Access to Primary Dental Care:
A Commentary on the Economics of Dental Practice and Thoughts on Solutions to Improve Access to Primary Dental Care

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Imagine a world in which there were no self-induced health problems. A world in which there were no obesity, no hypertension, no motor vehicle accidents, and no oral health problems. Realistically however, we realize that all of these conditions exist because accidents happen, individuals ignore information that contributes to healthful lifestyles, and most people are not motivated to change their unhealthful habits to healthful ones, and sometimes healthcare services are not available to provide care for those in need. In addition to accidents, knowledge, and motivation, economics play a major role in the availability of healthcare services.

A current topic of discussion in dentistry and medicine is lack of access to services to prevent and manage unhealthful conditions. It has been observed that many people living in the 100 counties of North Carolina, particularly those in counties with a lower-economic vitality, lack access to dental care. An uneven distribution of dentists practicing within the state exists in that only eight counties have a dentist-to-population ratio at or above the national average of 5.8 dentists per 10,000. These eight counties contain the large population centers in the state. Another 78 counties have fewer than the national average numbers of dentists and, thus, are designated by the federal government as dental shortage areas. Four counties of North Carolina have no dentists.[1] Much of the dental workforce literature uses a simple calculation of dentist-to-population ratio to determine shortage or surplus numbers of dentists relative to national averages without much consideration of today's dental practice economic influences on access.

Access is a complex concept with a strong economic influence. Having adequate access, requires certain behaviors on the part of both the providers of health services and the receivers of health services. The United States healthcare system operates in a free market, capitalist economy where producers and consumers have a variety of alternatives upon which to base healthcare purchasing decisions. As with any free market, those with more financial resources have more choices. An important distinction is that *medical* care costs function differently than *dental* care costs when medical insurance is available. Most consumers with medical insurance are oblivious to the costs of services in advance of receiving them, and prior to the consumer seeing the final costs, much discounting of the full fees charged occurs through third-party contracting and negotiated prices. In contrast, dental costs, with or without insurance, are usually known in advance of receiving treatment, and the consumer can make an informed economic decision.

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Another significant difference between medical and dental

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market costs is the extent to which third-party payers (insurance companies) are present. In North Carolina, fewer persons are covered by some form of third-party payment mechanism for dental care than for medical care, which has approximately 87% of the population covered by an employer, individual, or government-sponsored programs.[2] Dentistry has avoided much of the market influence of third-party payers, who can establish what they will pay through a schedule of benefit payments or determine payments based on regional usual, customary, and reasonable (UCR) fees. In economic terms, dentists, for the most part, are price makers, which gives them freedom to set fees for professional services, while our medical colleagues have become price takers—receiving whatever a third party decides to pay regardless what fee a physician may charge. This difference is significant because it has a major influence on the way dental care and, ultimately, dental care access is made available.

The supply of providers (physicians and dentists) also has an impact on the free market system. In the mid-1980s, there was a national concern over the existing number of dentists graduating from dental schools, which in some parts of the United States was perceived as an "over-supply" of dentists. Between 1983 and 2001, six private dental schools closed, and the national number of dental graduates fell from 5,756 in 1983 to 3,778 by 1993, a decline of 34%. In recent years, three new dental schools have been established, but enrollments have only increased to approximately 4,300 dental students nationally.[3] The reduction in the national supply of dental graduates by over 30% gives the dentist of today a huge market advantage when determining what fees to charge, where and when to practice, and what type of payment source (i.e., private pay, insurance, or Medicaid) to accept. Therefore, from a purely economic standpoint, dentists operating in the free market can optimize their economic benefit and avoid less financially beneficial payment arrangements. In practical terms, this explains why dentists locate in urban areas (generally more vital economic environments relative to rural areas) and avoid participation in poorly funded, third-party payment programs like Medicaid. The financial alternatives are simply too compelling.

This is not to suggest that dentists aren't concerned about access and don't participate individually or as part of various programs to reduce the access problem by providing free dental care. Many dentists do these altruistic things. From a purely economic perspective, however, this market phenomenon explains how and why dental care is delivered in the United States today, and why many states, including North Carolina, have an uneven distribution of dentists and access problems.

In contrast, enrollments in medical schools during this same 22-year time span remained unchanged despite a national call in the mid-1990s to reduce the entering medical school class size by 20-25% by 2005.[4] This reduction did not occur. While the numbers of primary care physicians in North Carolina are also a concern, relative to dentists, there are large numbers of physicians in the healthcare economic market.* This has limited physician influence over what fees to charge, where and when to practice, and what type of patients to see due to heightened competition. Third-party payers can more easily dictate the economic terms within a more competitive healthcare market.

At this point, one might ask what all this discussion of healthcare economics has to do with dental care access. I assert that our current economic climate is the basis for understanding this extremely complex topic of access and will add to one's understanding of what solutions might or might not work to improve access for the underserved populations in North Carolina.

Access to care is not only complex, but a relative concept as well. I draw on my personal knowledge of access to dental care problems in Kentucky. Kentucky is a state not very different from North Carolina in demographic and economic characteristics, but with less than half the population of North Carolina and enrolling twice as many dental students in two dental schools. Comparisons of oral health status and behavior reported by the Centers for Disease Control and Prevention (CDC) as part of the Oral Health Surveillance Program make it possible to study some dental behaviors and outcomes nationwide. Findings related to North Carolina and Kentucky indicate that, relative to the United States as a whole, Kentucky and North Carolina are doing a comparable job of providing some dental care access for the public. Compared to Kentucky, in percentage terms, in 1999 about the same percentage of people in North Carolina visited dentists annually (67.2% vs. 67.6%), and about the same percentage of the population received a tooth cleaning (68.2%), while fewer people in North Carolina had lost their natural teeth (24.4% vs. 44.3%).[5]

In 1999, these North Carolina dental health outcomes were achieved in a state with one dental school enrolling 75 doctor of dental surgery (DDS) students per year and with a statewide DDS-to-population ratio (4.3 DDS per 10,000) below the national average (6.4 DDS per 10,000).[6]

At this point, I'll summarize my commentary on today's economic market on the access question as follows: (1) access is a complex topic; (2) the free market of economics in dental care delivery has a significant influence over dentists in terms of where, when, type of practice dentists choose, and the extent of their participation in Medicaid programs; and (3) determining whether a problem with access to dental care exists is relative to the desired dental care outcomes.

With this economic context in mind, and having a major influence over the current dental delivery model, we can do better for the citizens of North Carolina. There are compelling reasons to work harder to improve the dental health outcomes of the state. As the old economies of tobacco, textiles, and

* In 2004, there were 7,401 primary care physicians and 3,628 dentists practicing in North Carolina. That same year, the physician-to-population ratio was 8.6 per 10,000, and the dentist-population ratio was 4.2 per 10,000 population. Cecil G. Sheps Center for Health Services Research. University of North Carolina at Chapel Hill. Health Professions Database. Available at: http://www.shepscenter.unc.edu/hp/prof04.htm. Accessed November 2005.

furniture have gone away, new economic opportunities will depend even more on a healthy workforce, which includes a population with good dental health. I suggest four strategies to consider as alternatives to improve access and, ultimately, the quality of oral health for our state's population.

Expand DDS Educational Capacity at the University of North Carolina at Chapel Hill (UNC-Chapel Hill) School of Dentistry

Given the projected 52% growth in the North Carolina population (more than 12 million individuals) over the next 25 years and making some cursory assumptions about the state's current dental workforce demographics (retirements, etc.), it is prudent to increase the capacity for enrolling a larger DDS class size at UNC-Chapel Hill for a period of time.[7] University planning for this event started two years ago. We need to expand the dental education enrollment capacity by 50% (to an enrollment capacity of 120 per class) and be sensitive to ever-present market forces such that we can adjust enrollments either up or down in response to the demand for dental services. The rationale for expanding the UNC-Chapel Hill program is: (1) economy of scale, (2) availability of dental faculty, and (3) a 50-year history of graduating dentists as primary care general practitioners.

First, the American Dental Association monograph on the Economics of Dental Education reports that economies of scale are provided by expanding an existing dental school's enrollment (lower marginal cost per student) rather than incurring higher educational costs per dental student enrolled in a small (less than 50-member class) dental school.[8] Over time, adding 20-to-40 more dental students to the existing class size of 81 could be done in an incremental fashion. An upgrade in facilities would be needed to handle the maximum capacity of up to 120 dental students per class, and planning is already underway.

Second, at the national level, there is a concern about the availability of dental faculty to teach. The American Dental Education Association (ADEA) states that in 2003-2004, there were more than 240 vacant, but funded dental faculty positions existing at the 56 United States dental schools.[9] While this number has declined over the past five years, it has remained above 200, with most vacancies occurring in the clinical sciences. An established dental school with an existing faculty can more readily handle faculty shortages by reallocating faculty responsibilities in the short run.

Finally, most dental school graduates, and certainly those at UNC-Chapel Hill, enter primary care general practice. Since 1954 when the first DDS graduated from UNC, over 75% of the students have entered primary care general practice and have located throughout the state.[10]

Enhance the Integration of the Dental Care Delivery System

North Carolina is fortunate to have an existing Community College network of educational programs for educating dental hygienists and dental assistants. Better integration of the dental team during their education programs can improve productivity once in practice. There are dental care delivery systems in other states that make use of expanded-duty dental assistants and have expanded duties for dental hygienists. These arrangements can add to dental office productivity and, hence, expand access. It has been suggested that dentists should enhance their productivity through new workforce models, and North Carolina should be active in these discussions.[11,12]

Institute a Required, One-Year Post-DDS General Dental Residency Program for All Newly Licensed North Carolina Dentists

Utilizing the emerging network of dental clinics in low-access areas, the existing Federally Qualified Health Centers (FQHCs), contemporary instructional technologies and in partnership with the state Area Health Education Centers (AHEC) system, it is feasible to deploy dental graduates into a one-year general dental residency program. This could be a requirement for all graduates who attend UNC-Chapel Hill. This concept has been discussed as a realistic way to better prepare dentists for the future and can improve access.[12,13] The advantage of using dental graduates over the reliance on third- or fourth-year dental students to provide care is the graduate's better understanding and application of comprehensive care. They are more efficient and can expand their knowledge, skills, and values by serving the state in one of several selected low-access areas. In this way and through existing partners, the state could establish a network of facilities with an annual revolving dental workforce. Given the economic attractiveness of private dental practice today, it is unrealistic to expect past models of loan forgiveness to provide any long-term solution to expanding access. These facilities could establish the continuity of place, but the workforce would revolve annually. It would be hoped that some dental participants may elect to establish themselves in practice within the underserved geographic area and help to address the access issues over the longer term.

Improve Medicaid Reimbursement Rates for Dental Care

With a better understanding of the economics of today's dental practice, an immediate way to improve access to dental care for the state of North Carolina is to increase reimbursement rates paid to dentists to at least the 75th percentile of North Carolina private practice market rates in 2005. This would provide an economic incentive to dentists and increase the number of dentists accepting Medicaid patients. This was a major recommendation from the North Carolina Institute of Medicine Task Force on Dental Care Access in 1999.[14] Today, dentists operate in a free market and will respond favorably to these raised rates for treating Medicaid patients. The numerous practice opportunities available to dentists will require this type of program to create a broad enough Medicaid network across the state to meet the dental care access challenge.

Conclusion

In conclusion, I have provided a brief commentary on the economics of dental practice today, and how it influences the dental care access dilemma and current dental care delivery model in the state. There are compelling reasons to work harder

to improve the dental health outcomes of the state. I suggested four strategies to consider as alternatives to improve access and, ultimately, the quality of oral health for our state's population. Working in partnership throughout the state with other educational programs, the AHEC program, the North Carolina Dental Society, state government, and others, we can and will do innovative things to engage the public and improve access to dental services for the citizens of North Carolina. It is my hope that one day we will be able to live in a world in which all citizens may enjoy optimal oral health. **NCMedJ**

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