

External Review: East Carolina University's proposal to establish a Doctor of Dental Surgery degree program

1. What is the pool of good students for such a program and what are the employment opportunities for graduates both in and outside the academy as may be appropriate?

The planning document provided strong evidence for the need for this academic program in North Carolina, including the North Carolina Institute of Medicine report on Dental Care of Low-Income Persons (2002) that indicated that the state faces a shortage of dentists and that the supply is not likely to meet demand in the near-term. Thus, employment opportunities for graduates of this dental program would seem excellent in both the private, public and academic sectors.

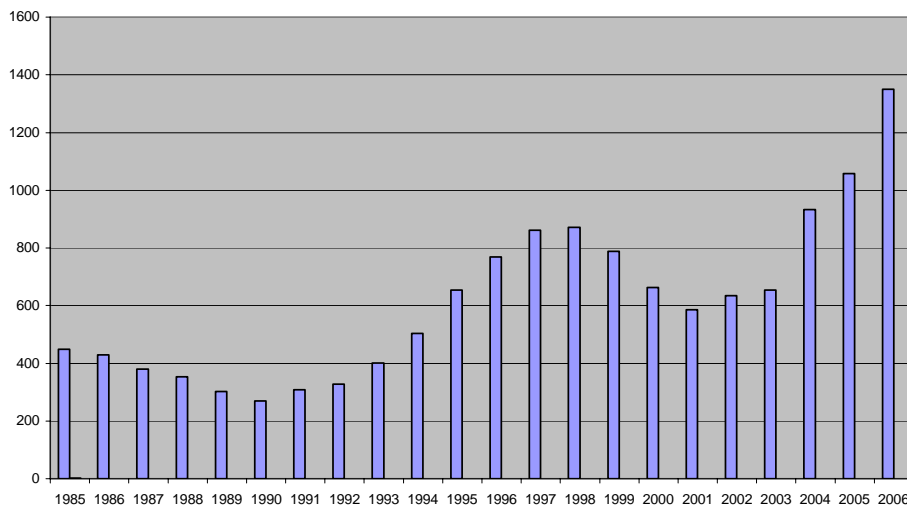
Likewise, there has been an increase in applications to dental schools throughout the United States, and the rate of growth appears to be even greater in the south eastern "growth" states. Richard Weaver and colleagues recently published an analysis of dental school applicants and enrollees in the United States in 2003 and 2004 (J Dent Educ 2005 Sep;69(9):1064-72). As reported in that paper's abstract:

"Following a 25 percent decline in dental school applicants between 1997 and 2001, from 9,829 to 7,412, the number of applicants over the last three

years has increased to 9,433. Based on the rate of applicants to the class entering in the fall of 2005, it is estimated there will be a further 10 to 15 percent increase in the number of applicants, thereby exceeding the 1997 number of applicants. The number of first-time, first-year enrollees rose from 4,039 to 4,457 (10.4 percent) between 1996 and 2004, during which time three new dental schools were established (Nova Southeastern University; University of Nevada, Las Vegas; and Arizona School of Dentistry & Oral Health). Almost 54 percent of the 418 additional first-year positions can be attributed to the three new schools. Slightly over 47 percent of the dental school applicants were enrolled in 2004; 55.4 percent of the applicants in 2003 were enrolled. The number of applicants per first-time, first-year position was 2.12 in 2004 and 1.81 in 2003. It was 2.31 in 1997, the last peak of dental school applicants. (The most recent low was 1.34 in 1989.) The average GPA of the first-time, first-year enrollees continued to increase slightly, standing at 3.35 for science GPA and 3.44 for total GPA. Over the last several years there has been essentially no change in the average academic average and total science DAT scores of the first-time, first-year enrollees, standing at 18.7 and 18.5 respectively. However, the average perceptual ability score has declined slightly, from 18.1 to 17.3. Women were 43.9 percent of the applicants and 42.4 percent of the first-time, first-year enrollees in 2004. Five years ago, women were 38.6 percent of the applicants and 36.5 percent of the first-time, first-year enrollees. Underrepresented minorities comprised 12.4 percent of the applicants and 11.6 percent of the first-time, first-year enrollees in 2004. These percentages are little changed from those reported since 2001."

Our experience with applicants to the University of Florida College of Dentistry mirrors the national findings, as illustrated in the following graph:

UFCD DMD Program Applicants 1985-2006



The University of Florida has experienced a significant increase in number of applicants to our college, particularly from 2003 to the present. We expect to have about 1600 applicants for our 80 first year dental school positions. I would expect a similar trend of demand exceeding supply of dental school student positions for the proposed program at East Carolina University. It is reasonable to expect an adequate pool of qualified students for the dental program, with a reasonable distribution of applicants by gender, but most likely, an under-representation of minority applicants. The proposed program should emphasize the recruitment of qualified candidates that reflect the demographics of North Carolina. The proposed program may need to pay additional attention to the recruitment of underrepresented minority students in order to accomplish the core educational philosophy as outlined in the planning document.

2. Is the curriculum appropriate for the degree level and does it reflect accepted standards, practices, and current trends in the discipline?

The curriculum, as described, would meet accepted standards including those of the Commission on Dental Accreditation (CoDA), practices and trends in dentistry. The curriculum was described as novel and innovative, but in fact, a similar model was used by the University of Pennsylvania (See: Educating the Dentist of the Future: The Pennsylvania Experiment by D. Walter Cohen, 1985) or is currently used by the University of Colorado. The proposed curriculum is well described and is appropriate in terms of the content, clock hours, number of semesters, weeks of instruction, etc. The school prerequisites were not included, and the school might want to consider making biochemistry a prerequisite, and focusing the dental curriculum on more contemporary cellular and molecular biology topics with an emphasis on dental clinical relevance. I was disappointed that curriculum resembled a very typical collection of discrete courses, and there did not seem to be much attempt to tie courses together or to emphasize dental clinical relevance, particularly within the basic science courses. I applaud the planners for their emphasis on dental public health coursework, and I wish that this was better integrated with the ethics and professionalism coursework, or the community-service activities. The introduction of clinical experiences early in the curriculum is very positive.

3. How would you assess the quality and size of the faculty they identify for the program and what is the current availability of strong faculty for such a program?

The planning document states that the School of Dentistry will employ 67 FTE faculty. Four faculty will be full-time administrators (dean and associate deans for admissions/student affairs, academic affairs, and clinic/business affairs).

This represents a fairly “lean” administrative structure, and additional areas of administrative emphasis could include research and extramural education.

The five faculty assigned to basic science education seems reasonable, particularly with the proposed cross-appointments and with the assistance and cooperation of the other schools on the health center campus.

Two faculty with graduate training in material and engineering sciences may be more than what is needed, and it might be interesting to consider collaborative teaching initiatives with other dental schools to develop teaching materials to be shared among a group of schools, particularly if the school has difficulty recruiting such faculty. Likewise, the four faculty with research emphasis in epidemiology, health services research or management may be more than what is needed unless the school is planning to develop a strong research program in this area, in addition to teaching dental students. This approach would be consistent with the mission of the school. However, in reviewing the business model for the program, the estimates for faculty salaries for both the biomaterials faculty and the public health faculty seem unrealistically low, and this could result in difficulties recruiting such faculty.

Thirty general dental faculty seem appropriate, and the proposed budget allocates reasonable salaries for these faculty. The 22 dental specialty faculty were not well justified, and it wasn't exactly clear to me how these specialists fit into the educational model. I'm assuming that the specialty faculty would teach the didactic, preclinical and third year clinical courses, but would not be involved in the fourth year education except, perhaps, through distance learning or teleconferencing. It may be challenging to recruit these specialty faculty, given that the school will not be offering specialty education programs other than pediatric dentistry. Will there be a faculty practice on the main campus for these specialists? This is a critical issue if these faculty will be required to generate a significant portion of their salaries through clinical practice.

The shortage of qualified academic dental faculty remains a great challenge to dental education. The Center for Educational Policy and Research, American Dental Education Association (ADEA) publishes an annual report regarding “Dental school vacant budgeted faculty positions: academic year 2004-05.” The most recent report indicated:

“The number of vacant budgeted faculty positions in dental schools has continued to decline, dropping from 296 in 2003-04 to 275 in 2004-05. The number of lost positions declined to twenty-five, from 147 lost positions reported in 2003-04. While the average number of vacancies per dental school was just under five, three-quarters of these vacancies were considered usual and normal to the operation of the dental school. Based on ADEA's

annual survey of dental educators, there was approximately a 9 percent faculty turnover between 2003-04 and 2004-05, and according to the 2003-04 and 2004-05 surveys of vacant faculty positions, it is taking longer to fill vacant positions. The greatest challenges influencing the ability of a school to fill a vacancy were salary/budget limitations and lack of response to a position announcement. Still, between 2003-04 and 2004-05, the number of dental school faculty increased from 11,348 to 11,715, including 4,736 full-time, 5,097 part-time, and 1,791 volunteer faculty members. Employment status was not reported for ninety-one individuals. Private practice remains the primary reason for faculty separations and the source of new faculty. In addition, nearly one in four new faculty members entered dental education directly following graduation from a dental or postdoctoral education program. While it may take longer to fill positions and it has become more difficult to fill some vacancies, overall, dental school deans indicated that the number of vacancies was not affecting the quality of dental education. However, between anticipated faculty retirements and current levels of faculty turnover, continued support for and development of faculty recruitment and retention programs remain essential to maintaining a quality dental education workforce." JE Chmar, RG Weaver and RW Valachovic. J Dent Educ. 2006 Feb;70(2):188-98.

Recruiting and retaining dental academicians is a challenge facing all US dental schools. However, the situation appears to be improving slightly and several national initiatives are underway to address this challenge, including:

- the recently launched ADA Foundation campaign, "Dental Education: Our Legacy – Our Future" (see www.ada.org),
- ADEA Academic Dental Career Network (see www.adea.org)
- The Academy for Academic Leadership Institute for Teaching and Learning (www.academicleaders.org)
- Academic Dental Careers Fellowship Program to encourage dental students to consider careers in academics sponsored by ADEA/AADR with funding from the ADA Foundation

Some, if not all, dental schools have recognized the great potential of attracting dental faculty from among successful practitioners who are considering a career change and might be interested in dental academics. These individuals often need support as they consider career changes or to facilitate their success once they make the decision to join a faculty. Colleges can either provide faculty development opportunities on campus, or these learning opportunities are being developed through collaboration with other institutions or organizations. For example, the Institute for Teaching and Learning (ITL) Program for Dental School Faculty is a professional development program designed to prepare dentists and dental educators for successful academic careers. The overall

program goal is to help participants, designated as ITL Scholars, refine teaching skills that will enhance the quality of their interactions with students and develop other skills that will facilitate confidence, job satisfaction, and professional growth in the academic environment.

A new dental school should consider faculty development a priority as it works to build and enhance its faculty, and should budget accordingly for faculty recruitment, retention and professional development.

4. How would you assess the research achievements of the current faculty and what are the expectations for scholarship and funded research for such a program? - not relevant

5. What are the requisite strengths in related degree programs at a lower level and at the same level to support the new program?

The proposed dental program builds on several important strengths of East Carolina University. The DDS degree will be offered through the East Carolina University School of Dentistry, which will be one of four schools in the Division of Health Sciences, joining medicine, nursing and allied sciences. The Brody School of Medicine (BSOM) has been recognized for its success in primary care. The educational and service goals of the School of Dentistry are well articulated and consistent with those of its academic neighbors on campus, including the BSOM. Being positioned on an active health campus allows many advantages, including shared resources and infrastructure, faculty and student collaborations and opportunities for interdisciplinary programs and clinical initiatives.

6. What resources are needed to make such a program successful, and does the proposal adequately characterize needed resources?

The resources needed for an excellent school of dentistry are well characterized within the proposal, and include qualified students, excellent faculty, appropriate facilities and campus infrastructure, and necessary operating capital. The proposal may underestimate the challenge associated with recruiting high quality faculty, particularly the dentist specialists and the “super generalists” who will supervise students and residents at the community-based sites.

The “Business Model for Community-based Practices” is well written, but raised some questions and concerns. If the practice unit includes 1 FTE general dentist faculty, 2 FTE residents and 2 senior students, the school would need 25 practice

units to educate the senior class of 50 students. The capital requirement section of the proposal did not include much narrative, but it seems that from years 2 through 7, the school would build 10 community-based sites at \$3M per site. Where will the remaining dental students be educated, or will each site house two practice units? Will some of the community-based sites be strictly pediatric sites, and how will these be staffed? Will dental students rotate to these sites for a portion of their senior year? The proposal will use GME funds to pay resident stipends, but who will pay for the other educational costs associated with these residents' education? The clinical fees to be paid by the Medicaid program are always vulnerable. Also, if the practice is relying largely on Medicaid-supported patients, will the students have the opportunity to provide "comprehensive" general dental care for the adult patients? The practice overhead is estimated to be at 64 percent or the same as experienced by private practitioners. This seems optimistic.

The proposal requests capital support for both a Greenville facility and community-based sites. There was not enough detail in the proposal to assess the adequacy of the request, or to understand how the Greenville facility would be designed to support to proposed program as compared to the community-based sites. For example, will the Greenville site include a multidisciplinary faculty practice as well as student clinics, classrooms, preclinical simulation laboratory, etc.? Will the community-based sites be strictly dental clinics, or will they also offer medical and social services, for example?

7. Please summarize what you see as the strengths and weaknesses of this proposed program and provide any advice for improving the program.

Strengths

- There is strong evidence to support the need for an additional dental education program in North Carolina.
- The school's educational philosophy and mission is clearly articulated, is consistent with the other health colleges on campus, and focuses on the need to develop primary care dentists willing to serve in rural and underserved counties in North Carolina.
- The dental school proposes to use an innovative model in which the dental students will complete their first three years on the main campus, followed by a fourth year primarily at community-based sites located throughout eastern North Carolina. The model should not only provide a strong clinical education, but should also improve access to dental care for residents in these communities.

- The curriculum includes the early introduction of clinical experiences, as well as extensive community-based education with small group/mentored clinical learning experiences.
- The school intends to leverage the campus expertise using technology (electronic patient record, telehealth and videoconferencing, etc.) in the educational and clinical aspects of the program.
- The proposal indicates that the dental students will be involved in interdisciplinary education in clinical and non-clinical settings.
- The proposal builds on the support and enthusiasm of the North Carolina AHEC program, which is well recognized for its efforts to expand educational opportunities in rural communities.
- As proposed, the college should be able to meet the accreditation standards set forth by CoDA.

Weaknesses

- Innovations in dental education are important and much needed. I have some concerns that models such as those presented in this proposal have been tried before and can pose significant challenges. For example, the “Pennsylvania Experiment” was conducted by the University of Pennsylvania in the late 1970’s and early 1980’s (See: Educating the Dentist of the Future: The Pennsylvania Experiment by D. Walter Cohen, 1985). Such experimental models of education may have positive educational outcomes, but may not be sustainable due to financial challenges, or the challenges recruiting and retaining the “super general dentists” needed to mentor the students in the teaching clinics. On the other hand, the University of Colorado has successfully carried out a similar educational model for many years, so lessons can be learned from the Colorado experience.
- The distributed model of dental education will require strict attention to faculty calibration, particularly with the assessment of competency prior to graduation.
- The collaboration with the University of North Carolina at Chapel Hill was not well described in the materials available to me for review. Likewise, the proposal did not provide much detail about how it would develop the research component of its mission.
- The proposal did not emphasize the recruitment of disadvantaged or underrepresented minority students. Rather, the program should emphasize the recruitment of qualified candidates that reflect the demographics of North Carolina and may need to pay additional attention to the recruitment of underrepresented minority students in order to accomplish the core educational philosophy as outlined in the planning document.
- The proposed program will require excellent financial and clinical management to ensure sustainability.