

**Draft**  
**Plan for Dentistry in North Carolina**  
**March 29, 2006**

The University of North Carolina at Chapel Hill and East Carolina University have engaged in collaborative discussions to formulate a plan for dental education and dental outreach in North Carolina that would serve the needs of the citizens of the state. The core steps would be to expand the size of the dental school at UNC-CH with a focus on education, research, and outreach that would move the school into the highest ranks among American dental schools; and to establish a new dental school at ECU which would expand the education of comprehensive general dentistry practitioners, conduct research, and extend dental services into un-served and underserved primarily rural areas of North Carolina. This plan has been initiated as a collaborative activity of the two universities and will be developed and implemented with continuing collaboration. This collaboration is expected to result in shared and complementary missions in dental education, research, economic development and the provision of dental services in the state.

This collaborative dental project is expected to raise the national recognition of dental education in North Carolina through an expansion of the availability of primary care dentists throughout the state especially in underserved areas, the development of innovative clinical educational models for the provision of dental service to the underserved, the extensive use of distance education and teledentistry clinical consultation, expanded basic and translational research, and the sustaining of two dental programs nationally recognized for excelling in their respective missions.

Collaboration is not new to the two campuses. Under the leadership of both Chancellors, ECU and UNC-CH are already collaborating on a number of research projects, including racial disparities in cardiovascular illnesses, and high risk patients in obstetrics and gynecology. Shared resources including principal investigators and intellectual capital already demonstrate the ability of the institutions to successfully work in collaboration.

**Dentistry in North Carolina**

Within the United States, North Carolina is one of the 10 largest states by population and it is also one of the 10 fastest growing states. Providing current and future dental care services for the North Carolina population is a major challenge that could well become even more formidable. The official US Census 2003 population estimate for North Carolina is 8.4 million. Equally relevant, U.S. Census data show that North Carolina's 1990-2000 population grew by 21.4%, compared to the US population that grew by 13.1% for the same decade. On January 1, 2004 North Carolina had 3,462 in-state registered dentists and 4,095 in-state registered dental hygienists. At that same time point, North Carolina's dentist-to-population ratio stood at 4.1 DDS per 10,000 people, compared to the U.S. national figure of 5.8 dentists per 10,000 people. On January 1, 2004 North Carolina's overall dentist to population ratio ranked 47th out of 50 states. It is estimated that in 2004 North Carolina's annual dental expenditures totaled \$1.65 billion.

There is both a very real shortage of dentists as well as an imbalance in distribution. N.C.'s average in urban areas of the state is 4.7 dentists per 10,000 population, while the average for the state as a whole is 4.2. The rural areas of the state fare far worse with an average of about 3.1. There are four counties in Eastern N.C. without a dentist, three with only one dentist and as many as 28 counties with two dentists. Add to this the fact that N.C. is the second most rural state in the nation with 85% of the counties classified as "rural" and it is understandable that an access challenge exists in many areas of our state.

### **UNC-CH Dental Program**

The UNC School of Dentistry is a national leader in academic dentistry. Since its founding in 1950, the School has educated the majority of primary care dentists practicing today in North Carolina. In addition, it provides comprehensive patient care, creates new knowledge through cutting edge research and serves the state in a variety of ways to improve the oral health status of the state. In recent years, it has been recognized that projected population growth within the state and the need to bolster new economic development opportunities will require an expansion of the dental educational and research facilities. While the main educational program will be at Chapel Hill, it is proposed to create at least two remote clinical facilities located in areas of greatest need within the state. A pilot project should be done to test the concept of community based DDS educational quality and program impact to improve access.

Current educational facilities for the School of Dentistry support a maximum class size of 80 per class. New facilities are required to accommodate enrollment increases and train the next generation of dentists to improve the quality of life and improve the economic vitality of the State. To address this shortage and in anticipation of the large population growth projected in the state, the capacity to educate more DDS students at UNC-CH needs to be increased to at least 100 in the near term. This will bring the UNC-CH dental school to the size approved by the Board of Governors in the 2002 report on dentistry.

In addition to educational needs, existing research facilities at the School have exceeded their useful life and no longer support a contemporary research environment. It may be necessary to demolish two building to be able to expand to meet the expanded class size and to provide state of the art research facilities.

Investment in a new dental sciences building supports economic development in two direct ways. First, graduating additional numbers of dentists and dental hygienists increases the dental workforce to add capacity for the provision of dental services. This additional workforce can provide care that raises the quality of a person's oral health and thus provides a healthier labor force and that will treat children who can then attend school without dental pain. Second, the unique national/international reputation of UNC School of Dentistry attracts biotechnology and oral health care entrepreneurs to collaborate with UNC scientists in the translation of scientific knowledge created in university-based laboratories into new business ventures. According to the U.S. government's latest national health spending estimates, the American Dental Association reports that dentistry in the U.S. in 2005 was an \$84 billion dollar industry (*Health*

*Affairs Web Exclusive W5-75*). Therefore, the School of Dentistry with a modern educational and research facility as well as some remote clinical sites can provide a unique economic opportunity for the state of North Carolina to improve the health of our citizens and to stimulate new economic development. Development of medical devices generally and dental devices has the potential to have additional economic impact in North Carolina. The joint degree and research programs between UNC-CH's School of Medicine and NCSU's Engineering School provide a backdrop for the expansion of dental device research and development.

### **Proposed School of Dentistry at ECU**

Eastern North Carolina is a region characterized by both small and socio-economically disadvantaged populations. An examination of the data shows that a large proportion of the populations in several counties of Eastern North Carolina have incomes that place them below Federal poverty guidelines. Although the percentage of their populations living in poverty since 1980 has declined, 31 out of these 41 have as many as 20 percent of children living in poverty. Further, median household income in North Carolina statewide was a modest \$38,194 in 2002, but in only four of these 41 counties does median household income rise above this statewide average. The disposable income and healthcare purchasing power of these populations is likely to be restricted, as is access to public health and other subsidized sources of dental and other forms of healthcare.

East Carolina University proposes developing a dental school with a mission similar to the one embraced by the Brody School of Medicine. The beginning class would be 50 students and after four years the proposed school would reach its full size of 200 students. The intent is to develop a "community-oriented" school of dentistry with a primary mission to attract into the profession individuals of high intellectual capacity who have a desire to practice dentistry in this state, and who are oriented toward a professional career of service to communities in significant need of increased dental care. Moreover, the new school of dentistry at ECU will give emphasis to, and expose students to, the variety and excitement of practice in communities throughout North Carolina where dental care is presently in short supply.

Like the Brody School of Medicine, students who are North Carolina residents will be recruited from rural and underserved counties, identified as having a passion for primary care, and will be given intensive exposure to the day-to-day challenges of serving populations with either socio-economic or other barriers limiting their access to care. The school will offer increased educational opportunities to minority and disadvantaged students in a strong academic environment. Students will be provided the opportunity to visit and learn about constructive and effective healthcare organizations within the region that have made substantial efforts to meet the needs of these traditionally underserved populations. Close collaboration with local public health and dental professionals in practice throughout the region will help serve the neediest populations.

There is no question that the oral health care needs of North Carolina's underserved populations will require multiple, not single, strategies. Moreover, the persistent and urgent need for additional dentists, particularly in the largely rural areas of Eastern North

Carolina and the western-most counties of the state, validates the need for multiple initiatives if the oral health of NC's population is to improve. A critical factor in this discussion is the adequacy of professional dental workforce supply, as well as the geographic maldistribution of these professionals within the state.

#### *ECU Community Based Dental Education and Service Sites*

East Carolina University envisions ten community-based dental practice sites, beginning with pilot programs in communities that have been designated as dental health professional shortage areas (DHPSAs). These sites are envisioned to be located across the entire state, but the heaviest concentration of these sites may be located in eastern North Carolina, which is the region of the state with the highest number of DHPSAs. Additional sites will be introduced across North Carolina as the model is evaluated and workforce numbers are refined.

There are three primary benefits expected from each community based dental practice site:

1. Extend the access of dental services from the urban areas of the state, which have the highest numbers of dentists, to the rural areas of the state, which have chronically had the lowest numbers of dentists. This extension of the delivery of dental services to the rural regions in the state is necessary because of the combination of geography, poverty, and transportation challenges for the citizens in rural communities. Such a delivery model system is an innovative approach to addressing the lack of access to dental services for residents in rural communities.
2. Improve upon the preparation of fourth year dental students for the rewards and challenges of an effective and efficient dental practice by relocating these students from the traditional classroom on a university campus to functional dental educational and service sites in chronically underserved areas. In the practice environment, the dental students will be exposed to how a dental practice operates outside the halls of a university campus. Such a move reflects a completely new model in dental education.
3. Generate economic development in some of the poorest regions of the state. The economic development is two-fold.
  - First, the communities in which the dental practice sites are located will be the beneficiaries of a very significant economic impact generated by the dental practices. In addition, these communities will receive indirect benefits associated with the expenditures by businesses which provide goods and services to the dental practice sites as well as the induced benefits (the multiplier effect from the dental practice site payroll and from those businesses supplying goods and services to the dental practices).
  - Second, the communities will receive the economic benefit of a healthier workforce through reduced days lost from businesses due to illness related to poor oral health. A healthier workforce will generate higher levels of productivity and will make a community more attractive for recruiting new businesses.

While East Carolina University envisions these sites as learning opportunities for its fourth year students and residents, these sites may also be available for students and residents from the University of North Carolina at Chapel Hill School of Dentistry. A core philosophy of the new dental school is graduating North Carolinians to address the needs of the rural and underserved populations of the state. Utilizing distributed settings presents the students with opportunities to provide care while immersed in a rich and productive academic environment. It adds to the healthcare infrastructure, and promotes a sound basis for economic growth in the state.

The unique combination of a new dental service delivery model to the most underserved regions of a state, the new dental education model, and the economic development benefits from these community based dental practice sites will continue North Carolina's tradition as a national leader for dental education and dental delivery.

East Carolina University welcomes the opportunity to work with UNC-Chapel Hill, the dental profession, and community leadership, as well as others, to educate the public on the importance of dental education and its impact on improving oral health. This new model will closely partner with the Community College system in efforts to improve workforce development as dental hygienists and assistants are graduated and employed throughout the state in this new model. As our state looks to the future and addresses emerging issues, we cannot afford to miss this opportunity to invest in all our people.

### **Areas for Collaboration by the Two Dental Programs**

Discussions between the two universities have yielded a number of ways in which they can cooperate in providing expanded dental care to the citizens of the state, especially the underserved. These areas of cooperation will provide cost savings and a more efficient and effective approach to educating dentists for serving the underserved in NC.

- Develop a new AEGD dental residency program at ECU with the capability of providing slots to both institutions for dental residents (Fall 2007)
- Continue to explore the potential for the temporary allocation of a fixed number of slots for admission to the School of Dentistry at UNC – Chapel Hill for East Carolina recruitment. The slots will be strategically filled by students from under represented geographic areas with access to dental care needs with the hope these students will return to practice in those areas. ECU selected candidates would meet UNC DDS admissions requirements (TBD)
- Expand the General Practice Residency (GPR) already present in Greenville, N.C. & link program to UNC-CH via distance education for seminars & teledentistry consultation (Fall 2007)
- Consult with and collaborate as appropriate with ECU regarding DDS curriculum, accreditation, faculty recruitment and provision of instruction (Fall 2006)
- Expand the number of Board of Governors scholarships awarded to dental students from NC with priority to DDS students from underserved areas and add the stipulation that recipients must provide dental patient care in an underserved area of North Carolina. (Fall 2007)

- Utilize distance education model between UNC & ECU for some DDS instruction (Fall 2010)
- Develop pilot community based program/s to test financial viability, educational quality and program impact to address access to dental care (Fall 2006)
- Share placement of DDS students and residents in community-based sites
- Expand opportunities for UNC-CH DDS students to gain additional patient care experiences through ECU's community practices.
- Explore ways to maximize faculty resources by sharing faculty and establishing joint faculty appointments within available resources.
- UNC Chapel Hill to assist ECU with curriculum development and the initial accreditation process.
- Utilize distance education technology for selected DDS instruction, both from ECU to UNC Chapel Hill and from UNC Chapel Hill to ECU. The technology could also be used for selected instruction from UNC Chapel Hill to advanced education programs at ECU (General Practice Residency, Advanced Education in General Dentistry, Pediatric Dentistry).
- Develop research partnerships capitalizing on the respective strengths of UNC Chapel Hill and ECU.

*Collaborative efforts outlined above assume adequate investment of new resources for personnel & technology with the exception of using some dental slots at UNC-CH for the startup of ECU's program.*

### **Impact of This Plan for Dentistry on North Carolina's Standing in Relation to the National Average of Dentist per 100,000 Population**

When each program is enrolled to the proposed maximum for the near term, 150 dental graduates would be produced in North Carolina. This level of graduates would be reached by the current plan in 2014. Our projections are that this number of graduates would bring NC close to the national average of dentist per 100,000 population but is unlikely to surpass the national average by 2020. Depending on the demand for dentists in North Carolina, the number of graduates produced could be adjusted upward or downward as the circumstances would warrant.