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Strategic partnerships between academic dental institutions and communities

Addressing disparities in oral health care

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The challenges facing dentistry in the first part of the 21st century are many and complex. Improving access to oral health care is widely recognized as one of the highest priorities.¹⁻⁴ The 2000 report by the U.S. surgeon general, *Oral Health in America: A Report of the Surgeon General*, highlighted the importance of oral health to overall health and well-being and the urgent need to address oral health care disparities.⁵ Emerging evidence to support the connection between oral health and systemic disease has increased public awareness of the value of good oral health.⁶⁻¹³ Academic dental institutions should be expected to assume a leadership role in responding to the challenges and opportunities identified by the surgeon general's report. However, dental institutions are operating in an environment of declining government support and rising costs. In many communities, dental institu-

ABSTRACT

Background. A landmark report from the U.S. surgeon general identified disparities in oral health care as an urgent and high-priority problem. A parallel development in the dental education community is the growing consensus that significant curriculum reform is long overdue.

Methods. The authors performed a literature review and conducted a series of structured interviews with key institutional and community stakeholders from seven geographical regions of the United States. They investigated a wide range of partnerships between community-based dental clinics and academic dental institutions.

Results. On the basis of their interviews and literature review, the authors identified common themes and made recommendations to the dental community to improve access to care while enhancing the dental curriculum.

Conclusions. Reducing disparities in access to oral health care and the need for reform of the dental curriculum may be addressed, in part, by a common solution: strategic partnerships between academic dental institutions and communities.

Practice Implications. Organized dentistry and individual practitioners, along with other major stakeholders, can play a significant role in supporting reform of the dental curriculum and improving access to care.

Key Words. Dental curriculum; access to care; disparities in oral health care.

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tions already assume the role of “safety net” for oral health care provision.^{14,15} Most dental institutions today are managing a delicate balancing act—struggling to remain financially viable (and therefore not viewed as a liability to the parent institution) while providing reduced-fee or uncompensated oral health care to the underserved patient population and still meeting the educational needs of their students.

A parallel development in dental education is the growing consensus that significant curriculum reform is long overdue.¹⁶⁻²⁰ The traditional instructional model at most academic dental institutions has not changed in any meaningful way in the past 50 years.^{21,22} Decades of research in educational psychology support the benefits of actively engaging adult learners in a manner that allows for practical application of new knowledge.^{23,24} Spencer and Jordan²⁵ outlined several basic principles of adult learning in health professions education, including relevance, active involvement, focus on problems, building on previous experience and practical applications. Moving part of the dental curriculum out of the traditional classroom, laboratory and dental school clinic settings and into community-based clinics may improve students’ acquisition of clinical skills, integration of interdisciplinary course material, and appreciation for social and cultural aspects of oral health. Toward this end, in 2004, the Commission on Change and Innovation in Dental Education was established by the American Dental Education Association to enable dental educators, representatives from organized dentistry, the dental licensure community, the Commission on Dental Accreditation, the American Dental Association Council on Dental Education and Licensure, and the Joint Commission on National Dental Examinations to coordinate their efforts to improve dental education and the nation’s oral health.²⁶

Can these two seemingly unrelated problems—access to care and the need for fundamental changes in the dental curriculum—be addressed in part by the same solution? The purpose of this article is to demonstrate how partnerships between academic dental institutions and communities can better serve the oral health needs of the public, as well as augment the educational

objectives of the academic dental institution. While it is beyond the scope of this article to identify and address all potential barriers to the delivery of optimum oral health care, we feel that dental institutions may be able to play an even larger role in the provision of care to underserved populations and, at the same time, enhance the dental educational experience through active engagement of students and faculty in nontraditional learning environments. In particular, we offer recommendations for the development of successful partnerships that meet the needs of the academic dental institution and the community, identify impediments to the development and implementation of partnerships, discuss strategies to ensure sustainability of partnerships, and suggest how members of the local dental community may contribute to successful partnerships. We based our recommendations on a literature review of current programs and on information collected through a series of structured interviews with key institutional and community stakeholders from seven geographical locations in the United States.

COMMUNITY-BASED DENTAL EDUCATION PARTNERSHIPS

A recent survey of North American dental institutions revealed that at least two-thirds of U.S. and Canadian dental school predoctoral curricula include some form of community-based clinical experience, with a median time spent in community-based clinics of only approximately 11 to 15 days.^{22, 27} The trend to increase the use of community settings for a larger portion of the clinical education experience is a common theme internationally and in all health professions.²⁸ Programs typically are developed to reach underserved groups such as rural and low-income inner-city populations, children at high risk of experiencing oral disease, prisoners, nursing home patients and other groups with limited access to care. Clearly, many, if not most, of these patients would not receive oral health care without the existence of community-based clinics and outreach programs. The student clinicians gain improved confidence, speed and

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ABBREVIATION KEY. FTE: Full-time equivalent.

time management skills; improved communication skills; and increased cultural competency owing to exposure to a diverse patient population. In addition, students gain knowledge of alternative career pathways in the dental profession and a greater appreciation for the role of oral health care.²⁸ In general, students express satisfaction with their extramural experiences, and some evidence suggests that these experiences have a positive impact on their understanding of ethical and social issues related to oral health care.²⁹⁻³³ Perhaps not surprisingly, students find the most value in community-based clinics that more closely approximate a private practice setting and less value in clinics in institutional settings (such as prisons).³² We will expand on the potential implications of this finding later in this article.

Even though we can agree readily that patients served by community-based clinics will benefit as do the students who participate in these programs,²⁷ the advantages to the academic dental institution are less tangible. On the positive side, academic dental institutions have an opportunity to raise their public visibility and image in diverse communities while fulfilling a moral obligation to help meet the needs of underserved populations. This expectation is particularly relevant for institutions that receive state financial support for their academic programs. However, some loss of control over faculty-directed clinical education, as well as uncertainty regarding costs associated with running the academic aspects of community-based education programs, including loss of clinic revenue within the dental school, are concerns for many dental faculty members and administrators. (We discuss these issues later in this article.)

Several successful community-based partnerships have existed for decades³⁴⁻³⁶; however, recent interest in the access-to-care issue from philanthropic organizations has provided a jump-start for 15 U.S. dental schools. Funding from The Robert Wood Johnson Foundation, the California Endowment and the W.K. Kellogg Foundation resulted in the development of a program called "Pipeline, Profession, and Practice: Community-Based Dental Education." The funding agencies selected 15 dental schools to participate in a five-year program designed to reduce disparities in access to oral health care.³⁷ The program's objectives state that senior dental students will spend at least 60 days per year treating patients in a community-based clinic; the dental school will provide didactic and clinical courses to prepare

students for community experiences; and recruitment of underrepresented minority and low-income students will increase.

Participants in this program already have provided care to thousands of low-income patients through 247 community-based clinics (further information is available at "www.dentalpipeline.org"). At the end of the five-year grant, the schools' programs are expected to be sustainable without continued external support. Financial sustainability of community-based partnerships is one of the critical issues found consistently in our review of the literature and interviews with key partnership stakeholders.

LESSONS LEARNED: THE VALUE OF DEVELOPING AND SUSTAINING SUCCESSFUL PARTNERSHIPS

There are no specific guidelines or recommendations for the development of successful community-based partnerships. Even less information is available regarding the impact of these partnerships on curricular design and clinical education. Our literature review identified numerous reports of community-based partnerships in dental education, but a surprising absence of input from many of the most important stakeholders. That is, the majority of articles on the subject were rather narrowly focused and limited in perspective and scope.

In an attempt to help address this gap in our knowledge of community-based partnerships, we developed a structured interview process and completed interviews with key stakeholders at each of seven geographically diverse locations. The locations selected represented the home institutions of seven authors of this article (Table). We obtained institutional review board approval at each of the seven institutions. To ensure representation of the perspective of the academic institution, we interviewed high-level university administrators (such as the president, the chancellor and the academic provost, or people in equivalent positions), the chief executive officer of the medical center or hospital and the dean of the dental school. To represent the perspectives of organized dentistry and the community in each geographical location, we interviewed the executive director of the state dental society, the director of the state department of dental health and state legislators from underserved areas. We conducted each interview by using a standardized set of questions (Box).

As we had expected, we found virtually unanimous agreement that partnerships between academic dental institutions and communities were desirable and valued. Interviewees commonly cited increased recognition of the dental institution as an important member of the local community. They also generally agreed that, at least in principle, dental students should gain an educational benefit by participating in community-based care. Almost universally, the interviewees considered the key element in sustaining a partnership to be securing an ongoing source of funds to maintain a community-based clinic. They stated that the ability of a community-based partnership to attract and retain key administrative personnel was critically important, second only to funding. When asked how a community-based partnership developed, interviewees most commonly credited one or two particularly motivated people. These “founders” usually came from within the dental institution, although in several instances a community leader had approached dental school administrators with the idea of developing a community-based clinic. When partnerships failed, it almost always was due to a loss of funding, key personnel or both, and only rarely was it related to the perception that the partnership was no longer important or needed.

Only a few of the community-based partnerships were completely self-sustaining. Obviously, maintaining financial viability beyond the five-year funding period will be one of the major challenges for the programs supported by the Robert Wood Johnson Foundation and California Endowment grants. We also found that key stakeholders often were unaware of the issues deemed to be most important by the other stakeholders. Although we were not surprised by this finding, we are concerned that the lack of communication and understanding among stakeholders regarding

TABLE

Location and characteristics of the seven institutions selected for the interview process.		
INSTITUTION	PUBLIC/PRIVATE	LOCATION TYPE
Louisiana State University (New Orleans)	Public	Urban
Medical University of South Carolina (Charleston)	Public	Urban
Nova Southeastern University (Fort Lauderdale, Fla.)	Private	Urban
Southern Illinois University (Alton)	Public	Rural
University of California, San Francisco	Public	Urban
University of Illinois at Chicago	Public	Urban
University of Nevada, Las Vegas	Public	Urban

BOX

Standardized list of questions used for the interviews with key stakeholders at each location.

- What does a partnership with a dental or medical school do for the community?
- What do strategic partnerships with communities do for the dental or medical students and for the university?
- What types of strategic partnerships with communities currently exist in dental and medical education in your state?
- How did these partnerships come about?
 - How long did it take to establish these partnerships?
 - How are these community-based partnerships funded?
 - What are the risks of and impediments to the establishment of these partnerships?
 - Were there any partnerships that were attempted and failed? If so, why did they fail?
- What partnerships between the dental or medical school and community would you like to see, and what are the perceived needs for community-based partnerships in your area?
- What are the costs versus benefits of community-based partnerships in dental or medical education?
- Is there anything else you might like to share regarding strategic partnerships?

issues of common importance could be an impediment to the expansion of community-based partnerships and educational opportunities.

As a group, the state legislators we interviewed had limited knowledge of community-based partnerships available to their constituents. Only two of seven legislators could identify a specific partnership in their districts. However, all seven supported the concept of community-based partnerships, and some recognized the potential for the development of dental students as future community leaders. Because state legislators often have a significant influence on the availability of funds for community-based partnerships, their support should be cultivated by academic dental institu-

tions, community leaders and organized dentistry.

An additional key ingredient for the expansion of community-based partnerships is the development of programs that meet the educational needs of dental students and are, at the very least, revenue-neutral to the parent institution. We feel that a solid evidence base is developing to support the educational benefits of student participation in well-run community-based clinics.²⁷⁻³⁴ Concerns about maintaining clinical quality standards and consistency in student evaluation can be addressed by ensuring proper credentialing and training of community-based preceptors. At least one institution already has a successful long-term history of pairing dental students with private practice preceptors.³⁴ Students in this program spend six months during their senior year working in community-based practices. However, there is no question that transferring senior dental students from their school clinics to community clinics during their most productive months has a negative impact on school revenue. Although several of our interviewees suggested that community clinics might be able to provide some remuneration to the dental school to compensate for loss of clinic revenue, we believe this is an unlikely option in most cases.

Establishing partnerships with federally qualified health centers that offer dental services is one option that may allow some schools to obtain partial compensation for services rendered by senior dental students. Bailit and colleagues²⁷ recently proposed a model for financing clinical dental education that could generate new net revenues for a dental school if senior dental students spent 70 percent of their time in community-based clinics. This model predicts that the loss in clinic revenue would be more than offset by the savings in clinic instruction expense and operating overhead. The model is conceptually sound, although the authors admit that there would be costs associated with transitioning to a new educational model, and their assumptions will not apply equally to all institutions.

Perhaps the most important question related to the expansion of dental student involvement in community-based dental health partnerships is what potential impact this new model will have on reducing disparities in oral health care. Although it is not possible to predict with certainty the outcome of these proposed changes, we

can estimate the approximate number of full-time equivalent (FTE) general dentists who would be added to the work force in underserved areas. There are approximately 4,500 senior dental students each year in U.S. dental schools. If two-thirds of these students provide dental services in community-based clinics for three months during their senior year, and we assume their productivity is approximately one-half that of experienced dentists, the result will be the equivalent of adding 375 FTE general dentists to underserved areas each year. We feel that this is a reasonable midrange estimate and actually may underestimate the impact of moving a significant portion of the dental curriculum to community-based clinics.

CONCLUSIONS

We feel that it is reasonable and possible for academic dental institutions to develop partnerships that help address disparities in oral health care while enhancing the clinical educational experience of their students and maintaining financial viability. Organized dentistry and individual practitioners, along with political and community leaders, can play a significant role in supporting reform of the dental curriculum and improving access to care. However, to establish and sustain successful partnerships, institutional leaders must accomplish several goals:

- Educate political leaders so that they realize that the dental profession alone cannot solve the problem of disparities in oral health care. The solution will require long-term commitment and financial support.
- Educate community leaders so that they have realistic expectations and are willing to spend time and political capital in the support of community-based clinics.
- Work with organized dentistry to encourage its continued support and assistance in the development of community-based partnerships and innovations in clinical education.
- In addition to traditional community-based clinics in underserved areas, consider broadening our definition of community-based partnerships to include a mix of experiences in fee-for-service private practice dental offices. These partnerships are more likely to be financially sustainable and will provide a more realistic working environment for students.
- Identify a core group of private practitioners in each community who are willing to serve as preceptors and take students into their offices.

■ Encourage dental faculty members and administrators to take risks and experiment with new models of clinical education.

Throughout this article, we intentionally and repeatedly have referred to the relationship between academic dental institutions and community-based clinics as a partnership. This reflects the one consistent theme uncovered in our literature review and interview process: successful unions between academic dental institutions and communities require an ongoing willingness to understand and meet the needs of all participants. ■

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- Milgrom P, Garcia RI, Ismail A, Katz RV, Weintraub JA. Improving America's access to care: the National Institute of Dental and Craniofacial Research addresses oral health disparities. *JADA* 2004;135(10):1389-96.
- Evans CA, Kleinman DV. The surgeon general's report on America's oral health: opportunities for the dental profession (published correction appears in *JADA* 2001;132[4]:444). *JADA* 2000;131(12):1721-8.
- Guay AH. Access to dental care: solving the problem for underserved populations. *JADA* 2004;135(11):1599-605; quiz 1623.
- Haden NK, Catalanotto FA, Alexander CJ, et al. Improving the oral health status of all Americans: roles and responsibilities of academic dental institutions—the report of the ADEA President's Commission. *J Dent Educ* 2003;67(5):563-83.
- U.S. Department of Health and Human Services. Oral health in America: A report of the surgeon general—Executive summary. Rockville, Md.: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
- Dave S, Batista EL Jr, Van Dyke TE. Cardiovascular disease and periodontal diseases: commonality and causation. *Compend Contin Educ Dent* 2004;25(7 supplement 1):26-37.
- Ebersole JL, Cappelli D, Mathys EC, et al. Periodontitis in humans and non-human primates: oral-systemic linkage inducing acute phase proteins. *Ann Periodontol* 2002;7(1):102-11.
- Foster H, Fitzgerald J. Dental disease in children with chronic illness. *Arch Dis Child* 2005;90(7):703-8.
- Montebugnoli L, Servidio D, Miaton RA, et al. Periodontal health improves systemic inflammatory and haemostatic status in subjects with coronary heart disease. *J Clin Periodontol* 2005;32(2):188-92.
- Riche EL, Boggess KA, Lief S, et al. Periodontal disease increases the risk of preterm delivery among preeclamptic women. *Ann Periodontol* 2002;7(1):95-101.
- D'Aiuto F, Parkar M, Tonetti MS. Acute effects of periodontal therapy on bio-markers of vascular health. *J Clin Periodontol* 2007;34(2):124-9.
- Offenbacher S, Lin D, Strauss R, et al. Effects of periodontal therapy during pregnancy on periodontal status, biologic parameters, and pregnancy outcomes: a pilot study. *J Periodontol* 2006;77(12):2011-24.
- Tonetti MS, D'Aiuto F, Nibali L, et al. Treatment of periodontitis and endothelial function. *N Engl J Med* 2007;356(9):911-20.
- Bailit H, Edelstein B, Tinanoff N. Public financing of dental care: impact and policy implications. *J Dent Educ* 1999;63(12):882-9.
- Beazoglou T, Heffley D, Lepowsky S, Douglass J, Lopez M, Bailit H. The dental safety net in Connecticut. *JADA* 2005;136(10):1457-62.
- Dental education at the crossroads: summary. *J Dent Educ* 1995;59(1):7-15.
- Hendricson WD, Cohen PA. Oral health care in the 21st century: implications for dental and medical education. *Acad Med* 2001;76(12):1181-206.
- Bertolami CN. Rationalizing the dental curriculum in light of current disease prevalence and patient demand for treatment: form vs. content. *J Dent Educ* 2001;65(8):725-35; discussion 736-43.
- DePaola DP, Slavkin HC. Reforming dental health professions education: a white paper. *J Dent Educ* 2004;68(11):1139-50.
- Kalkwarf KL, Haden NK, Valachovic RW. ADEA Commission on Change and Innovation in Dental Education. *J Dent Educ* 2005;69(10):1085-7.
- Tedesco LA. Issues in dental curriculum development and change. *J Dent Educ* 1995;59(1):97-147.
- Kassebaum DK, Hendricson WD, Taft T, Haden NK. The dental curriculum at North American dental institutions in 2002-03: a survey of current structure, recent innovations, and planned changes. *J Dent Educ* 2004;68(9):914-31.
- Norman G. Research in medical education: three decades of progress. *BMJ* 2002;324(7353):1560-2.
- Irby DM. What clinical teachers in medicine need to know. *Acad Med* 1994;69(5):333-42.
- Spencer JA, Jordan RK. Learner centred approaches in medical education. *BMJ* 1999;318(7193):1280-3.
- Hendricson WD, Andrieu SC, Chadwick DG, et al. Educational strategies associated with development of problem-solving, critical thinking, and self-directed learning. *J Dent Educ* 2006;70(9):925-36.
- Bailit HL, Beazoglou TJ, Formicola AJ, Tedesco L. Financing clinical dental education. *J Dent Educ* 2007;71(3):322-30.
- Elkind A. Outreach teaching: is this the future for dental education? *Br Dent J* 2002;193(2):111-2.
- Gadbury-Amyot CC, Simmer-Beck M, McCunniff M, Williams KB. Using a multifaceted approach including community-based service-learning to enrich formal ethics instruction in a dental school setting. *J Dent Educ* 2006;70(6):652-61.
- Thind A, Atchison K, Andersen R. What determines positive student perceptions of extramural clinical rotations? An analysis using 2003 ADEA Senior Survey data. *J Dent Educ* 2005;69(3):355-62.
- DeCastro JE, Matheson PB, Panagakos FS, Stewart DC, Feldman CA. Alumni perspectives on community-based and traditional curricula. *J Dent Educ* 2003;67(4):418-26.
- Ayers CS, Abrams RA, McCunniff MD, Goldstein BR. A comparison of private and public dental students' perceptions of extramural programming. *J Dent Educ* 2003;67(4):412-7.
- Andersen RM, Davidson PL, Atchison KA, et al. Pipeline, profession, and practice program: evaluating change in dental education. *J Dent Educ* 2005;69(2):239-48.
- Berg R, Berkey DB. University of Colorado School of Dentistry's Advanced Clinical Training and Service Program. *J Dent Educ* 1999;63(12):938-43.
- Henshaw MM, Frankl CS, Bolden AJ, Mann ML, Kranz SM, Hughes BL. Community-based dental education at Boston University Goldman School of Dental Medicine. *J Dent Educ* 1999;63(12):933-7.
- Tinanoff N. Community clinical programs at the School of Dental Medicine, University of Connecticut. *J Dent Educ* 1999;63(12):948-50.
- Bailit HL, Formicola AJ, Herbert KD, Stavisky JS, Zamora G. The origins and design of the Dental Pipeline program. *J Dent Educ* 2005;69(2):232-8.