

Journal

CALIFORNIA DENTAL ASSOCIATION

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National Interprofessional
Initiative on Oral Health

Pediatric Dental
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The Oral Physician



Part Three
INTERPROFESSIONAL
EDUCATION AND PRACTICE ...
THE DENTIST OF THE FUTURE

Lindsey A. Robinson, DDS



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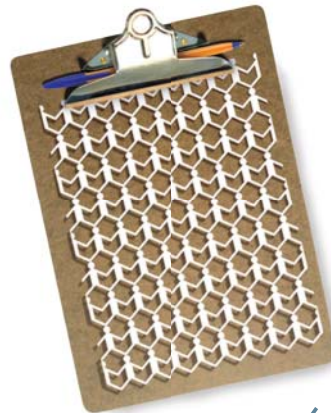
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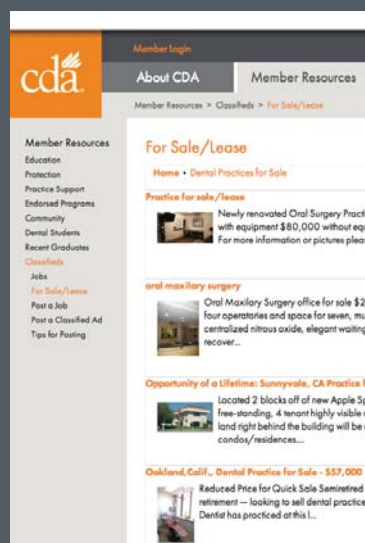
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You Have to Shake Your Head

Kerry K. Carney, DDS, CDE

A new “risk-based” dental insurance plan was introduced last January by a well-known dental benefit corporation serving Michigan, Indiana and Ohio. In this new plan, the number of annual cleanings is underwritten according to patient need. The number of annual cleanings can be reduced to one unless a patient can document specific risk factors.

The risk factors specified in its online questionnaire included, for example, periodontal disease, pregnancy, diabetes, radiation therapy, suppressed immune system, renal failure, stroke or heart attack. Based on the increased risk attributable to these factors, the patient could receive up to three additional cleanings per year.

Establishing risk factors can be tricky. One has to consider the best evidence available. The risk factors themselves may not be causally related to the presence or absence of a disease or condition. Though not the cause, a risk factor may be a proxy for a causal factor or a set of conditions that enhance the disease process.

A risk factor may appear to have a high associative or predictive correlation with the disease or condition, but that powerful association may be disproven over time.

The safest course is to rely on an acknowledged authority for established risk factors. In this case, the dental benefit corporation cited risk factors delineated by the American Academy of Periodontology (AAP) and a University of Michigan study.¹ All of this sounds pretty good so far. Risk-based plans, if designed properly, can be beneficial for plan purchasers.

Now comes the screwy part. The dental benefit corporation did not include all the risk factors recognized by the AAP/ Michigan study. The new plan explicitly excluded smoking as a risk factor. In a



Are we really going to tie scientific evidence to moral evaluations of personal behavior in order to determine who “deserves” the appropriate care?

letter sent to its network of dentists, the dental benefit corporation elaborated on the thinking behind the exclusion of smoking from the list of risk factors that would warrant additional cleaning benefits.

The plan is not meant “to reward employees for ‘bad behaviors’ ... employees who smoke will not be eligible for the additional cleaning unless they develop the disease.”²

This is where you just have to shake your head. So are we really going to tie scientific evidence to moral evaluations of personal behavior in order to determine who “deserves” the appropriate care?

This should make a reasonable person very uneasy. As oral health care specialists we are irked when third-party payers insinuate themselves into the doctor-patient relationship. But picking and choosing risk factors based not on their importance in the scientific literature but on some moral imperative is beyond the pale.

This is not the only problem with this particular plan. In addition to the online risk assessment, the plan also “... incorporates a genetic test that assesses patients’ risk for developing periodontitis. Patients who test positive for specific genetic markers identified by a cheek swab test for the interleukin-1 gene are eligible for one additional cleaning up to a maximum of four per year.”²

Though the genetic test is not

mandatory, eligibility for expanded benefits depends on the result of the test. However, “prevailing evidence is weak for expected outcomes from any therapeutic intervention provided to a patient who simply tests positive for the genetic marker yet shows no clinical signs of disease.”³

If a patient came to me with a positive genetic test for the interleukin-1 gene, my first question would always be, “Why did you get this test?” Any discussion about the usefulness of this test would have to involve the questionable importance of such a test compared with the recognized risk factors associated with periodontal disease (for example, smoking).

I have argued previously for increased screenings by dentists in order to facilitate the patient’s access to care through appropriate referral to a physician for diagnosis and treatment. However, this interleukin-1 test could be a toboggan on that slippery slope hurdling toward “the detection of abnormalities that are not destined to ever bother us.”⁴

The ease and popularity of cheek-swab genetic tests can give false importance and verisimilitude to a factor of little or no merit when it comes to specific risk. A genetic test may be very precise in its results but that result does not tell us about the relationship of the disease condition to the factor that is the focus of the test. That relationship must be defined through rigorous scientific testing.

Genetic tests can be very appealing to both doctor and patient. Our training in evidence-based science should make us highly skeptical of tests that purport to aid diagnosis and treatment planning. We have the ability to verify claims in the literature and we should not hesitate to voice our distrust of specious argument and spurious reasoning when it comes to our patients' care.

As Christopher J. Smiley, DDS, crystalized in his in-depth analysis of this particular plan, "Benefiting select risk factors while excluding others will play into practitioners' fears that payers are applying risk assessment and evidence-based design simply to control costs."³

The ADA has stated that personalized oral care is necessary for good dental health and that patients should "work closely with their dentists to identify any potential

risk factors that would determine the need for and frequency of follow up visits to enhance the outcomes of preventive care."²

The future may be dominated by individualized risk benefit plans but they must be well grounded in sound scientific method. Capricious implementation of questionable science or the exclusion of well-accepted science diminishes the trust essential to the effective functioning of an oral health care contract encompassing patient, doctor and third-party payer. ■

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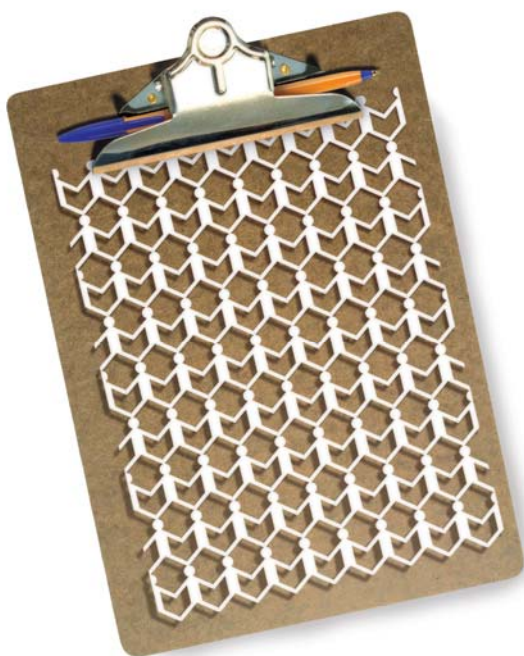
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The nub:

1. Data for research and practice belong to patients.
2. Participants in clinical research must consent and recognize fair risks and benefits, and disadvantaged groups must not bear disproportional burdens.
3. Research and practice are privileges.

David W. Chambers, EdM, MBA, PhD, is professor of dental education at the University of the Pacific, Arthur A. Dugoni School of Dentistry, San Francisco, and editor of the *Journal of the American College of Dentists*.

Clinical Research

David W. Chambers, EdM, MBA, PhD

It may be surprising to learn that asking people in shopping malls what they think of water fluoridation is clinical research while using a calibrated apparatus to study the abrasive properties of a dentifrice or the sheer strength of an adhesive is not. It is a natural mistake to assume that “clinical research” means getting knowledge that will help the practitioner at chairside. Clinical research ethics is all about patients instead.

The definition of research is systematic collection and analysis of data for the sake of making generalizable public claims. When the Gallup poll reports that 58 percent of Americans trust dentists to have their best interests in view, that is research. When a dentist pushes back from a stack of charts in his or her office and concludes that it is time to start referring multirooted endo cases, that is not research because, although a generalization, it is not intended for public consumption.

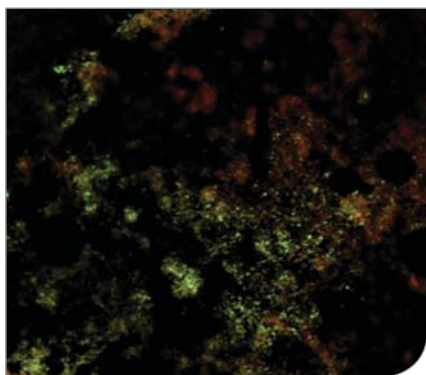
What makes research clinical is the involvement of humans as the source of data. These contributions cover physical evidence such as biomarkers and assessment of treatment outcomes. They also include behavioral evidence such as reports of satisfaction, opinions or choice behavior.

The purpose of securing the mandatory prior approval of Institutional Review Boards is to protect humans who participate in research. The Nazi medical experiments that came to light in the Nuremberg Trials sensitized the world to potential abuses in the name of science. A short time later, there were revelations that prisoners in Tuskegee, Ala., were having treatments known to be effective in curing syphilis systematically withheld to scientifically gauge the effect. This was a vulnerable population being exposed to unreasonable harm without their consent.

In 1978, a report was issued that established the rights of human research subjects and, indirectly, the rights of all dental patients. Google the “Belmont Report” and read it. The report established three principles. Respect for persons means participants must give fully informed consent. Beneficence means there must be a clear preponderance of expected benefit over risk and risks must be minimized. Justice means vulnerable groups such as the poor, prisoners, children, the handicapped and pregnant women should not bear unreasonable burdens and that the privileged should not benefit at the expense of the less privileged.

If these principles sound vaguely familiar, it is because the Belmont Report provided the foundation on which the ADA Principle of Ethics is based.

The purpose of ethical review of clinical research is to honor the contribution of participants to the accumulation of knowledge. Researchers are not “entitled to” free access to data. Just so, dentists are not “owed” the opportunity to perform the highest quality of care they are capable of delivering — that privilege must be granted by one’s peers and by individual patients. ■



Mouth Bacteria Can Change Its Diet, Supercomputers Reveal

Bacteria inside the mouth drastically change how they act when a person is diseased, according to research using supercomputers at the Texas Advanced Computing Center (TACC). Scientists say these surprising findings might lead to better ways to prevent or even reverse periodontitis, diabetes and Crohn's disease.

"What we were trying to figure out is how do these bacteria act when you're healthy, and how do they act when they're in a diseased state," said Marvin Whiteley, who led the study published in the journal *mBio*. "The really big finding is that they do act very differently."

Bacteria share nutrients, and one species will even feed on another as they constantly interact. Researchers used shotgun metagenomic sequencing, a nontargeted way to study all the genetic material of the bacterial communities. They found that bacteria act differently when one is healthy compared to when diseased and can change their metabolism or switch to a different kind of sugar to feed on if diseased.

Researchers found periodontitis noteworthy because it is one of the most prevalent diseases on the planet.

"It's an interesting disease, because the same bacteria that are in your mouth when you're healthy are the same ones, more or less when you're sick," said Whiteley. "So a healthy community has this metabolism, no matter what the

Lead in Teeth Can Tell Their Origin

A recent study has found that trace amounts of lead in modern and historical human teeth can give clues about where they came from, according to findings published in *Science of the Total Environment*.

Researcher George D. Kamenov believes the discovery could help police solve cold cases. For example, if an unidentified decomposed body is found, testing the lead in the teeth could help focus the investigation on a certain geographic area.

Lead is composed of four variants, called isotopes. The amount of those isotopes fluctuates in different rocks, soils and ores — and, therefore, regions of the world.

Mining and other pollution-causing activities release that lead into the environment and it accumulates in children's bodies as they grow because kids inhale dust and ingest soil when they put their hands in their mouths.

Tooth enamel, which develops during childhood, locks in the lead signals and preserves them.

"When you grow up, you record the signal of the local environment," said Kamenov in a news release. "If you move somewhere else, your isotope will be distinct from the local population."

According to a description of the study, different teeth can reveal certain facts. For example, first molar enamel is finished forming by age 3, so it provides information about birth and toddler years.

Lead analysis can also tell what time period a body is from as the natural composition of lead changed over the past century because of mining and the use of leaded gasoline, so there is a clear distinction between modern and historical human exposure.

"What's in the environment goes into your body," Kamenov said.

For more information, see the study published in the August 2014 issue of *Science of the Total Environment*.

members are. And a diseased community has a very different metabolism, no matter what the members are. It's this conservation of a metabolic community."

According to science results from the Human Microbiome Project, a shift to more harmful bacteria in the community is linked to wide-ranging diseases such as periodontitis, diabetes and Crohn's disease.

Researchers believe the study results could help develop biomarkers that predict if someone is going to get sick. In

theory, pathogenic bacterial communities that rewired themselves to be harmful might also be rewired for health.

"You can manipulate bacterial populations numerically very easily. You feed them something else. So you might be able to shift them back. These are some of the ideas that we've been thinking about in our lab that might be more pervasive as we move forward," Whiteley said.

For more information, see the study in *mBio*, 2014, vol. 5, no. 2, e01012-14.

New Study: Acidic Drinks Cause Long-term Damage Within 30 Seconds of Consumption

Acidic drinks have been proven to cause long-term damage to young people's teeth, according to a new study from the University of Adelaide. Researchers found that within 30 seconds of drinking an acidic drink, lifelong damage happens in the form of dental erosion when it combines with tooth grinding and reflux.

"Our research has shown that permanent damage to the tooth enamel

will occur within the first 30 seconds of high acidity coming into contact with the teeth. This is an important finding and it suggests that such drinks are best avoided," said corresponding author Sarbin Ranjitkar, PhD, of the Craniofacial Biology Research Group at the University of Adelaide in Australia, in a university news release.



People Are Confused About Best Brushing Technique

Many people are confused on the best ways to brush their teeth, according to a new study published in the *British Dental Journal*.

The study, which was conducted by University College London (UCL), found that advice on brushing is not consistent among dental associations and dental companies around the world. The researchers looked at the brushing advice from dental associations across 10 countries, toothpaste and toothbrush companies and information found in dental textbooks.

According to a summary of the study, "the most commonly recommended technique involves gently jiggling the brush back and forth in small motions, with the intention of shaking loose any food particles, plaque and bacteria." It is claimed, however, that there is a lack of evidence that supports this technique, which has brought forward the topic of the need for more research on brushing.

"What I feel we need is better research into what the easiest to learn, most effective and safest way to brush is. The current situation where not just individual dentists, but different dental organizations worldwide are all issuing different brushing guidelines isn't just confusing—it's undermining faith and trust in the profession as a whole. For something most people do twice a day, you would expect dentists to send a clearer, more unified message to their patients on how to brush their teeth," lead author John Wainwright, DDS, said in a news release.

For more information, see the study in the *British Dental Journal*, 217, E5 (2014).



"Often, children and adolescents grind their teeth at night, and they can have undiagnosed regurgitation or reflux, which brings with it acidity from the stomach. Combined with drinks high in acidity, this creates a triple threat to young people's teeth which can cause long-term damage," he said. "If high-acidity drinks are consumed, it is not simply a matter of having a child clean his or her teeth an hour or 30 minutes later and hoping it will be okay – the damage is already done."

A 32-ounce sports drink can contain up to 14 teaspoons of sugar while a 20-ounce soda often has more than 16 teaspoons of sugar. Drinking these types of sugar-loaded beverages can increase the risk of tooth decay by giving bacteria in the mouth sugar to feed on, which then produces acid that attacks the teeth and weakens enamel.

Kids should be encouraged to drink water or low-fat milk over sugar-laden drinks like soda, juice, fruit punch, energy drinks or sports drinks. Drinking water can also help keep gums hydrated and rinse away food particles that would otherwise stay in the mouth aiding in the bacterial growth that causes decay.

For more information, see the study published online July 1, 2014, in the *Journal of Dentistry*.



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Smoking Cessation Advice

Not all smokers receive tobacco cessation advice from health care providers (HCPs), according to a study from the Ohio State University.

Overall, researchers found that 54.4 percent of current smokers who had seen an HCP within 12 months of the survey stated that they had received advice to quit smoking or using other kinds of tobacco in the past year. Only one in 10 smokers who visited a dentist received advice to quit.

Of all smokers who reported receiving tobacco cessation advice, more than 90 percent reported receiving the advice from a physician, whereas only 13.5 percent reported receiving such advice from a dental worker. Receipt of advice was associated with sex, age, race, marital status, region, type of health insurance, quit attempts in the previous 12 months and extent of tobacco use.

The researchers' objective was to determine the prevalence of HCP-delivered advice and the characteristics of patients who receive advice to quit smoking from any HCP and, separately, from a physician or a dentist. This study used data from the Sample Adult Core questionnaire, Sample Family Core questionnaire and Sample Adult Cancer Control Module of the 2010 National Health Interview Survey. The sample for the analysis was limited to current smokers who saw an HCP in the previous 12 months.

Researchers noted that although factors associated with receiving advice from HCPs to quit smoking and the effectiveness of such advice have been

examined, no recent study has explored differences between types of HCPs, such as physicians versus dentists.

See the complete study, "Disparities in

Receipt of Advice to Quit Smoking From Health Care Providers: 2010 National Health Interview Survey," in *Preventing Chronic Disease*, vol. 11, published online July 31, 2014.



New Mexico Community College Launches Dental Health Coordinator Program

In an attempt to help improve access to care, Central New Mexico Community College recently launched a Community Dental Health Coordinator (CDHC) training program.

The students in the program will learn, "interviewing skills, dental health teaching and learning skills, screening and classification, as well as palliative care skills before entering internships with dentists in New Mexico communities," according to a news release from the American Dental Association.

The program is limited to registered dental hygienists or certified dental assistants. Central New Mexico is the first college to offer such a program since it was initiated by the ADA as a pilot program in 2006.

"We are proud that New Mexico was the first state to have the CDHC established in law, and excited to be the first to roll out a permanent educational program," said Mark Moores, New Mexico Dental Association executive director, in the news release. "We look forward to the positive impact that the CDHC will have on the oral health of New Mexicans."

According to the ADA, "CDHCs play a vital role in improving access to dental care in underserved communities by providing dental health education and basic preventive services, and by helping patients navigate the public health system to receive care from dentists. They help people bridge such barriers as poverty, geography, language, culture and a lack of understanding of oral hygiene."

For more details on the Central New Mexico program, visit CNM.edu. For more information on the history, training components, curriculum and impact of CDHCs through the ADA pilot program, visit ADA.org/CDHC.

Oral Health and Malnutrition in Older Hospital Patients

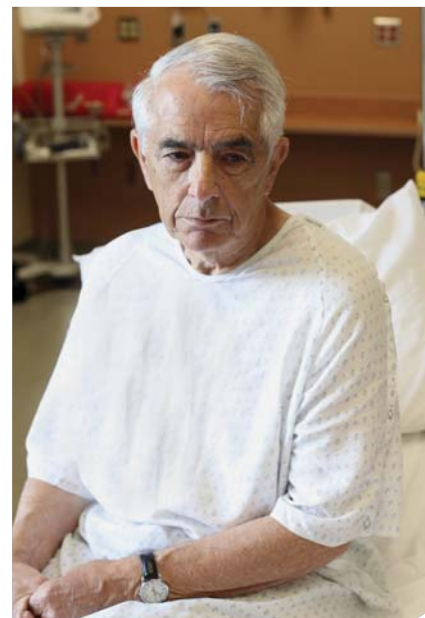
New research suggests that oral health deteriorates during hospitalization and is associated with an increased risk of malnutrition in older patients.

Research published in the *Journal of Clinical Periodontology* provides the latest evidence that oral health is being overlooked in hospitals, with potentially serious consequences. The research examined the oral health of 162 patients on arrival and two weeks

later and discovered an increase in gum disease and levels of plaque.

The research also found that “the hospitals had no policies in place for routine oral health practices, and that no members of the hospital teams assessed the patients’ oral health conditions during the hospitalization period.”

A French study into the oral health of hospitalized elderly patients also identified a number of problems. The



Scientists Reproduce Evolutionary Changes in Teeth

By modifying the embryonic development of mice, a group of researchers has reproduced in the laboratory the changes in teeth shape that, in mammals, took millions of years of evolution to take place.

To modify the development of their teeth, the team worked with embryonic teeth cultures from mice not coded by the ectodysplasin A (EDA) protein, which regulates the formation of structures and differentiation of organs in the embryo throughout its development. The teeth obtained with these cultures that present this mutation develop into very basic forms, with very uniform crowns. Scientists gradually added different amounts of the EDA protein to the embryonic cells and let them develop, according to the Universitat Autònoma de Barcelona.

Researchers observed that the teeth formed with different degrees of complexity in their crown. The more primitive changes observed coincide with those that took place in animals of the Triassic period, some 200 million years ago. The development of more posterior patterns coincides with the different stages of evolution found in rodents that became extinct roughly 60 million years ago. Researchers have thus managed to successfully experimentally reproduce the transitions observed in the fossil registry of mammal teeth.

Scientists were able to contrast the shape of these teeth with a computer-generated prediction model, which reproduces how the tooth changes from a group of equal cells to a complex 3-D structure, with the full shape of a molar tooth, calculating the position of space of each cell. The model is capable of predicting the changes in the morphology of the tooth when a gene is modified, and therefore offers an explanation of the mechanisms that cause these specific changes to occur in the shape of teeth throughout evolution.

For more information, see the study published online July 30, 2014, in the journal *Nature*.

research found that poor oral health could be linked to a negative effect on nutritional status, highlighting the need for better food choices for patients.

In previous studies, poor oral health and dysfunction has been linked to a negative effect on nutritional status. There are also consequences for quality of life, well-being and personal dignity during hospital stays.

The research points to several potential reasons for the decline in oral health during hospitalization including the low priority given to oral care provision and the implementation of improper oral care regimes, both as a direct consequence of hospitalization.

Nigel Carter, OBE, chief executive of the British Dental Health Foundation, thinks both studies point to a clear need for oral health to be a greater priority during hospital stays.

“In a challenging hospital environment it may be inevitable that oral care is seen as a low priority, but it is clear that more needs to be done. Low priority is given to oral care provision, which includes the implementation of proper oral care regimes,” said Carter.

For more, see the complete article in the *Journal of Clinical Periodontology*, vol. 41, issue 6, pp. 558–563, June 2014.



Interprofessional Education and Practice ... The Dentist of the Future: Part Three

Lindsey A. Robinson, DDS

GUEST EDITOR

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Disclosure: None reported.

This is the third and final *Journal* issue focusing on interprofessional education (IPE) and practice. The goal of this series has been to identify key drivers and challenges, examine opportunities for greater interprofessional collaboration and practice, and create a vision for the dentist of the future.

For dentistry, the IPE movement represents a profound systemic change from the traditional educational model of training professionals to be dental surgeons working in solo private practice to those who utilize disease management protocols as well as surgical intervention while working in a variety of collaborative and multidisciplinary practice settings.

There is increasing appreciation across the health care spectrum that oral health providers are key members of the multidisciplinary health team. Apart from the systemic diseases that are interconnected with oral diseases such as diabetes, there are many oral

manifestations of systemic conditions, such as gastrointestinal disorders and some cancers. Additionally, dentists and dental team members are being considered important adjuncts to primary care practice.^{1,2} There is emerging evidence that oral health professionals can play a major role in medical screening and monitoring of chronic diseases, such as diabetes, hypertension and hypercholesterolemia. Together, with a referral to a physician's office, these activities have the potential to lower costs and improve health outcomes.³

The article by Wendy E. Mouradian, MD, MS, Charlotte W. Lewis, MD, MPH, and Joel H. Berg, DDS, MSD, summarizes the major forces driving movement toward greater integration of medicine and dentistry. They outline the opportunities and challenges that lie ahead for dentistry as system-level change occurs in the broader health care environment, and the major parallel roles that professional education and

practice in medicine and dentistry will play in providing momentum for the transformation. Ultimately, the article is a call to action for the dental profession to embrace a greater leadership role in the evolving health care environment to advance the oral health of the public within the larger health care system.

Another article from Drs. Berg and Mouradian poses two important questions. Given the environmental drivers and economic factors influencing the health care system, and specifically the dental profession, what will be the vision for the dentist of the future? How will dental education prepare the future dentist to participate as clinician and oral health expert in the newly evolving health system? From their vantage point as dental school dean and associate dean, the authors lay out a response describing the critical role that dental education will play in developing competencies that allow the dentist of the future to function in a broader and more complex health care system.

The next article pertains to private philanthropy's role as an influencer on health system trends and the different approaches that can be taken to address a specific societal concern. Tracy Garland, MUP, and colleagues present a case study of a strategic philanthropic initiative meant to impact the development of interprofessional education and practice, enhance clinicians' understanding of the oral-systemic connection and expand the oral health workforce to include primary care clinicians.

Francisco J. Ramos-Gomez, DDS, MS, MPH, describes an innovative pediatric dental residency program at the University of California, Los Angeles, called the Community Health and Advocacy Training Program in Pediatric Dentistry (CHAT-PD), which emphasizes risk assessment, disease management and

interprofessional collaboration as a means of integrating oral and general health along with traditional training in behavior management and restorative care. The overarching goal is to provide graduates with an understanding of how to promote children's dental health and development within a system-level framework of family, community and culture, while at the same time establishing a firm foundation to become outstanding clinicians.

Last in the lineup is a commentary by Brian Swann, DDS, MPH, on the pioneering oral physician model that is part of the general practice residency program at the Harvard School of Dental Medicine and the Cambridge Health Alliance. The model expands the dentist's scope of practice to include disease prevention, screening for chronic diseases and psychosocial issues, and chronic disease management in the setting of an integrated health care system. Dr. Swann makes the case that equipping dentists with these enhanced duties will be part of the solution to the primary care shortage as an increasing number of people in the country gain health insurance through the Affordable Care Act.

I would like to thank the many leaders in the field of IPE and practice for generously sharing their knowledge and experience as authors for these issues and as speakers at the CDA/ADEA IPE conference held in February. My great appreciation and thanks goes to my pediatrician colleague, David Krol, MD, MPH, FAAP, for sharing his time and expertise as co-guest editor of two *Journal* issues and as a member of the planning committee for the CDA/ADEA IPE conference.

Collectively, these articles provide much food for thought on why and how dentists will need to adapt to take on new roles in the evolving health care system. Dental professional education

will need to take the lead in equipping future graduates with the skills to meet the health care needs of the public delivered in new systems of practice involving integrated patient-centered care. At stake is our profession's ability to be relevant in this new world as both clinicians and scientists, and to maintain optimal oral health for patients and the public. ■

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Integration of Dentistry and Medicine and the Dentist of the Future: The Need for the Health Care Team

Wendy E. Mouradian, MD, MS; Charlotte W. Lewis, MD, MPH; and Joel H. Berg, DDS, MSD

AUTHORS

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This is the first of two articles that constitute a call to action for dentistry to increase integration with medicine and the larger health system.

As transformative change takes place in the larger health care system, there will be significant challenges for oral health as well as new opportunities. Challenges include the long-standing inertia of separate systems of education, service delivery and financing. Opportunities include further interprofessional collaboration with the potential for increased prevention, early identification and treatment of oral and systemic diseases and improved overall health outcomes. Persistence of disparities in oral health and access to dental care argue strongly for increased attention to oral health by nondental health professionals and in the larger health care system, as called for in *Oral Health in America: A Report of the Surgeon General* and two recent Institute of Medicine (IOM) reports on oral health.¹⁻³

Major changes are also taking place in dental education and practice that provide additional momentum for overcoming system-level inertia. These include new dental accreditation standards and national board examinations, advances in science and technology and the rise of dental service organizations. Increasingly, dentistry will rely on quality metrics, diagnostic coding and health electronic technologies. Parallel changes are taking place within medicine and the rest of the health care system. These system-level changes can facilitate the inclusion of oral health and dental care in overall health care planning.

This paper summarizes the major drivers moving dentistry and medicine closer together, the consequences of the separation of the two professions and progress in their integration. Finally, we will link these trends to the vision for the dentist of the future and call upon dentistry to take a leadership role in the changing environment to advance oral health for the public.

The Changing Environment

Health Care System

The Affordable Care Act. Changes in the U.S. health care environment reflect the implementation of the Patient Protection and Affordable Care Act (ACA). The ACA responds to mounting costs of a health care system that is not inclusive and has poorer health outcomes compared with other developed nations.⁴ Intended to extend health care access to all Americans, the ACA aims to curb rising costs by creating more efficient health care models. Demographic changes add urgency to this mandate. There is a rising number of elderly, many of whom have complex and chronic health needs, and an increasingly diverse population whose members often suffer costly and consequential health disparities. While expansion of access under the ACA will increase the number of children eligible for dental services under publicly funded programs, there are no mandated dental benefits for adults. However, relative to children, substantially more adults have oral disease and lack consistent sources of dental care.

Patient-centered Medical Homes. A central theme in health care reform is the development of “patient-centered medical homes” (PCMH) for the delivery of primary care.⁵ According to the Agency for Healthcare Research and Quality (AHRQ), the PCMH is not simply a place but “a model of the organization of primary care.”

The PCMH is accountable for meeting the large majority of each patient’s physical and mental health care needs, including prevention and wellness, acute care and chronic care. Providing comprehensive care requires a team of care providers. This team might include physicians, advanced practice nurses, physician assistants, nurses, pharmacists,

TABLE 1

Patient-centered Medical/Health Home (PCMH) Attributes

The patient-centered medical home delivers care that is:

- Comprehensive
- Patient-centered
- Coordinated
- Accessible
- Quality and safety-driven⁵

nutritionists, social workers, educators and care coordinators. Although some medical home practices may bring together large and diverse teams of care providers to meet the needs of their patients, many others, including smaller practices, will build virtual teams linking themselves and their patients to providers and services in their communities⁵ (TABLE 1).

Oral health and dental services are rarely mentioned in context of the patient-centered medical home, although the concept of a “dental home” has been defined by the American Dental Association (ADA)⁶ and the American Academy of Pediatric Dentistry (AAPD).⁷ Based on the ongoing relationship between the dentist and the patient, the dental home is “... inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated and family-centered way. Establishment of a dental home begins no later than 12 months of age and includes referral to dental specialists when appropriate.”⁷

There is a need to include dental services in the model of a medical or health home (HH).⁸ Linkages with dental homes could be virtual, but the medical/health home should be accountable for ensuring dental services are integrated into care plans for all patients — regardless of the arrangements. In Federally Qualified Health Centers (FQHCs), which are required to provide at least preventive dental services, innovative models of integration may inform similar efforts in other sectors.^{9,10} Although it is beyond the scope of this paper to consider, dental hygienists and other dental professionals

TABLE 2

The Triple Aim¹²

1. Improve the patient experience of care (quality and satisfaction).
2. Improve the health of populations.
3. Reduce the per capita cost of health care.

have the potential to play important roles coordinating with medical/health homes and fulfilling other oral health functions. Thus the PCMH/HH, if defined broadly, could set the stage for bringing oral health and dental services into the essential elements of health care to be available and coordinated for every patient.

Quality, Health Outcomes and Cost. Efforts to improve health care have accelerated since the IOM’s influential report *Crossing the Quality Chasm*.¹¹ The “Triple Aim” of health care reform (TABLE 2) is to create a more cost-efficient health care system with improved quality and patient experiences.^{12,13} Strategies for achieving the Triple Aim have included the formation of health system networks or accountable care organizations (ACOs), which receive “bundled” or global payment and are required to track quality metrics utilizing electronic health technologies. Based on a PCMH/HH model, ACOs take responsibility for the overall health of a population, with incentives to optimize prevention and coordination of care. Linkages to dental services will be needed to ensure prevention, early detection of oral diseases and appropriate treatment. Increasingly payers in medicine as well as dentistry will utilize metrics to align incentives with outcomes to improve value (outcomes relative to cost).¹⁴ The term “pay for performance” has been linked to arrangements that incentivize health care providers for certain kinds of outcomes.^{15,16}

Measuring Quality. Improving oral health requires an understanding of the variables contributing to oral health

TABLE 3

The Six Dimensions of Quality Performance¹⁷

- Safety
- Effectiveness
- Patient-centeredness
- Timeliness
- Efficiency
- Equity

outcomes, design of effective care dental delivery systems and implementation of evidence-based prevention and treatment. How well systems perform can be measured and the results used to drive improvement and direct interventions within an organization or community (TABLE 3). To date, the measurement of quality in dentistry has lagged behind similar efforts in medicine.^{18,19} This is due, in part, to the almost exclusive reliance on procedure codes and the absence of an agreed-upon set of diagnostic codes. Without diagnostic codes, it is difficult to define the relationship between dental disease and dental care delivery. Diagnostic codes are also important for studying treatment modalities to ensure their safety, effectiveness and superiority to alternatives.

A positive impact of the increased participation of dentistry in the larger health care conversation is the acceleration of efforts to develop oral health quality indicators, diagnostic codes and electronic records that could be utilized with those already in place for medicine. The ADA has convened the multistakeholder Dental Quality Alliance²⁰ to develop performance measures for oral health care, and the National Quality Forum (NQF) recently released an expert panel report on the same subject.²¹ The NQF report concluded that many pre-existing performance measures are ill-defined or nonstandardized and they focus primarily on process measures, such as utilization of care, rather than on oral health outcomes. For example, the only Healthcare Effectiveness Data

and Information Set (HEDIS) measure is an annual dental visit. HEDIS is used by more than 90 percent of health plans. The NQF panel recommended a number of new oral health measures as well as a national plan to prioritize, develop and apply such indicators.²¹

Dental quality metrics and diagnostic codes are being utilized in certain health care systems now,²² and dental diagnostic codes for the patient management system axiUm are being piloted in some dental schools.²³ But value cannot be established without quality measures that link patient or population health with care provided.

Diagnostic Codes: Measuring Quality and Effectiveness of Care

One roadblock to quality improvement is the procedure-only based billing system used in dentistry. Currently, there is not a single agreed-upon coding system for dental disorders such as the International Classification of Diseases (i.e., ICD-9 or ICD-10) used to code diagnoses on medical claim forms. The combination of diagnosis and procedure codes used in medicine allows for tracking of performance measures that link outcomes with quality of care. For example, ICD codes are used to monitor “ambulatory care sensitive conditions” (ACSCs), for which high-quality outpatient care can prevent complications and hospitalization.²⁴ Some ACSCs reflect access to emergent care and consequences when timely care is not available — the rate of perforated appendix falls in this category.²⁵ However, most ACSCs, such as asthma, are chronic conditions. Metrics in this case reflect the quality of outpatient disease management. A hospitalization for asthma may be a consequence of lower-quality outpatient care, which can then be targeted for improvement on an individual patient, provider and/or organizational level.

Similarly, the presence of caries in

an individual or its prevalence within a community or population reflects unrealized opportunities for prevention and the need for quality improvement efforts. A toothache or a dental abscess would signal failed preventive efforts for a number of reasons that could be targeted for improvement. However, current oral health performance measures are defined primarily by disease prevalence (e.g., proportion of a population with caries) or dental care utilization (e.g., proportion of a population who had a dental visit in the previous year).²⁶ Without diagnostic and procedure codes, it is not easy to link dental care provided with population measures of disease. Yet doing so would ultimately identify the interventions that are most effective in improving oral health.

Population-based Measures. Although population-based indicators are not useful for determining value in a health care system, they are important for public health surveillance and assessment. For example, the National Oral Health Surveillance System (NOHSS), a collaborative effort between the Centers for Disease Control and Prevention’s (CDC) Division of Oral Health and the Association of State and Territorial Dental Directors (ASTDD), is designed to monitor the burden of oral disease, use of the oral health care delivery system and the status of community water.²⁶ Current NOHSS indicators have been reviewed considering new and emerging data sources.²⁷ Additionally, a meeting of experts, the National Oral Health Surveillance: Gaps, Priorities and Future Strategies, also convened.²⁷

In 2011, oral health was identified as a Leading Health Indicator for Healthy People 2020 (HP2020) — which sets and tracks broad goals for the nation’s health in a multitude of areas, including oral health.²⁸ Of interest, new HP2020

indicators being tested include the proportion of patients who receive tobacco/smoking cessation information, oral and pharyngeal cancer screening or testing or referral for glycemic control by a dentist or dental hygienist.²⁹ These changes speak to the growing recognition that dental professionals can play a greater role in addressing issues of importance to general health.

Science and Technology

Scientific Advances. As changes in the health care environment are setting the stage for greater integration of dentistry with medicine, scientific advances are underscoring the integral role that oral health plays in overall health and quality of life. In 1995, the IOM report, *Dental Education at the Crossroads*, predicted and recommended closer integration of dentistry with medicine and the health care system as a whole, citing scientific advances and an aging population with more complex health needs.^{30,31} In 2000, the surgeon general summarized the evidence linking oral health with overall health and called for more research to address these linkages and increased attention to oral health by other health professionals, policymakers and the public.^{1,32}

Oral-systemic Health Interactions. Studies are in progress investigating the relationship of periodontal disease with diabetes and the impact of periodontal treatment on costs of care for patients with diabetes. The most commonly used medications cause xerostomia, predisposing patients to caries. Examples of previously unrecognized problems include the risk of osteonecrosis of the jaw due to bisphosphonates³³ and the association of human papillomavirus (HPV) infection, which also causes cervical cancer, with oropharyngeal malignancies.^{34,35} Temporomandibular dysfunction (TMD) and related pain

syndromes can reflect rheumatic disorders as well as sociobehavioral issues. Oral manifestations of HIV-AIDS, certain cancers and leukemias, gastroesophageal reflux disease (GERD), Crohn's disease, eating disorders and other systemic conditions reveal the inextricable links between the oropharynx and the rest of the body and the importance of a thorough understanding of these interactions by all health professionals.^{36,37}

Technology Developments. Technological developments with the potential to accelerate the integration

Dentists will need to understand these advances and collaborate with other health professionals to deliver a new kind of health care.

of dentistry and medicine include risk assessment methods, early caries diagnostic tools, salivary diagnostics, bioengineering and advances in tissue regeneration, genomics, proteomics and pharmacogenomics, among others.³⁸ These technologies have given rise to the notion of “personalized health care” — treatment that can be tailored to each person based on genetic information (genomics).³⁹ The term “prospective health care” has also been used to reflect the shift from treatment to disease prevention and health management enabled by such new technologies. Given that 45-64 percent of caries has been attributable to genetics, based on twin studies,⁴⁰ dentists will need to understand these advances and collaborate with other health professionals to deliver a new kind of health care.^{41,42}

The Separation of Medicine and Dentistry

The lack of attention to oral health in the current health care system is traceable to the separation of medicine and dentistry, marked by the opening of the first dental school at the University of Maryland in 1840. Yet as early as 1926, the importance of oral systemic interactions and the infectious nature of caries and periodontal diseases were recognized by William Gies, a biochemist, in his now famous report to the Carnegie Foundation.⁴³ The *Gies Report* laid the foundation for an academic dental school based on science and embedded in a university, as the *Flexner Report* recommended a decade earlier for medical education. Gies decried what he saw as the indifference of physicians to oral health. In his concluding chapter, Gies stated:

“Fortunately, this disregard in the medical profession is gradually being replaced by serious attention to oral conditions ... This desirable movement promises to attain its logical development among practitioners of medicine in general when medical schools give their students suitable instruction in oral hygiene, and in the correlations between clinical medicine and clinical dentistry, and when dental service is accorded its proper place generally in hospitals and dispensaries.”

Gies recommended the integration of dentistry and medicine, but lack of political will in both professions led to the maintenance of the status quo and set the stage for the largely separate systems for education, financing and delivery of medical and dental health care seen today. A unique exception to this state was the formation of the first craniofacial team in 1938 by Herbert K.

Cooper, DDS, DSc, LHD, FACD, an orthodontist in Lancaster, Pa.⁴⁴ Today, coordinated, interdisciplinary team-based care, including oral health, is the standard of care in the craniofacial clinic, one of the few examples of such integrated care.⁴⁵

Unintended Consequences of the Separation

Health Professional Education and Training. The largely separate systems for educating dentists, physicians and other health professionals, from professional schools and residencies through continuing education, have perpetuated the training of health care professionals who have little knowledge of oral health. For example, a review of allopathic and osteopathic schools of medicine revealed most provided five hours or less of oral health education, and few tested medical students' knowledge in this area.⁴⁶ Physicians and other primary care practitioners are not trained to examine the oral cavity, screen for oral-systemic health issues or provide preventive oral health counseling. Surveys of pediatricians have repeatedly revealed a lack of knowledge in oral health and failure to provide oral health preventive services, despite acknowledgement of their importance.^{47,48}

Academic Infrastructure. Other consequences include the duplication of costly infrastructure in many health science centers and the creation of the standalone dental school clinics that are more education than practice oriented. Typically operated separately from the medical enterprise, these clinics have contributed to a financial model of dental education that plays a role in high student debt. Additionally, they may not prepare graduates sufficiently for dental practice settings they will encounter.⁴⁹

Separate Systems and Practice Models. Moreover, the impact of the education

and training isolation is bidirectional. Standalone dental clinics and separation from the medical system do not prepare dental students to participate in the overall care of patients. Until relatively recently, dental students received little exposure to the most disenfranchised groups served in public health settings, including refugees, the homeless and individuals with mental illness, among others. These groups have substantial oral health needs and are often attended to by medical personnel and trainees. Without a dental presence, these trainees

The separate training systems reinforce current dental and medical clinical practice that operate almost entirely in isolation from one another.

may be less likely to identify oral health problems or seek dental consultation, perpetuating disparities among groups in most need. In general, dental students do not spend time working with other health professionals or within the medical system. The separate training systems reinforce current dental and medical clinical practice that operate almost entirely in isolation from one another.

Although the topic of dentists' knowledge and attitudes toward general health and relationship to the overall health system has not been well studied, it is clear that dental curricula have been focused more on achievement of technical skills than on advancing patients' overall health as part of a health team. Yet the growing complexity of patients will demand such collaborative

practice. Exceptions to this isolation occur primarily in specialty areas such as oral and maxillofacial surgery, pediatric dentistry, oral medicine and hospital dentistry residencies. However, for the general dentist, this remains a huge gap. It is increasingly recognized that general dentists could play a greater role in primary care and screening for medical conditions,⁵⁰ and as noted, certain aspects of this are being tracked nationally. The integration of electronic health records would support collaborative practice. Separate records contribute to errors in patient management related to lack of communication and knowledge across the medical and dental systems.⁵¹ Changing dental accreditation standards will move dental education in the direction of more interprofessional interaction and collaborative practice, discussed further below.

Dental Coverage and Financing. Separate systems for financing dental and medical care have resulted in glaring differences in coverage. While general health care insurance is provided by most employers, for the elderly under Medicare and for poor families under Medicaid, there are no similar guarantees for dental care. An exception has been pediatric dental services, mandated for Medicaid-eligible children since 1967.⁵² However, despite the requirement for dental coverage for poor children, as recently as 2003, children were 2.5 times as likely to have medical than dental insurance,⁵³ reflecting the fact that dental insurance was unavailable for children from families with incomes too high to qualify for Medicaid but whose parents didn't have employer-based dental insurance. Pediatric dental benefits were included in the State Children's Health Insurance Program (S-CHIP) and Children's Health Insurance Program Reauthorization Act (CHIPRA).⁵⁴ Dental care was deemed an

essential health benefit for those younger than 18 years of age under the Affordable Care Act,⁵⁵ which means that dental insurance will be available for all children, although concerns have been raised about the affordability of cost-sharing under standalone dental programs.⁵⁶

The situation remains substantially more challenging for adults who often have more costly restorative needs than children but for whom there are no mandated dental benefits in publicly funded programs or in the ACA. Dental care was not included in Medicare in 1965; currently, 70 percent of individuals age 65 and older lack any kind of dental coverage.³ State budget crises have cut into adult Medicaid dental benefits (often among the first benefits to be dropped), or limited coverage to emergent care only (e.g., extracting an abscessed tooth). On average, consumers pay out of pocket for approximately 43 percent of dental care costs,⁵⁷ and that poses a substantial barrier for many families. Although insurance does not ensure utilization, there is a direct relationship between dental coverage and patients seeking dental care.^{53,58} The availability of affordable dental care has likewise been associated with better oral health outcomes.^{59,60}

At the same time, new dental procedures such as implants, which provide added benefits over traditional approaches for replacing lost/missing teeth, are very costly and far beyond the means of most in need of them. Implants are not covered by dental insurance, which has limited coverage even for more common procedures such as the placement of crowns. Dental insurance operates under a very different model from health insurance.

Without adequate coverage, many do without. In 2009, only 21 percent of poor adults in the U.S. went to the dentist at least once.⁶¹ Even middle-income adults

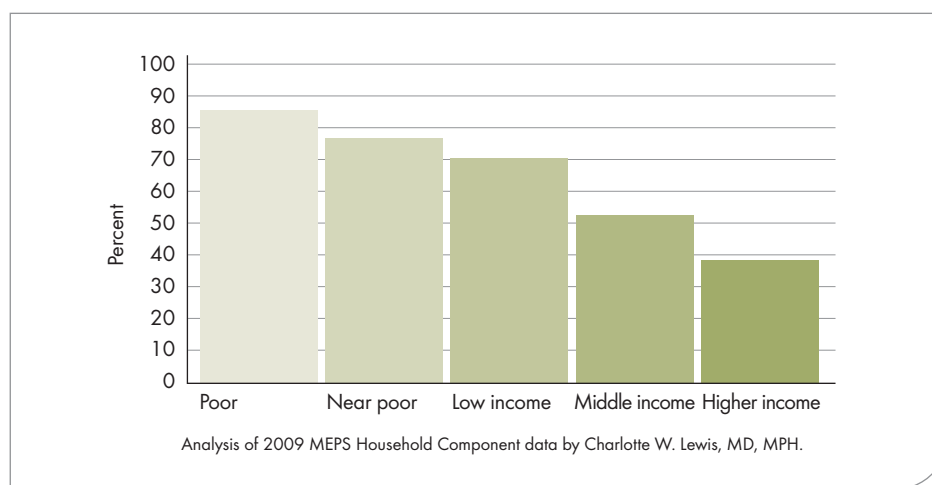


FIGURE. Percent of Americans over 18 without dental insurance in 2010 by poverty status.

were underrepresented in the dental office — with just 35 percent visiting the dentist in 2009.⁶¹ Only adults from families with incomes exceeding four times the federal poverty line (\$88,200 for a family of four in 2009) were more likely than not to go to the dentist.⁶¹ More adults rely on the emergency department (ED) for dental complaints — a poor substitute and costly alternative to routine prevention and timely care. Between 2004 and 2008, ED visits for dental complaints increased by 60 percent while rates of overall ED visits remained largely unchanged.⁶² While the last 15 years have brought substantial progress in improving coverage for and access to dental care for children, little has been done to address the needs of adults who lack the necessary resources to obtain dental care.

Health Policy. Over the years, the separation of the dental and medical systems has contributed to an overall lack of attention to oral health among policymakers and the public. Because of the separate health care and financing systems, the contribution of oral diseases and their consequences for health care costs are generally not tracked. At the same time, the contribution of dental services to overall health and quality of life are generally not measured and hence valued. Achieving these goals will require addressing quality measures and diagnostic codes, among other things.

On a positive note, oral health was included in the most recent Department of Health and Human Services (HHS) and Health Resources and Services Administration (HRSA) strategic plans,^{63,64} and a federal *Oral Health Initiative* was announced in 2010, including, among others, the plan to review oral health surveillance data capability in the U.S. and develop an integrated long-range plan for surveillance of oral diseases, conditions and behaviors.⁶⁵ Other elements include two IOM reports on oral health commissioned by HRSA. The IOM report, *Advancing Oral Health*,² as requested, made specific recommendations for the HHS to bring focus to oral health and integration of federal efforts. Among others, the report recommended integration of oral health into primary care systems and the development of a national oral health plan with high-level accountability. Having a national oral health plan would provide an umbrella framework under which many other initiatives and recommendations that relate to oral health, such as in the National Plan for Action (minority health) and the National Prevention Strategy, could be coordinated and more effectively implemented. However, it is not clear that there is a collective commitment to implement these recommendations. State and national oral health literacy campaigns have been

launched to increase public awareness of the importance of oral health.^{66,67}

For multiple reasons, the separation of dentistry from medicine contributes to the generation and maintenance of oral health disparities, resulting in greater health burden of disease and costs to the health care system (**FIGURE**). The changing health care system, enabled by new health care policies, recommendations and opportunities, sets the stage for more integration of dental and medical systems across multiple sectors.

Putting the Mouth Back Into the Body

Since the *Surgeon General's Report on Oral Health* and Surgeon General's Conference on Children and Oral Health,¹ there has been a growing number of efforts to increase the integration of dentistry and medicine. The most attention has been focused on efforts to engage primary care medical providers in oral health promotion and disease prevention for children.⁶⁸ Fifteen years ago, Washington became the first state to reimburse physicians for application of fluoride varnishes to Medicaid-eligible children. While only a handful of primary care medical providers from 12 practices in Washington had undergone oral health training by 2000,⁶⁹ as of 2012 there were more than 2,000 pediatricians, family doctors and nurse practitioners trained to deliver oral health services to children (personal communication, May 15, 2012; Dianne Riter White, WDSF). In a similar effort, North Carolina launched the "Into the Mouths of Babes" program for Medicaid-eligible children, a partnership of dentists, pediatric dentists, physicians and others focusing on preventing and identifying oral disease in young children. This program has resulted in a jump in preventive oral health services for children around the state, increased dental referrals and dental care delivered

and resulted in a reduction in caries rates over time.⁷⁰ The effort to involve primary care medical providers in children's oral health has been facilitated by state and federal payment changes. As of June 2012, 43 of 50 state Medicaid programs provided reimbursement to primary care medical providers for pediatric oral health preventive services.⁷¹ One private insurer, the Washington Dental Service, reimburses physicians for applying fluoride varnish.

By extension, perinatal oral health has received considerable attention, with

The separation of dentistry from medicine contributes to the generation and maintenance of oral health disparities.

perinatal oral health guidelines developed in New York and California.^{1,72} Most recently, the release of *Oral Health During Pregnancy: A Consensus Statement* from an expert panel convened by HRSA's Maternal and Child Health Bureau in collaboration with the ADA and the American Congress of Obstetricians and Gynecologists (ACOG) is keeping a focus on an area where collaborative practice among dental and medical practitioners is very much needed.⁷³ Among other academic entities, the University of Washington and the University of North Carolina at Chapel Hill are bringing focus to perinatal oral health in the dental school curriculum.⁷⁴

Related efforts to include oral health in medical and nursing education and training have grown.^{75,76} In

2008, the Association of American Medical Colleges (AAMC) released a special report on oral health,⁷⁷ and in 2011 AAMC published oral health competencies for medical students.⁷⁸ At the same time, AAMC called for the development of a collection of oral health curricula to address these competencies to be housed within MedEdPORTAL, an online bank of education resources operated in collaboration with the American Dental Education Association.⁷⁹ Other online curricula exist for primary care providers.^{80,81} The rise of interprofessional education (IPE) in general has added to the momentum for greater integration, and many IPE efforts include dentistry. Public and private funders have supported many of these efforts, which are gaining momentum, pulling in medicine, dentistry, nursing, physician assistants and others.⁸²⁻⁸⁴

Exceptions to the separate training of physicians and dentists include Harvard University and the University of Connecticut, where medical and dental students are more integrated. At New York University, the dental and nursing schools are now in the same administrative unit, and nursing-dentistry integration experiences, related scholarship and policy developments are underway.⁸²⁻⁸⁵ A number of new dental schools have been launched in conjunction with osteopathic medical schools, providing more opportunities for collaboration. Nova Southeastern University has a joint DMD-DO program.⁸⁶

Among professional medical associations focused on practitioners, the American Academy of Pediatrics (AAP) has been the most proactive in advocating for children's oral health. Academy policies released in 2003 and 2008 emphasized the important role pediatricians could play in promoting children's oral health and collaborating

TABLE 4

Some Landmarks Relevant to Dental-Medical Integration

1840	Baltimore College of Dental Surgery opens
1926	<i>Gies Report</i>
1938	First craniofacial team – Herbert K. Cooper, DDS, DSc, LHD, FACD, Lancaster, Pa. (Slavkin, <i>Birth of a Discipline</i> 2012)
1979, 1990, 2000, 2010	Healthy People Reports/plans
1979	Surgeon General's reports on smoking and health
1995	University of Kentucky – Oral physician program proposed, not implemented
1995	IOM Report: <i>Dental Education at the Crossroads</i>
1999	IOM Report: <i>To Err Is Human</i>
2000	2000 DHHS: Surgeon General's Report; Face of the Child: Surgeon General's Conference on Children and Oral Health
2001	IOM Report: <i>Crossing the Quality Chasm</i>
2001	HRSA: Grants to eight schools of dentistry on "Integrating Oral Health into Primary Care"
2002	IOM Report: <i>Unequal Treatment</i>
2003	DHHS: <i>National Call to Action to Promote Oral Health</i>
2003	IOM Report: <i>Health Professions Education: A Bridge to Quality</i>
2003, 2005	American Academy of Pediatrics – new oral health policies; oral health a strategic priority
2004	IOM Report: <i>In the Nation's Compelling Interest</i>
2004	Sullivan Report: <i>Missing Persons: Minorities in the Health Professions</i>
2005	Oral health curriculum for medical students published (<i>Acad Med</i>)
2005	ADEA Commission on Curriculum Innovation
2006	ADA Conference on Access; U.S. National Oral Health Alliance launched
2006	Smiles for Life curriculum
2007–08	Macy Panel – Medical and Dental Curriculum – AAMC, ADEA (<i>J Dent Educ</i> February 2008)
2008	ADEA – Competencies for the New General Dentist approved, ADEA House of Delegates
2008	MCHB Dental/Medical home conference (February)
2008	AAP Peds21 Symposium on oral health with former Surgeon General David Satcher
2008–09	AAP Summit on Oral Health; <i>Academic Pediatrics</i> special issue on oral health
2009	Accreditation of Interprofessional Health Education, Ottawa: Health Canada
2010	WHO – Framework for action on interprofessional education and collaborative practice
2010	CDA/F releases perinatal oral health guidelines
2011	National Interprofessional Initiative in Oral Health launched
2011	HRSA IPE Conference (February); IPE competencies released (May)
2011	ADEA national conference on IPE (March)
2011	IOM Reports on Oral Health recommend integration of oral health into primary care and IPE (April, August)
2011	AAMC releases oral health competencies for medical students (September)
2011	Healthy People 2020 Leading Indicators include oral health
2012	HRSA launches effort to define interprofessional oral health core competencies (IPOHCC)
2012	MCHB Oral Health Care During Pregnancy: A National Consensus Statement released (ADA, ACOG)
2012	UW faculty retreat, Dentist of the Future
2013	CODA competencies in effect including IPE for dental students (July)

AAMC = Association of American Medical Colleges, AAP = American Academy of Pediatrics, AAPD = American Academy of Pediatric Dentistry, ACOG = American Congress of Obstetrics and Gynecology, ADEA = American Dental Education Association, CDA/F = California Dental Association/Foundation; CODA = Commission on Dental Accreditation; DHHS = Department of Health and Human Services, HRSA = Health Resources and Services Administration, IOM = Institute of Medicine, IPE = interprofessional education, MCHB = Maternal and Child Health Bureau, UW = University of Washington, WHO = World Health Organization.

with pediatric and general dentists.^{87,88} The AAP identified oral health as a strategic priority area and in 2008 hosted Peds21,⁸⁹ a symposium on oral health, and a National Children's Oral Health Summit⁹⁰ leading *Academic Pediatrics* to produce a special issue on children's oral health.⁶⁸ Since then, numerous clinical reports and updates have been developed by the AAP in conjunction with members of the AAPD and others, for example, a recent medical-dental collaboration on the impact of oral disease on children with developmental disabilities.⁹¹ Also in 2008, the AAP, with the support of the American Dental Association Foundation and others, established a training course for pediatricians to become Chapter Oral Health Advocates (COHAs).⁹² COHAs became their states' advocates for pediatric oral health, at a legislative level and in the role of training their fellow pediatricians to provide preventive oral health anticipatory guidance, screen for caries risk and dental disease, apply fluoride varnish as needed and facilitate access to a dental home. There are now 64 COHAs from 50 states and U.S. territories.⁹² The Residency Review Committee for Family Medicine has in the past required a hands-on oral health experience for residents. Some landmarks relevant to dental-medical integration are outlined in **TABLE 4**. ■

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Integration of Dentistry and Medicine and the Dentist of the Future: Changes in Dental Education

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Conflict of Interest

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Given the changes in the health care system and other environmental factors, what will be the vision for the dentist of the future? How will dental education prepare the future dentist to participate as clinician and oral health expert in the newly evolving health system? At stake are the oral health of patients and the public and the inclusion of dentistry's expertise in delivery of dental care and contribution to scientific discovery. In fact, such a vision has been emerging in parallel with the other health professions.

Changes in Health Professions' Education. In 2003, the IOM published *Health Professions Education: A Bridge to Quality*.¹ The report urged educators and accrediting bodies to ensure that health professional students and practitioners develop and maintain proficiency in five core areas, summarized in **TABLE 1**.²

More recently, the Lancet Commission expanded the vision for health professional education to include

a global and public health orientation, stronger emphasis on interprofessional education and collaborative learning environments that extend beyond the academic infrastructure, to better prepare students for the health systems of the future.³ Specific interprofessional education (IPE) competencies have been developed by professionals in medicine, dentistry, nursing and pharmacy, among others, and were released in 2011.⁴

Changes in Dental Education: Competencies for the New General Dentist. Calls for similar reform in dental education have been articulated.⁵ In 2005, the American Dental Education Association (ADEA) launched the Commission on Curriculum Innovation (CCI), which resulted in a body of scholarly work and recommendations for competencies for the new general dentist (**TABLE 2**).⁶

New Dental Accreditation Standards. After discussion and public comment, the Commission on Dental Accreditation (CODA) released new standards for predoctoral education, which took effect

TABLE 1

Recommendations From IOM Report on Health Professions Education¹

Health professional students and practitioners develop competency and maintain proficiency in:

1. Delivering patient-centered care
2. Working as part of interdisciplinary teams
3. Practicing evidence-based medicine
4. Focusing on quality improvement
5. Using information technology

TABLE 2

Competencies for the New General Dentist⁷

Domains

1. Critical thinking
2. Professionalism
3. Communication and interpersonal skills
4. Health promotion
5. Practice management and informatics
6. Patient care

Assessment, diagnosis and treatment planning
Establishment and maintenance of oral health

Approved by the ADEA House of Delegates, 2008.

TABLE 3

New CODA Standards Areas of Emphasis⁸**New emphasis on:**

1. Humanistic dental school environment
2. Critical thinking, self-directed lifelong learning, integration of basic, behavioral and clinical knowledge
3. Evidence-based dentistry; assessment/application of new scientific knowledge to patient care
4. Communicating and collaborating with nondental health professions
5. Application of behavioral science principles
6. Ethical decision making and professional responsibility
7. Demonstrated leadership of the oral health team
8. Student assessment, including student's ability to self-assess and self-reflect
9. Competency development over time in all areas
10. Global and specific assessment of competency for graduation
11. Use of active, learner-centered teaching methodologies/technologies
12. Faculty development including in use of teaching methodologies/technologies

New standards for:

1. Community-based service learning experiences for development of cultural competence
2. Interprofessional clinical experiences (physicians, nurse practitioners, pharmacists, physician assistants, et al.)

Source: Commission on Dental Accreditation (effective July 2013).

July 1, 2013.⁸ The new CODA standards reflect many of the changes envisioned by the CCI (TABLE 3), including a requirement for interprofessional clinical experiences for dental students, a standard many schools could not fulfill currently. The ADEA also recently conducted a study of interprofessional education in dental schools.⁹

New National Dental Board Examinations. Similarly, the Joint Commission on National Dental Examinations responded to the calls for different emphasis in future examinations. A new National Board examination is in development that will integrate basic, behavioral and clinical sciences in a single examination, which could be offered as early as 2017.⁹ Case-oriented questions will assess dental students' ability to integrate and apply information from multiple perspectives, including basic sciences, clinical,

behavioral, ethical and sociocultural elements, to make the best choices for the particular patient or context.

Changes in Dental Practice. As changes in the educational landscape of dentistry are instituted, other changes become evident in practice patterns of new dental graduates. Dental service organizations that manage large numbers of dental practices are increasing in size and number. This change reflects to some extent the cost-efficiencies achievable through large-scale implementation of electronic records and other technologies and purchasing arrangements. High levels of student debt contribute to the desirability of these kinds of arrangements, which offer alternatives to the large investment needed for opening or buying into smaller practices. At the same time, new models are evolving that consider the role of dental services in the larger health care system. Regardless of the setting, it is clear that the dentist of the future must be capable of functioning in a much broader and more complex environment than in the past.

University of Washington (UW) Faculty Retreat. In December 2012, the UW School of Dentistry (SOD) convened an

all-faculty retreat to discuss the dentist of the future. This was a culmination of the work of multiple task forces developed under the leadership of the dean, including a task force on curriculum renovation. All of the above drivers were considered, as well as the context of the UW, which includes an emphasis on IPE and collaboration across the health professions in education, research and patient care. What emerged was a review of the trends (already underway and requiring appropriate planning), and uncertainties, which reflect the complexity of the environment, which must be monitored by those charged with educating the next generation of dentists. A follow-up intensive review of UW educational processes was initiated to outline steps needed for curriculum change in response to multiples drivers.

New Roles for the Dentist of the Future. One way to conceptualize the dentist of the future is to envision the many "roles" that dentists of the future will be called upon to play — as clinician, scholar, manager, communicator, collaborator and advocate — regardless of the particular context. Some of these roles arise from the need to critically

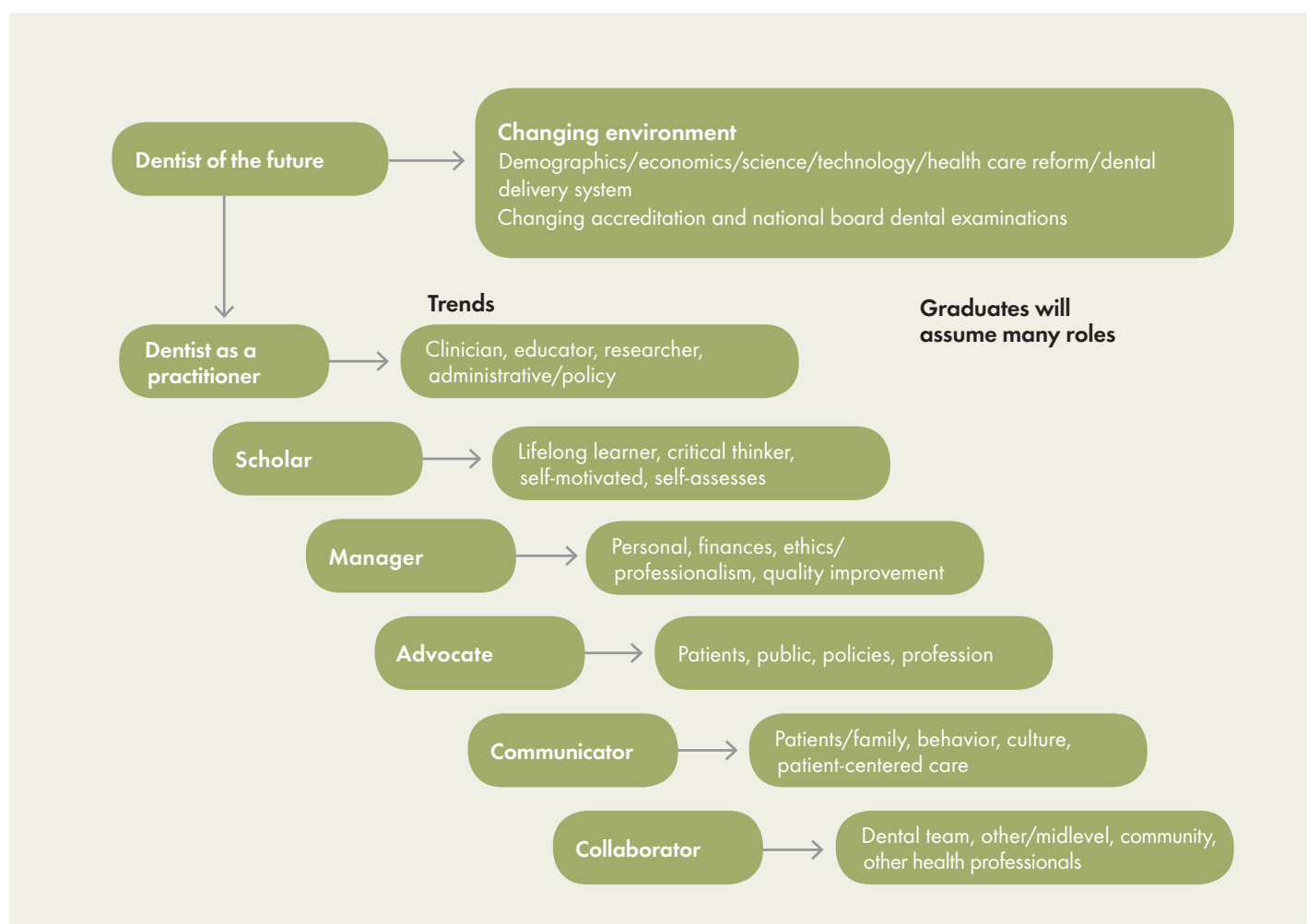


FIGURE. Dentist of the future. (Adapted from the CanMEDS 2005 Physician Competency Framework. Ottawa: The Royal College of Physicians and Surgeons of Canada.¹¹)

assess and apply new information to manage an increasingly complex and diverse patient population. Other roles relate to the dentist as communicator and collaborator with other health professionals in delivery of patient care. As has always been true, the dentist will need to be an astute manager of the dental practice. Whether in a private practice, a dental service organization, accountable care organization or other kind of network arrangement, the dentist of the future will need to navigate a more complex environment and be prepared to integrate quality metrics and diagnostic codes and participate in quality improvement processes. All the while,

the dentist will continue to advocate for the best care for the patient (**FIGURE**). Indeed, as the oral health expert, the dentist has a professional mandate to represent the best interests of patients and the public. Dentists share this ethical responsibility with the profession as a whole and should take leadership roles to fulfill this trust for society.¹⁰

As the changing health care environment defines a new kind of marketplace, and appreciation of the importance of integrating oral health into overall health grows, it is inevitable that dentistry and medicine will move closer together, and that the dentist (and physician) of the future will be called

upon to play roles beyond traditional clinical roles. Given rapid changes and the uncertainties that lie ahead, it is also crucial that dentists are prepared to adapt to additional changes that will ensue. The notion of training for *capability* captures this concept of flexibility and adaptability that all health care professionals must pursue. In a changing world, individuals must be able to adapt to change, generate new knowledge and continue to improve their performance.¹¹

There exists a great need to create curricula that not only measure future dentists' performance via individual courses and department-specific assessments, but also with newly developed metrics to

determine true performance outcomes in curricular threads. These threads should cross over department and course boundaries and thereby prepare students to function within the required and expected performance arenas of the dentist of the future. In addition to traditional disciplines of dentistry, such as restorative and surgical skills, threads should measure student growth, performance and readiness in key areas representing the practice of the future, including medical management of oral disease, ethics and professionalism, communication skills, assessment of evidence in translating biomedical science and technology

into practice, practice management to function in an ever-changing marketplace and care of diverse populations.

Although we have historically included much of the above into our curricula, we have not carefully assessed the outcomes of growth and performance in a thread-specific fashion in order to determine readiness for the practice of the future. By changing our focus and structure in the way we present knowledge and assess performance, we can create a competent practitioner who is ready for the marketplace of the future, where on a continuum of performance all will be evaluated. ■

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Addressing Oral Health Needs Through Interprofessional Education and Practice

Tracy Garland, MUP; Laura Smith, MPA; and Ralph Fuccillo, MA

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Conflict of Interest
Disclosure: None reported.

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Disclosure: None reported.

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Conflict of Interest
Disclosure: None reported.

The role of private philanthropy in influencing health system trends is often obscure or not well understood. While every philanthropy has addressing some societal concern as its mission, the range of approaches taken to pursue that mission can vary from addressing the symptoms of a problem to going “upstream” to deal with root causes or the structural underpinnings that give rise to or prevent improvement in the societal concern of focus. Measures of impact and timeframes for gauging impact vary widely, depending on the approach taken. Further, philanthropic strategies can be executed in a variety of ways, ranging from grants to organizations providing direct services to support for the development of “networks” where the capacity of multiple entities can be harnessed and channeled toward a given philanthropic aim.¹ With this range of approaches, impact measures and time frames, as well as grant-making tactics,

philanthropic investments can look very different in a variety of contexts.

This article focuses on one philanthropic venture, the National Interprofessional Initiative on Oral Health (NIIOH), and explains its origin, vision, approach and impact on interprofessional education and practice in the dental/oral health arena. Multiple influences have resulted in progress being made to expand the oral health workforce to include primary care clinicians, including the support of the dental profession for this health system change. The story of the NIIOH can serve as a case study in the “collective impact” approach to change management² and as an example of “strategic philanthropy.”³ Readers will gain insights into how philanthropic resources can be deployed so as to influence a broad field like oral health and its link to overall health, and contribute to shaping the ways that trends unfold, in this case, interprofessional oral health education and practice.

Context

Two major trends are currently working their way through the health system. The first trend relates to the need to increase the capacity of health professionals prepared to work effectively as members of a team that has the interests of patients at its center. Demand for increased effectiveness of teamwork in health care practice rose as a result of concerns about patient safety and care quality.⁴ This translated into a demand for increased opportunities for health professional students to learn with, from and about each other as a standardized part of their education. The 2011 report of the Interprofessional Education Collaborative on Core Competencies for Collaborative Practice provided clear guidance regarding competencies that all members of a health care team need to share.⁵ Academic program accreditation standards pertaining to interprofessional education (IPE) have further prompted the interprofessional education movement, aiming to imprint health professional students with a team ethic as part of their education experience so that they enter practice with the expectation and competency to work effectively together.⁶

The second trend relates to reform of the health system payment and delivery structures to incentivize:

- Whole person care;
- Proactive prevention;
- Early detection;
- Care coordination with primary care as the hub for collaboration in the medical neighborhood;
- Patient engagement in managing his or her own health and health care; and
- Delivery of quality care that is “the right care, at the right time, in the right way for the right person and having the best possible result.”⁷

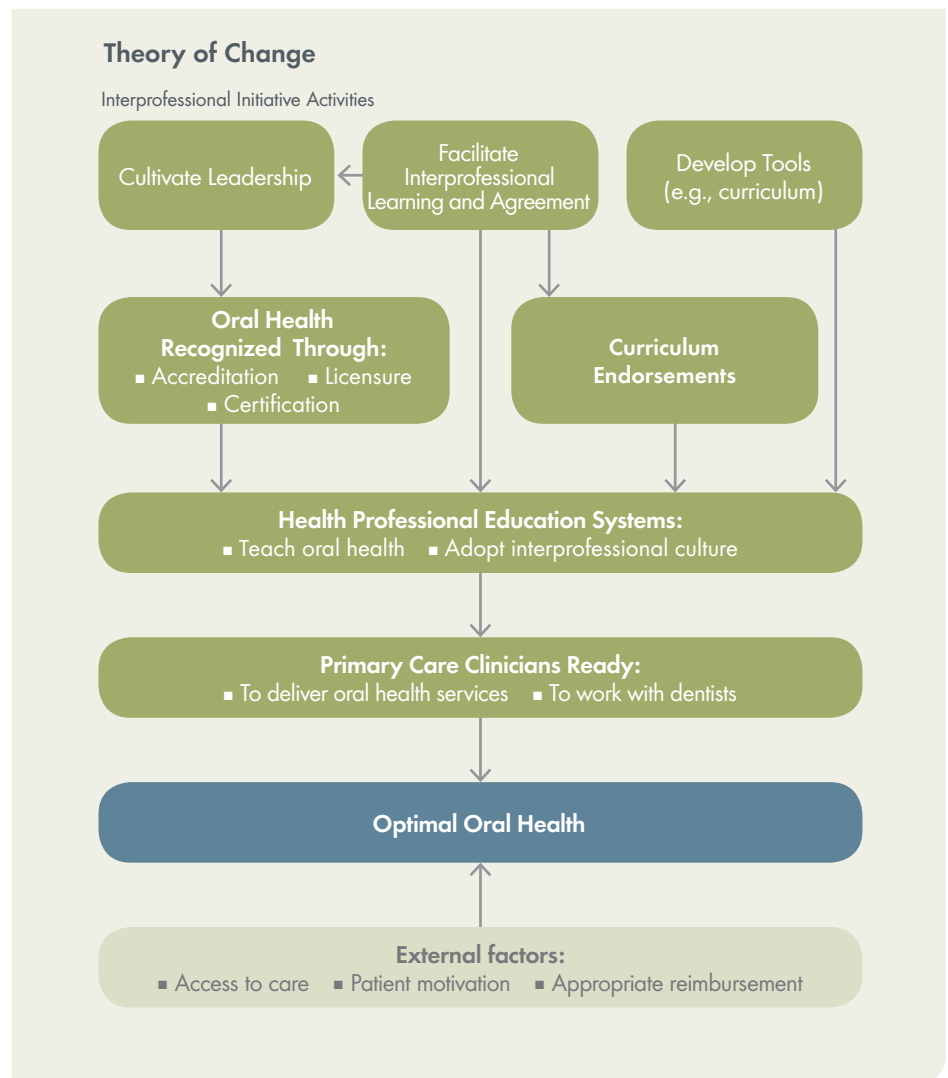


FIGURE 1. National Interprofessional Initiative on Oral Health Theory of Change.

The goal of this trend is to achieve the Triple Aim, “improving the experience of care, the health of populations and reducing per capita health care costs.”⁸ Industry planners refer to this as the patient-centered medical home (PCMH)/accountable care organization (ACO) movement. The two forces combine to provide a platform for considering how oral health, given its relationship to overall health, can provide an important contribution to improving the Triple Aim by building interprofessional primary care workforce and embedding it in the PCMHs or ACOs.

National Interprofessional Initiative on Oral Health (NIIOH)

NIIOH Formation/Vision

In 2008, three foundations (DentaQuest Foundation (DQF), Washington Dental Service (WDS) Foundation and Connecticut Health Foundation) saw the possibility of harnessing the energy of the interprofessional (IP) movement and the PCMH/ACO movement in order to establish a new standard of care for patient oral health. The new standard would be that all patients have access



FIGURE 2. Interprofessional oral health core clinical competencies.

to oral health services and referrals in the context of their patient-centered medical home. At the core of this vision and new care standard was the notion that primary care clinicians could become skilled at and comfortable with addressing the oral health needs of their patients and interacting effectively with dentists. The funders thought that with changes in the education, practice and financing of health care, it would be possible to reach the population where oral diseases are most prevalent — a population not well served by the system as currently configured.⁹

The foundations wanted to take a “collective impact” approach in which the efforts of multiple parties would be united by a common goal, carried out in a manner that was mutually reinforcing and supported by a “backbone support” organization. In order to give an identity to their pooled resources and to reinforce the notion that individual grantees were part of a larger whole, the collective work funded by the three funders was named the National Interprofessional Initiative on Oral Health. In 2009, this multi-year, multi-funder effort was undertaken to pursue the “IP oral health agenda.” The NIIOH Theory of Change (**FIGURE 1**) is that patients would be better off and more likely to have good oral health if their primary care provider addressed their oral health needs, including referrals. Further, primary care providers would be more likely to enter practice ready and willing to address the oral health needs of their patients, as a component of overall health needs,

if they had the opportunity to acquire interprofessional oral health core clinical competencies in the course of their education and training experience.

Thus, the focus of the NIIOH has been to put the IP oral health agenda into primary care education and practice in alignment with larger health care industry trends relating to teamwork/interprofessionalism and system redesign for “whole person” care with primary care as the hub for collaboration in the medical neighborhood. The NIIOH vision is that primary care clinicians and dentists share oral health core clinical competencies as depicted in **FIGURE 2**.

NIIOH Structure

The NIIOH is structured as a network with multiple “hubs.” NIIOH network hubs include:

- The funders who pool their resources and make funding decisions jointly.
- The NIIOH Strategic Planning Committee, including funders and key initiative leaders who provide guidance on initiative direction.
- NIIOH “partners” or grantees who receive funds to develop tools (Smiles for Life Steering Committee) and/or to design and execute individual profession engagement activities (Physician Assistant (PA) Leadership Oral Health Initiative, Oral Health Nursing Education and Practice Program (OHNEP)).
- Participants who are invited to attend the annual Symposium on Oral Health and Primary Care.

- NIIOH program office, led by the program director, which weaves individual profession work together and ensures that activities are unfolding in a mutually reinforcing manner. The program office also stages the annual Symposium on Oral Health and Primary Care.

This structure is both formal and informal; it operates in a flexible manner, coming together and going back out in regular rhythms. Participants carry a “network mindset,” continuously retaining their own identity while mindful of being part of a larger whole. Further, those involved in the focused effort of the NIIOH understand that its activities are taking place in the context of the work of many others.

The federal government’s Interprofessional Oral Health Primary Care Practice (IOHPCP) initiative, led by Health Resources and Services Administration (HRSA) executives, is an example of the convergence of the private philanthropy-funded effort with the public sector effort. The 2014 HRSA *Report on Integration of Oral Health and Primary Care Practice*¹⁰ contributes strongly to advancing the IP oral health movement by making the case for expanding the oral health workforce in order to serve those not served by the current health/oral health system and by clearly identifying the role of primary care providers, within their scope of practice, to address the oral health needs of their patients. The definition of “interprofessional oral health core clinical competencies” in the 2014 HRSA report was a milestone event providing clarity to the field that interprofessional oral health “best practices” can and should be provided in primary care. HRSA’s IOHPCP initiative is targeted to benefit the rural and community health centers funded by HRSA; however, the health field at large, including policymakers,

payers, health system administrators, providers, educators and patients, is taking note of this report's case for integrating oral health in primary care.

In addition to HRSA's work, state-specific efforts to engage primary care clinicians in oral health are underway in many states, including North Carolina (Into the Mouths of Babies),¹¹ Colorado (Cavity Free at Three)¹² and Washington (Access to Baby and Child Dentistry).¹³ Profession-specific work on children's oral health issues has been well organized and funded by the American Academy of Pediatrics (AAP) since the release of the 2000 *Surgeon General's Report on Oral Health*.¹⁴ Since 2002, WDS Foundation has been engaging primary care providers in delivering oral health preventive services in Washington to all children regardless of income and insurance status. More than 40 percent of family medicine physicians and pediatricians have been trained and supported through tools and coaching to address oral health in well-child checks. Recognizing the links between oral disease and overall health for people across the lifespan, in 2012 WDS Foundation expanded the focus on this work beyond pediatrics to engage primary care medical providers in addressing oral health with all of their patients.¹⁵ In addition, community-based organizations with statewide influence in multiple states were funded by the DentaQuest Foundation to engage and mobilize a broad array of constituents to advocate for increased access to oral health services and for the IP oral health agenda as part of an initiative called Oral Health 2014.

The NIIOH sees itself as one of many sources of energy focused on improving oral health by expanding interprofessional oral health workforce capacity. Its distinctive contribution is prompting action at the national level that will encourage adoption in both the education and practice sectors.

NIIOH Functions

NIIOH activities are aimed at:

- Developing leadership;
- Facilitating interprofessional agreement; and
- Developing tools.

Developing Leadership

NIIOH's leadership development includes support for individuals from the medical and dental communities, based on a firm belief by the NIIOH funders that support from both sectors is necessary in order to achieve the

The Smiles for Life Steering Committee has been instrumental in enabling a "small group of committed individuals" to also engage official professional organizations.

vision of a cross-profession collaborative practice. Drawing on the principles espoused by Alicia Korten,³ the NIIOH seeks to engage not only scholars who are leaders in the field and experts in the causes and possible solutions to the crisis of oral health in this country, but also individuals who are willing to advocate for and implement new ways. Only with leaders from the field together with activists dedicated to doing what it takes to make change happen in a movement is change possible.

The core of health profession leadership for the IP oral health agenda came from family medicine. Since the 2000 release of the *Surgeon General's Report on Oral Health*,¹⁶ committed individuals, with support from HRSA, have worked together as the Society of

Teachers of Family Medicine (STFM) Group on Oral Health to create a curriculum that would meet the needs of primary care educators, students and practitioners by finding the right balance between content that was not too shallow nor too deep. They envisioned a curriculum that would enable family medicine residents to learn enough about oral health to be able to address the oral health needs of their patients across the lifespan.

The way in which the STFM Group on Oral Health went about its business was as important as the product that it set out to create. The group retained its own identity while being part of a larger whole, understood the role and limitations of primary care and knew how to respectfully and effectively relate to dentists, funders and fellow primary care clinicians. From its beginning, the STFM Group on Oral Health also included representatives from dentistry and pediatrics. This group has modeled for other initiative entrants the importance of relationship development as a prerequisite for informal, generative, collaborative thinking and agreement.

The NIIOH funders supported a convening of the STFM Group on Oral Health in 2008, out of which sprang the vision and commitment to actively engage other health professional groups in a concentrated effort to put oral health in primary care education and practice nationwide. The STFM Oral Health Group has transformed into the Smiles for Life Steering Committee, including the professions of family medicine, dentistry, nursing, pediatrics and the physician assistant (PA). This group has kept its focus on maintaining and updating the Smiles for Life National Curriculum. The Smiles for Life Steering Committee has been instrumental in enabling a "small group of committed individuals" to also engage official professional organizations.



FIGURE 3. Smiles for Life home page, smilesforlifeoralhealth.org.

In addition to building on the STFM Group on Oral Health, the NIIOH proactively searched for and recruited individuals from primary care who were influential in their professions and experts in how to affect change. Once convinced that the oral health cause was important and that the theory of change was sound, these leaders designed individual profession engagement activities aimed at bringing oral health into the domain of their profession. These activities include professional development workshops for educators and clinicians, IPE events that use oral health as a clinical focus, service-learning events for faculty and students and convenings of leaders from education and practice, including representatives from accrediting and certifying bodies. Publishing articles about these activities in professional journals and making presentations at local, regional and national conferences has been part of the awareness strategy by having oral health “show up” in traditional channels.^{17,18}

The NIIOH initiative sponsors an annual Symposium on Oral Health and Primary Care to acknowledge the accomplishments of these leaders, to allow for fertilization across the

professions and with funders, and to provide a window into the IP oral health agenda for those who are new and/or curious about what it is and how it is being advanced. This event is designed to enable relationship development and generative thinking. Another desired outcome is to sustain the vision and commitment of those already engaged and to give new entrants a welcoming place to observe and learn. Having a mix of professions, from both the education and practice sectors, as well as funders, the symposia are a vehicle for maintaining and growing momentum.

Facilitating Interprofessional Agreement

A strategy of the NIIOH is to accelerate the adoption of oral health in primary care education and practice by supporting development of a common foundational learning tool. Endorsement of the Smiles for Life (SFL) curriculum by national professional organizations was an effective strategy used to validate SFL as an important interprofessional common teaching/learning oral health tool. Leadership shown by the AAP to provide an official endorsement of the SFL curriculum (Module 2: Child Oral

Health) in 2010 provided a model for demonstrating interprofessional support; NIIOH partners/grantees in the nursing and PA professions followed suit by seeking and successfully obtaining official endorsements from their organizations representing educators and practitioners.

Leadership from the dental profession was demonstrated by the decision of the American Dental Association (ADA) to endorse the SFL curriculum in 2012. In a public presentation at the 2012 Symposium on Oral Health and Primary Care, ADA Executive Director Kathleen O’Loughlin explained how this action was consistent with the ADA strategic plan objectives and was intended to signal the dental profession’s support for the engagement of primary care clinicians with oral health. This announcement, and the reactions of symposium participants, marked a milestone in the life of the NIIOH and have been captured in video comments in the “resources” section of niioh.org. Other professional dental organizations have since endorsed the Smiles for Life national curriculum.

The array of primary care and dental organizations endorsing the Smiles for Life curriculum can be seen on smilesforlifeoralhealth.org. This is concrete evidence of the NIIOH’s success with facilitating IP agreement. These endorsements transformed the Smiles for Life national curriculum into an IP asset for the health field. As a result, NIIOH partners could focus their creative energies on implementation rather than duplicate curriculum development. A common foundation learning tool also provides for a common language, supporting effective communication between primary care and dental clinicians.

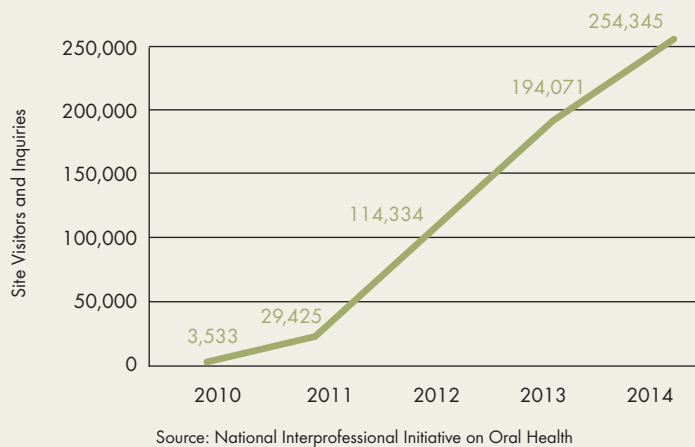


FIGURE 4. Results: Smiles for Life utilization trends. Smiles for Life curriculum site visitors and inquiries (record count includes search engine inquiries in addition to site visitors).

TABLE

Smiles for Life Endorsements

Year	Endorser
2010	Society of Teachers of Family Medicine
2010	American Academy of Pediatrics
2010	American Academy of Family Physicians
2011	Gerontological Advanced Practice Nurses Association
2011	National Association of Pediatric Nurse Practitioners
2011	Association of Faculties of Pediatric Nurse Practitioners
2011	Physician Assistant Education Association
2011	American Academy of Physician Assistants
2012	American Association of Public Health Dentistry
2012	National Association of School Nurses
2012	American College of Nurse-Midwives
2012	American Dental Association
2013	American Dental Hygienists' Association
2013	The National Organization of Nurse Practitioner Faculties
2013	National Association of Community Health Centers
2013	American State and Territorial Dental Directors
2014	U.S. Department of Health and Human Service
2014	American Academy of Pediatric Dentistry
External Supporting Activities	
2011	U.S. National Oral Health Alliance
2012	DentaQuest Foundation: OH 2014/Safety Net Initiative
2012	Association of American Medical Colleges
2012	U.S. Dept. Health and Human Services Department/IOHCCC Initiative

Developing Tools

NIIOH resources were invested in the work of the Smiles for Life Steering Committee to place Smiles for Life content on a state-of-the-art online technology platform. Access is enabled via portals for educators and individual learners. Completion of modules results in free continuing education for users, as well as evidence of competency attainment. In 2013, an interprofessional feature was added to each module, making the curriculum useful for those wanting to see how a team approach can be taken to providing oral health services in primary care, including referrals, to patients across the lifespan (FIGURE 3).

NIIOH partners in the PA and nursing professions developed a number of teaching and learning strategies for how to embed oral health content into existing education programs. The Oral Health Nursing Education and Practice Program (OHNEP) developed model curricular templates to document the integration of oral health content into nurse practitioner and midwifery program courses for classroom, simulation and clinical experiences in the New York University College of Nursing Graduate Program.¹⁹ The PA Leadership Oral Health Initiative documented the design and effectiveness of its faculty development workshops on oral health, which included a hands-on service-learning component.²⁰ OHNEP's approach to weave oral health and its relationship to overall health into interprofessional faculty and student clinical experiences that also focus on developing IP competencies is addressed in its NEXUS publication article.²¹

In order to translate the concept of oral health in primary care practice into terms used by the PCMH field, the founding NIIOH funders plus the REACH Healthcare Foundation commissioned Qualis Health to develop *Oral Health*

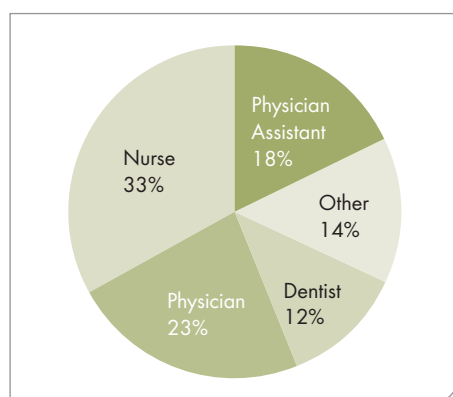


FIGURE 5. Smiles for Life users by profession.

in *Primary Care: PCMH Implementation Guide*. This tool for primary care clinicians and teams defines which services can be delivered in primary care and provides a structured way for primary care practices to incorporate these services into which the primary care practice is doing already. PCMH sponsors and coaches will articulate the case for a new standard of care for oral health, which is that all patients have access to oral health services and referrals in the context of their medical home.

Concepts in the implementation guide will be field-tested by privately and publicly funded primary care practices prior to the release of the guide in 2016. Interprofessional guidance for this development process comes from a technical expert panel comprised of subject matter experts and from those in a position to disseminate this information. This tool is expected to raise awareness of oral health integration as a critical component of primary care practice transformation and provide a basis for consideration of revisions to PCMH recognition standards regarding oral health.

Achieving Initiative Impact

The initiative's major impact is having created a space where new, emerging players from primary care can enter the oral health field, be welcome and learn and challenge traditional practices in a respectful and productive manner. Evidence of having created this space can

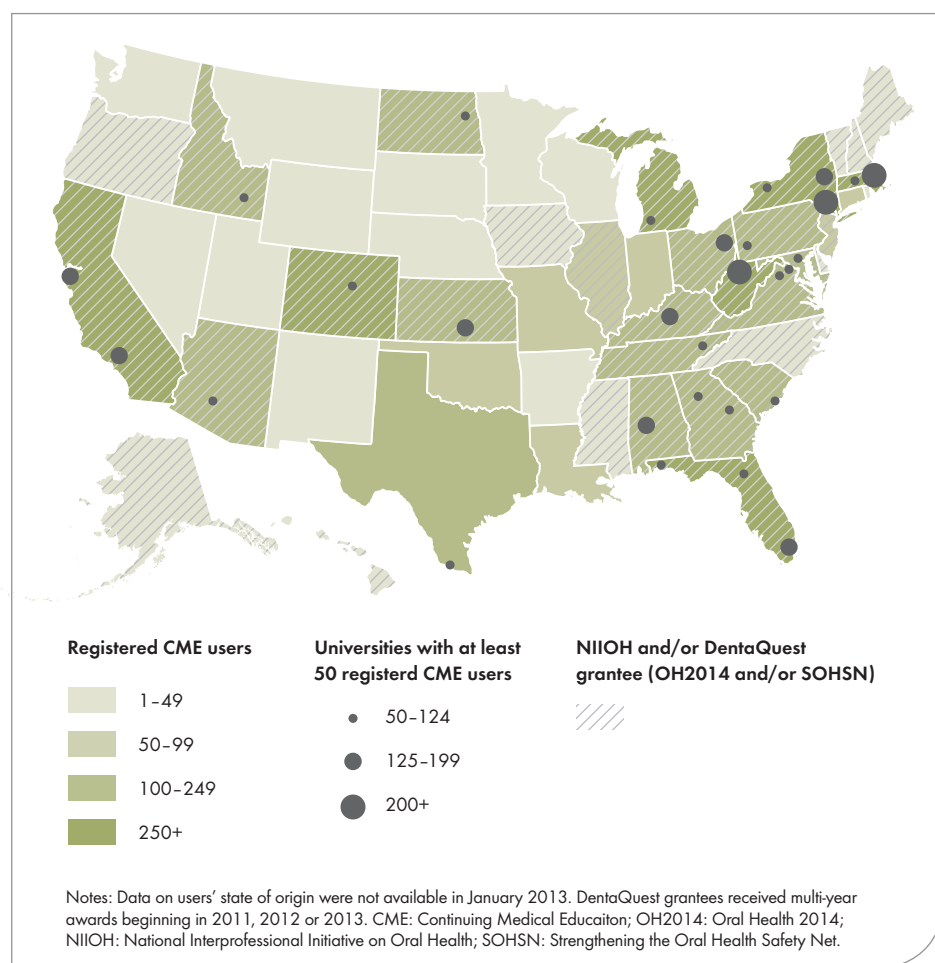


FIGURE 6. Smiles for Life usage by state, February–December 2013.

be seen in the participant rosters of the annual Symposium on Oral Health and Primary Care. Each year since 2009, this event has gathered participants including a mix of primary care and dental professionals and funders. Some of these participants have attended each year, some are new, some participate as individuals, others represent official organizations with the ability to impact large numbers of member educators or clinicians. Though the group is diverse, its members all share a focus on integrating oral health into primary care education and practice. Participant feedback, including comments of leaders captured in the 2012 symposium video (in the “resources” section of niioh.org), affirm the value of the NIIOH and of the symposia in supporting the change process.

A new professional norm has emerged that encourages patient centeredness and collaboration as core values.²²

While measures of leadership are primarily qualitative, another quantitative measure provides a surrogate for the uptake and spread of interest in oral health by primary care clinicians and educators. The chart showing SFL utilization (**FIGURE 4**) illustrates the increase in users since the launch of the online version of the curriculum in 2010. The **TABLE** matches this data with the timing of endorsements, showing the impact of NIIOH-funded individual professional engagement efforts that sought and obtained these endorsements. Also noted on this chart as “external supporting activities,” are HRSA and the

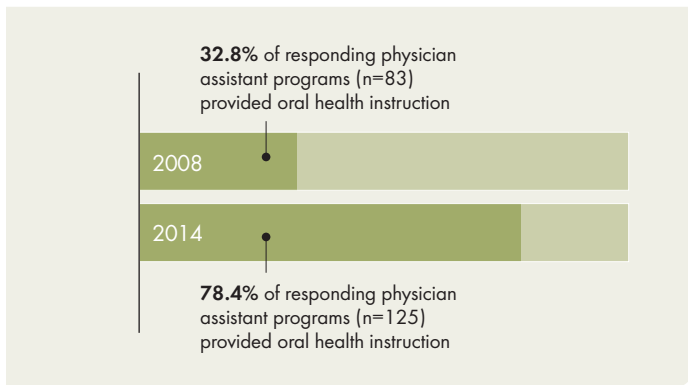


FIGURE 7. Growth of oral health education and training in physician assistant programs.

American Association of Medical Colleges (AAMC). The timing of the efforts of these two organizations (HRSA's Interprofessional Oral Health Primary Care Practice initiative and AAMC's Building Oral Health Capacity initiative) coincided with the NIIOH-funded activities, creating a public and private synergy contributing to the uptake seen in the SFL utilization trends.

FIGURE 5 shows that the interest in learning about oral health is coming from a broad mix of primary care professions. **FIGURE 6** shows the distribution of SFL users by state, mapped with the presence of NIIOH and/or DQF grant funding. This series of SFL utilization data shows:

- Progress is being made in terms of uptake by primary care clinicians of oral health knowledge.
- The scale of this progress is national.
- Interest in and use of the SFL curriculum is reinforced by NIIOH grantees as well as grantees engaged with community oral health advocacy efforts.

In addition to proxy measures derived from SFL utilization rates, individual professions are working on their own evaluation of outcomes. The PA Oral Health Leadership Initiative, through the nccPA Health Foundation, recently commissioned The Center for Health Workforce Studies,²³ to conduct a study of PA program directors that has now documented considerable growth

in oral health education and training across PA programs. Compared to the results of a similar study published in 2010,²⁴ this national study of PA program directors indicated not only an increase in the number of programs that had formally adopted oral health curriculum, but also an expansion of the depth and breadth of oral health topics integrated across a variety of subject areas.²⁵ Although it is difficult to directly compare measures from the two studies, **FIGURE 7** illustrates the growth in oral health education among national PA programs specifically related to oral disease. At least 78.4 percent or 98 of 125 responding programs provide oral health instruction. This could likely be more if some nonrespondents are providing oral health education.

Evaluation data from the OHNEP program reveal that between 2011 and 2014, there has been a significant increase in integration of oral health content, including SFL, in nurse practitioner and midwifery graduate programs and clinical practice settings nationwide, as well as in registered nurse-led, community-based programs such as the Nurse-Family Partnership (**FIGURE 8**). Forty out of 50 states have one or more nurse-led programs integrating oral health content and/or participating in IP oral health simulation or live clinical experiences. During the same

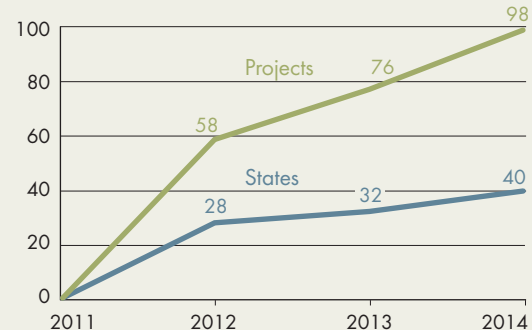


FIGURE 8. Oral health nursing education and practice (OHNEP) projects across the U.S., 2011–2014.²⁶

time frame, professional development programs with an interprofessional oral health focus have been attended by more than 5,000 nursing, dental and medical faculty and clinicians.

HRSA's leadership to undertake its IOHPCP initiative, culminating in its report on Integration of Oral Health and Primary Care Practice, and its participation in and support for the NIIOH, is evidence of public and private entities working independently toward a shared goal in a mutually supportive way.

Conclusion

The purpose of this article is to shed light on how an effort, funded by private philanthropy, sought to have a hand in shaping and advancing the effort to expand oral health workforce capacity by engaging primary care clinicians with oral health. The NIIOH is a network-based, focused effort aimed at connecting with and influencing two major health sector trends by bringing oral health into interprofessional education and practice. This effort takes a collective impact approach to change management, supporting multiple independent parties to work in a way that is mutually reinforcing. The evidence to date suggests progress is being made and gives reason to believe that the ultimate goal of improved oral health for all may be achieved. An important feature of this case study is dental profession support, without

which progress in establishing a new standard of oral health care cannot be sustained. This case study illustrates how philanthropy can be practiced in a way that is proactive and inclusive of existing and new influencers in a field. ■

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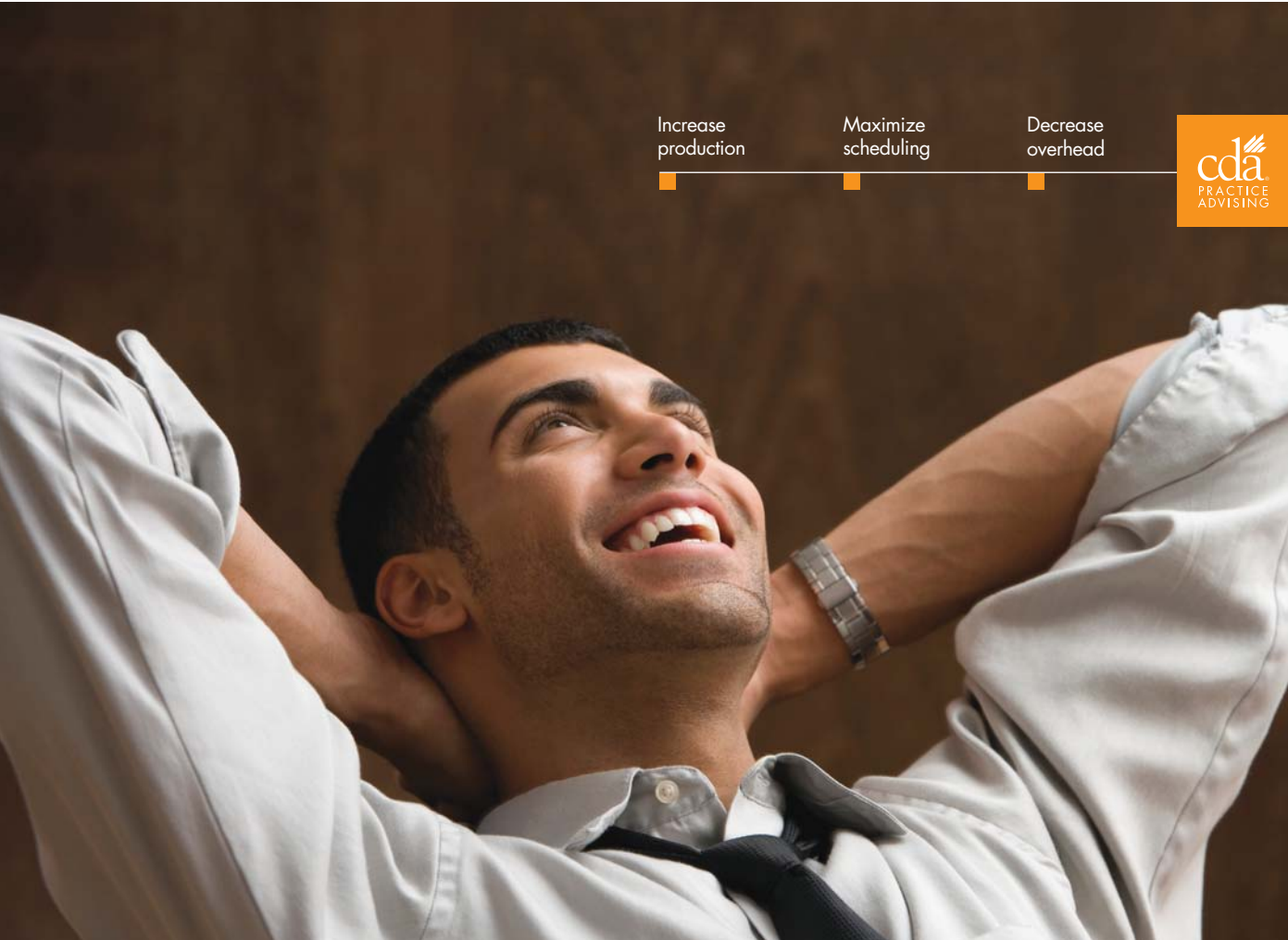
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Changing the Education Paradigm in Pediatric Dentistry

Francisco J. Ramos-Gomez, DDS, MS, MPH

ABSTRACT Traditional curricula of pediatric dental residency programs have overemphasized restorative dentistry while failing to give adequate attention to early diagnosis, preventive disease management, risk assessment, cultural competency, advocacy, community partnerships and interprofessional education. The University of California, Los Angeles, Community Health and Advocacy Training Program in Pediatric Dentistry emphasizes these lesser-taught areas, integrating them within a structured education in classical restorative techniques and Commission on Dental Accreditation-approved standards, providing a diverse curriculum and preparing residents for practice in increasingly diverse communities.

AUTHOR

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Disclosure: None reported.

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Historically, the curriculum and clinical experience in a pediatric dentistry residency program have focused on training dentists in behavioral management and invasive restorative and surgical care. While proficiency in restorative care is a critical component of dental care, training in preventive care and disease management is often not given adequate emphasis. The University of California, Los Angeles, Community Health and Advocacy Training Program in Pediatric Dentistry (CHAT-PD) aims to equip residents with the tools to improve and promote children's dental health and development, within the context of family and community.¹ Additionally,

CHAT-PD emphasizes interprofessional education and collaboration as a means of integrating oral and general health using a multidisciplinary approach.

The program includes innovative components based on the Maternal and Child Health Bureau life course theory model² to ensure sufficient training in the provision of comprehensive oral health care to infants and children, and also offers supplemental integrated didactic coursework emphasizing individual, family, community and system-based approaches. These components, along with applied learning experiences and policy and advocacy opportunities, encourage holistic treatment of the patient, within the context of regional and demographic influences.

Enhancing and Transforming the Pediatric Oral Health Curriculum

The reformed CHAT-PD program at UCLA has evolved over several years and now contains eight primary didactic modules or functional areas. These include:

- Disease management and risk assessment;
- Interprofessional education and training;
- Quality improvement;
- Cultural competency;
- Ethics and professionalism;
- Community partners and oral health systems of care;
- Policy and advocacy; and
- Statistics and research methods.

Disease management and risk assessment stresses the importance of early assessment, diagnosis and intervention as a means of oral disease prevention management. Residents learn a dual participatory/“pair” approach to treatment of women during pregnancy, providing a unique opportunity to engage the parent and thus impact the future oral health of the mother-infant unit and the larger family as a whole. A background in early and minimally invasive pediatric dentistry and individual, patient-centered oral health assessment is provided, featuring the Caries Management by Risk Assessment (CAMBRA) tool.³ The three key domains are risk/biological factors, protective factors and clinical findings to help assess the child at a specific moment in time based on the specific age, risk, ethnicity and region of residence. Also covered is the overall assessment of other influential factors, such as genetics, health behaviors, social norms and public policy. These establish a basis for determination of appropriate individual interventions, focusing on the child and the caregiver in dual parallel tracks, encouraging behavioral

changes at home by the mother/caregiver to minimize risk and maximize prevention for the child at an early age.

Interprofessional education (IPE) and training provides CHAT-PD residents with the tools to cross-train nondental providers, such as physicians, pediatricians and nurses, on oral health disparities and dental development, as well as risk assessment, anticipatory guidance and even the application of fluoride varnish. Residents participate in academic and clinical activities alongside nondental providers, learning about the highly

A background in early and minimally invasive pediatric dentistry and individual, patient-centered oral health assessment is provided.

relevant interplay between oral and systemic health across the lifespan, as well as how to recognize the oral manifestations of systemic disease. Special emphasis is placed on prevention strategies and early recognition of/interventions for early childhood caries (ECC), following the American Academy of Pediatrics (AAP) and the American Academy of Pediatric Dentistry (AAPD) recommendations of the “age 1 visit.”⁴ In addition to key IPE collaborations with pediatrics and nursing, CHAT-PD offers residents the opportunity to concurrently earn a Master of Public Health degree. Longer-range plans for the program include expansion to other educational tracks, including general dentistry and other areas of medicine.

Quality improvement addresses the use of quantitative and qualitative

methods to enhance the resident’s ability to continuously improve the efficiency, effectiveness and delivery of oral health care services and of pediatric patient care groups, particularly those belonging to vulnerable or underserved populations. The incorporation of quality improvement outcome measures allows comprehensive evaluation of the mouth and the child as a “whole” entity, rather than just tooth surfaces or dental structures. The importance of willingness to promote change in oral health care delivery processes, in order to achieve better results, is highlighted and the rationale of quality improvement as a means to improved access and quality of care is discussed.

In cultural competency, residents learn the importance of providing culturally and linguistically appropriate oral health care, while considering the impact of culture on attitudes, behavior and oral health. Among health care professionals, lack of cultural competency, including biases, judgment, uncertainty and poor cross-cultural communication, contribute to disparities in quality of treatment and, ultimately, in patient outcomes.⁵⁻⁷ Thus, the existing lack of diversity^{8,9} among dental professionals providing care to high-risk populations likely contributes to the increased rates of dental disease in these communities. This course provides residents with essential tools to identify and address health care disparities and barriers to oral health care access, while developing a greater understanding of how to interact with a wide range of diverse ethnic groups.

Ethics and professionalism highlights the professional role of the dentist while using case studies to illustrate principles of clinical and research-based dental ethics. The course emphasizes the importance of placing the patient’s best interests ahead of financial incentives or research considerations, encouraging preventive

strategies aimed at reducing oral disease and improving quality of care, while discouraging those that merely maximize compensation. Course participants are instructed to always consider the best option for the patient, as if he or she were the participant's own child.

The systems-based course, community partners and oral health systems of care, provides residents with a foundation for improving pediatric oral health within the context of their own community. The role of the oral health care delivery system is examined in relation to regional community early education programs and clinics, public- and private-sector payers and policymakers. The course covers topics such as the social determinants of health and the problem of access to care. It includes site visits and involvement with community partner clinics, as well as an introduction to key players such as day care providers, Women, Infants, and Children (WIC) and Early Head Start (EHS).

Policy and advocacy introduces local, state and federal legislative processes and advocacy strategies, providing residents with the tools needed to promote oral health agendas in a governmental forum. At the end of their didactic course on advocacy, residents travel to Washington, D.C., to participate in advocacy activities organized by the AAPD, attending meetings with legislative members and staff to learn and understand advocacy efforts for improved access to high-quality children's oral health care, particularly among vulnerable populations. Residents also participate in the National Oral Health Conference (NOHC) each year to observe directly the collaboration between dental public health professionals and pediatric dentists. The conference brings together advocates and practitioners who present innovative models of community dentistry among many other innovative intervention topic areas.

Statistics and research methods is an updated, modernized course that incorporates dental public health principles along with more traditional aspects of research design and statistics. Residents participate in a research project of their choosing, giving them the chance to expand on topics covered in their coursework, clinical training or applied learning experiences. While residents have the option to focus on more traditional clinical research, they are encouraged to consider more culturally or community-oriented research projects.

Course participants are instructed to always consider the best option for the patient, as if he or she were the participant's own child.

Applying CHAT-PD Didactics to Clinical Services

The CHAT-PD residency program creates an opportunity for residents to apply and practice their didactic training in a community setting. At the Venice Family Clinic/Simms Mann Health and Wellness Center, the residency program coordinates a unique infant oral care program (IOCP). IOCP offers a clinical rotation for residents within a community clinic.¹⁰ The program is co-located with the clinic's pediatricians, offering dental and pediatric residents an opportunity to practice in an interprofessional setting.

The required IOCP rotation is an example of the "service-learning" approach, in which students actively participate in the activity about which

they are learning, while at the same time benefitting the community. Such rotations, which are required for advanced specialty programs in pediatric dentistry,¹¹ allow residents to apply their didactic knowledge and integrate it into their daily clinical care, while increasing their exposure to low-income and vulnerable populations and promoting civic engagement and social responsibility.¹²

Spreading the Model in Residency Programs

In order to strengthen its pediatric dental instruction component, we incorporated segments of CHAT-PD into the Advanced Education in General Dentistry (AEGD), another residency program within UCLA's School of Dentistry. In the past year, we developed a curriculum for the AEGD program in pediatric oral health. The courses were delivered to AEGD residents along with an optional clinical rotation in the IOCP program. In the future, we intend to adapt the curriculum for the General Practice Residency (GPR) program and the Predoctoral Dental school program.

Online Education Platform

In 2012, the residency program began the development of an online learning platform. In collaboration with faculty, lectures were recorded and content developed. CHAT-PD's online platform was launched and hosts all eight CHAT-PD modules, including lectures, syllabi, course materials, evaluations and other related content. The platform also serves as an archive of guest lectures and as a resource for program alumni, providing access to short faculty lectures on a variety of topics. Access to CHAT-PD's online platform is currently restricted to UCLA faculty, residents and alumni until platform development is complete and copyright protections are in place.

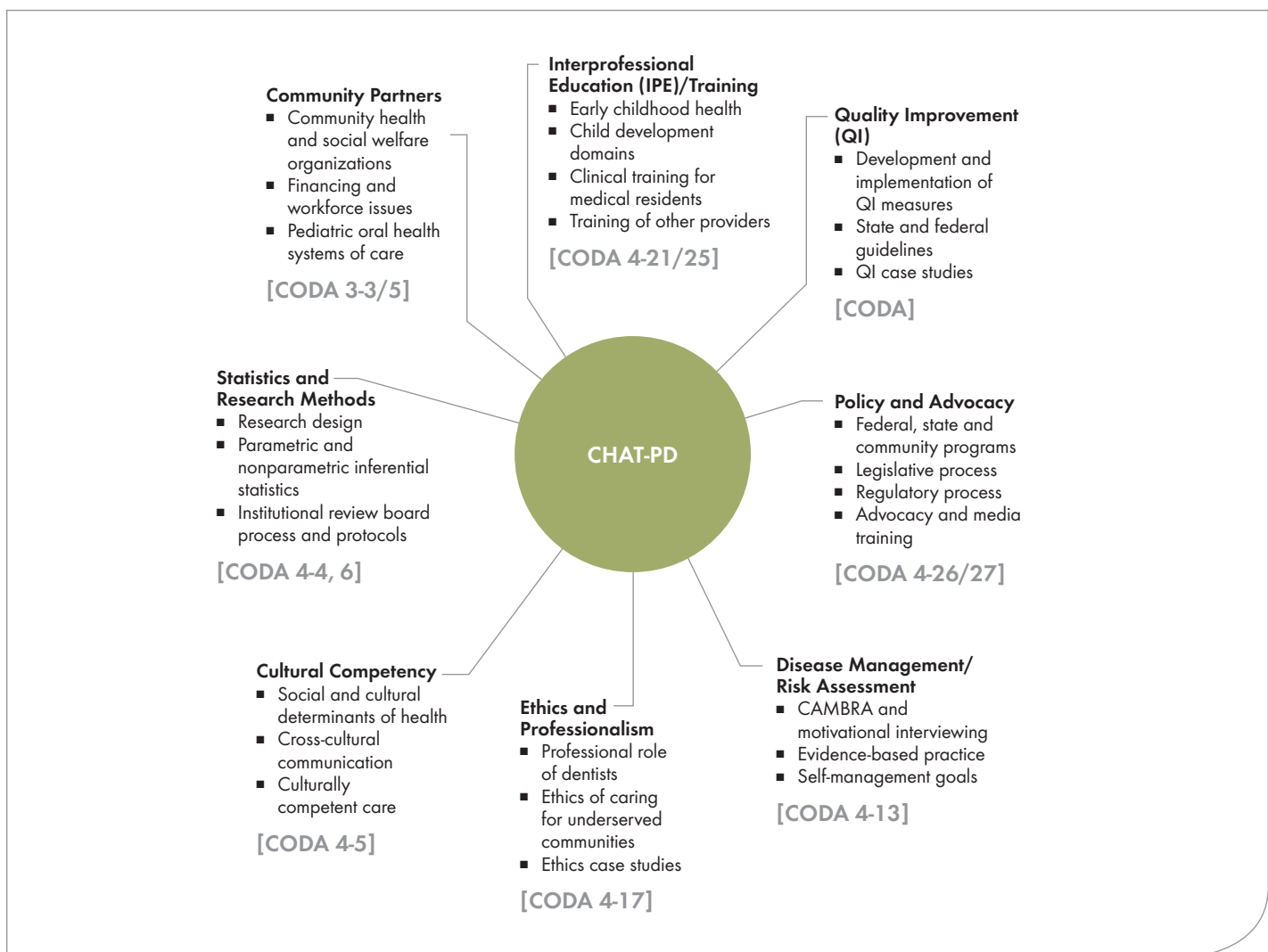


FIGURE. CHAT-PD academic courses and CODA standards.¹

Evaluating Program Implementation

An essential part of any program that aims to change the paradigm is continual measurement and evaluation of the achievement of its goals. In 2013, we implemented a process to evaluate the use of the disease management and risk assessment didactic tools within our Westwood Children's Dental Center. Through the clinic's electronic health system, which was configured to include CAMBRA and self-management goals (SMG) forms, we collected data regarding the utilization of these forms. We observed a varying percentage of

use among residents. We held a session with the residents to understand the rationale and learned of a few ways to increase CAMBRA/SMG usage. This process continues with our CHAT-PD modules as we focus on utilization of CHAT-PD didactic.

Discussion

The 2003 IOM report, *Health Professions Education: A Bridge to Quality*, recommended a strong effort to promote interprofessional education: "All health professionals should be educated to deliver patient-centered care as

members of an interprofessional team, emphasizing evidence-based practice, quality improvement approaches and informatics."¹³ The Commission on Dental Accreditation (CODA) has incorporated these recommendations, updating accreditation standards for advanced specialty education programs in pediatric dentistry.¹¹ All CHAT-PD courses align with CODA standards as depicted in the **FIGURE**.

With the implementation of the Affordable Care Act (ACA), we have acknowledged that health care for children is a fundamental societal right.

The ACA further defines 10 categories of essential health benefits,¹⁴ including pediatric dental service.¹⁵ The following questions arise: Will we see an influx of patients with severe disease who have not had access to dental services before, and how do we begin to treat this population? The new generation of pediatric dentists must recognize that one of the greatest methods of reducing the burden of disease is through prevention and early intervention and that in cases where treatment is required, noninvasive dentistry must be considered first, along with modified health behavior as a phased approach before beginning aggressive restorative treatment.

Changing the paradigm will require time, a serious long-term commitment on the part of medical and dental education institutions and a change in the way we reimburse for dental services. The synergy resulting from successful collaborations between dental and nondental health care providers in a primary care setting will aid in the successful implementation of disease prevention strategies and early detection and treatment of oral disease. As providers and educators, we must advocate for these changes as fundamental rights to quality health services for children's oral health. ■

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The Oral Physician: An Educational Model and Its Potential to Impact Overall Health

Brian J. Swann, DDS, MPH

AUTHOR

Brian J. Swann, DDS, MPH, is chief of oral health services for the Cambridge Health Alliance, where he practices clinical dentistry and conducts the Oral Physician Program within the General Practice Residency Program. As an instructor in the "Patient-Doctor I" course at Harvard Medical School, he assisted in introducing oral health into that curriculum. He is a clinical instructor at the Harvard School of Dental Medicine, a member of the Dean's Global Oral Health Committee and a student mentor.

Conflict of Interest

Disclosure: None reported.

The California Dental Association/American Dental Education Association Conference on Interprofessional Education and Practice was attended by distinguished oral health and medical educators, executive directors, administrators, researchers, nurses and other allied health professionals. The theme, "Creating a Vision of the Dentist of the Future," was a perfect opportunity to convey the oral physician model. This model focuses on an attitude adjustment among oral health providers and using time to incorporate medicine into the scope of the oral health practice. The objective is to see the patient as a "whole" entity. Emphasis is placed on conducting a complete medical history on every patient, thereby, understanding the reciprocal impact on the oral cavity. The oral physician presentation integrated harmoniously with other topics on our panel that included the integration between nursing and dentistry at New

York University and an innovative predoctoral curriculum at the new Western University of Health Sciences. These dental schools are making the curriculum modifications that demonstrate integration and cross-training to produce comprehensive care providers. We created the oral physician model to demonstrate how such training would be implemented in real time for the dental profession.

The oral physician model is an adjunct to the primary care shortage in America. The oral physician (OP) will elevate the role and responsibility of the dentist as we know it today, provide greater credibility within the health profession, provide limited preventive care and be instrumental in disease prevention, including screening for chronic diseases and psychosocial issues. Educating both the medical providers and patients about the oral/systemic relationship will go a long way to dispelling the myth that the "mouth is disconnected from the rest of the body."

The oral physician program is embedded in a dental residency sponsored by the Harvard School of Dental Medicine and the Cambridge Health Alliance (CHA) in Massachusetts. The training program offers both didactic and clinical curricula to the general practice dental residents (GPDR). The GPDRs complete a series of rotations such as pediatrics and internal medicine, anesthesia and surgery and hospital emergency medicine. This is combined with a dedicated oral physician rotation that includes special needs and mental health, school-based programs, homeless shelter care, geriatric care, a multidisciplinary presentation and public health research. Self-reported daily and weekly log entries are used to investigate the different learning experiences undergone by the residents. This unique training will allow medicine and oral health to be a more cohesive unit.

During the OP rotation, the GPDRs are introduced to the shared appointment groups. The concept of group appointments, pioneered by Edward Noffsinger, MD, and co-workers at the Kaiser Hospital organization, was seen as a way to increase access for patients and decrease waiting lists without increasing physician hours. The CHA currently has four appointment groups: dentures, infant/toddlers, prenatal and diabetes.

During each new patient encounter, the OP is required to conduct a medical interview and an intraoral and extraoral exam. This visit includes taking blood pressure, oxygen level, BMI and radiographic images. Additional metrics such as temperature, blood tests, a saliva sample and waist circumference could also be included. Early identification of risk factors is crucial to diagnosing chronic disease — 67 percent of patients see dentists more frequently than they see physicians.

A significant advantage to this

approach is that health care costs could be reduced when providers are cross-trained. Additionally, increased referrals to primary care physicians and specialists can also contribute to lowering health care costs in the long term.

A survey conducted at the CHA indicated that patients perceived that an oral physician/dentist is a “real doctor” by 73/79 percent respectively. Our goal is to train our students and residents to see themselves as such, and to incorporate their predoctoral training to recognize risk factors for heart disease, high blood

The message that oral health is integral to overall health must be loud and it must be ongoing.

pressure, diabetes and smoking. Through practice, we expect them to achieve a level of comfort when discussing sensitive topics such as alcohol and drug abuse, sexual practices, domestic violence and child abuse — 75 percent of abuse cases go undetected or unreported.

Our GPDR has been training the “oral physician” since 2010. The results of this pilot program are encouraging and have led us to begin developing a curriculum for a post-graduate fellowship. We also advocate this model should become the “standard” at the undergraduate level.

This is a new day. All oral physician/dentist graduates in the future must be advocates for their profession. They must be present at the policy table; they can no longer sit back and wait for someone else to determine the direction of oral health.

Together, with medicine, government and insurance corporations, we must solve the barriers of reimbursement rates for preventive education and diagnostic care. The message that oral health is integral to overall health must be loud and it must be ongoing. ■

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Prescriptions for painkillers increased 300 percent in the last two decades, according to the Centers for Disease Control and Prevention, which also declared fatal overdoses from opioid medications a nationwide epidemic with nearly 15,000 deaths reported each year.

In response, regulation of prescription pain medications, especially extended-release and long-acting opioid analgesics, is intensifying. Earlier this year, the FDA approved class-wide labeling changes to describe more clearly the risks and safety concerns associated with these drugs and encourage better prescribing, monitoring and patient education practices. More recently, the DEA moved hydrocodone combination drugs from Schedule III to Schedule II, a move that places more stringent controls on these drugs.

Dentists prescribe 12 percent of immediate-release opioids in the U.S., behind only family physicians, who dispense 15 percent of IR opioids, according to the FDA.

In light of the reality that dentists must balance pain control with the risk of misuse and abuse, The Dentists Insurance Company advises increased attention to patient education and careful consideration of prescribing practices.

"The patient's clinical presentation should be consistent with the pain reported," said Sheila Davis, assistant vice president of claims and risk management for TDIC. "Determine if a prescription of pain medication is indicated; interview the patient to establish analgesic history and the lowest effective level. Only prescribe what is reasonably necessary for patient comfort. Don't discount over-the-counter pain relievers such as acetaminophen or

ibuprofen; they are very effective for many people," Davis said.

Awareness of behavior that indicates potential prescription drug abuse is also advised. Patients requesting medications by a specific name or dosage, such as 500 mg, or unusual excuses, such as losing medications, are behaviors to notice. "Once is understandable, but not repeated instances," Davis said. "One limited refill is acceptable in a situation such as a patient's inability to make a follow-up appointment, but if other

refills are requested, the dentist should advise the patient that he or she is only treating the symptoms, not the problem."

Dentists also should consult the state Prescription Drug Monitoring Program to see if a patient's prescription history indicates a pattern of seeking opioid prescriptions. Information on the state's program was published in the *July Journal*.

Red flags for potential drug abuse or misuse include frequently missed appointments, early or aggressive refill requests and new patients who

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CAMARILLO – (5) op comput. G.P. located in a prof. bldg. with signage, (40+) years of Goodwill. 2013 Gross Collect. \$525K+ on a (4) day week. Newer eqt., digital x-rays, soft tissue laser, & Pano. Cash/Ins/PPO. No Denti-Cal or HMO. Seller moving out of state. **PENDING**

EAST VENTURA COUNTY #2 – Free Standing Bldg. & (3) op comput. G.P. 2013 Collections of \$561K+. Cash/Ins/PPO/HMO pt. base. Mos. Cap. Ck. of \$2K+. (28+) new pts./mos.

ENCINO – (3) op comput G.P. located in a prof bldg. on a main thoroughfare. Annual Gross Collect \$165K+ p.t. Cash/Ins/PPO pts. Below market Lease. Seller retiring. **NEW**

HOLLYWOOD – Excell. Starter or Satellite Office. (3) ops. Comput. Collect \$100K+ p.t.

LA VERNE – (6) op comput. G.P. (3) ops eqt'd (3) add plumbed. Located in a busy shop. ctr. w exposure/visibility & signage. Cash/Ins/PPO. Digital X-rays. Project 2014 Gross \$400K+. **NEW**

LOS ANGELES – Upscale, (4) op turnkey office. Just built out & eqt'd w new eqt. Located in a new shop. ctr. on a main thoroughfare. Excell exposure, visibility, & signage. **SOLD**

PASADENA – Nearly New Turnkey Office w some charts. (1) year old eqt. Gorgeous! **NEW**

RANCHO CUCAMONGA – (4) op comput. G.P. in a strip ctr. (3) ops eqt'd (4th) op plumbed. Annual Gross Collect \$185K+ on 2.5 days/wk. Cash/Ins/PPO pts. Seller moving. **NEW**

SIMI VALLEY – (4) op comput. G.P. w digital x-rays & pano. (2) ops eqt'd, (2) add. plumbed. Turnkey office w some charts. Located in a shop. ctr. w exposure/visibility/signage. **PENDING**

VAN NUYS/SHERMAN OAKS – Free Standing Bldg. & (4) op comput. G.P. located on a main thoroughfare. Cash/Ins/PPO. 50+ yrs of Goodwill. Collect \$425K+/yr. Seller retiring. **PENDING**

VENTURA – (5) op comput. G.P. (4) ops eqt'd (5th) partially. Digital X-rays & CEREC. Annual Gross Collect \$600K on a (4) day wk. Cash/Ins/PPO pts.. Refers O.S., Perio, & Endo. **NEW**

WEST SAN FERNANDO VALLEY – (4) op comput. G.P. w modern equipt. Located in a smaller prof. bldg. on a main thoroughfare. Cash/Ins/PPO pts. Annual Gross Collect \$750K+ on a (4) day week. Excell. long term lease, outstanding signage, & great off street parking. **NEW**

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come in for emergency pain relief, but never seek definitive treatment.

Because dentists can dispense pain medications directly to patients, they are essentially acting as a pharmacy, and have the same obligations as a pharmacy to inform patients concerning drug allergies, contraindications and side effects of the prescribed drug, Davis said. She referred to a situation in which medical personnel had to treat a severe asthma attack brought on by the medication dispensed by the dentist. Upon questioning the dentist about the incident, he acknowledged that he was unaware there was a contraindication to provide this medication to asthmatics. "It could be argued that dispensing medication would hold no lesser risk or obligation for the dispensing dentist than it would for a pharmacy," Davis said.

Concern about dispensing of prescription painkillers has led to a number of policy documents, including an impact report from the Centers for Disease Control and Prevention (CDC) stating, "Enough prescription painkillers were prescribed in 2010 to medicate every American adult around-the-clock for one month." A link to the CDC report is on page 724.

The Executive Office of the President of the United States in 2011 issued a response to America's prescription drug crisis, which included data from the National Survey on Drug Use and Health that showed "nearly one-third of people aged 12 and older who used drugs for the first time in 2009 began by using a prescription drug nonmedically."

The same survey found that "more than 70 percent of people who abused prescription pain relievers got them from friends or relatives, while approximately 5 percent got them from a drug dealer or from the Internet." Additionally, the latest Monitoring the Future study — the nation's largest survey of drug use among teens — showed that prescription

drugs are the second most-abused category of drugs after marijuana.

In an illicit activity called “pharming,” teenagers raid medicine chests for prescription medicines and toss the drugs together in a big bowl of “trail mix” to be consumed at “pharm” parties, a practice described in a clinical reference distributed by the American College of Preventive Medicine.

Such activity has led state Medical and Dental Boards to develop policy addressing opioid prescriptions. In California, the Dental Board is reviewing the “Guidelines for Prescribing Controlled Substances for Pain” developed by the Medical Board

and considering adoption of the guidelines or establishment of similar guidelines, according to a recent Dental Board agenda.

Legal Considerations

Both federal and state laws regulate the prescription of controlled substances, and an understanding of legal requirements assists in prescription practices. The Controlled Substances Act is the federal law regulating the five classifications, Schedule I-V, of controlled substances including opioids such as oxycodone (OxyContin, Schedule II) and Vicodin (Schedule III). More information on drug schedules can be found at

justice.gov/dea/druginfo/ds.shtml.

Additionally, all states have further regulations involving controlled substances. State laws often impose additional, stricter requirements on prescribing controlled substances. For instance, in California, practitioners must write all Schedule II-V prescriptions on tamper-resistant security forms that have at least 10 required security features. Arizona, California, Hawaii, Illinois, Minnesota, Pennsylvania and Nevada are some of the 37 states with Prescription Drug Monitoring Programs, statewide electronic databases that collect designated data on dispensed substances. Alaska and New

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Jersey approved monitoring programs; however, they are not yet operational. State-by-state opioid prescribing policies are described online at medscape.com/resource/pain/opioid-policies and at www.deadiversion.usdoj.gov/faq/rx_monitor.htm.

Resources

- In 2011, the *Journal of the American Dental Association* printed "Prevention of prescription opioid abuse: The role of the dentist," which included prescription considerations such as "Write out the quantity of dose on the prescription and indicate 'No Refills' unless you are sure that the patient will require a specific number of refills." The article is online at jada-plus.com/content/142/7/800.full?related-urls=yes&legid=jada;142/7/800.
- CDC impact report on prescription painkiller overdoses at cdc.gov/homeandrecreationalafety/rxbrief/.
- FDA safety measures for opioids at www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm363722.htm.
- Drug disposal information for patients at www.deadiversion.usdoj.gov/drug_disposal/takeback.
- Drug disposal information for prescribers at www.deadiversion.usdoj.gov/drug_disposal/index.html.
- Patient education information from the American Dental Association at success.ada.org/en/practice/patients/patient-wellness/educate-patients-about-addictive-qualities-of-painkillers.
- Controlled Substances: Requirements and Best Practices at cda.org/practicesupport. ■

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QUESTIONS MOST OFTEN ASKED BY BUYERS:

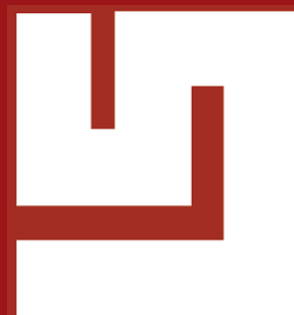
1. Can I afford to buy a dental practice?
2. Can I afford not to buy a dental practice?
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BALDWIN PARK: NEW LISTING!

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BANNING: NEW LISTING! General Dentistry Practice. 6 Ops w/room for expansion. Paperless, digital, EagleSoft. 8 days hygiene/week. 2013 GR \$1.5MM+.

BEVERLY HILLS: General Dentistry Practice w/ heavy emphasis on Perio/Implants. 3 Ops. Pano, ComputerAge. 2013 GR \$795K w/Adj Net \$371K. #CA145

CHULA VISTA: General Dentistry Practice. 4 Ops. Dentrux. 3 1/2 days hygiene. 2012 GR \$528K. #CA109

COASTAL ORANGE COUNTY: General Dentistry Practice. \$500K spent on 4 new high-end Ops. Dentrux, Dexis, Digital Pan. Close to ocean. Dream Location! 2013 GR \$511K. #CAM566

EASTERN SIERRAS: General Dentistry Practice. 1650 SF. 4 Ops. Low 52% overhead. 2012 GR \$521K. #CA528.

FOLSOM/EL DORADO HILLS: General Dentistry Practice. 1000 SF. 4 Ops. Dentrux, Laser, Digital X-rays, Intra-oral cameras. 2012 GR \$405K. #CA103

FREMONT: General Dentistry Practice. 3000 SF. 10 Ops. Digital X-rays, Pan. 4000 active patients. PPO/HMO. 2012 GR \$1.2MM w/ Adj Net \$300K. #CA553

FRESNO: General Dentistry Practice. 2000 SF. 5 Ops. 5 days hygiene. 23 new patients/month. 2013 GR \$789K. #CA171

GREATER LINCOLN/ROSEVILLE: General Dentistry Practice. 2150 SF. 3 Ops, 2 Add'l plumbed. Intra-oral, Digital X-ray, Laser, Eaglesoft software. 2013 GR \$528K+. #CA165

GREATER LOS ANGELES: NEW LISTING! Perio Practice. 5 Ops. 34 years of goodwill. Call for more information. #CA173

GREATER ROSEVILLE/ROCKLIN/LINCOLN: General Dentistry Practice. 1887 SF. 2 Ops, 3 Add'l plumbed. 3 days hygiene. Eaglesoft. 2013 GR \$350K+. #CA154

GREATER SACRAMENTO: PRICE REDUCED \$50K! General Dentistry Practice & Condo. 1300 SF. 4 Ops. Prof. Bldg. Eaglesoft. 2013 GR \$679K. #CA138

GREATER SACRAMENTO: General Dentistry Practice. 3079 SF. 7 Ops. Office shared w/2nd DDS—Separate practices). Digital X-ray, Pano, Datacan software. 2013 GR \$974K. #CA140

GREATER SACRAMENTO: General Dentistry Practice. 1600 SF. 5 Ops, 1 add'l plumbed. Eaglesoft, E4D, Intra-Oral, Pano. 9 days hygiene/week. 2012 GR \$888K+. #CA156—In Escrow

GREATER SACRAMENTO/ROSEVILLE: Partnership Position in General Dentistry Practice. Each partner has 60+ patients. Intra-oral, Digital x-rays. #CA126

HAWAII (MAUI): General Dentistry Practice. ~1200 SF. 4 Ops. GR \$636K. #20101

HUNTINGTON BEACH: General Dentistry Practice. 6 Ops, 3 equipped, 3 plumbed. Spacious. #CA155

INDIAN WELLS: General Dentistry/TMJ Practice. 4000 SF. 6 Ops. 2011 GR \$350K+ on 1 doctor-day/week. #CAM530

LA MESA: General Dentistry Practice. 3 Ops. 2,000 SF. Prof. Bldg. Dentrux, Laser, Digital X-rays. 2012 GR \$396K w/Adj Net \$155K. #CA127

LONG BEACH: General Dentistry Practice/Associate Run. 6 Ops. 6 Equipped. Dentrux, DEXIS. 8 Days hygiene. GR \$1.2MM. #CA152

MURRIETA: NEW LISTING! General Dentistry Practice. 7 Ops. CEREC, Schick, Dentrux. 2013 GR \$1.4MM+ w/ Adj Net \$521K. #CA163

NEWPORT BEACH: PRICE REDUCED! General Dentistry Practice. 3 Ops. Newer high-end equipment. 2012 GR \$350K. #CAM534

NORTH EAST BAY: PRICE REDUCED! \$77K! General Dentistry Practice. 7 Ops. 2324 SF. Dental Mate software, Intra-oral Camera, Pano X-ray, Digital X-ray. 2012 GR \$885K. Bldg to be sold w/practice. #CA108

NORTH OF SACRAMENTO: General Dentistry Practice. 5 Ops. 2050 SF. Dentrux, Intra-oral Camera, Digital X-ray, Imaging system, Pano. 2012 GR \$1.2M+. #CA106

NORTH ORANGE COUNTY: Endodontic Practice. 5 Ops. 3 Zeiss wall-mounted microscopes. GR \$370K w/Adj Net \$172K. #CAM561

NORTHERN CALIFORNIA: Periodontal Practice. Partnership position. 1500 SF. 6 Ops. Dentrux. Owner financing avail. #CA168

NORTHERN CALIFORNIA: Periodontal Practice. 5 Ops. Equipment for right or left-handed provider. Eaglesoft software. 2013 GR \$890K+. #CA153

NORTHERN CALIFORNIA: Endodontic Practice. 3 Ops, 1 Add'l plumbed. 1200 SF. Two microscopes. Digital. 2013 GR \$319,865. #CA158—In Escrow

NORTHERN CALIFORNIA: Endodontic Practice. 4 Ops, 1 Add'l avail. 1021 SF. Dentrux. 2013 GR \$337K. Owner retiring. #CA169

ORANGE COUNTY: General Dentistry Practice. Retail end. Double location. 2013 GR \$906K w/Adj Net \$393K. #CA132

ORANGE COUNTY: NEW LISTING! Oral Surgery Practice. 5 Ops. Prof. bldg. 2013 GR \$1.3MM+ w/Adj Net \$870K. #CA164

ORANGE COUNTY: NEW LISTING! Perio Practice. 6 Ops, 5 equipped. Great location. 2013 GR \$479K w/Adj Net \$164K. #CA136

PITTSBURG: General Dentistry Practice. 5 Ops. 1400 SF. Pano, Fiber Optics, 12 NP/ Month. Low rent. GR \$236K w/60% OH. #CA133

PLUMAS COUNTY: PRICE REDUCED! General Dentistry Practice + Bldg. 4 Ops, 5 avail. EZ Dental, Pan. ~1500 Active patients. 2012 GR \$515K. #CA558

REDLANDS: General Dentistry Practice. 3 Ops. 3 DDS Days, 3 Hygiene Days/Week. GR \$364K. #CA160

RIDGECREST: General Dentistry Practice & Building. 4 Ops. 1500+ SF. Small practice. 2012 GR \$175K. #CA523

RIVERSIDE: General Dentistry Practice + Bldg. Emphasis on Implants. 5 Ops. 2012 GR \$500K+. #CA120

SACRAMENTO: General Dentistry + Specialty Practice. Two Suites. 4000 SF combined. GP has 4 Ops, SP has 6 Ops w/3 Add'l plumbed. Dentrux, Intra-Oral, Digital X-ray, Pano. 2013 GR \$1.3M. #CA157

SAN BERNARDINO: General Dentistry Practice. 4 Ops. 30+ Yrs goodwill. GR \$265K. DDS retiring. #CA150

SAN CLEMENTE: PRICE REDUCED! General Dentistry Practice. 3 Ops, 2 Add'l plumbed. PracticeWorks, Digital X-ray, Pano. #CA129—In Escrow

SAN DIEGO: General Dentistry Practice. 5 Ops. 1200 SF. EagleSoft, Digital X-rays. 2012 GR \$442K w/Adj Net \$161K. #CA130

SAN DIEGO: NEW LISTING! General Dentistry Practice. 3 Ops. Central area. FFS Practice. PracticeWorks. 2014 GR \$187K. #CA161

SAN FERNANDO VALLEY: General Dentistry Practice. 3 Ops. EagleSoft, Schick Digital X-Rays. 2013 GR \$177K. #CA159

SAN FRANCISCO: General Dentistry Practice. 1744 SF. 4 Ops, 1 Add'l plumbed. Pano, Digital X-ray, Intra-oral Camera, Softdent software. 2013 GR \$906K w/Adj Net \$338K. #CA162

SANTA ANA: General/Pedo/Ortho Practice. 11 Ops. Pano, Intra-oral Camera. 35% Denti-Cal. 2013 GR \$424K w/Adj Net \$138K. #CA136

SANTA CRUZ COUNTY: General Dentistry Practice. 3 Ops. 1100 SF. Prof. bldg. 2200 Active Patients. Schick Digital X-ray, Dentrux. 5-Year Old Equipment. GR \$338K. #CA550

SANTA MARIA: General Dentistry Practice. 4 Ops. 1500 SF. Easy Dental, DEXIS, Digital X-ray, Intra-oral Camera. 5 Days hygiene. 2013 GR \$523K. #CA166

SOUTH COUNTY SAN DIEGO: General Dentistry Practice. 3 Ops. 4 Ops. 1200 SF. 2013 GR \$500K. #CA148

SOUTH COUNTY SAN DIEGO: NEW LISTING! General Dentistry Practice. 3 Ops. 1100 SF. Modern equip. Easy Dental, Digital X-ray. GR \$195K. Growth potential! #CA175

TEMECULA: NEW LISTING! General Dentistry Practice. 6 Ops. EagleSoft w/14 workstations. Digital, CEREC, Pano. #CA174

THOUSAND OAKS: FACILITY ONLY! 4 Ops. 1325 SF. Modern design. Dentrux with 4 workstations. Equipped business office. Sterilization area. Great start-up location or satellite office. #CA137

VICTORVILLE: General Dentistry Practice. 3 Ops, 3 Add'l plumbed. 2150 SF. SoftDent. 2013 GR \$313K w/Adj Net \$147K. #CA149

WALNUT CREEK: PRICE REDUCED! Prosthodontic Practice. 3 Ops. Full lab. 2013 GR \$399K w/Adj Net \$143K. #CAM540

WEST LOS ANGELES: General Dentistry Practice. 4 Ops. 2000 SF. 2013 GR \$500K. #CA117

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Medical Waste Management and Disposal

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Each state has its own laws on the management of medical waste. The California Medical Waste Management Act (MWMA) was enacted in 1991. Requirements for small quantity waste generators differ from requirements for large quantity generators. The rules described in this article apply to small quantity generators, a category in which most dental practices fall.

Types of Medical Waste

Regulated medical waste in a dental practice includes contaminated sharps, biohazardous waste that includes containers, equipment or disposables (e.g., gauze and cotton rolls) that drip blood or saliva when compressed or flake dried blood when shaken, human surgery tissues and pharmaceutical waste (except controlled substances). Teeth are not medical waste unless deemed infectious by the dentist. Extracted teeth containing dental amalgam must be managed as hazardous or universal waste. Expired or unwanted controlled substances must be disposed of through a drug enforcement administration-registered reverse distributor.

Containers and Storage Time

Contaminated sharps should be collected in containers that are closeable, difficult to reopen after sealing shut, puncture resistant and leak proof on all sides. FDA-cleared sharps containers are recommended. Sharps containers can be any color and should be labeled "Biohazardous Waste" or "Sharps Waste" with labels in fluorescent orange or orange-red and letters and biohazard symbol in a contrasting color. The container should be maintained upright and be easily accessible to immediate area of sharps use. Do not fill past the fill line.

Dispose of sharps within 30 days of the container becoming three-quarters full or filled. If the sharps container is combined with biohazardous waste, the combined waste must be disposed of within 30 days of the date waste accumulation starts if the dental practice generates less than 20 pounds of such waste per month, or within seven days if more than 20 pounds of waste is generated per month.

Place biohazardous waste in a red bag that is in a rigid, leak-proof container. The container must be closeable with a tight-fitting lid. The red bag must have fluorescent orange or orange-red labels

with "Biohazardous Waste" and the biohazard symbol in a contrasting color.

Dispose of biohazardous waste, stored at room temperature, within 30 days of the date waste accumulation starts if the dental practice generates less than 20 pounds of such waste per month, or within seven days if more than 20 pounds of waste is generated per month. Dental practices that generate less than 20 pounds of biohazardous waste per month may store the waste at 32 degrees Fahrenheit or below for up to 90 days before disposal.

Place pharmaceutical waste in a leak-proof container that is closeable with a

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TABLE

Dental Medical Waste Management

Type	Treatment or Disposal	Storage Time
Sharps	Mail-back, pick up by a registered medical waste hauler or a CDPH-approved alternative treatment.	30 days, when full and ready for disposal (HSC §118285). Or up to 90 days if stored at ≤32 F (HSC §118280).
Anesthetic carpules	If empty (=trace), place in trash. If pourable (=residual) amount remains, manage as pharmaceutical waste. If blood has been aspirated, place in sharps or biohazardous container.	See pharmaceuticals. See sharps or red-bag, as applicable.
Red-bag, blood and other potentially infectious materials (OPIM)	Mail-back, registered medical waste hauler, onsite autoclave or CDPH-approved alternative treatment.	If <20 lbs. per month, 30 days if stored at >32 F, 90 days at ≤32 F (HSC §118280).
Pharmaceuticals	Mail-back or registered medical waste hauler.	90 days when full and ready for disposal or at least once per year (HSC §118280).
Teeth (if dentist deems infectious)	Mail-back, registered medical waste hauler, on-site autoclave or CDPH-approved alternative treatment (HSC §118280).	See red-bag.
Teeth with amalgam	Not medical waste.	Universal waste.
Combined waste	May combine all waste streams, except pharmaceuticals and amalgam. Sharps must be in a sharps container.	See red-bag.

Do not place pharmaceutical waste in devices intended for red-bag and sharps waste, because it must be incinerated. For mail-back systems, please ensure that separate containers are used for pharmaceutical waste. On-site alternative treatment technology methods may or may not require registration and/or permit. Check with local enforcement agency for medical waste.

Source: California Department of Public Health cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/2013/Dental%20chart.pdf.

tight-fitting lid. The container should be labeled “Incineration Only” on the lid and sides. The pharmaceutical waste must be disposed of within one year that waste accumulation starts if the dental practice generates less than 10 pounds of waste per year, or within 90 days if more than 10 pounds per year is generated.

Treatment, Disposal and Waste Vendors

Treating medical waste to render it noninfectious requires a permit as well as other documentation. In jurisdictions where the state is the enforcement agency, dental practices may use the Isolyser Sharps Management System, a state-approved alternative treatment technology, without a permit.

Options for waste disposal are a pick-up service or a mail-back program. Mail-back programs exist for sharps, biohazardous and pharmaceutical waste. A list of state-approved mail-

back programs is available on both the California Department of Public Health (CDPH) and CDA Practice Support websites. If using a medical waste hauler, check if the company is registered with state as a hauler.

A dental practice, if granted a limited quantity hauling exemption by the enforcement agency, may transport medical waste to a permitted transfer facility or permitted treatment facility.

Enforcement and Fees

Dental practices that generate medical waste are required to register with the local enforcement agency and maintain documentation. Individual jurisdictions determine whether it or CDPH serves as the respective enforcement agency. Two cities and 33 counties in California enforce the medical waste laws. Fee amounts vary and are dependent on the enforcement agency and on whether a waste generator

treats the waste. In counties where CDPH is the enforcement agency, the waste hauler is permitted to collect the registration fee from the waste generator.

The MWMA, generator registration application, lists of local enforcement agencies, approved mail-back programs and authorized transporters are available on the CDPH website (cdph.ca.gov/certlic/medicalwaste/Pages/default.aspx). A sample medical waste management plan and FAQs are available on cda.org/practicesupport. ■

Regulatory Compliance appears monthly and features resources about laws and regulations that impact dental practices. Visit cda.org/practicesupport for more than 600 practice support resources, including practice management, employment practices, dental benefit plans and regulatory compliance.



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- 6066 SOUTH SACRAMENTO** Bring working capital and a business plan. \$1 Million location at stop light intersection with Kaiser across the street. Great signage advertising practice 24/7. Client bought building in Elk Grove and is relocating. Admits that this is the better location. 6 equipped ops, digital radiography. Ready to go. Open the doors and be busy. Replacement cost \$600,000+. Full Price \$130,000
- 6065 SOUTHERN ALAMEDA COUNTY** Collected \$480,000 in 2013. Attractive 3 op office with tranquil views of garden setting. Digital radiography includes Panorex.
- 6064 BERKELEY'S ALTA BATES MEDICAL VILLAGE** Current year tracking \$700,000. 4-days of Hygiene. Lots of work referred. Renowned Village has regional draw.
- 6063 FOLSOM - EL DORADO HILLS** 2013 collected \$585,000 with Profits of \$210,000. 3-ops with Panorex and digital radiography. Considerable investment made here.
- 6062 SAN FRANCISCO'S MISSION DISTRICT** Ground floor office in Los Portales Medical Building. SF's hi tech work force is moving into The Mission and transforming area. Client moving into purchased building 12-blocks away. Has been \$900,000/year office. 4-ops fully equipped. Full price \$75,000.
- 6061 LODI** Beautiful digital 5-ops and paperless. 16+ years left on Lease. Part-time collected \$136,000 in 2013. Great opportunity for successor who devotes full attention here.
- 6059 MODESTO** Coffee Road. 3-Ops. Collections have averaged \$295,000 with Profits of \$155,000+ last two years. Successor shall see pop in New Patients by becoming PPO provider.
- 6057 DOWNTOWN OLD OAKLAND** 2013 collected \$2 Million. Available Profits topped \$1.1 Million. Paperless and digital. Goldmine location generates constant flow of quality patients. Beautiful office's tenancy secured through 2031. Little competition.
- 6055 VACAVILLE** 3-days per week with 3-days of Hygiene. Hygiene booked 6-months out. Collected \$565,000 with Profits of \$241,000+ in 2013. Great transition arrangements available.
- 6043 WESTERN CONTRA COSTA COUNTY'S EL SOBRANTE** Highly visible in stand-alone building on Appian Way. Has been \$200,000/year on 3-day week. Successor shall see growth. 3-ops. Building optional purchase.

- ANAHEIM HILLS** Group member wanted. Hi identity. GP
- ANAHEIM** 2 days wk. Hi identity. Grosses \$20,000-to-\$30,000/month. New digital x-ray. Full Price \$225,000.
- BAKERSFIELD** Lady DDS Grosses \$800,000. Great profits. Shopping center. Full Price \$585,000.
- BAKERSFIELD** 1,000's of patients. Low overhead. Can do \$1 Million. Bargain.
- BAKERSFIELD – NORTH** Gross \$1.5 Million working four 6 hour days. 50% net.
- BAKERSFIELD - SOUTH** Practice & RE. 1,800 sq.ft. 5 ops and apt. Full Price \$350,000.
- CORONA - NORCO** Averages \$90,000/month. Will do \$1.2 Million in 2014. 8 op office.
- DOWNEY** Historic Center. 50,000+ autos pass/day. 5 op. FP \$250,000
- HEMET** Beautiful 10 ops. Will be \$1 Million office. Buy 50% for \$300,000.
- HMO** 2 practices grossing \$4.5 Million. Call Tom Fitterer at 714-832-0230.
- HUNTINGTON PARK** 98% Hispanic. Grosses \$600K. Low overhead. 4 ops.
- HUNTINGTON PARK** Hi identity. 50,000 autos/day. 3 ops. Full Price \$195,000.
- INDIO** 4,600 sq.ft. building across from City Hall. 2 op office ready to expand.
- LAKE FOREST** 7 ops located across street from major employer.
- LANCASTER** Hi Identity proven location. Price reduced to \$55,000. 2 ops.
- NEVADA RESORT AREA** Grosses \$600,000 on 3 Days. 30 Denture patients/day. Perfect for Implant Specialist. FP \$600,000.
- PALM DESERT** 5 ops. Grosses \$800,000. Bargain.
- PASADENA AREA HMO** Grosses \$900,000. Storefront, 5 ops. Real Estate available.
- REDLANDS** Bank Repo run by Internet Marketing DDS. 4 ops low overhead Grosses \$30,000/month. Full Price \$285,000.
- RIVERSIDE HMO** Grosses \$850,000, low overhead. 9 ops. \$1.5 Million potential.
- SAN DIMAS HMO** Hi identity center. Seller refers a lot.
- SAN FERNANDO VALLEY** Hispanic practice grossing \$1.25 Million. Real estate available.
- SAN FERNANDO VALLEY** Part-time grossing \$300,000. Full time will do \$500,000.
- SANTA ANA** Emergency! Seller says discount and sell. Low overhead strip center. 3 ops.
- SOUTH ORANGE COUNTY** Prestigious Plaza. Modern 1,450 sq.ft. Will be \$1.5 Million in 3 years.
- SOUTH ORANGE COUNTY** \$950,000 in 2013. Gorgeous 5 ops. Full Price \$795,000.
- SOUTHERN CALIFORNIA** Grosses \$4.5 Million. Prestigious hi identity.
- TORRANCE** Prestigious Asian Center. High tech, gorgeous. Full Price \$350,000.
- TORRANCE** Grossing \$300,000+. Next to hospital.
- TORRANCE/GARDENA** Chinese DDS. Very profitable. Grosses \$200,000. Lots referred out.
- TUSTIN** Hi identity center. 5 ops. Future Million Dollar office
- YUCCA VALLEY** Hi identity (huge sign) 600 sq.ft. 2 op dental building. Full Price \$110,000.

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AC-243 SF Facility: Occupies entire 8th floor of beautiful Downtown SF Fin. Dist. Bldg 2500 sf w/ 7ops **\$150k**

BN-183 HAYWARD: *Kick it up a notch by increasing the current very relaxed work schedule!* 1,300 sf w/ 3 ops **\$150k**

BN-279 CONTRA COSTA COUNTY: Excellent Merger Opportunity! 2-story. 1,350 sf w/ 3 ops +1 add'l **\$60k**

CC-170 SOLANO COUNTY: Near Wine Country! 950 sf w/3 ops **\$225k**

CC-307 SOLANO COUNTY: 1/3 Interest in premier practice! One of the most valuable practices on the CA market in years! 6,785 sf w/ 20 ops **\$1.035m**

CN-189 RIO VISTA: In the heart of the beautiful California Delta! 3 ops **\$275k**

CN-323 SANTA ROSA: Be the ONLY Dentist in the Airport Business Park! 1,800 sf w/ 5ops **\$275k**

DC-274 SAN JOSE: Fantastic Shopping Center location near 85. 1,050 sf w/ 4 ops **\$275k**

DC-287 DUBLIN Facility Only: Space Share Facility with OS. 2ops + 1 add'l, 1100 sf **\$125k**

DC-308 ALAMEDA: Great Starter Practice close to 880! 1,100 sf w/ 4 ops **\$125k**

DG-116 SALINAS AREA: Large, loyal & stable patient base! 1,400 sf w/5 ops. State-of-the-art Equipment **\$175k**

DG-124 MILPITAS: Highly visible. Desirable area. 960 sf w/ 2 ops + 1 add'l **\$130k**

DG-232 SANTA CRUZ: Large, well-established Medical/Dental Prof complex! 1,063 sf w/ 3 ops **REDUCED! \$330k**

DN-310 SUNNYVALE: Established 24 yrs. Seller retiring! 965 sf w/2 ops + 1 add'l **\$75k**

DN-229 PLEASANTON Facility: Move in Ready! Attractive tree-lined street, mature landscaping and curb appeal. High foot traffic. 975 sf w/ 2 ops **\$150k**

DN-311 PLEASANTON Facility: A great location and superior visibility! 870 sf w/ 3 ops + 1 add'l. **\$135k**

DG-327 LOS GATOS: Set to Exceed \$700k in 2014! Rare Opportunity – won't last! ~1,150 w/ 4 ops. **\$530k**

DG-326 SUNNYVALE: It doesn't get any better than this! Well-established practice ~860 sf /2 ops. **\$75k**

NORTHERN CALIFORNIA

EG-237 ROCKLIN: State-of-the-art, top-of-the-line equipment. 1,000 sf w/ 2 ops. Plumbed for 2 add'l **REDUCED! \$230k**

EN-313 SACRAMENTO Facility Only: An amazing opportunity to practice in one of Sacramento's most vibrant and desirable areas! ~ 936 sf w/ 3 ops. **\$85k**

FG-309 ARCATA: Long established, income generating practice! 656 sf w/ 2 ops **\$215k**

FN-181 NORTH COAST: Well respected FFS GP. Stable patient base. 1,000 sf w/3 ops **\$150k (25% int. in bldg. avail.)**

FN-299 FERNDALE: Live and practice on the beautiful North Coast! 1,300 sf w/ 3 ops **\$225k (Real Estate: \$309k)**

GG-320 CHICO: Large, Unique, Originally designed for more than 1 dds! 5,000 sf w/ 7 ops (+2 add'l) **\$1.2m**

GG-328 RED BLUFF: Get away from the big City! Established 50 Years! 800 sf w/ 2 ops **\$75k**

GN-201 CHICO: Beautiful practice, major thoroughfare, stellar reputation! 1,400 sf w/ 4 ops & room for another **\$425k**

GN-244 OROVILLE: Must See! Gorgeous, spacious 2,500 sf office w/5 ops! Collections over \$450k in 2013. **Only \$315k**

GN-258 REDDING: Pristine and attractive! Conveniently located! 1,050 sf w/ 2 ops. **\$215k**

GN-300 CHICO AREA: Fantastic location! Well Established! 1600 sf w/ 5 ops + 2 add'l **\$425k**

GN-324 YUBA CITY Facility: Newly updated office! ~ 1,704 sf w/ 4 ops, Motivated Seller! **\$75k**

HG-298 REDDING FOOTHILLS: Includes Cerec! 2,000 sf w/ 5 ops **Practice \$188k / Real Estate Also Available!**

HN-213 NORTH EAST CA: Close to the Oregon Border, this FFS practice is 2,200 sf w/ 3op +1 add'l **REDUCED \$115k**

HN-197 EAST LODI FOOTHILLS: Two practices for one great price! Call today for details! **\$595k**

HN-268 CALAVERAS COUNTY: "Main Street" charm & picturesque views of Central Sierra Foothills. 2,000 sf w/4 ops + 2 add'l **\$250k**

HN-280 NORTHEASTERN CA: "Only Practice in Town" 900 sf w/ 2 ops **\$110k**

HN-290 PLACERVILLE: Embrace the lifestyle and build your success story here! FFS. Office ~ 1,400 sf w/ 4 ops, **\$210k**

HN-317 SIERRA FOOTHILLS: "50% Buy-in" Opportunity in a desirable Foothill community. ~ 2,400 sf w/ 6 ops. **\$525k**

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Better Fit

Better Price!

SALES

CENTRAL VALLEY

IG-067 STOCKTON: Fully computerized, paperless, digital. 5,000 sf w/10 ops **REDUCED! Now ONLY \$325k**

IG-292 TRACY: PPO/HMO, Family Oriented, 1,300 sf w/ 4 ops Over \$200k in collections in 2013 **\$129k**

IG-247 ATWATER: Stunning practice! Cash flows well and profits better than most! 1,090 sf w/ 3 ops. State of the Art & Top of the Line! **REDUCED! NOW ONLY \$495k**

IN-297 MODESTO: The beautiful practice is set in a pristine, contemporarily designed medical/professional center. Office ~ 1,980 sf w/ 4 ops. PR: **\$475k / RE : \$425k**

JN-251 FRESNO: Dedicated to delivering the highest quality of care! 1,565 sf w/ 4 ops **\$140k**

JN-259 FRESNO Facility: **Newly Remodeled!** Low rent & overhead! Would cost much more to duplicate! 1,197 sf w/ 3 ops + 1 add'l. Seller Motivated! **\$45k**

IG-261 TULARE CO: Family-oriented practice. Desirable area! Seller willing to stay for transition! 730 sf w/ 3 ops **\$325k**

JN-295 VISALIA: Practice & Real Estate 2,000 sf w/ 5 ops PR: **\$185k RE: \$300k**

JN-316 CLOVIS: "The best of all worlds!" Huge, like new Practice! 2,501 sf w/10 ops **\$700k**

SPECIALTY PRACTICES

DC-246 PLEASANTON Pediatric: Highly Motivated Seller! Pediatric Practice/Facility Only. 1700 sf w/ 4 ops. Plumbed for additional ops. Practice **\$325k** or Facility only **\$250k**

I-7861 CENTRAL VALLEY Ortho: 2,000 sf, open bay w/ 8 chairs. Fee-for-Service. **\$370k**

I-9461 CENTRAL VALLEY Ortho: 1,650 sf w/5 chairs/bays & plumbed for 2 add'l **\$180k**

EN-203 SACRAMENTO Oral Surgery: Highly efficient office. 3,000 sf w/ 4 ops **ONLY \$235k**

EG-225 SACRAMENTO Ortho: Well-maintained, single-story Medical/Dental complex. 1,200 sf w/ 4 chairs **\$95k**

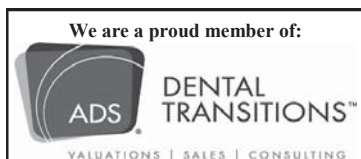
DG-264 SAN JOSE Ortho: \$300-400k in build-outs alone! 1800 sf w/ 5 chairs. **ONLY \$270k**

GN-304 NORTHERN SACRAMENTO Pedo: Well established, highly esteemed. ~ 1,800 sf w/ 4 ops **\$595k**

DN-293 LIVERMORE Perio: Specialty of Periodontics, Dental Implantology and Oral Medicine. ~2,200 sf w/ 5ops + 1 add'l. PR: **\$650k RE: TBD**

AC-325 SAN FRANCISCO Endo: Associate + Buy-In Opportunity in warm and caring environment. **Call for details!**

BC-336 CONTRA COSTA CO Perio: 1,440sf, 4 ops +1 Great Location! Call for Details!



ASK THE BROKER

A recent medical diagnosis is forcing my immediate retirement. I need my practice to sell quickly! What can I do to avoid delays?

ANSWER: TIME IS OF THE ESSENCE in this situation!

If it were me, knowing what I do now and not just because I am a broker: My advice to you, as a "Dentist-to-Dentist" is: **#1:** Establish a relationship with a dental practice broker and **#2:** Impress your accountant to supply and forward all the supporting financial documents to your broker *as soon as possible*. This crucial first step allows the broker to evaluate your practice, generate a market analysis and place your practice on the market as soon as possible.

Notwithstanding issues of location, demand and specialty practices that may possibly need extra attention, keep this in mind: ***"Good sophisticated buyers need good and accurate information to make good decisions"***. I cannot tell you how many times I've seen practices practically "sell" themselves just by complete, accurate and timely information! Buyers are often pleasantly surprised if their due diligence and research reveal a positive result with information that corresponds to computer generated documents!

With incomplete, inaccurate and non-specific responses, the entire process from marketing to close of escrow is impeded and becomes frustrating to the Seller, Buyer and Broker. Not only will it be difficult to get full market value or full financing if the financials are not clearly understood, any doubt that is created often leads to a chain of events which may "spook" the buyer and result in the buyer's decision to back out of the practice purchase even in the final stages of escrow. Beyond the obvious complications or temporary misunderstandings, problems and delays can be averted with forthcoming, honest, concise, accurate and complete information, whether on the Practice Questionnaire or Financials.

Help us help you! Like a well-run race in a battle against time, pass the "baton" of information to your broker which will enable him to be effective and efficient in expediting and streamlining the process. Put our expertise and experience to work for you! Together as a team, we look forward to working with you to achieve the successful sale of your practice, with the right **Price**, with the right **Buyer** and most importantly, in the right **Time!**

Timothy G. Giroux, DDS is currently the Owner & Broker at **Western Practice Sales** and a member of the nationally recognized dental organization, **ADS Transitions**.

You may contact **Dr Giroux** at: **wps@succeed.net** or **800.641.4179**



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4013 STANISLAUS COUNTY GP

Well-managed GP with regularly increasing revenue. State-of-the-art 1,600 sq. ft. well-equipped office w/4 ops. Digital x-ray, Dexis, 4 x-ray machines, laser, piano and recent leasehold improvements. 2012 GR \$883K+, 2013 on schedule for \$968K+ as of Oct. Located near hospital in well-travelled area. Asking \$560K.

SOLD

4033 PETALUMA GP

Owner retiring looking to transition 41 year-old practice to conscientious & dedicated dentist. Approx. 1,145 sq. ft. w/3 fully-equipped ops setup for right handed delivery; 2 bathrooms; business and private office combined; reception; lab and sterilization areas; and a separate storage area. ~1,000 active pts., avg. 7 new pts./month, 3.5 doctor days & 5 hygiene days per/wk. 2013 GR \$683K+. Asking \$477K.

SOLD

4032 SOUTHERN PENINSULA GP

Well established GP located in highly desirable area. Beautiful 4 op office in lovely professional bldg. with excellent visibility on major cross street. 3 Dr. days & 3 hygiene days/week. 4 year average GR \$391K. Great upside potential. Asking \$300K.

SOLD

4018 NAPA COUNTY GP

Seller retiring from a profitable, well-established Napa County practice w/large & loyal patient base. Located in 2,750 sq. ft. office w/6 modern fully-equipped & upgraded ops. including digital x-ray in each op. 2012 GR 1.7M+ & 2013 GR on schedule for 1.8M+ as of October. Asking \$1.4M.

SOLD

4050 SANTA ROSA GP

Seller retiring & ready to transition well est. GP w/focus on restorative care. Spacious 2,100 sq. ft., elegant & modern office in seller owned building located on prominent corner of a well-traveled intersection close to shopping areas. 6 fully-equipped ops. Dedicated parking. Excellent leasehold improvements. Approximately 1,900 active pts. \$1.1M+ avg. GR w/66% overhead & 4 doctor days. Asking \$751K.

4051 CENTRAL COAST PROSTHO

Well-established practice located in California's gorgeous Central Coast area. Beautifully appointed, spacious 1,568 sq.ft. office with 4 fully equipped ops, pros lab and other amenities. Situated just minutes from the ocean and <5 miles away from one of California's historic Mission Cities, this practice is nestled in a highly desirable community. 2013 gross receipts were \$1.2M+ and 2014 is annualized at \$1.3M+ on a 4 day doctor workweek, w/4 days of hygiene/week. Approx. 15 new patients a month and ~1,500 active patients (all fee-for-service). Owner/doctor is willing to help Buyer for smooth transition.

4040 FAIRFIELD GP & BUILDING

Well-established GP located in excellent, upscale area. 4 fully equipped ops in 1,615 sq. ft. 2013 GR \$335K. 2014 annualized GR \$433K with adj. net of \$183K. Approx. 700 active patients, all Fee-for-Service (no PPOs/HMOs). Retiring doctor willing to help Buyer for smooth transition. Practice listed at \$210K. Beautifully appointed building is also listed for sale, appraised value and listing price \$410K.

SOLD

4030 MODESTO GP

Well-established & well run general practice available immediately. 2,500+ active pts. 4 year avg. GR approx. \$1,275,000. Seasoned staff, 10 hyg. days/wk, 4 Dr. days/wk. Beautiful 2,293 sq. ft. dental office in seller owned building with 6 fully-equipped ops. digital x-ray & regular dental equipment upgrades. Asking \$837K.

SOLD

UPCOMING:

4038 SAN JOSE GP

O'Connor Hospital area. Modern, well appointed office in 1,800 sq ft. 5 ops, 4 fully equipped. 4 day doctor work week. Grossing over \$1M.

4046 SAN JOAQUIN VALLEY ENDO & GP

Seller retiring from quality practice located in professional/medical building with referral sources, Excellent reputation. Avg. GR \$540K+



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ENDODONTICS

Accuracy of diagnostic pulp testing

Villa-Chavez CE, Patino-Marin N, Loyola-Rodriguez JP, Zavala-Alonso NV, Martinez-Castanon GA, Medina-Solis CE. Predictive Values of Thermal and Electrical Dental Pulp Tests: A Clinical Study. *J Endod* 39(8): 965-969, 2013.

Purpose: The purpose of this study was to examine the sensitivity, specificity and positive and negative predictive values of thermal and electrical pulp testing (EPT) methods in correctly diagnosing a tooth with a necrotic pulp.

Methods: One hundred and ten patients requiring endodontic treatment were tested with cold, heat and EPT by three different examiners, each of whom was blinded to the patient's history and presenting symptoms. The temperature was monitored for standardization by infrared thermometer, and the thermal stimulus was applied for 18 seconds or until the patient indicated a sensation. Any response to EPT below 70 (Analytic Technology pulp tester, Analytic Technology, Redmond, Wash.) was considered to be a pulpal response. Once endodontic treatment was initiated, the status of the pulp was classified as vital (bleeding) or necrotic (no bleeding) as the definitive diagnosis for comparison. Twelve endodontically treated teeth were included as negative controls.

Results: Sensitivity indicates the ability of a test to correctly identify disease (pulp necrosis in this study), and specificity indicates the ability of a test to correctly identify a tooth without disease. The positive predictive value is the probability that a positive test result (lack of any response in this study) will correctly identify those teeth with pulp necrosis, and the negative predictive value is the probability that a negative test result (sensation response in this study) will correctly identify teeth without disease. In this study, the cold test exhibited the strongest sensitivity and positive predictive value, followed by the heat test. EPT had the lowest sensitivity and positive predictive value. All tests showed very high specificity, meaning that each correctly identified teeth with a vital pulp. The negative controls performed as expected in that no response to any test was noted.

Conclusions: The cold test was the most accurate in identifying a tooth with a necrotic pulp in this study, followed closely by heat. EPT was the least accurate of the three methods of detecting pulp necrosis.

— Craig Noblett, DDS, MS, FADC

IMPLANTS

Does peri-implantitis risk increase in patients with history of periodontal disease?

Linkevicius T, Puisys A, Vindasiute E, et al. Does Residual Cement Around Implant-supported Restorations Cause Peri-implant Disease? A Retrospective Case Analysis. *Clin Oral Implants Res* 2012 Aug 8. doi: 10.1111/j.1600-0501.2012.02570.x. [Epub ahead of print].

Purpose: The purpose of this retrospective study was to determine whether there is a correlation between patients with a history of periodontal disease and increased risk for peri-implant disease due to retained cement.

Methods: Seventy-seven patients with 129 implants experiencing mechanical or biological complications between 2006 and 2011 were evaluated for residual glass ionomer cement associated with implant crown placement. A retrospective records review resulted in segregating patients into those with and those without a history of periodontal disease. For a control, a cohort of 66 patients with 238 screw-retained implant crowns were also evaluated for peri-implant disease.

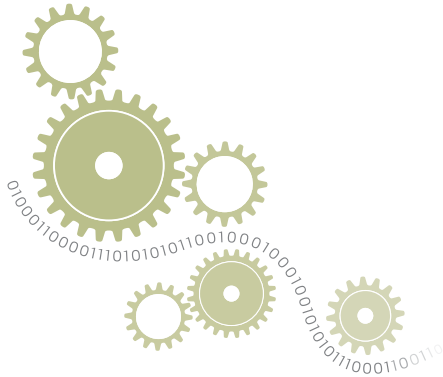
Results: Of the 129 implants experiencing mechanical or biological complications, 73 (56 percent) had cement remnants. In the mechanical complications group, cement remnants were found in 11 of 32 implants. In the biological complications group, cement remnants were found in 62 of 97 implants.

In the group of patients who had a history of periodontal disease, all 39 implants with extra coronal cement had peri-implant disease. When examining 34 implants in periodontally healthy individuals with cement remnants, 20 of 34 implants were diagnosed with peri-implant mucositis, three of 34 implants were diagnosed with peri-implant disease and 11 were healthy.

In the control group, which had screw-retained restorations, 185 implants had been placed in patients with a history of periodontal disease and two (1.08 percent) implants suffered from peri-implant disease. The other 53 implants placed in patients without a history of periodontal disease had no disease.

Conclusions: Based on the population of this retrospective study, cement retention is a main cause of peri-implantitis. The risk for peri-implantitis due to cement retention is more prevalent in patients who have a history of periodontal disease.

— David Du, DDS, and Richard T. Kao, DDS, PhD



A look into the latest dental and general technology on the market

Hanx Writer (Hitcents.com Inc., Free)

Classic typewriter enthusiasts will appreciate Hanx Writer for iPad. Developed in collaboration with actor Tom Hanks and Apple, the app simulates the look, feel and sound of an actual typewriter with the exception of a few modern-day word-processing advancements. Made to resemble one of the most indispensable tools in history, the app replaces the standard iPad keyboard with a detailed rendition of a classic typewriter and letter-sized paper inserted into its carriage. Users can start typing while the keys animate and strike the letters onto the paper accompanied by sound that is reminiscent of the great invention. Documents can be emailed, printed or shared with other apps. Advancements over classic typewriters that bring the word processor forward to the modern-day era include automatic carriage return with word wrapping and the use of the delete key. Users can toggle on or off the animations, sound, modern delete and the cursor. With modern delete off, instead of correcting over previous text with the delete key, the app strikes Xs over the text for a more realistic effect. For a more rich experience, users can purchase different typewriters that allow for multiple documents, ribbon and background colors, text alignment and title pages with pictures. Each classic typewriter has an individual personality and this app seeks to recreate that in an easy-to-use, realistic and addictive experience that users will find stimulating.

— Hubert Chan, DDS

MyRoll (Flayvr Media Ltd., Free)

People take photos nearly every day with their phones, which often leads to an endless stream of disorganized moments. Those looking to clean up the mess a little can use MyRoll, which automatically organizes photos and videos stored in the photo folders of a mobile device and creates “shareable moments.” By simply opening the app and following a few easy steps, users can tell the app to begin organizing their photos. Users can sign up with Google+, Facebook or email. The interesting feature of the app, which is available for iOS and Android, is that it takes into consideration things such as viewing history and locations of the photos to complete the “moment” collages. Photos that have been edited also will appear before the original versions of those photos. Once the collages are created, users can share them on various social media platforms and create Facebook albums. The collages could even double as a digital photo gallery that plays on a mobile device throughout the workday.

— Blake Ellington, Tech Trends editor

Photo Sphere Camera (Google Inc., Free)

Photo Sphere allows iOS device users to take 360-degree panoramas or “spheres,” publish them to Google Maps and share them with others. Taking panoramas with the app is intuitively easy. Users simply tap on the orange camera icon on the lower-right corner of the screen. A guide will prompt the user to position the camera by centering an orange dot inside a white circle. Once centered, the user holds the position until the camera captures the picture. Users continue panning and tilting the camera to center subsequent dots until a complete panoramic set of images has been captured. Users then tap the “Finish” icon when done and watch as the app stitches everything together. Spheres generated are similar to Street View on Google Maps. Users can pan, tilt and zoom within the sphere. Signing in to a Google account is required before the sphere can be uploaded to Google Maps. Once uploaded, users can share spheres with anyone via Facebook, Twitter, email or Google+. While spheres can be fully viewed only from within the app, they also appear in the camera roll as standard panoramic images. Google has made taking 360-degree panoramas on iOS devices an easy-to-use reality. Users will undoubtedly have plenty of fun as they create and share spheres from across the globe.

— Hubert Chan, DDS

Album of the Day (Sony Music Entertainment Germany GmbH, Free)

For those seeking an alternative to the rising popularity of streaming music services, Sony’s recently released the “Album of the Day” app enables users to purchase popular albums from Sony’s music collection at a steep discount. Available only on iPhone and iPad, the app is quite simple, sending an alert each day of the Sony album for sale. Users are given 24 hours to make the purchase. Enabling push notifications will alert users without having to enter the app to see what album is being offered. Purchasing is via a link next to the album, directing users to iTunes.

— Darien Hakimian, DDS

Would you like to write about new technology?

Dentists interested in contributing to this section should contact Tech Trends Editor Blake Ellington at blake.ellington@cda.org.

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