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# "And the Band Played On . . ."

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This past year witnessed the remarkable success of the epic movie *Titanic*. Toward the end of the movie, a scene depicted the *Titanic's* band playing on deck as the ship was sinking. When survivors told the story, the scene was coupled with the popular song of the 1890s, "The Band Played On." The expression, "and the band played on" has become a widely used allusion or metaphor in which individuals continue to do what they were doing previously, in spite of an adverse event or in the face of significant environmental threats or change. I use the metaphor in this paper to challenge the leadership of American dentistry and dental education to deal with the major changes affecting our profession. These changes have been characterized as biological, demographic, epidemiological, economic, and technological.<sup>1,2</sup> And there have been repeated efforts to alert and support us in dealing with change,<sup>3,4</sup> the most recent of which was the Institute of Medicine study.<sup>5</sup> However, in my opinion, "the band [our leadership] plays on," seemingly complacent, conducting the affairs of dental education as usual. I believe that isolation is the root cause of our problem, integration with medicine the solution, and the time for change is now.

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## The Institute of Medicine Study

In early 1995, the Institute of Medicine (IOM) of the National Academy of Sciences released the results of its almost four-year study of dental education. The study was prompted by "concerns that the challenges confronting dental education, although generally recognized, were not adequately understood or appreciated and that effective responses had yet to be identified or persuasively presented." (The study was designed and overseen by a Committee on the Future of Dentistry composed of

eighteen individuals who are leaders in dentistry and higher education.) The report, *Dental Education at the Crossroads: Challenges and Change*, proved to be provocative. While offering a warning to the profession, it also issued challenging recommendations that, if followed, could avert the problems it highlighted. The report acknowledged the progress the profession had made during the past 150 years, but suggested that dentistry had arrived at a "crossroads":

Questions persist about the position of dental education within the university and its relationship to medicine and the overall health care system. . . . Six dental schools—all private—have closed in the last decade, and enrollment reductions over the last decade and a half are equivalent to the closure of another 20 average-sized dental schools. Of the remaining 54 dental schools, several are vulnerable to closure. Dental educators have important choices to make. They may attempt to preserve the status quo, in effect, a path toward stagnation and eventual decline. Alternatively, they could follow a more difficult path of reassessing and renewing their missions of education, research, and patient care so that they could contribute more—and more visibly—to the university and the community. Taking this latter path would require new vigor in implementing longstanding recommendations for educational reform as well as attention to new issues and objectives.

In envisioning the future, the report chronicled five critical elements that would lead dentistry down the road toward renewal rather than the road toward stagnation and decline:

1. dentistry will and should become more "closely integrated" with medicine and the health care system on all levels;

2. dental educators will need to teach and display desirable models of clinical practice;
3. securing resources essential for educational improvement and, indeed, survival will require that dental schools demonstrate their contributions to their parent universities, academic health centers, and communities;
4. dental leaders should cooperate to reform accreditation and licensing practices so that they support rather than obstruct the profession's evolution; and
5. continued testing of alternative models of education, practice, and performance assessment for dentists and allied dental professionals is necessary to prepare the dental community for an uncertain future.

At a 1992 summer deans' institute, which is an annual ad hoc dental deans' development workshop generally attended by twenty-five to thirty deans, the comment was made that "we need a vision for dental education." All agreed that a genuine vision was lacking. In my judgement, the IOM report gave us such a vision. Its recommendations represent a compelling and attainable vision that can renew and transform our profession. But, while there have been some advances made in effecting these recommendations, little substantive or transformative progress has been made by dental education as a whole.

It is now 1998—"and the band played on."

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## Northwestern University Closes Its Dental School

The Institute of Medicine report proved to be prophetic when it said "of the remaining fifty-four dental schools, several are vulnerable to closure. . . survival will require that dental schools demonstrate their contributions to their parent universities." The dental school at prestigious Northwestern University was one of those vulnerable schools, and proved unable to measure up to the academic expectations of its parent university.

Robert Klaus, president of Oral Health America, was invited to visit with the administration of Northwestern University to discuss their plans, and he invited Brian Bremer, treasurer of Oral Health America, and me to join him. We met with the administration just one week before the closure

decision was finalized by the Board of Trustees. We were afforded the opportunity to project for them a different future in dental education—a future (which I will subsequently delineate) that could have resulted in a continuation of professional education for dentistry at Northwestern. The provost of the university and the vice-president for administration and planning were hospitable and attentive. While supportive of our theoretical future for the school, it was obvious that the decision to close the school had been made and would not be revisited.

What we found disconcerting about the visit was the administration's view of dental education and the inertia that affects it. The provost had read the IOM report and had a thorough knowledge of the issues facing dental education. He was supportive of the directions proposed by the Institute of Medicine, even the more far-reaching ones. It was his judgment that the Northwestern faculty had discounted the relevance of the IOM recommendations. He was curious as to whether this was the position of other dental faculty. It was apparent that the decision to close the school ultimately turned on the administration's assessment of the level of scholarship of the dental faculty compared to the level traditionally expected of other faculty at Northwestern. Throughout our discussion he indicated that, had the Northwestern dental faculty anticipated and made the types of substantive changes called for in the IOM report, the action that was to result in closure could possibly have been avoided. It was a very sobering meeting, and the three of us were in a state of some despondency as we made the return trip to Chicago.

It is interesting, and somewhat ironic, to recall the posture by our leadership organization, the American Association of Dental Schools (AADS), regarding Northwestern's closure. Lamentations filled an official news release.<sup>6</sup> How could the Northwestern administration do such a thing? "It is unjustified." "Patients and students will suffer." "The nation's oral health will suffer." "These are good times in dentistry." "Enrollments are stable, applications are increasing, the demand for dental care is high." The attitude seemed to be that the administrators at Northwestern were the "bad guys": they just did not understand dental education. However, we should not have been surprised, for the Institute of Medicine study was clear in its belief that dental education was existing isolated from and, in many instances, oblivious to its rapidly changing environ-

ment. It is not that we are not understood by our university administrators; it is that we do not understand the environment in which we exist. It is we who must change. In the eyes of Northwestern's administration, the dental faculty did not, at least not rapidly enough—and I am concerned that the lesson to be learned from Northwestern's closure is not being learned generally among our faculties. It is paradoxical that when the need for transformation is greatest we are lulled into a sense of security, and associated lethargy, by an expanding economy that has resulted in increased demand for dental services, an increase in income from dental practice, and a rise in student applications.

*"And the band played on."*

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## Isolation as a Root Cause

Why do we resist the types of transformative changes that are necessary to ensure a vibrant and dynamic long-term future for dentistry? No doubt there are many forces operational that cause us to resist change. However, I will address one root cause: isolation. Again, the Committee on the Future of Dental Education, as reflected in the IOM report, was prescient: "Dental education and dentistry are made vulnerable by their relative *isolation* from the broader university, from other health professions, and from the restructuring health care delivery and financing that characterizes most of the health care delivery system" (emphasis added).

We dental educators are isolated from our parent universities and from our umbrella discipline, medicine. Sometimes the isolation is organizational, sometimes geographic, but almost always intellectual. Many of our nation's dental schools are not integral components of academic health centers. Some are administratively linked with an academic health center but are separated geographically. Several dental schools are associated with universities that do not even have an academic health center or medical school. Even those that have the advantage of being physically and organizationally a component of an academic health center and located on the campus of their parent university are frequently isolated intellectually. Such must have been the circumstance at Northwestern University, where it was implied that an adversarial relationship had developed between dentistry and the larger communities of medicine and the university.

Isolation breeds ignorance—ignorance of what is occurring in our immediate academic environments and in the larger world. Isolation from medicine breeds ignorance of the clinical advances in medicine applicable to the specialty of dentistry. Isolation from the core research and scholarship of the basic biomedical sciences, typically housed in our medical schools, breeds ignorance of scientific advances applicable to dentistry. Isolation from medical education breeds ignorance of the significant advances in medical education that can benefit us as we teach aspiring dentists.

Conversely, isolation breeds ignorance on medicine's part of the important and significant contributions dentistry has made and can continue to make to clinical medicine, the basic biomedical sciences, and the education of physicians generally. Isolation of dentistry from medicine in caring for the health of the public leads to more of what we already have, a general discounting of oral health as integral and essential to general health and well-being. Among other results of isolation is the typical exclusion of dental care benefits in both public and private insurance programs, or at best only the opportunity to fight for their inclusion.

Isolation from the academic rigors of university life breeds ignorance of the scholarship expectations and requirements of the professorate. If the root cause of our problems is isolation, then the ultimate resolution must be integration.

*"And the band played on."*

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## "Closer Integration" of Dentistry and Medicine

The band will go on playing, striking repeatedly discordant tones, somewhat oblivious to the oral health needs of our country and the dangers facing dental education and our profession, until we deal with this root cause, our isolation. Again, the Institute of Medicine report harmonizes with the perspective of "closer integration":

Dentistry will and should become more closely integrated with medicine and the health care system on all levels: research, education, and patient care. The march of science and technology in fields such as molecular biology, immunology, and genetics will, in particular, continue to forge links

between dentistry and medicine as will the needs of an aging population with more complex health problems. These links combined with the financial strains on the university and academic health center will encourage these institutions to consolidate or otherwise link programs in related areas such as medicine and dentistry. Government and private purchasers of health services can be expected to maintain and indeed increase the pressure on health practitioners and institutions to develop more highly integrated and constrained systems of care that stress cost containment, primary rather than specialty care, and services provided by teams of professional and other personnel. Although dentistry may experience a less rapid restructuring of its place in health care compared to other health professions, any such respite should be used not as a time to reinforce resistance to these developments but as an opportunity to achieve a smoother transition for patients, practitioners, and educators.

The IOM Committee affirmed that "closer integration" with medicine is a "reasonable and desirable objective," but acknowledged that it would entail fundamental changes for students, faculty, and institutions. It suggested that the following elements would be involved:

1. dental students would take basic science courses that would be the same as or similar to those taken by medical students and would, in general, be taught by the same faculty;
2. basic science courses for medical and dental students would include conditions or problems relevant to oral disease and would not be divorced from clinical care. Early exposure to patients would be joint with medical students and thus include a wide range of patients;
3. dental students would have required clerkships in relevant areas of medicine, with options for additional training;
4. dental faculty would have sufficient experience in clinical medicine so that they—and not just physicians—could impart core medical knowledge to dental students and be role models for them; and
5. dental licensure examinations would be redesigned to increase emphasis on critical thinking and clinically relevant knowledge of systemic disease and physiology.

It is interesting to note that the typical basic science curriculum in our dental schools contains approximately 850 clock hours of instruction, while the average medical school curriculum contains approximately 2,000 clock hours—over twice the exposure.<sup>7</sup> This raises the question: does the contemporary dentist need to have less understanding of the basic principles of biomedical science than does the psychiatrist, dermatologist, ophthalmologist, or any other medical specialist? Of course not. In fact, the case can be made that dentists need a more thorough grounding in the basic sciences than some of our sister specialty disciplines in medicine. Today only four American dental schools share a basic science curriculum with medicine: Harvard, Connecticut, Columbia, and SUNY/Stony Brook. In each of these institutions, basic science integration with medicine preceded the IOM report.

While I have not conducted a systematic study of the degree to which the IOM's "closer integration" recommendations are being adopted by our nation's dental schools, it is my sense, from talking to our leaders, reviewing articles in the *Journal of Dental Education*, and attending sessions of the AADS, that these "fundamental changes" are not taking place. While a few have begun the process of some integration of the basic biomedical sciences, how many? How many new clerkships in core medicine have been initiated since the release of the IOM report about four years ago? How many are currently in the planning process? How many of our dental schools have initiated formal faculty development programs to (re)educate faculty in the basic biomedical sciences? Among the justifications for the "diagonal curriculum," developed at the University of Kentucky in the mid 1960s, was that early introduction to patient care, during the time of teaching the basic biomedical sciences, would enable clinical faculty to demonstrate the relevance of the basic sciences to clinical dentistry. This goal has not been achieved, simply because members of our dental clinical faculty have generally not had the background to be able to make the correlations, and we who have had leadership roles have done little to resolve this educational deficiency. How many faculty development programs are operational, or in the planning stages, to expose our clinical faculty to clinical medicine so that they can effectively teach and reinforce pathophysiology to our students in the clinical setting?

My own institution took a step toward "closer integration" this past year by placing dental students

in the medical microbiology course. Interestingly, the College of Medicine's chair of microbiology told me: "We did something for the dental students you have never done....we taught them they were better than they thought; we taught them self-respect." His reference was to how successful our students had been in "competing" with the traditional students in medicine. He went on to say that the course challenged the student dentists intellectually in ways they had not been challenged previously in the dental curriculum; and they rose to the challenge. While not a major reason for integration, who can dispute that helping our students develop a better sense of self is not an important outcome?

*"But, the band plays on."*

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## From Isolation to Integration

The cover design of the Institute of Medicine report is symbolic, communicating a basic message contained within the report: dentistry must more closely integrate its programs of education, research, and patient care with medicine. The cover is half forest green, the academic color of medicine, and half lilac, the academic color of dentistry. As supportive as I am of the IOM report, I think it falls short of making as strong a recommendation as needed to grapple with our core problem of isolation. The failure is reflected in its questionable use of English grammar with the phrase "closer integration." No doubt this was an attempt on the part of the report's author to structure phraseology that would be acceptable to the diverse committee of eighteen people. However, it is not possible to have "closer integration." One can have closer collaboration or closer coordination, but either you have integration or you do not. Integration means to make into a whole by bringing all parts together: to unite; to unify; to make part of a larger whole. Synonyms include: to combine, amalgamate, consolidate, blend, or merge.

Integration is what we must have. Dental education (and dentistry) must restructure and become a component of medical education (and medicine) if we are to overcome the isolation that currently defines the education, scholarship/research, and patient care problems we face. These problems will only intensify over time, and they are problems that could potentially lead to the loss of our membership in the university community. They are also problems

that could affect the professional status we are currently afforded by society. Sometimes cultural assumptions create such endemic and deeply rooted problems that it is necessary to radically restructure in order to challenge and eradicate obsolete assumptions. Incremental or evolutionary change is just not effective. Such change occurs much too slowly when tectonic environmental shifts are occurring. In my opinion, such is the case in dental education and dentistry today.

*"And the band plays on."*

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## From College of Dentistry to a Department in Medicine

While it may have been justified to maintain a separate college/school/faculty for dentistry during our emergence as a profession and during the period of time that our society was overwhelmed by the ravages of dental disease, environmental circumstances today make separation unwarranted. It is time for dental education to lead the integration of our profession with medicine, from whence it emerged in the mid-1800s and where it conceptually and functionally belongs.

How might such an integration occur? I propose that it be initiated with the "closure" of our colleges/schools/faculties of dentistry and their "re-opening" as departments in our colleges of medicine. The conceptual and practical fallacy of a separate college/school/faculty for dentistry was emphasized in 1995 by Bernard Shapiro, principal of McGill University, at an AADS Council of Deans meeting. In his presentation, Dr. Shapiro asked the question, "how do you justify a separate faculty (college/school) just for the teeth?" (We will forgive him for failing to acknowledge that our profession deals with all aspects of oral and maxillofacial function.) He went on to suggest the redundancy, confusion, and expense we would face in higher education and in society were we to have separate colleges/schools/faculties for every organ system of the human body. How nonsensical it would be to have a separate college for those who want to treat the diseases of the eyes, another for the heart, yet another for the kidneys, and one for each of the thirty-seven current specialties/sub-specialties of medicine.

Such an administrative reorganization will immediately indicate that we believe dentistry is a

discipline within medicine, not an appendage, and that oral health is integral to general health, not discretionary in health care. Dentistry is to medicine as ophthalmology is to medicine; they are equivalent specialties of medicine. The oral cavity, the stomatognathic system, is an integral part of the human body. It is not remarkably different functionally from any other organ system. The oral cavity does not collaborate with or does not just coordinate its functioning with the rest of the body. *It is integrated.*

It is both paradoxical and ironic that one of the problems we face in academic dentistry is that of being considered "more than we are." Not infrequently, because we are a college/school/faculty, we are compared, and compared unfavorably, to other colleges. "Why does the college of medicine have twenty times the extramural funding of dentistry?" "Why does the college of arts and sciences have so many more hours of student community service?" The colloquial expression "comparing apples and oranges" is apt. Our colleges of dentistry do not deserve to be so compared. We are, in terms of the size of our faculty and our disciplinary scope, a typical department in the university context. It is fair to compare any aspect of our performance to the department of otolaryngology, or psychiatry, or internal medicine; but to equate dentistry with all of medicine and form judgments is simply not appropriate. Which, of course, people readily acknowledge once one points out the fallacy of such a judgment. Nevertheless, in today's competitive academic environment, collegiate status invites such superficial comparisons and judgments.

The advantages of such an administrative restructuring will be evident in enhanced education, research and patient care programs, and administration. For example, curriculum changes recommended by the IOM are changes that can only be effected in conjunction with our colleagues in medicine. Integration with medicine, as a department, will facilitate these curricular changes, including an integrated basic science curriculum, clinical clerkships, and faculty development programs designed to improve clinical faculty members' ability to correlate basic science knowledge with clinical circumstances and to correlate patients' health status with an understanding of underlying pathophysiology. A further educational advantage of departmental status in medicine relates to the education of physicians. Dentistry integrated with medicine would allow us to advocate much more effectively

for teaching oral health to colleagues who will serve within other specialty disciplines of the health care team. For how long have we recoiled at the ignorance, and frequently the devaluing, of oral health by our physician colleagues?

Research (and scholarship) languishes at the majority of American dental schools. Only twenty institutions have National Institutes of Health funding of at least \$1 million, a relatively paltry amount in today's academic climate.<sup>8</sup> We know that collaboration and interdisciplinary work in basic research are essential today if one is to be competitive. Many dental schools that maintain a separate basic science faculty are not competitive for extramural research funds because of the relatively small size of that faculty and the required commitment of those faculty members to the instructional program. Integration of such faculty with their respective departments in medicine can draw them back into the mainstream of their discipline, reinvigorate their research agenda, provide close collaborative relationships with colleagues, and, as a result of shared teaching responsibilities in an integrated basic science curriculum taught to medical and dental students, give them more time to pursue their scholarly interests.

Patient care will also be enhanced by such integration. As our health care delivery system becomes more competitive and more complex, academic health centers, led by our colleagues in medicine, are searching aggressively for creative ways to ensure the future of their clinical enterprises. While dentistry may be successful in collaborating in these ventures through joint partnerships, integration would help ensure that dentistry is not neglected as a valued component of a comprehensive health service. Collaborative care of patients with physician colleagues, both in-patients and out-patients, would be more readily facilitated across departmental boundaries, rather than collegiate ones. Our students would have better access to patients and instruction, learning to manage a profile of biologically compromised patients they are increasingly likely to encounter in their practices. Again, the IOM report comments on this circumstance: "linkages between dentistry and medicine are insufficient to prepare students for a growing volume of patients with more medically complex problems, and an increase in medically oriented strategies for prevention, diagnosis, and treatment." Much can be learned from medicine relative to a patient-centered and attending model of patient care. Conversely, much can



be taught by dentistry to medicine about primary health care and prevention.

The subsuming of dentistry administratively as a department in medicine has general administrative, including fiscal, advantages as well. Dentistry continues to be among the most expensive programs of our universities. In 1996, our fifty-four dental schools spent, exclusive of sponsored project support, \$1,120,235,725.<sup>9</sup> At our publicly funded dental schools this equated to \$59,584 per dental student equivalent. This means that over four years it costs close to one-quarter of a million dollars to educate a dentist. In addition, the expense increased 50.4 percent from 1987 to 1996. As we have reduced class sizes, our relatively high fixed costs have become spread over fewer students, only accentuating the high costs of dental education. Our students cannot shoulder any more of the increasing costs of education. Tuition alone in some of our institutions approaches \$40,000/year, and the average debt of a 1997 dental graduate was \$94,182.<sup>10</sup> Our universities cannot afford the escalating costs either. A recent report, "Breaking the Social Contract...The Fiscal Crisis In Higher Education,"<sup>11</sup> indicates that higher education in America is "facing a catastrophic shortfall in funding...the deficit in operating expenses for the nation's colleges and universities will have quadrupled by 2015...and U.S. colleges and universities will fall \$38 billion short of the annual budgets needed." These circumstances demand that we operate our professional education programs in much more cost-effective ways. Structurally reintegrating dental education with medical education offers the potential to effect financial savings and create greater degrees of efficiency. This is possible by taking advantage of the substantial infrastructure already existent in our colleges of medicine in the basic sciences, student affairs, academic affairs, clinical affairs, administrative affairs, faculty affairs, and research. Additional economies can be gained by the integration of the appropriate aspects of the two curricula. Echoes of IOM: "financial strains...will encourage institutions to consolidate or otherwise link programs in related areas such as medicine and dentistry."

Several of our nation's dental schools have been vulnerable to closure based on a variety of pressures, including those that could be characterized as political, economic, academic, and professional. My own institution has faced calls for closure four times in the past fifteen years. Interestingly, inte-

gration into the larger community of medicine likely insulates dental educational programs from some of these external pressures. How often have you heard it suggested that a medical school eliminate its educational program in otolaryngology or any other such clinical discipline?

The Institute of Medicine recommended that dental education rethink basic models of dental education and experiment with less costly alternatives. It included in its recommendations the idea of merging courses, departments, programs, and entire schools. An administrative "downsizing" of dental education, by moving dentistry into medicine as a department, would seem to be consistent with the substance and spirit of this recommendation.

No doubt many of my colleagues in leadership roles in dental education will demur from this "radical" call for change. Many would do so based on an anticipated loss of control and authority in the bureaucracy of a medical school. Certainly, there is some validity to this apprehension. In my university, our college of medicine has fifteen clinical departments; this is exclusive of six basic biomedical science departments. Our department of internal medicine is the largest clinical department in medicine, with 118 faculty members. The next largest department is surgery, with seventy-two. Our college of dentistry has sixty-five full-time faculty members. A department of dentistry at the University of Kentucky would be the third largest department in medicine, followed by pediatrics with forty-seven and pathology with thirty-nine faculty members. Additionally, our clinical income would rank us in the top five to six departments in patient-generated revenue. While some anxiety regarding a loss of power in such a reorganization is understandable, dentistry would be a strong force in such an administrative configuration. It is my view that the advantages would outweigh concerns regarding perceived potential for loss.

*"And the band plays on."*

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## From Autonomous Profession to Primary Care Specialty of Medicine

My advocacy thus far has been for administrative integration of dental education with medical education. I have also indicated that several of the

substantive curriculum recommendations of IOM could be facilitated by such a change. Nothing I have advanced would require that the integrity of the current separate and autonomous dental degree program be compromised. A college of medicine can award the D.M.D./D.D.S. degree as well as its traditional M.D. degree. However, I, and others, have advocated that dentistry become completely integrated with medicine as a specialty by transforming our curricula into "oral physician" programs, awarding both the M.D. and D.M.D./D.D.S. degrees.

The Institute of Medicine calls this the most "far-reaching option" for closer integration; that is, for dentistry to become integrated with medicine as a specialty, as are otolaryngology and ophthalmology. It is my judgment that once we have integrated our students into the basic biomedical sciences curriculum, and provided sufficient clerkship experiences to teach them the clinical pathophysiology they need to know to effectively care for their patients, that we, challenged by them, will soon realize that they are close to completing the basic core requirements for earning the M.D. degree. (The core curriculum in medicine in most of our nation's medical schools is offered in three years, with the fourth year being devoted to selectives.) One only needs to consider the emergence and growth of the 3+3 programs in family practice and internal medicine to realize that a 3+2 program in dentistry (or some modification thereof) is not at all unreasonable, and in fact, offers very distinct advantages for the profession for the future. For those interested in this further dimension of integration, I refer you to the article "The Oral Physician...Creating A New Oral Health Profession for a New Century,"<sup>12</sup> and to the pilot program currently being conducted at the University of Kentucky.

It is beyond the scope of this paper to inquire into all of the advantages, disadvantages, and implications of dentistry becoming a primary care specialty of medicine. However, I must note that, were this to evolve, and I believe that ultimately it will because of its conceptual rationality and fiscal prudence, dentistry would be the largest (and certainly among the most influential) of the specialties of medicine. To place dentistry in the context of medicine as a specialty, note that today there are 737,764 physicians in the United States.<sup>13</sup> The largest specialty of medicine is internal medicine with 122,125 practitioners, followed by family practice with 62,301 and pediatrics with 53,369. Currently there

are over 153,00 practicing dentists in the United States.<sup>14</sup>

*"And the band continues to play."*

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## We Are at the "Crossroads" Now

There are two reasons why now is the opportune (imperative?) time for transforming dentistry into a discipline within medicine, and they are both grounded in an assessment of our current and anticipated clinical practice environment. The reasons are: the dentist workforce and the physician workforce.

It is being said that we are in the "golden age" of dentistry. Things have never been better. Oral health is improving, practitioners are busy, professional income is increasing, the economy is booming, and applications to our nation's dental schools are on a rising trajectory. Some are even suggesting that we are experiencing a shortage of dentists. It is increasingly difficult for practitioners to identify associates and to locate graduates to purchase their practices. Certainly, these are positive changes from only a few years ago when there was a significant "busyness" problem in the profession and calls were emanating from the profession to reduce enrollments and close dental schools. (However, in a very recent survey of practitioners, reported in the *Journal of the American Dental Association*,<sup>15</sup> 79 percent of the respondents indicated that the profession should not act to halt school closures, citing an oversupply of dentists, commitment to a market economy, and the need for dentists to "regain control of their practice future.")

The warning of IOM resounds: "although dentistry may experience a less rapid restructuring of its place in health care compared to other health professions, *any such respite should be used not as a time to reinforce resistance to these developments but as an opportunity to achieve a smoother transition*" (emphasis added).

This significant reversal in the practice environment only illustrates the elasticity of demand in dentistry—demand that is linked closely to economic well-being. In times such as these, it is easy to think that we may need to expand our programs of professional education in dentistry. The dentist to population ratio peaked in 1987 at 56.5/100,000 and will

decline to 43.5/100,000 by the year 2020.<sup>16</sup> However, let us hope that we have learned the lesson of creating an oversupply of dentists from our experience with the opening of new dental schools and the expanding of enrollments in the late 1960s and early 1970s; an expansion that led to the travails of the mid- and late 1980s and extended into the 1990s. Producing more dentists was not then, and is not now, a strategy that serves the public or profession well.

Given the elasticity of demand and the fickleness of the economy, it behooves the profession to develop a new model of practice that allows more rapid and economical means of adjusting. A model, the use of expanded function dental auxiliaries, rejected in the 1960s and 1970s, needs to be re-examined as we approach the new millennium. The time has come to allow a relative reduction to occur in the number of practicing dentists and to increase their productive capability by expanding the members of the dental team and their roles.

In 1995, the Council on Dental Education circulated a draft of a report entitled, "The Dental Team in 2020: Future Roles and Responsibilities of Allied Dental Personnel."<sup>17</sup> It was a comprehensive, thoughtful, and provocative report, carefully reviewing potential environments for dental practice in the year 2020, when the profession will be expected to meet the oral health care needs of an increasingly diverse population approaching 325 million people. The report called for the creation of three new categories of auxiliary to supplement the traditional dental assistant and dental hygienist: a restorative dental assistant, a preventive dental assistant, and a dental health practitioner. Unfortunately, professional response to the report was so adverse that it was never advanced past the draft stage by the Council on Dental Education. In my opinion, dentistry will make an egregious mistake if, instead of moving to "mid-level" practitioners, that is, expanded duty auxiliaries, it attempts to meet the expanding needs for oral health care by increasing the number of dentists. Not only has it been demonstrated empirically, but it is intuitively apparent, that a dentist with an array of expanded duty auxiliaries can be more productive economically than a dentist without such a supporting team. We can note the positive contributions that physician's assistants and nurse practitioners are now making to primary care, particularly in the context of managed care. Why would our profession choose to create more compe-

tion for itself when we could more readily choose a model of practice that enabled each practitioner to both serve more and earn more?

The time is right to broaden and deepen the education of dentists, to reduce the relative number of dentists graduated, and to develop new auxiliaries to assist in caring for the nation's oral health. Such a strategy makes sense conceptually and economically, both for the public and the profession. Integration with medicine can facilitate each of these outcomes.

The time is right for integration from the perspective of medicine as well. Currently there is a significant oversupply of physicians in the United States. A recent news release by six of the nation's leading medical associations declared there is "compelling evidence" that the United States is on the verge of an oversupply crisis.<sup>18</sup> Projections range from 105,000 to 328,000 excess physicians; that is 14-44 percent of our nation's physicians.<sup>19,20</sup> This circumstance has led to the call for a 20-25 percent reduction in class size in our country's medical schools.<sup>21</sup> The pressure on our medical schools to downsize creates opportunities for our dental schools to integrate. Students preparing for the practice of dentistry can be absorbed readily into the inevitably reduced class sizes in medicine, biomedical sciences, and clinical clerkships. Medicine could welcome our students as a buffer against significant reductions in their infrastructure as a result of having fewer traditional students. And, as has been intimated, the resulting integration should result in a general overall decrease in the cost of health professions education.

The significant oversupply of physicians in the nation creates a further issue for dentistry. Given the uncertainty of the future for physicians, Konner recently called for physicians to "redefine" themselves.<sup>22</sup> Uwe Reinhardt, the distinguished health economist, believes that, in this marketplace of oversupply, physicians will "seek out and mold alternative career paths."<sup>23</sup> Given the increasing ability to treat problems of oral health biologically and/or pharmacologically, it could be anticipated that underutilized physicians will become adventurous, expanding their practice into the diagnosis and management of oral disease. It is reasonable to suggest that dentists, as currently educated, will be less adaptable in what could become an increasingly competitive health care environment.

Dentistry is at a "crossroads." The profession must determine whether it will become more sophis-

ticated, or less so. Strategic planning theorist George Keller has said the "middle is dropping out" in the American workforce—workers are becoming more sophisticated or less so.<sup>24</sup> Integration of dentistry with medicine will lead to an appreciation of the increased complexity of caring for patients' oral health, and greater sophistication through broadening and deepening of education and competency. In the future will dentists be more broadly and deeply educated, leading a team of auxiliaries with an expanded scope of duties and responsibilities and able to treat more patients effectively and productively? Or will there be more inadequately educated dentists competing with one another and with adventuresome physicians, in a mode of practice not dissimilar from today's? This is the "crossroads" of the Institute of Medicine. We will choose now to become more sophisticated or less so, for "the middle" will not hold. We will choose now to either pursue the path of "renewing dentistry," or continue down the path toward "stagnation and decline."

*"Is the band still playing?"*

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## Dentistry Is Medicine

We derogate ourselves and our profession to suggest that dentistry is anything other than medicine. The forces for change in our environment are such that the time has come for dentistry to assume its appropriate and rightful place as an integral and full participant in the medical community of our country and for oral health to be recognized as a significant and meaningful dimension of general health and well-being. Isolation can be tolerated no longer. Integration is an imperative.

Recent research regarding a potential relationship between periodontal disease and coronary artery disease/stroke,<sup>25</sup> and pre-mature births and low weight babies,<sup>26</sup> illustrates the need to view dentistry as an integral component of medicine. The research adds force to the arguments advanced in this essay. An article in the *Philadelphia Inquirer* discussing this research concluded by quoting Dr. Timothy Rose, who is president of the American Academy of Periodontology and president-elect of the American Dental Association: "Now when the average dentist sees a patient, he's just looking at that gold crown on tooth #19. In the future, that dentist will be thinking about how what he does to tooth #19 will affect the patient's overall health. It is going to be a *major shift*, I believe" (emphasis added).<sup>27</sup>

I agree. And that shift must be from isolation to integration. Can we finally anticipate that "the band will *stop* playing" and attend to the formidable issues facing our profession?

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## Acknowledgment

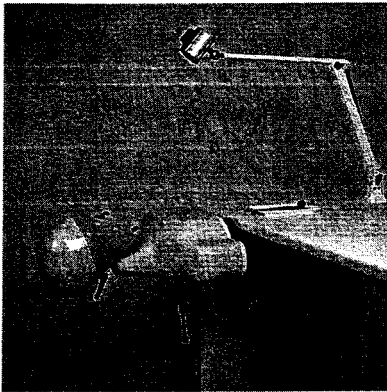
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