Connecting Dental Education to Other Health Professions

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Abstract: The health care delivery system is poised for substantial change in the coming years. The foremost vector driving this change is economics. However, use of evidence-based principles of practice and a high desire, if not a national mandate, for increased quality in health care delivery are also very important factors. Nestled within this large national health care debate are a set of issues that directly impact dental education and practice. Among them is the potential impact of expanded intraprofessional and interprofessional collaborations among dentists, dental therapists, dental hygienists, and nurse practitioners, among others, in search of better oral and general health care for all Americans. This article explores many of the issues involved in this possible transition with special reference to the impact of the changes on dental education.

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Rising from its roots of apprenticeship training in barber shops, through proprietary schools, to schools of dentistry integrated within major research universities, dental education in the United States has had a development pathway similar to that of many other health professions. These pathways have led for the most part to an independent set of health professions schools including medicine, dentistry, nursing, and pharmacy with a culture of collaboration that, at best, is not fully developed and, at worst, is resistant. While there are exceptions to this professional education independence that are exemplified both at some traditional health educational systems and especially at some of the newly founded health professions educational institutions, for the most part, the independent health educational paradigm is the common model of the day.

Indeed, even though some health professions were conceived from within other health professions—dental hygiene from dentistry, for example, and nursing from medicine—there has been a tendency for them to divide into separate educational pathways; and there can be resentment from the parent health profession that spawned the new one. For example, the first dental hygiene program was founded in Ohio in 1910, but it was closed shortly thereafter due to pressure from area dentists. Conversely, the nursing educational system struggled to free itself from the parentage of medicine over a period of decades to become the mostly independent educational system that it is today. Self-determination by health professions educational systems is not an inherently bad thing, but to the extent that it leads to poor communication and inadequate collaboration among various types of health professionals in clinical practice, the health of the public is put at risk, and the costs of health care delivery are vectored upward.

In recent years a variety of prestigious agencies have forcefully called for a change to the status quo in this area. The Institute of Medicine in its 2003 report *Health Professions Education: A Bridge to Quality* set a far-reaching goal that “All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.” In 2010, the Josiah Macy Jr. Foundation convened a prestigious panel that recommended in part: “Interprofessional education should be a required and supported part of all health professional education. The change is especially important for primary care. Regulatory, accreditation, reimbursement, and other barriers that limit members of the health care team from learning or working together should be eliminated.” Finally, the primary professional educational organizations focused on dentistry, medicine, nursing, pharmacy, and public health collaborated to produce *Core Competencies for Interprofessional Collaborative Practice* earlier this year. This effort identified four critical interprofessional competency domains: values/ethics for interprofessional practice; roles/responsibilities for collaborative practice; interprofessional communication; and interprofessional teamwork and team-based care. All of these competencies would be practiced within a patient/family/population-centered health care system as shown in Figure 1.

Leaders in dental education have also fostered interprofessional education either for its predicted

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**Figure 1:** Interprofessional Collaborative Practice Model

- **Values/Ethics:** Emphasize the importance of ethical decision-making and the role of values in healthcare delivery.
- **Roles/Responsibilities:** Clarify the roles and responsibilities of each profession in the interprofessional team.
- **Interprofessional Communication:** Improve communication skills and strategies to enhance collaboration.
- **Interprofessional Teamwork:** Foster a collaborative approach to patient care, emphasizing teamwork and the ability to work effectively as a team.

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positive impact on the health care delivery system or for its salutary effect on the recruitment of educators from the other professions. For example, Dr. Sandra C. Andrieu, immediate past president of the American Dental Education Association (ADEA), noting that one of the significant problems impacting dental education today is recruitment and retention of faculty members, thinks that interprofessional education can be helpful in this area. She has stated further, “I believe that life is interdependent by nature and that overall health is interdisciplinary in nature. Therefore, the health of the public is better served by health care education programs that are fundamentally interprofessional in design and delivery.”

While improved health care quality for the public should certainly be the overarching driver of change toward interprofessional education for the health professions, there is another reason to educate health professionals in collaborative settings: cost effectiveness. The most noteworthy example of how this works is evidenced by the longstanding practice of some dental schools that teach basic sciences simultaneously to medical and dental students in the same classroom. Although the dental schools at Harvard and Columbia are perhaps best known for this practice, it does exist in various forms at several other institutions. It would be wrong to think that the primary reason to combine these classes is cost because such combinations also lead to high-quality basic science instruction for both professions; moreover, it would be expected that the students from each school begin to develop mutual respect that will serve them well in their practices as health care evolves to a higher state in which interprofessional collaborative skills in patient care are pivotal.

New examples of health care education collaboration have emerged in recent years. For example, in 2005 New York University (NYU) acted to place the College of Nursing within the College of Dentistry. One year later the University of Southern California aligned its highly rated Physical Therapy and Occupational Therapy programs with its School of Dentistry. Each of the parent institutions cited the 2003 IOM report\(^1\) as one of the factors that motivated the decision. Nevertheless, such innovation in health care education is not always welcome by the
professions themselves. Having served as dean of the NYU College of Dentistry during the period of this combination, I have direct knowledge not only of the professional resistance, but also of the synergies resulting from the combination.

Components of organized dentistry initially either urged caution or condemned the combination of dentistry and nursing at NYU. However, once the profession came to understand that each professional education program within the College of Dentistry would independently meet its accreditation standards, resistance was dropped. Indeed, this collaborative educational program has been honored by several professional organizations since it was formed. More importantly, the collaboration has delivered enhanced collaborative research opportunities including significant increases in research funding; led to mutual flawless accreditation reviews; and catalyzed the introduction of new clinical educational experiences for students in each profession. On a more operational level, this combination also contributed great cost efficiencies. This is not an inconsequential benefit in an era of increasing public concern about the cost of higher education. Some examples of this efficiency include the sharing of a multimillion dollar collection of plastinated anatomical specimens across the professions, increased cross-referrals of patients between the dental and nursing clinics, and sharing of faculty members across disciplines that are too numerous to list here.

In sum, the answer to the question “Why connect education in the health professions?” is multidimensional. First, such connections help to prepare a health care workforce that should be far more skilled in the clinical practice collaborations expected to be one of the hallmarks of a changing health care delivery system that will continue to focus ever more sharply on evidence-based care, increased quality, and increased efficiency. In addition, connecting the education of health care professionals builds great economic efficiencies and assists in the recruitment, retention, and effective deployment of faculty across the professions.

Can the Curriculum Accommodate Integration of the Health Professions?

One reasonable answer to the question about the capacity of the curriculum to incorporate inter-

professional education might be that if the current curriculum cannot accommodate integration of the health professions, change it! For several years, I have been calling for substantial change, not merely one of the periodic curriculum “dust-ups” that have defined curriculum reform for decades. For change to be effective, it requires rethinking national and regional examinations, admissions requirements, and licensure procedures. Fortunately, thanks to the efforts of entities such as the Santa Fe Group, the ADEA Commission on Change and Innovation in Dental Education, and thought leaders such as DePaola and Slavkin, dental education is well positioned to complete the curriculum reinvention process.

Given that the dental curriculum must undergo significant change, the next question is this: can it accommodate the enhancements derived from interprofessional education? The answer is yes, if for no other reason than there is considerable overlap among the curricula of dental, medical, and nursing education programs. This fact was illustrated by a comprehensive survey by Spielman et al. that demonstrated there is considerable overlap between the core competencies of nurse practitioner and dental education programs. This is not surprising when one considers the parallels in basic, social, and clinical science education, some aspects of clinical education, and also community service, practice models, and research. Indeed, Spielman et al. determined that there is complete or partial overlap in 38 percent of the core competencies of dental and nurse practitioner education and more than 25 percent overlap between the core competencies of medical and dental education.

Leveraging this overlap in core competencies among these professions will certainly be useful in achieving an appropriate level of interprofessional education. However, it will take more than a didactic experience to actualize a high level of collaboration among the various health professions, and schools of health education will need to work both actively and creatively to create joint clinical training educational experiences. Community health centers constitute one obvious approach to achieve this, but to the extent that such experience is “only” a clinical training rotation, it is not likely to be incorporated into the fabric of a practitioner’s clinical ethos. Some dental schools, especially the newer schools, use such community clinical experiences not as a rotation, but as the primary modality for clinical skill development; and it will be interesting to see if graduates of these programs have a higher “interprofessional IQ.”
In the absence of robust interprofessional community health center training opportunities, schools should consider revamping their clinics to include these interprofessional experiences. For example, the nursing school on a given campus might be very interested in opening a nurse practitioner faculty practice within a dental school. Cross-referrals will develop therefrom, and dental students can have the opportunity to participate in the physical diagnosis and management of such problems as hypertension, diabetes, and hyperlipidemia. Nurse practitioners jointly appointed to a dental faculty can also assist in diagnosis and health management in the primary dental clinic of a school. Finally, as evidenced by the connection of the nursing and dental education programs at NYU, the creation of meaningful opportunities for the health professions to interact in both didactic and clinical settings leads inevitably to a significant increase in interprofessional collaborative research.

New Interprofessional Health Care Delivery Models

I have been closely involved in two components of evolving dental health care delivery models. One of these, the participation of dental therapists in dental care delivery, is hotly debated in state legislatures and the American Dental Association’s House of Delegates alike; in contrast, the potential role for nurse practitioners in dental practice is evolving quietly in the background—at least for the present!

Given the way that the dental profession welcomed the combination of a dental school and a nursing school in 2005, it is hard to believe that the implications of this combination would become less controversial than other dental care delivery issues within the decade, but this has certainly become the case. The potential role of dental therapists and/or advanced dental hygiene practitioners in dental care delivery, for the most part, has been a concept that is not welcomed by the dental profession in the United States even though it actually could be considered an intraprofessional model. At one level, this is not surprising, given the natural tendency of any profession to resist change, especially when that change is perceived as fostered by vectors that are external to the profession. Examples of this phenomenon in dentistry would be the strong resistance to the founding of the dental hygiene profession in 1910, the early resistance by dentists to wearing gloves coincident with the AIDS epidemic of the mid-1980s, and the initial resistance to improved mercury hygiene in dental practice. Yet few practitioners today would deny the value of each of these initiatives in improving the health of the public and enhancing the safety and practice of dentistry.

Alas, the profession does not seem to learn from previous miscalculations in its initial responses to new concepts in clinical care. A full discussion of the pros and cons of the various iterations of the dental therapist and/or advanced dental hygiene practitioner model is beyond the scope of this article. However, I have expressed views on the matter in different forums, and there are lively series of articles on each side of the issue in the past three issues of Global Health Nexus (also available at www.nyu.edu/dental/nexus/index.html). Nevertheless, it might be helpful to address one aspect of this debate that has been minimized, if not totally ignored. Specifically, regardless of what side one takes in this debate, the evaluation of the potential effectiveness of dental therapists in a traditional U.S. model of dental care, funded by a combination of insurance, government programs, and private pay modalities, has not been conducted. Thus, both sides should be calling loudly for clinical evaluation of the model in the mixed funding settings that are likely to prevail in most of the United States.

Proponents of the model appear to be too eager in projecting success in the United States based on successes in other countries and jurisdictions where the model is funded primarily by government. Similarly, organized dentistry is wrong in stating that the model will not work here in the absence of evaluations of it in a real-world funding scenario. Fortunately, there is a natural test of the value of one version of a dental therapist/advanced dental hygiene practitioner in the making in Minnesota as the first graduates of that state’s new programs in dental therapy begin to enter the health care delivery market.

Moving on to the interprofessional practice model wherein nurse practitioners and dentists collaborate (NPD model) to deliver health care, one can envision both great opportunities and wrenching controversies developing from this interaction too. However, there are a number of differences in this model vs. the dental therapist model. First, the NPD model is clearly interprofessional in nature. It is also not subject to additional state legislative or regulatory
action in order for the model to develop and prosper, and it can be evaluated in natural settings throughout the country at any time. Properly licensed NPs and dentists can elect to practice together in virtually all jurisdictions if they are so inclined as long as they continue to meet all of the legal and ethical obligations of their respective professions. Furthermore, unlike the dental therapist model, the NPD model does not require new modes of reimbursement to be developed, nor does it put competing practitioner income streams at potential odds with one another. Finally, and most importantly, the overall health of patients stands to benefit a great deal from the NPD model because millions of patients who visit a dentist each year do not visit another health practitioner.

Recently, Strauss et al.15 completed an interesting analysis of the Medical Expenditure Panel Survey sponsored annually by the Agency for Healthcare Research and Quality, and estimated that in 2008 there were almost 20 million patients who visited a dentist but not a general health care provider. Most of these individuals had health insurance, so their actions were not likely driven by a lack of resources. Nevertheless, projecting a normal distribution of disease patterns on this population would suggest that millions of diabetics and hypertensive and/or hyperlipidemic individuals were among the group that visited a dentist but not a general health care practitioner that year. If the NPD model was established throughout the country, it is likely that millions of these individuals would have had access to both diagnostic and therapeutic services that a nurse practitioner sited in a dental office could provide; this would mitigate the progress of some of the chronic diseases and reduce the overall cost burden that these diseases impose on society.

Health care cost and delivery methods constitute one of the most divisive aspects of public policy in this country. Health care costs consume an ever-increasing percentage of the GDP, and politicians in both parties believe that something must be done about it lest it sap the remaining economic competitiveness of the country. Deploying nurse practitioners in an interprofessional alliance with dentists to capitalize on the underutilized infrastructure of dental offices to diagnose and treat chronic health conditions before they induce irreversible tissue damage would seem to be a wise political and economic choice, not merely a good health care choice.

Can such change happen? Yes. The NPD model is legal; it effectively leverages underutilized physical infrastructure (dental offices); it creates new opportunities for NPs who tend to leave the workforce too early in part because of the pressures of hospital work schedules; it makes use of established methods for reimbursement already in place; and it meets an important national goal to help contain health care costs. Moreover, there are additional advantages to dentists who embrace the model, including the added presence of a skilled medical health practitioner in the dental office to assist in medical emergencies; the economic benefit of shared office expenses; the opening of new referral patterns; and the good will that inures to the benefit of a dental practice that expresses high interest in a patient’s general health.

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