May of their senior year, students will spend three nine week rotations, in three different CSLC locations in the state, providing care for patients and living within the communities they serve. Through working in a real world, community-based care delivery system, students will further develop their skills in caring for vulnerable populations while gaining hands-on experience in managing a dental practice. They will engage in a wide range of community outreach activities and participate in public health and leadership training to prepare them for future health advocacy and community leadership roles. Four CSLCs are fully operational with faculty, staff, students, and residents providing care in Ahoskie, Elizabeth City, Lillington, and Sylva. Three additional CSLCs will open in 2014 in Davidson County, Spruce Pine, and Lumberton. The Brunswick CSLC was just recently announced with construction starting soon. It is expected to open fall of 2015.

In FY 2013, North Carolina was able to recruit 268 of the 10,886 health care professionals nationally who received NHSC funds.

Financial Incentives to Encourage Health Care Professionals to Work in Rural Areas

There are different types of financial incentives that have been used to recruit health professionals into rural areas, including scholarships, loans, loan repayments, and direct incentives (such as payments for capital costs or income guarantees). These incentive payments are often tied to specific performance requirements. For example, HRSA operates the National Health Services Corps (NHSC) program which provides scholarships or loan repayment to certain types of health professionals in return for their agreement to practice in a HPSA for a certain number of years. NHSC funds can be used for primary care providers (primary care physicians, nurse practitioners, physician assistants, and certified nurse midwives); mental health professionals (psychiatrists, clinical psychologists, clinical social workers, psychiatric nurse specialists, marriage and family therapists, and licensed professional counselor); and dental professionals (dentists and dental hygienists) who agree to practice in a HPSA. Placements are limited to certain communities depending on the HPSA score they receive (the higher the score, the more likely the community can qualify for a placement). Practitioners who agree to practice for at least two years in a qualifying HPSA are eligible for $50,000 in loan repayment. If they practice for five years, they can receive up to $145,000 in loan repayment, and the whole debt can be repaid if the person practices in a HPSA for six or more years.[32] ORHCC helps match practitioners to rural communities (described more below) and qualify for NHSC funding.

In FY 2013, North Carolina was able to recruit 268 of the 10,886 health care professionals nationally who received NHSC funds[33] (see Figure 8.7).

In addition to the NHSC funding, the state has separate funding to help with loan repayment for health professionals who agree to serve in rural and underserved areas. At one time, the North Carolina General Assembly provided over $3 million in state appropriations to recruit health professionals to rural areas through incentive payments. However, due to reductions totaling $1,676,914 in recent

fiscal years, ORHCC currently receives $1,499,977 annually for these provider incentives. The state funding can be used as loan repayment or other incentive payments. Providers are eligible for nontaxable loan repayment of up to $100,000 for physicians or $60,000 for other practitioners for agreeing to practice in a rural or underserved area.[m] The amount of the loan repayment varies depending on the number of years the person practices in the underserved area, with the maximum payment for four years of service. In addition, to recruit providers without outstanding loans, the state can offer a high needs service bonus of up to half of the loan repayment amount. The state can use its funding in rural and underserved communities that qualify as HPSAs, but do not meet NHSC priority scores. In general, the state uses the state loan or incentive payments to help recruit providers to community, safety net, and nonprofit practices. Overall, with both federal and state recruitment funds, ORHCC was able to recruit 168 new health professionals in SFY 2013, a 37% increase over SFY 2012.[33]

Figure 8.7
Number of Health Professionals Participating in the National Health Service Corp Loan Repayment Program, FY 2013

Discipline	National	NC
Primary Care Providers		
Non-Psychiatrist Physician (MD/DO)	2,425	73
Nurse Practitioner	1,792	36
Physician Assistant	1,438	67
Dental Professionals		
Dentist (DDS/DMD)	1,327	28
Dental Hygienist	245	8
Mental Health Professionals		
Psychiatrist (MD/DO)	245	4
Licensed Professional Counselor	1,082	13
Licensed Clinical Social Worker	1,034	9
Health Service Psychologist	887	28
Marriage and Family Therapist	165	0
Psychiatric Nurse Specialist	42	0
Other		
Nurse Midwife	204	2
Total	**10,886**	**268**

Source: Collins C. Physician recruitment and retention efforts. Presented at: North Carolina Institute of Medicine Task Force on Rural Health, February 5, 2014, Morrisville, NC.

ORHCC was able to recruit 168 new health professionals in SFY 2013, a 37% increase over SFY 2012.

ORHCC has been highly successful in its provider recruitment placements, with approximately 70% of the providers placed fulfilling their contract term.[n] In the past, state funds could not be used to help recruit general surgeons or behavioral health professionals into shortage areas (aside from psychiatrists), but the Task Force recognized that there are other needed health professionals aside from primary care doctors, nurse practitioners, physician assistants, psychiatrists, and dental professionals. ORHCC could do more to place additional practitioners

m The state can use state funds to recruit most of the same types of providers as are eligible for NHSC funding, except licensed professional counselors, licensed clinical social workers, marriage and family therapists, nurse midwives, health service psychologists, or psychiatric nurse specialists. The state cannot currently use state funds to recruit general surgeons to rural areas.

n ORHCC is refining this data to reflect which of those have not fulfilled their ORHCC contracts due to receipt of NHSC funding.

in rural areas if more state funds were available. Therefore, the Task Force recommended a larger appropriation to restore loan repayment dollars and to provide additional funding to support recruitment and retention efforts.

The North Carolina Medical Society Foundation (NCMSF) also operates the Community Practitioner Program (CPP), a program that uses private funds to recruit certain types of providers to rural and underserved communities. CPP funding can only be used to recruit physicians, nurse practitioners, and physician assistants for rural and underserved communities. The NCMSF works closely with ORHCC to ensure that the applicant is not eligible for federal or state loan repayment funding. CPP has more flexibility in where its funding can be used. CPP uses HPSA designations, county tiering (1, 2, or 3), percentage of patients that are indigent, Medicare/Medicaid population, and innovative practice techniques as part of programmatic admission criteria. CPP also prefers that participants live in the community that they serve. In 2013, CPP funds were used to recruit nine providers: five physicians (four MDs and one DO), one physician assistant, and three nurse practitioners.

In 2013, CPP funds were used to recruit nine providers: five physicians (four MDs and one DO), one physician assistant, and three nurse practitioners.

In addition to the loan repayment and incentive funding available through ORHCC and the NCMSF, the North Carolina General Assembly established the Forgivable Education Loans for Service (FELS) program in 2011.[34] The FELS program provides financial assistance to qualified students enrolled in an approved education program and committed to working in critical employment shortage professions in North Carolina. The program was designed to be flexible so that it will respond to current as well as future employment shortages in the state. The program initially targeted future teachers, nurses, and allied health professionals. For the 2014-2015 academic year, eligible degree programs include allied health, medicine, nursing, and teaching.[34] The North Carolina State Education Assistance Authority provides administration for the program.

Matching Recruits and Their Families to the Specific Community

A person's decision to stay in a particular community is influenced by many factors, including both professional and family factors. ORHCC and CPP have been conducting provider retention surveys since July 2010. The survey is conducted annually and at the end of the provider's service agreement. The survey found that a practitioner's decision about whether to leave the practice is influenced by their job satisfaction, family satisfaction, and community involvement.[33] A rural practitioner's decision to remain in a rural community can be influenced by his or her ability to take time off work, access to professional development, professional connections, and having an adequate infrastructure to support his or her practice.[7,28,29] Similarly, a practitioner's decision to remain in a particular community can be driven by family concerns, including professional opportunities for his or her spouse or partner, the education system, community connections, and/or cultural opportunities. Thus, successful recruitment entails more than just recruiting a provider to a

rural area. Successful recruitment—leading to longer-term retention—requires matching the practitioner and his or her family to the particular community.[7,29]

Over the years, ORHCC has learned that the most successful recruitment efforts involve the broader community. Community leaders, including the broader health care community, educational leaders, business leaders, and faith leaders can all assist with the recruitment effort to help ensure that the particular community is a good match for the individual practitioner and his/her family.[33] Creating strong community ties early on will also help in longer-term retention efforts.

Over the years, ORHCC has learned that the most successful recruitment efforts involve the broader community.

Researchers at the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill recently completed a survey of clinicians in 11 states (including North Carolina) who received NHSC funding in 2012.[35] The survey identified factors that were associated with longer retention in underserved areas. Some of the key findings were that more loan repayment program participants remained in their service sites beyond their service years than scholarship recipients. Physicians and mental health clinicians were more likely to remain in their service sites than nurse practitioners, physician assistants, and dentists. In addition, clinicians who were 30 years old or older, non-Hispanic white, had children, and who trained or grew up in the states where they were practicing were more likely to remain in their service sites than clinicians who were younger, minority, childless, or who grew up or trained out of state. People who reported having a sense of belonging in the community and who reported that their spouse was happy were more likely to report longer retention. Similarly, being satisfied with the practice, the practice administrator, salary, and access to specialty consults was also associated with longer retention in underserved communities. The study found that state primary care offices (similar to ORHCC) did a good job helping practitioners find NHSC sites, but did less to help them once they were in service (e.g. help practitioners settle into their sites, avoid burnout, or help their spouse find employment).

ORHCC currently has three FTE staff devoted to recruitment and retention efforts, two dedicated to HPSA designation, and one administrative support. In SFY 2013, ORHCC recruited 168 health care professionals and leveraged its state resources to more than $49 million in economic impact for the state (see Figure 8.8). More could be done if funding to ORHCC for recruitment and retention efforts were expanded.

Other Strategies to Support Rural Health Professionals

While the Task Force focused most of its attention on recruiting primary care providers, behavioral health practitioners, dental health professionals, and general surgeons to rural communities, it also recognized the importance of having a full complement of other health professionals to support the rural health delivery system. Rural practices need nurses and other allied health

Figure 8.8
ORHCC Provider Recruitment and Economic Impact3

Provider Type	Recruited FY 13	Estimated Dollar Amount	Economic Impact
Physicians	56	$390,000	$21,840,000
Physician Assistants	38	$195,000	$7,410,000
Nurse Practitioners	33	$195,000	$6,435,000
Certified Nurse Midwives	3	$195,000	$585,000
Dentists	25	$360,000	$9,000,000
Dental Hygienists	4	$110,000	$440,000
Psychiatrists	9	$390,000	$3,510,000
Total*	**168**	**$1,835,000**	**$49,220,000**

*Represents direct economic impact not indirect impact to the community which conservatively could add an additional 30%.
Source: The estimated economic impact of rural practitioners is based on the IMPLAN data and software model. This is a conservative indirect method for determining the revenues generated from a rural health professionals' practice. Eilrich FC, Doeksen GA, St. Clair CF; National Center for Rural Health Works. *The Economic Impact of a Rural Primary Care Physician and the Potential Health Dollars Lost to Out-migrating Health Services*. Stillwater, OK: Oklahoma State University; 2007.

Associate Degree Nursing (ADN) nurses are two times more likely to practice in rural areas, and three times more likely to practice in North Carolinas's most underserved communities.

professionals[o] to support the rural health infrastructure.

The majority of North Carolina registered nurses (RNs) entered the workforce with less than a baccalaureate degree. Of the total health care workforce in 2011, 13% of RNs entered the workforce with a diploma, 55% had an associate degree, and 32% had a baccalaureate degree or higher.[36] A 2008 study of graduates of the North Carolina Community College System (NCCCS) Associate Degree Nursing (ADN) Programs showed that 90% of the RNs graduating with an ADN from the NCCCS stayed in North Carolina, practiced close to where they were educated, and worked in higher need settings such as home health, long-term care, home health/hospice, and mental health compared to nursing students who graduated with a Bachelor's Degree in Nursing (BSN), ADN nurses are two times more likely to practice in rural areas, and three times more likely to practice in North Carolinas's most underserved communities.[37] Further, ADNs who went on to complete their BSN degree were also more likely than other BSN trained nurses to practice in rural areas, almost as likely as the ADNs who did not pursue an advance degree. Thus, one strategy to strengthen the rural health workforce is to promote training opportunities in rural communities, building on the training offered through NCCCS, and building stronger education ladders between the community college and university systems.

o Allied health professions include the fields of Audiology, Cytotechnology, Health Information Management, Medical Social Work, Physical Therapy, Radiologic Technology, Recreation Therapy, Respiratory Care/Cardiopulmonary, Clinical Laboratory Science, Dietetics/Nutrition, Histologic Technology, Nuclear Medicine Technology, Occupational Therapy Phlebotomy, Physician Assistant, Radiation Therapy Technology, Rehabilitation Counseling, and Speech/Language Pathology.

Several promising initiatives partner community college programs with four-year institutions, whereby the student can get most of the formative education in the community college system and then complete their training in a local university. The Regionally Increasing Baccalaureate Nurses (RIBN) Program is an effort to promote the education and training of ADN prepared nurses, while keeping them in their local community.[38] Students in this program are dually admitted to a community college and the local university in a four-year nursing curriculum. These students receive their training in the community college for the first three years, while taking university courses. These students receive their ADN degree at the end of the third year, and become licensed after passing their NCLEX (nurse licensure) exam. They then move to the university for their fourth year for additional coursework and clinical training and graduate with a BSN. Currently, 8 universities partner with 26 community colleges and one private college of health sciences across the state.

The Regionally Increasing Baccalaureate Nurses (RIBN) Program is an effort to promote the education and training of ADN prepared nurses, while keeping them in their local community.

In addition to the RIBN program which allows nurses to remain in their home communities while achieving a baccalaureate degree in nursing at the beginning of their careers, a Uniform Articulation Agreement between the University of North Carolina RN to BSN Program and the North Carolina Community College System Associate Degree Nursing Program is currently under review and should be finalized by fall 2014. Registered nurses with an associate degree in nursing (ADNs) who complete the general education and nursing-related courses outlined in this agreement at any of North Carolina's community college nursing programs will thereby meet the admission requirements to any of the state-funded RN to BSN university programs offered in North Carolina. Both the RIBN model and this Articulation Agreement will significantly increase the opportunities for nurses, particularly in rural and underserved areas of our state, to achieve the academic preparation needed to improve the delivery of care as well as build the pool for future nursing faculty and advanced practice nurses in their home communities.

In addition to the RIBN program, there are a number of "2+2" programs, where the students receive their two-year associate degree, and then are able to take an additional two years in a university and graduate with a bachelor's degree. For example, the University of North Carolina at Charlotte (UNCC) has a 2+2 program in respiratory therapy. UNCC admits practicing respiratory therapists with an associate degree and provides an additional two years of training. The additional training enhances their education, preparing them to graduate with a bachelor's degree in respiratory therapy. There are also 2+2 programs offered in neurodiagnostics and sleep science at UNCC.[39] UNCC admits practicing neurodiagnostic technicians and polysonographers with an associate degree, then provides an additional two years of training, so that they graduate with a bachelor's degree in neurodiagnostics and sleep science. Other innovative models exist where students can complete their two-year associate degree, and then complete their four-year education on the community

college campus. All of these strategies that focus on training students for two or more years in the community college system, and providing an avenue for more advanced training through a local college or university, hold promise as new avenues to train many of the future rural health professionals.

After identifying priority needs and successful training, recruitment, and retention strategies, the Task Force made several recommendations aimed at ensuring that rural areas have an adequate supply of needed health professionals.

Recommendation 6: Ensure adequate incentives and other support to cultivate, recruit, and retain health professionals to underserved areas of the state.

a) The North Carolina Community College System should identify, disseminate, and expand successful strategies to help recruit and retain health professional students into two-year and four-year degrees on or near the community college campus. Such models could include, or be modeled after, other successful initiatives, including but not limited to:

1) RIBN program

2) 2+2 programs

b) North Carolina academic health education programs supported by North Carolina general funds should place a priority during the admissions process, on students who grew up in, and/or have a desire to practice in, health professional shortage areas. The North Carolina General Assembly should consider different methods of incentivizing North Carolina health professional schools and community clinical practice sites to produce the mix of health professionals needed to address the unmet health needs of the state. Priority should be given to programs and community clinical practice sites that increase the number of health professionals who set up and maintain practices in rural and underserved areas.

c) The North Carolina Area Health Education Centers Program, in conjunction with North Carolina academic health education programs, should identify best practices for rural clinical placement opportunities and help to disseminate those models across the state. Such models may include, but not be limited to:

1) Stipends to rural health care professionals to pay for clinical supervision.

2) Development of rural longitudinal placement rotations.

3) **Expansion of the number of rural residency programs for primary care. For each new slot created, the North Carolina General Assembly should appropriate $75,000 to $100,000 per resident per year.**

4) **Provide support for primary care health care professionals to improve quality of care and implement new models of care.**

d) **The North Carolina General Assembly should appropriate $2.0 million in recurring funds to the Office of Rural Health and Community Care to:**

1) **Support additional staff with responsibility to designate areas of the state as geographic, population, or facility-based Health Professional Shortage Areas (HPSAs) to support the recruitment of primary care, mental health, and dental health care providers.**

2) **Expand efforts and resources necessary to enhance recruitment and retention of primary care, general surgeons, behavioral health, and dental health professionals into HPSAs.**

3) **Expand the availability of state loan repayment or other incentive payments to recruit primary care, general surgeons, behavioral health, and dental health professionals into HPSAs. The Office should maximize National Health Service Corps resources first before using the state appropriations.**

e) **The Office of Rural Health and Community Care, in conjunction with the North Carolina Medical Society Foundation, should:**

1) **Identify and disseminate model recruitment strategies, including strategies that have been successful in matching potential recruits and their families with the broader community.**

2) **Record and review individual provider retention assessments, aggregate state data to determine best retention practices, and disseminate these models across the state.**

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