



The University of North Carolina

GENERAL ADMINISTRATION

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University of
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November 3, 2006

Memorandum

TO: Members, Committee on Educational Planning, Policies, and Programs

FROM: Alan Mabe *AM*

SUBJECT: Review of the Plan for Dentistry and ECU's Proposal to Establish a Doctor of Dental Surgery Degree Program

As was indicated at the October Board meeting, the Dentistry proposal was on a fast track and several steps had to be completed in October. All those steps have now been completed and the proposal is ready for presentation to the Educational Planning Committee and the Board.

There are three attachments:

- (1) the standard report for a proposal to establish a doctoral or first-professional degree program, in this case the Doctor of Dental Surgery at ECU,
- (2) the report from the visiting Review Team of dental professionals, and
- (3) the Plan for Dentistry in North Carolina that the Board of Governors approved in April 2006.

In April 2006 the Board directed that UNC-GA follow all the usual steps for considering a doctoral or first-professional degree program but to expedite the process with a goal of completing the review by November 2006 if possible. I am pleased to report that all the steps have been met and that the process is now complete and ready for consideration by the Committee on Educational Planning and the Board of Governors.

The Review Team has given both the Plan for Dentistry in North Carolina and the proposal to establish a Doctor of Dental Surgery degree program at ECU a very

strong recommendation, and the UNC Graduate Council voted unanimously to recommend the ECU proposal for establishing the DDS.

The Review Team spent three full days in North Carolina, spending most of one day at UNC-CH and another day at ECU. In addition, the Review Team met with representatives of AHEC, the North Carolina Office of Rural Health and Community Care, and the Sheps Center for a data presentation. In addition, an hour and a half meeting was held with the leadership of the North Carolina Dental Society. Included in that meeting were the President, the President-elect, the Secretary-Treasurer, and the Executive Secretary.

The Review Team was chaired by Dean Denise Kassebaum, who heads the dental school at the University of Colorado Health Sciences Center. That school is distinguished by having a substantial community-based clinical component to its dental education and outreach program. The Executive Director of the American Dental Education Association, Dr. Richard Valachovic, and the Associate Executive Director of the American Dental Association, Dr. Jackson Brown, also served on the Review Team. This was a strong and distinguished team representing both the association of dental schools and the association of practitioners.

The Review Team praised UNC Chapel Hill for having one of the truly outstanding dental schools in the nation and endorsed the expansion to 100 students per class and the enhancement of research facilities as contemplated in the Plan for Dentistry in North Carolina. The ECU plan to establish a dental school with 50 students per class and to develop service learning clinics in rural and underserved areas of the State was also strongly endorsed by the team. The Review Team perceived in the Plan for Dentistry not only a viable plan to address dental education and access to oral health care in North Carolina, but also a potential national model; as Dean Kassebaum puts it in her letter, "the Review Team believes it will serve not only North Carolina well, but it will also serve as a national model that could inform solutions to access to care challenges nationwide."

The report to the Committee on Educational Planning contains the recommendation to approve the proposal to establish a Doctor of Dental Surgery degree program at ECU. Based on the degree of cooperation between the two universities involved that has brought us to this point, an additional resolution may be in order:

Be it resolved that the Board of Governors wishes to commend the University of North Carolina at Chapel Hill and East Carolina University, their Chancellors, and the leadership of dentistry and oral health at the two universities for the cooperative way the Plan for Dentistry in North Carolina was prepared and subsequently developed, and be it further resolved that the Board of Governors urges the two universities, their Chancellors, and their leadership of dentistry and oral health to continue and enhance this cooperation in the implementation of the Plan for Dentistry to best serve the educational and oral health care needs of the citizens of the State.

Enclosures

Request to Establish a Doctor of Dental Surgery Degree Program at East Carolina University

Introduction

Following a recommendation from the Graduate Council and from the Senior Vice President for Academic Affairs, the Committee on Educational Planning, Policies, and Programs approved in May 2006 the request from East Carolina University to plan a Doctor of Dental Surgery degree program. East Carolina University now seeks approval to establish a Doctor of Dental Surgery degree program (CIP 51.0401) effective November 2006.

Program Description

The educational mission of the Doctor of Dental Surgery (DDS) program is to prepare dental practitioners who will address the substantial oral health care needs throughout North Carolina, particularly in the underserved regions of the State. The DDS, a 5,034 contact-hour degree program, comprises six curriculum themes: foundation biological sciences, dental care foundations, clinical practice of general dentistry, community oral health and practice, assessment and treatment, and primary dental care in the community. Course work and clinical practice in these themes will prepare the DDS graduates to practice dentistry, follow a career in dental education, and design and conduct empirical research to understand the etiology, manifestation, and amelioration of dental problems consistent with the guidelines of the American Dental Association.

Students recruited for this program must possess a strong sense of personal and professional obligation and have a desire to build their careers in the rural environment. The curriculum of this first-professional degree program is designed for completion in four academic years, consisting of sixteen-week fall and spring semesters and an eight-week summer semester in years one through three (40 weeks per year), and fall and spring semesters in the fourth year (32 weeks) for a total of eleven semesters and one hundred and fifty-two weeks. Success in this degree program will enable the graduates to function as competent and contemporary general dentists as well as community leaders who contribute to the shaping of health care policy and services in their practice region.

The proposed DDS degree program will be offered through the East Carolina University School of Dentistry, one of four schools in the Division of Health Sciences. This School of Dentistry will be one of the first public dental schools established in the United States in the past forty years with an emphasis on serving the oral health care needs of rural America. The DDS degree supports the school's mission to improve the quality of oral health among the citizens of North Carolina by implementing community-oriented educational, research, and service programs that focus on prevention of dental disease.

The Division of Health Sciences is well positioned to develop and offer the DDS degree. The Division of Health Sciences at East Carolina University, particularly the Brody School of Medicine (BSOM), has been recognized for its success in primary care. The

U.S. News & World Report (4/3/06) magazine's annual listing of the best professional schools (4/3/06) ranked the BSOM in the top ten among medical schools in three categories that emphasize primary care. The Brody School of Medicine at East Carolina University is

- Tied for sixth among primary care schools with Duke University, the University of Colorado-Denver, and the University of Wisconsin-Madison, up from 34th in 2005.
- Ranked 9th in family medicine, up from 11th in 2005.
- Tied for 7th in rural medicine.

The DDS program will model the successful philosophy and delivery system used by the BSOM. As many as 75 percent of BSOM's graduating students in a given year have entered primary care residencies. More than 28 percent of BSOM graduates practice in rural North Carolina, which is over 50 percent more than the other publicly-funded medical school in the State. The ECU School of Dentistry will use an educational and clinical delivery system unlike those of traditional dental schools. It will not build large dental clinics in a central location (i.e., Greenville) and expect patients to come to these clinics. Instead, the school will build, acquire, or lease several small service learning centers of approximately twenty dental operatories in selected rural and underserved areas of the State with widely dispersed populations and limited public transportation. The School of Dentistry will form partnerships with community health centers and other dental safety net clinics for resident and student rotations. All of these sites will provide care to primarily low-income, underserved patients.

The educational philosophy of the dental school at East Carolina University has six tenets. The philosophy will be implemented through the curriculum goals and strategies described in the proposal to establish and through student recruitment methods that will target residents from rural and underserved areas who demonstrate a strong personal commitment to serving rural North Carolina as health care providers. ECU believe that

- A substantial portion of our students' learning experiences should occur in the types of communities in which they will be educated to serve.
- Graduates should be leaders in rural communities in the areas of health policy, wellness promotion, and education of the public and other health care providers.
- Students should be exposed to the challenges of serving populations with socio-economic, geographic, cultural, and other barriers that may limit access to oral health and other types of medical care.
- Students should have enhanced patient assessment skills beyond that normally associated with a general dentist because as dentists they will often function autonomously as a sole source dental provider in a rural region of the State.
- Graduates should be thoroughly trained in a wide range of dental therapeutic strategies in order to provide a full scope of oral health services within the framework of communities that have limited health care resources and few other health care providers to serve as a referral safety net.
- Graduates should understand the health care infrastructure and economic foundation of small communities so that they have the capacity and

resourcefulness to function effectively within this environment and to assume leadership roles in regional dental associations and other health care organizations.

The recruitment strategies and admissions standards of the School of Dentistry will be implemented in concert with this core educational philosophy. Student recruitment activities will focus on attracting academically solid individuals from the rural and underserved areas of North Carolina who have a passion for a professional career of service to the community. The recruitment strategy would include cultivating partnerships with undergraduate schools and colleges, including community colleges, and area high schools to identify and encourage underrepresented and other applicants to consider the school and a career in dentistry. This approach mirrors the successful method in place for admissions to the Brody School of Medicine.

Program Review

The review process is designed to surface strengths and weaknesses in proposed new degree programs. Proposals to establish new doctoral programs are reviewed internally and externally. In the case of this first-professional degree program in Dentistry, consultants' reports were secured and in addition a team of dental professionals was secured to review the broader Plan for Dentistry in North Carolina and the specific proposal from ECU to establish a new DDS degree program. The following is from the letter to the Chancellor regarding the program.

I think both the reviewer of the proposal to establish and the Review Team provided a very positive assessment of the proposal by ECU to establish a Doctor of Dental Surgery program. The external reviewer raised the following issues:

There has been a shortage of faculty for dental schools, which will be a consideration for ECU since it will need to hire a large number of faculty over a short period of time, though there is some indication that the faculty situation in dentistry is improving.

While the model for the fourth-year experience is endorsed, there was a question about how all the students would be rotated through the clinics and whether the full range of experiences needed in clinical dental education would be available.

The external reviewer raised a concern about the financial dimension of the education and service clinics and whether the positive educational benefits had a solid financial basis.

The reviewer also encouraged more attention to recruiting underrepresented minorities.

Nonetheless, this reviewer was very supportive of the proposal as well thought out and innovative.

The Review Team took a broader view since they were to assess both the overall Plan for Dentistry in North Carolina and to assess a specific part of that plan, which is the

proposal for a DDS degree program at ECU. They had access to the review identified above and two other consultants' reports on finances and Medicaid reimbursement.

This was a distinguished team which included the Dean of Dentistry from a school that has focused on community-based services; the Executive Director of the American Dental Education Association, the principal national organization of dental schools; and the Associate Executive Director of the American Dental Association, the principal national organization of practicing dentists.

The Review Team strongly endorsed the Plan for Dentistry in North Carolina and the proposal by ECU to establish a DDS degree program. They see the overall plan which involves both UNC-CH and ECU as a potential national model for addressing the range of dental issues facing not only North Carolina but also the Nation. Based on review and discussion they also endorsed the financial model on which the service learning clinics are based.

The Review Team applauded the plan for cooperation between the two universities and urged its continuation and further development.

Graduate Council

The Graduate Council had, as a basis for its consideration, the proposal to plan the program, a copy of the outside review of the program, the report from the Review Team, the original Plan for Dentistry for North Carolina, the summary letter to the Chancellor, and a presentation to the Council by representatives of the program. In addition to the issues raised previously, the following concerns were expressed by Council members: whether there would be enough students for the program in light of a decline of applicants for dental schools a few years back, and the attitude of dentist in North Carolina toward the plan.

Response

Representatives of the program described the process for developing the proposal and the needs in rural areas that the proposal was attempting to address. Prior to turning to the issues that had been raised, the representatives provided an account of how the curriculum had been developed using first an advisory committee with members from six dental schools, then drawing on 32 dental school faculty at other schools to develop the courses for the curriculum.

ECU understands that it will need to pay close attention to recruiting faculty, and has proposed some ways to effectively do this, including through cooperative arrangements with UNC-CH. The presence of a large medical faculty in Greenville should provide support that a dental faculty can be recruited. The fact that this offers some innovative features for dental education may attract some. There has been discussion of scholarship/loans that could be forgiven for service as a faculty member at one of the dental schools.

Representatives have prepared a plan that will have the majority of the time of all fourth-year students spent in the clinics. The planning all along has included other kinds of rotations to assure that every student will have the full range of clinical experiences needed to be prepared for dental practice.

The education and service clinics are an innovative way to train students and extend services to a large number of people who are underserved regarding their oral health. Since this is a new approach, the issue of financial viability have been raised. UNC contracted an expert on dental school finance, and an expert on Medicaid reimbursement to advise ECU, UNC, and the Review Team. Based on the consultants' reports and the review by the Visiting Team, the Review Team concluded that the plan for the clinics is financial viable.

ECU has had success in recruiting underrepresented minorities into medicine and, since the proposed dental school would use the same recruiting strategies, they are reasonably likely to have similar success.

Regarding the availability of students for a new dental school, one can turn to UNC-CH's experience with the class of fall 2006. They had 243 completed in-state applicants, of which 65 were enrolled, and the program estimated that approximately 175 of that pool were highly qualified. For the 81 slots overall, there were almost 900 completed applications. In addition, ECU will engage in a recruitment effort that will likely bring additional applicants into the pool.

While the two schools and UNC-GA have worked with the dental society to keep them informed, including an opportunity for the leadership of the North Carolina Dental Society to meet with the visiting Review Team, there is opposition among practicing dentists in North Carolina to the ECU proposal. In the same survey that reported that a little over half of the respondents were opposed to a new dental school at ECU (about 30% were for it, with the remainder undecided) the respondents indicated by three to one that "a disparity in access to care exists in NC." The survey also shows that three-quarters indicated they believe that there is "a maldistribution of the workforce in NC."

Need for the Program

North Carolina ranks 47th of the 50 states in the number of dentists to population ratio, and has a great disparity between dentists per 10,000 population in metropolitan vs. non-metropolitan counties, with 4.9 dentists per 10,000 in metropolitan counties and 3.1 in non-metropolitan counties. So North Carolina has a shortage of dentists compared to the national ratio of dentists to population overall and a significant imbalance between the metro and non-metro areas of the State. This is of particular importance in North Carolina since it is one of the most rural states with 85 of North Carolina's counties considered rural.

Approximately 22% of North Carolina children have untreated tooth decay in kindergarten and in 2004 only 27% of the Medicaid recipients in North Carolina visited a dentist.

Resources

The funding request for this program is for construction of a dental school facility in Greenville and the development of 8 to 10 educational and service clinics in rural areas of the State with a focus on the eastern part of the State but encompassing the western part of the State as well. Just under \$60 million would go toward the construction of the facility in Greenville and approximately \$30 million would go to build the clinic facilities in rural areas. The ongoing operation of the Dental program is estimated to be approximately \$15 million dollars but that is subject to refinement as the new degree program is implemented over a several-year period. The clinics are planned to generate a significant portion of their needed revenue and to qualify for federal financial assistance.

Recommendation by the Graduate Council

After consideration of the issues raised by reviewers and Council members, the Graduate Council voted, without dissent, to recommend approval for East Carolina University to establish a Doctor of Dental Surgery degree program.

Recommendation

The General Administration recommends that the Board of Governors approve the request from East Carolina University to establish a Doctor of Dental Surgery degree program.

Approved to be Recommended for Establishment to the Committee on Educational Planning, Policies, and Programs



Senior Vice President for Academic Affairs Harold Martin

November 3, 2006

University of Colorado at Denver and Health Sciences Center

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October 31, 2006

Alan R. Mabe
Vice President for Academic Planning
and University-School Programs
General Administration
University of North Carolina
P.O. Box 2688
Chapel Hill, NC 27515-2688

Dear Dr. Mabe:

The Dentistry Review Team has concluded its assessment of *The Plan for Dentistry for North Carolina (Plan)* and in so doing has considered the feasibility of establishing a new dental school at East Carolina University. As Chair of the Review Team, which had Dr. Richard Valachovic, Executive Director of the American Dental Education Association and Dr. L. Jackson Brown, Associate Executive Director of the American Dental Association, as its other members, it is my pleasure to provide you with the enclosed report, Assessment of The Plan for Dentistry for North Carolina, that details our findings, recommendations and conclusions.

The Team's review process included not only a review of documents provided such as the *Plan*; ECU's proposed DDS curriculum and plans for a new dental educational facility to be built on the ECU health science campus; reviews from three expert consultants on the proposed dental curriculum, dental Medicaid financing and general dental education financing; it also included on-site interviews with campus leadership and faculty representatives from both UNC-CH School of Dentistry and East Carolina University. Additionally, the Review Team met with representatives of the North Carolina Area Health Education Commission, the North Carolina Office of Rural Health and Community Care, the UNC Cecil G. Sheps Center for Health Services Research and the North Carolina Dental Society.

The need for more dentists in North Carolina was confirmed by an analysis of workforce data, current projections for state population growth and the on-site interviews with representatives of public and private institutions who provide health care to the underserved. All of the stakeholders expressed a shared commitment to addressing the oral health needs of the citizens of North Carolina.

The Dentistry Review Team concluded that *The Plan for Dentistry for North Carolina* which proposes to enlarge the dental program and upgrade the facilities of the UNC-CH School of Dentistry while establishing a new dental school and DDS program at ECU, should be a positive step in addressing dental care access issues facing the rural and underserved areas of North Carolina. The Review Team noted that while the UNC-CH School of Dentistry is one of the very finest dental institutions in the world with its established programs of excellence in education, research and patient care, the establishment of the ECU dental school with its distinct primary care focus in education and research could provide complementary rather than duplicative resources to North Carolina. Providing that the *Plan* is amended in response to changes in workforce, state growth, oral health and access trends, the Review Team believes that it will serve not only North Carolina well, but it will also serve as a national model that could inform solutions to access to care challenges nationwide.

On behalf of the Dentistry Review Team, I want to thank you for the opportunity to provide this review and assessment. We sincerely appreciated the kindness and hospitality we were shown.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise Kassebaum", with a long horizontal flourish extending to the right.

Denise K. Kassebaum, DDS, MS
Dean, University of Colorado School of Dentistry
Chair, Dentistry Review Team

Enclosure: Report of the Review Team for Dentistry –
Assessment of *The Plan for Dentistry for North Carolina*

Report of the Review Team for Dentistry
Assessment of
The Plan for Dentistry for North Carolina

October 24 - 27, 2006

Members of the Review Team for Dentistry

Denise K. Kassebaum, DDS, MS, Chair

L. Jackson Brown, DDS, PhD

Richard W. Valachovic, DMD, MPH

Introduction

The University of North Carolina General Administration requested that an external Dentistry Review Team comprised of national experts in dental education review *The Plan for Dentistry for North Carolina (Plan)*. The Dentistry Review Team was advised that the *Plan* was initiated as a collaborative activity of the two universities (University of North Carolina-Chapel Hill and East Carolina University), and that both campuses as well as the Board of Governors of the University of North Carolina had endorsed it.

The charge to the Dentistry Review Team was three-fold. First, the Review Team was asked to broadly assess the underlying conceptual and philosophical basis of the *Plan*, considering the assumptions of the ECU proposal for a new dental school and how the UNC-CH and ECU dental programs would cooperate and be enhanced by strategies outlined in the *Plan* with regard to addressing access to care issues facing North Carolina's rural and underserved areas of the state. Secondly, the Review Team was asked to review ECU's proposed DDS degree program to determine the strengths and weaknesses of the proposed academic program along with reviewing the degree proposal in terms of the required questions for a doctoral or first professional degree program proposed to the Board of Governors. Third, the Review Team was charged to consider the viability of the business model in ECU's proposal that plans for the establishment of Service Learning Centers in eight to ten underserved communities. Based upon these assessments, the Review Team was asked to make recommendations about the feasibility of establishing a new dental school at East Carolina University.

As part of the assessment of the *Plan* and related issues, members of the Dentistry Review Team site-visited both the UNC-CH and ECU campuses to meet with University officials and other public as well as private organizations that provide dental care to the state's underserved communities, along with dental professional society leaders. The consultants' findings and recommendations have been incorporated into this report.

Members of the Review Team included: Dr. Denise K. Kassebaum, Dean of the University of Colorado School of Dentistry; Dr. Richard W. Valachovic, Executive Director, American Dental

Education Association; and, Dr. L. Jackson Brown, Associate Executive Director, American Dental Association.

Review Process

The Review Team had access to the *Plan for Dentistry*, reviews from three external consultants on the dental predoctoral curriculum, dental Medicaid financing and general dental education financing. These consultants are nationally recognized with long-standing expertise in these areas and provided comprehensive reports that were of value to the Review Team.

The Review Team spent three days in North Carolina with one day at UNC-CH campus and a second day at the ECU campus. They heard from a variety of representatives from each institution during the site visit. Senior administrators at both institutions began the day at each of their respective campuses by expressing their willingness to cooperate on improving the oral health of North Carolinians. Information about the dental school curriculum at UNC-CH and a detailed description of the proposed plan for the DDS curriculum and program at ECU were presented. Representatives of the North Carolina Area Health Education Commission, the North Carolina Office of Rural Health and Community Care, and the UNC Cecil G. Sheps Center for Health Services Research met with the Review Team to present the most current and detailed information available on the dental needs and workforce in North Carolina.

Meetings were held with the leadership of the North Carolina Dental Society who expressed their desire to participate in a constructive way in addressing the oral health needs of the citizens of North Carolina. They brought to the Review Team's attention a range of interests and concerns of their membership.

Analysis of the *Plan for Dentistry*

The *Plan for Dentistry for North Carolina* proposing to enlarge the dental program at UNC-Chapel Hill while establishing a new program at East Carolina University should prove to be a major positive step towards meeting a serious need in the state. The *Plan* as proposed will strengthen the UNC

School of Dentistry, the flagship dental school in the state, already one of the finest dental schools in the world, by providing for investment in a needed new dental sciences building and educational facilities to increase the class size from 81 to 100. The proposed development of a dental school at ECU, with a similar mission to the one embraced by the Brody School of Medicine, has the potential to graduate dentists oriented to rural practice who could settle in the North Carolina communities where dental care is presently in short supply. From the consultant panel's perspective the *Plan* details how the two dental schools could co-exist and flourish with their complementary missions.

The need for more dentists was confirmed by an analysis of workforce data, current projections for state population growth, and on-site interviews that detailed a significant imbalance in the distribution of dentists that currently leaves the eastern part and other rural parts of North Carolina with very limited dental resources. North Carolina is one of the ten largest states by population and it is also one of the fastest growing states. The North Carolina dentist to population ratio is currently 4.1 dentists per 10,000 people compared to the US national average of 5.8 dentists per 10,000 people. Even with the increases proposed in the *Plan*, North Carolina will still be considerably below the national average with 4.9 dentists per 10,000 people. These points are demonstrated in the graphs appended in Attachments 1 and 2.

Findings and Recommendations Following the On-Site Interviews

General

The Review Team for Dentistry endorses the underlying and conceptual basis of the *Plan for Dentistry in North Carolina*. The Review Team noted that this plan provides for a comprehensive educational approach to addressing the oral health needs of North Carolina in which there is no unnecessary duplication. While making this judgment, the Review Team would like to recognize the many successes that North Carolinians have enjoyed due to an outstanding and productive dental workforce.

The huge majority of North Carolinians are very well-served by a competent dental workforce led by

a well-prepared, motivated group of practicing dentists. However, several factors that are operating in the state led the Review Team to conclude that innovative new approaches that supplement and compliment this outstanding workforce would be very helpful to North Carolinians.

As highlighted previously, North Carolina is one of the fastest growing states in the U.S., but it ranks 47th in the number of dentists to serve the population. Unless more dentists enter the North Carolina workforce this condition will deteriorate further. Moreover, the dentists in North Carolina are currently located predominately in the metropolitan areas of the state, leaving some rural areas and central urban areas underserved.

The *Plan* provides solutions for several oral health issues that confront North Carolinians. It will generate more dentists while preserving the crucial role of dentists in diagnosis and overall patient management.

The issues confronting the state of North Carolina are urgent and we recommend that the *Plan* be implemented as soon as possible. The *Plan* addresses urgent needs for education, access to care, and facilities that will enhance the oral health of North Carolinians.

The *Plan* will not simply expand the existing structure of dental education but instead offers several attractive innovations that will place North Carolina in a leadership role for dental education throughout the country. The *Plan* provides for optimizing dental education and research programs at UNC-CH and ECU while providing cost-effective services to needy populations. The outcome of these initiatives will be closely watched by leaders in other states and could provide solutions for these challenges nationwide. The strength of this plan is in its entirety with its cutting edge research, a properly calibrated workforce, and novel approaches that leverage limited public funds.

UNC-Chapel Hill

The School of Dentistry of the University of North Carolina at Chapel Hill enjoys a well-deserved and long-standing international reputation for excellence in dental education. The faculty of this school are constantly exploring ways to improve an already outstanding and time-tested curriculum. Their Community-based Dental Education Program (DISC) is highly regarded and provides excellent

educational experiences for dental students while addressing some of the oral health needs of underserved populations.

The largest proportion of its graduates has provided outstanding dental services for generations of North Carolinians. Other graduates have risen to preeminent positions of leadership in education, research and organized dentistry. It has been among the most successful dental institutions over an extended period in securing funds to conduct outstanding and frequently ground-breaking research. This national treasure must continue to provide its important contributions to North Carolina and the Nation.

The Review Team noted that North Carolina's strong and diverse applicant pool can absorb contemplated increases in class size at UNC-CH. The Review Team was provided with data that showed that there were 243 completed applications from North Carolina residents of which 175 were deemed highly qualified for consideration for admission entering in 2006. Of this pool of North Carolinians, only 65 could be accommodated. It is important to recognize that UNC-CH has the largest percentage of under-represented minority students in its student body than any other majority school. This is highly commendable in light of the current national health professions educational environment.

UNC-CH needs the funds identified in the *Plan* to renovate its research and educational space. In order to maintain this tradition of excellence that the School of Dentistry at UNC-CH enjoys, expansion and modernization of facilities are needed. These changes will enable UNC-CH to increase class size and compete for research funding that requires advanced and modern research facilities and equipment.

East Carolina University

The overall plan for the new dental school to be located at East Carolina University is well thought out and certainly within the range of acceptable approaches to dental education. At the same time, their approach incorporates several innovative elements that offer realistic and sound solutions for some of the compelling issues in dental education today. The model emphasizes general dentistry and pediatric dentistry, consistent with the overall primary care emphasis at ECU. The proposed model for the dental school mirrors several key components of the very successful primary care approach employed by the Brody School of Medicine, which has been successful in educating competent physicians who have

located in underserved areas and provided primary medical care for North Carolinians. The use of similar elements in the proposal for the dental school at ECU enhances the confidence of this Review Team that the new dental school will yield similar successes.

Although the first three years offer many of the curricular elements offered at other dental schools, in particular, the fourth year breaks new ground in clinical dental education with the establishment of the community-based service learning centers, a novel approach to provide real practice experience for students while providing much needed dental services to underserved populations.

The business model for the SLCs is based on sound financial and economic principles, and has used a sophisticated methodology to determine the staffing composition and location of these sites. The plan for the faculty and non-faculty staffing of the dental school appears appropriate.

This proposal describes a cost-effective approach to clinical dental education while providing services to underserved populations by creatively leveraging public funds with private practice principles. The opportunities for federal GME and state Medicaid funding to support the proposed clinical care are encouraging. It is an approach that the Review Team strongly endorses.

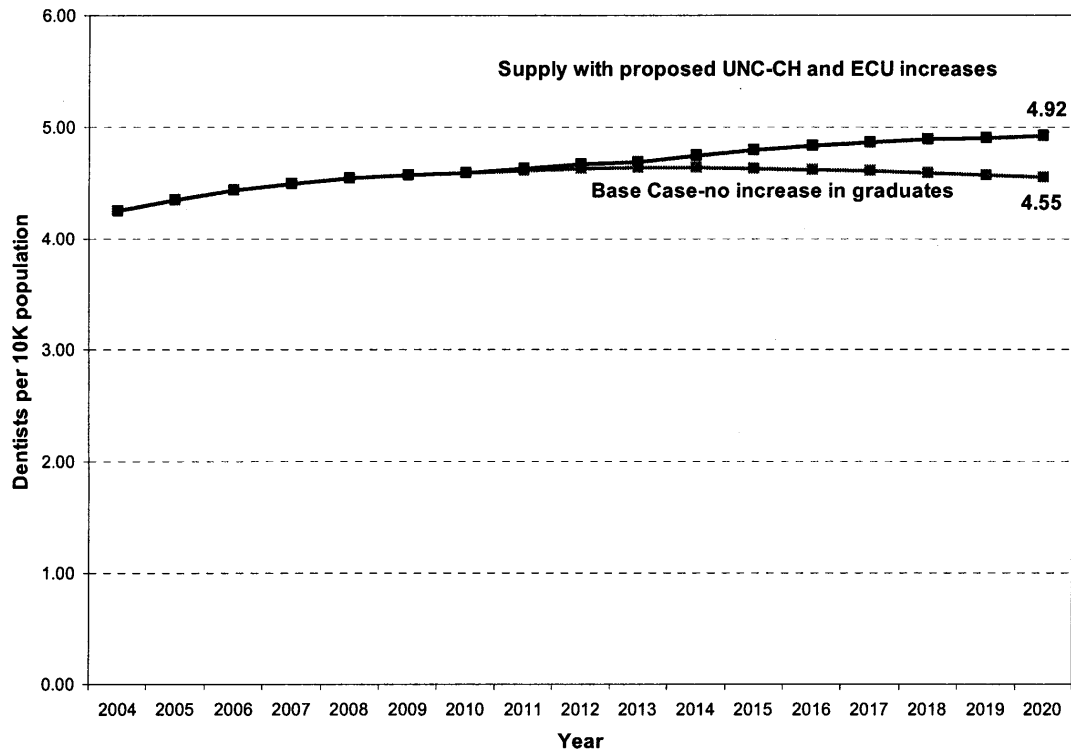
Conclusions

A key element in the success of the *Plan for Dentistry* is the continued cooperation and collaboration between the two institutions and other interested stakeholders. The *Plan* provides for the success of complementary and distinct missions of the two schools. The *Plan* also will maximize faculty resources by sharing specialists faculty and using them not only in the DDS programs but also in post-graduate dental education including specialty and general practice programs. A creative use of faculty will allow both schools to augment the broad array of skills and talents needed in cost-effective dental education. The *Plan* also supports the use of technology to increase this cost-effectiveness and increase geographical span of the educational process. A particularly attractive opportunity exists in the blending population-based research at the community-based SLCs into current research activities at UNC-CH which has the potential to augment the strengths of both institutions.

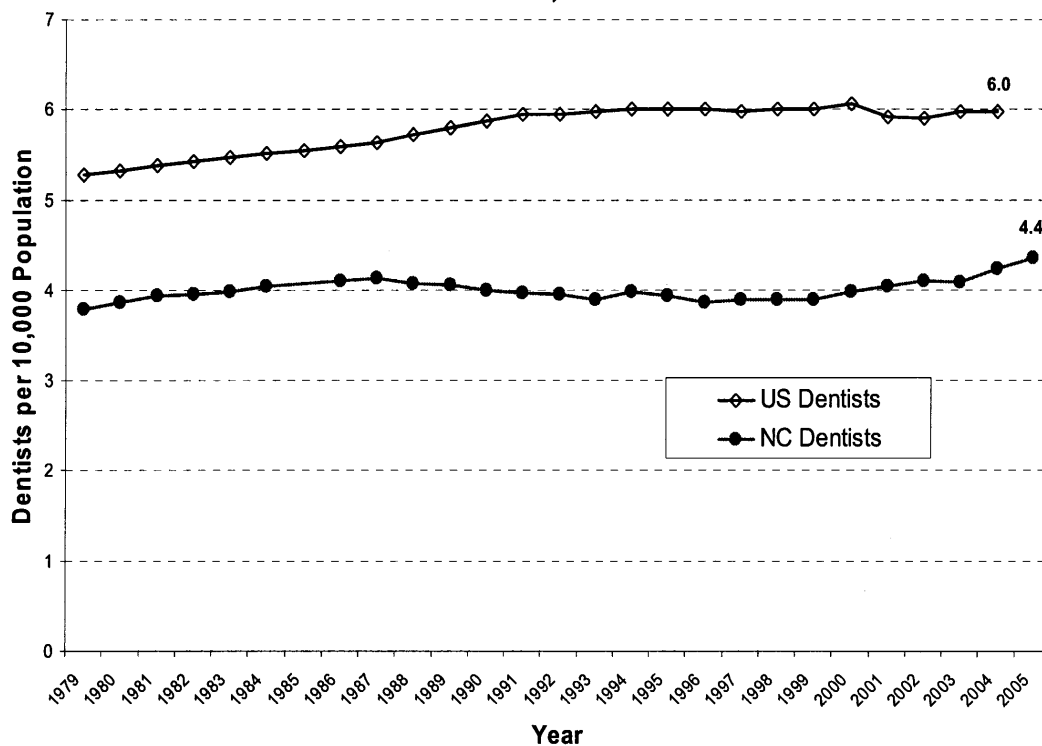
As the *Plan for Dentistry for North Carolina* moves into an implementation phase, the Review Team encourages continued input and participation by nationally recognized experts as its details are formalized. As indicated in the *Plan*, it is important to continue to monitor workforce, oral health and access trends in North Carolina and amend *the Plan* based upon those trends. Finally, it is important to recognize while creative and innovative, this *Plan* should not be viewed as a single solution to the oral health and access issues. The Review Team encourages the leadership of all stakeholders to build upon the *Plan* to continue to create a dynamic strategy for addressing the oral health of North Carolina.

In conclusion, the Review Team finds that *the Plan for Dentistry for North Carolina* is feasible and realistic, and will not adversely impact existing institutions or programs.

Projections: Dentists per 10,000 Population, 2004-2020



Dentists per 10,000 Population, US and NC, 1979 to 2005



Sources: North Carolina Health Professions Data System, 1979 to 2005 with data derived from the North Carolina State Board of Dental Examiners; HRSA, Bureau of Health Professions; US Bureau of the Census; North Carolina Office of State Planning. Figures include all licensed active dental hygienists. North Carolina population data are smoothed figures based on 1980, 1990 and 2000 Censuses.

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.