OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

JANUARY 2012

Reflecting on Access Challenges

Part 1

Vol 40 N°01

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The Road to Here

KERRY K. CARNEY, DDS

In 2002, the CDA House adopted Resolution 28 approving a position paper on access to care.

The January and March issues of the *Journal of the California Dental Association* will present reports and research pertaining to the question of addressing barriers to oral health care in our state. The California Dental Association commissioned this research.

The research presented in these issues is the result of a journey that began years ago.

After the publication of the "2000 Oral Health in America: A Report of the Surgeon General," organized dentistry became engaged with the issue to a significant degree. The surgeon general's report was published nearly 12 years ago and was the first national report to identify "... access to [oral health] care as an issue in need of immediate resolve to reduce the disparities among all populations."[1] The surgeon general's report recommended the creation of " ... a communitywide partnership to reduce oral health disparities, change oral health perceptions among the public and policy-makers, develop a scientific and evidence-based approach, an improved infrastructure that would integrate oral health into general health and the removal of barriers between individuals and the oral health services they require.[2]

In 2002, the CDA House adopted Resolution 28 approving a position paper on access to care. Recognizing the scope and complexity of the problem, that position paper stated, "... the association and its members acknowledge that access to dental care is a multifaceted issue that will require multiagency and multiorganizational cooperation in order to adequately address the challenges associated with improving access. Thus, addressing access to care will require public, private, professional, business, and government participation in order to move closer to solutions that will and should go well beyond the resources of the [CDA]."[1]

Conducting research is not new to the association. Since 2006, the CDA Foundation has commissioned studies on the delivery of oral health services in California in order to determine the most strategic use of its resources. The Forecasting Research Workgroup, a subcommittee of volunteers under the Policy Development Council, oversaw this research.

In 2008, the house adopted resolution 36S1-2008-H that directed CDA to undertake comprehensive study aimed at improving the access to dental care for the underserved populations.This directive was referred to the Policy Development Council and two groups of volunteers were formed. Due to the increased national activity on workforce-specific proposals and the need for research in this area, the former Forecasting Research Workgroup became the Workforce and Forecasting Research Task Force. The second group was a new workgroup; it was called the Access Workgroup.

"The focus of both groups ... [was] ... to improve access to dental care for the nearly 30 percent of the population that experiences barriers to care now while preserving the dental delivery system for the 70 percent which it serves well."[3] In 2009, the access workgroup developed additional areas of study that would provide the data from which suggestions and an action plan or roadmap could be crafted.

In 2010, an interim report was made to the house describing the activities of the taskforce and the workgroup and the research completed up to that time.[3] The project objectives and success criteria were delineated in the report.

CDA commissioned research has been available on line for some time. (cda.org/advocacy_&_the_law/access_to_care/forums/access_report. Member log-in required.) The January and March issues of the *Journal* make the research available in a more reader-friendly form.

The CDA House of Delegates took actions to bring their members information and analysis to help in understanding the scope and breadth of the issue at hand.

This is information pertinent to the discussion of overcoming barriers to receiving oral health care services in California. This is information to help dentistry protect and promote the delivery system that works for more than 70 percent of the population while improving access to dental care for the nearly 30 percent of the population that experiences barriers to care now.

Peruse these papers, consider them critically, draw your conclusions, and participate in the discussion. ■■■■

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EDITOR, CONTINUED FROM 5

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1. Res 28-2002-H: Position paper on access to care, CDA policy manual, page A-2.
2. U.S. Department of Health and Human Services. Oral Health in America: A report of the surgeon general. 2000
3. Resolution 31, 2010, Resolution 31, Access to Care.

The *Journal of the California Dental Association* welcomes letters.

We reserve the right to edit all communications and require that all letters be signed. Letters should discuss an item published in the Journal *within the past two months or matters of general interest to our readership. Letters must be no more than 500 words and cite no more than five references. No illustrations will be accepted. Letters may be submitted via e-mail to the* Journal *editor-in-chief at kerry.carney@cda.org. By sending the letter to the* Journal, the author certifies that neither the letter n*or one with substantially similar content under the writer's authorship has been published or is being considered for publication elsewhere, and the author acknowledges and agrees that the letter and all rights of the author with regard to the letter become the property of the California Dental Association.*

Timothy G. Giroux DDS/Broker

ASK THE BROKER

Question:

Do different types of practices require different types of negotiations?

Yes! This is an interesting question, especially in California. We are a melting pot of diverse cultures. The licensed dentists and enrollment in our dental schools reflect this fact. Both buyers and sellers would be wise to understand the different culturally-based negotiating tactics they might encounter. For instance, it is common in some cultures to automatically and immediately offer approximately 50% of the asking price to start the negotiations. Some sellers may be so offended that they might not even respond to that type of an offer. Other cultures start with a full price offer, even sign all the paperwork and get close to the finish line, and then reduce their offer for a perceived reason that something was not to their expectations. Another culture may be extremely polite and excited about the practice, repeatedly spending time with the seller reviewing all the details, but never make a formal offer until after a great deal of work and time has been invested, only to make an offer well below the asking price.

My advice to the sellers is to be cognizant of the differing cultural norms. That is easy for me to say but hard for me to do, even after completing hundreds of negotiations. While I understand that hot markets with a desirable practice demand quick decisions, I still believe that a written agreement carries weight and expectations, unless something ***very significant*** is discovered that was not represented accurately in the beginning. There are some reasonable expectations to finish the transaction as offered once time, effort and money have been spent on the details of finalizing the transaction.

My advice to the buyers is to understand that in most cases, ***goodwill*** is the greatest part of the asset you are purchasing. It is then best if your offer matches the cultural expectation of the seller, as to not damage the eventual goodwill by engaging in a 'tough' negotiation. Every seller expects some negotiation, but eventually, *how* it is done ***will*** affect the tone of the transaction. Creating ill-will during the negotiations may reflect negatively in the transition with the patients and staff. Of course, there are some practices where this relationship with the owner may not matter, but those are usually the exception, even in a PPO driven practice.

A good "back-and-forth" negotiation can solidify value for both the buyer and the seller in the process. However, the buyer must beware of harming the transfer of the goodwill if the negotiations are not handled properly. This includes properly managing the consultants and attorneys the buyer chooses to help in the transition.

Timothy G. Giroux, DDS is currently the Owner & Broker at **Western Practice Sales (westernpracticesales.com)** and a member of the nationally recognized dental organization, ADS Transitions. You may contact ***Dr Giroux at*: wps@succeed.net or 800.641.4179**

CDA JOURNAL, VOL 40, Nº1

CDA Takes Important Step for Access

Editor:

About 3½ years ago, a group of doctors from Alameda County convened a meeting to discuss what was then called "the access problem." We wanted to know the size and scope of the problem and soon realized that there was no one access problem but a constellation of different barriers to receiving care — many of which we could easily identify, and some that we knew were inherently more difficult to categorize and understand. We also realized that there was no one repository of information about existing resources to meet these various barriers to care in our communities.

We drafted a resolution aimed at analyzing the various access issues, cataloguing existing community service, proposing loan repayment programs for young dentists, and increasing reimbursement levels to dentists participating in Medi-Cal.

This draft resolution was then discussed with our sister components in the East Bay and became Resolution 36 "Access to Care Analysis" at the 2008 CDA House of Delegates. It passed overwhelmingly.

What followed was an amazing miracle. Dentistry as a profession would be under attack from various organizations pointing the fingers at us to be the solution of the problem, as though we somehow created population and health disparities. Health care reform would become a national initiative. The economy would drastically affect our lives and the lives of our patients and fellow citizens, and on and on.

Undaunted, CDA assembled two groups of volunteers that were given great latitude to research and fully catalogue and understand the various access- and barriers-to-care issues. After three years of deliberative, thoughtful review, CDA has approved a comprehensive plan that flies in the face of anyone seeking to propose shotgun, cherry-picking solutions to a problem that we know is immense and multifactorial.

I want to acknowledge and congratulate CDA and the 2011 House of Delegates for being the most forward-thinking dental organization in the country. By our actions at this house and the preceding few years, we have shown the world that we are truly a part of the solution to access to care in our communities — indeed we may be the only organization that has such a thorough knowledge of the issues at play here.

Through this amazing and difficult process, we now have the tools to answer our critics, regulators, legislators, community organizations, think-tanks and others when they point the accusing finger at us and say "If only dentistry were different ..."

We know that with the bold moves taken here in this organization, we can confidently move forward, together, to make California a better place for the 70 percent of Californians enjoying the mainstream dental delivery model that we know works so well and is the pride of oral care worldwide, and close the gap for those outside this system. In fact, it is the very comprehensive nature of this plan that makes it so special. Its text proposes "doing the right thing" for our profession and for the patients we serve in our communities.

I am reminded of that famous quote widely attributed to Margaret Mead that we have all seen hundreds of times, but it fits so well here, "Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."

Thank you again from your colleagues at Alameda County. This is clearly groundbreaking and a time for celebration!

GARY L. DOUGAN, DDS, MPH
Oakland, Calif.

James Forester, DDS

Growing up with dentistry. As a dentist's son, James Forester can't remember a time when he didn't want to be a dentist. When he was in kindergarten, he'd draw his future practice, complete with pizza parlor and the requisite bowling alley. He started hanging out at his dad's office at a really young age and worked for him during both high school and college. Today, he specializes in pediatric dentistry and serves low-income families at La Clinica de Tolosa in Paso Robles.

Stories. Everybody has one. Some people have a career. The lucky ones have a calling, a passion for dentistry that likely began in an illuminating moment. For some, it was the first time they set foot in a dental office, or the magic of seeing a tooth that came back to life.

But whatever your story, the reasons to join CDA are clear—advocacy, protection, education, support and being part of an organization dedicated to improving the oral health of all Californians.

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Thank You to the *Journal* Reviewers

Authors have their names on their articles. Contributing editors, staff members, and outside vendors have their names in the masthead. But there are more people involved in putting out the *Journal* than those whose names are printed in each issue. There are also the professionals who formally review manuscripts and offer their recommendations. Below is a list of the people whose reward comes in the form of a thank you letter and a listing here. In addition, there are many others who have provided information counsel to the *Journal*. It is impossible to list them all. The *Journal* extends its thanks to the following people and everyone else who assists us in our endeavor.

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Deborah Zemke

Customer Service Key to Patients Returning

BY ALICIA MALABY

Nordstrom, Ritz-Carlton, and Zappos. These companies may sell different products and services but share a unique quality that goes beyond shoes and hospitality. Simply put, they offer exceptional customer service that distinguishes them from competitors.

Whether it's personal shopping, upgrades on a room, or generous return policies, exceptional customer service creates loyalty that keeps people coming back time and time again.

Imagine how your dental practice might benefit if you could create a Nordstrom-type experience for your patients.

"What is it that sets your practice apart from everybody else?" asked Judy Kay Mausolf, president of Practice Solutions, Inc. "There are little things you can do that make patients feel that they've been seen,

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Jaw Size Decreases as We Get Older

Wrinkles, thinning hair and going gray are all part of the natural aging process. Researchers now are adding shrinking jaws to that list.

In a study that began in 1949, plaster moulds were made of the jaws of dental students who were then in their 20s. The process was repeated twice when the participants were in their 30s and 40s. During that final round, researchers were able to contact 18 of the original 30 subjects.

"We found that over these 40 years there was less and less room for teeth in the jaw," says Lars Bondemark, DDS, professor of orthodontics, who analyzed the material together with his colleague Maria Nilner, DDS, professor of clinical bite physiology at the College of Dentistry, Malmö University, in Sweden.

"This crowdedness comes from shrinkage of the jaw, primarily the lower jaw, both in length and width. While this is only a matter of a few millimeters, it is enough to crowd the front teeth.

"We can also eliminate wisdom teeth as the cause, because even people who have no wisdom teeth have crowded front teeth," Bondemark said.

The reason for the shrinkage still is not known but more likely based on factors including heredity, anatomy, and the condition of the patient's bite. Also, while the amount of reduction varies from person to person, for some, it might be enough for them to perceive something is happening to their bite.

"In that case, it's good to know that this is normal," says Bondemark, who maintains that dentists need to take into consideration the continuous shrinking of the jaws when they plan to perform major bite constructions on their patients. "We're working against nature and it's hard to construct something that is completely stable."

Researchers Using Whole Genome Sequencing to ID Caries-Causing Bacteria

While it has been known for nearly a century that a link exists between *Lactobacilli* bacteria (Lb) and severe early childhood caries, figuring out which of the strains is accountable remains a mystery, but hopefully not for much longer.

A New York University dental research team recently received a four-year, $2.2 million dollar grant from the National Institute of Dental and Craniofacial Research, part of the National Institutes of Health, to use whole genome sequencing to identify those strains of Lb that contribute to the development of severe early childhood caries.

Page W. Caufield, DDS, PhD, professor of cariology and comprehensive care, and Yihong Li, DDS, MPH, DrPH, professor of basic science and craniofacial biology, the study's principal investigators, will analyze several hundred bacteria samples from children who have severe early childhood caries and their parents, as well as from children and their parents who are caries-free. Sampling and collection will take place at Bellevue Hospital Center in New York.

"The findings from our new study, as well as the earlier research on *Streptococcus mutans,* will help propel the development of a diagnostic test that dentists can administer chairside to identify those at risk," Caufield said.

Added Li, "Severe early childhood caries is one of the most prevalent chronic diseases in underprivileged populations. Much still needs to be learned about how the disease develops, and how it can be prevented. Our study will help to fill those gaps."

Sequencing will be conducted by co-investigators at University College in Ireland and at the Wellcome Trust Sanger Institute in the United Kingdom, according to a news release. Caufield and Li will collaborate with experts on bacterial genome evolution at the American Museum of Natural History to identify sequences common to children with severe early childhood caries and to their parents.

Research Conducted on Effect of Handpieces on Dentists' Hearing

The National Hearing Conservation Association Foundation is helping fund a study on the impact dental handpieces are having on dental professionals.

Krisztina Bucsi Johnson, an eight-year dental assistant and a doctoral student at East Tennessee State University, is conducting the research on whether dentists can lose their hearing due to dental handpieces.

Johnson is recruiting dentists in the area for her study to which the NHCAF has provided $5,000 in support. Using portable instruments in dental offices, Johnson will evaluate the dentist's hearing at the beginning and ending of each day.

While some research already has been done on this topic, Johnson said she wanted to gather more data and details.

Frequent Activity Throughout the Day May Reduce Cancer Risk

Keep moving. That's what experts from the American Institute for Cancer Research recently said in a plea to some employers and employees and to rethink physical activity as new research has confirmed that staying in motion may reduce the risk of cancer.

At the annual Research Conference on Food, Nutrition and Physical Activity, the AICR cited a direct link between "sitting time" and rates of breast and colon cancers: 49,000 cases of breast cancer and 43,000 cases of colon cancer occurring in the United States annually were the direct result of a lack of physical activity. Additionally, the report further said that daily walking reduces a number of biological indicators of cancer risks including insulin resistance, inflammation, obesity, and hormone levels. Researchers also cautioned that sitting for long periods of time dramatically increased cancer risks, even among individuals who exercise daily.

"Taken together, this research suggests that every day, we're each given numerous opportunities to be active and protect ourselves from cancer, not one," said Alice Bender, AICR spokesperson. Bender also said that the mindset of American employers and employees regarding the difference between exercise and movement and its impact on health needs to be changed. "A person who gets up in the morning and makes time by spending 30 minutes on the treadmill probably feels pretty pleased with himself, and he should. He's making excellent progress and doing a lot more than most Americans. For those 30 minutes, he's hard at work lowering those cancer risk indicators.

Caries Prevention May Be in Form of DNA Vaccine

Researchers have demonstrated that anti-caries DNA vaccines, including pGJA-P/VAX, are holding promise in preventing caries.

Wei Shi of the Wuhan Institute of Virology, Chinese Academy of Sciences, and his team of researchers, published their study, "Flagellin Enhances Saliva Ig A Response and Protection of Anti-caries DNA Vaccine," in an issue of the *Journal of Dental Research,* the official publication of the International and American Associations for Dental Research.

Using recombinant flagellin protein derived from salmonella as mucosal adjuvant for anti-caries DNA vaccine (pGJA-P/VAX), the team analyzed the effects of salmonella protein on the serum surface protein immunoglobulin G and saliva surface protein immunoglobulin A antibody responses, the colonization of *Streptococcus mutans* (*S. mutans*) on rodent teeth, and the formation of caries lesions, according to a news release. The results showed that salmonella promoted the production of surface protein immunoglobulin G in serum and secretory immunoglobulin A in saliva of animals by intranasal immunization with pGJA-P/VAX plus salmonella.

While challenges continue because of the low immunogenicity of DNA vaccines, Shi found that enhanced surface protein immunoglobulin A responses in saliva were associated with inhibition of *S. mutans* colonization of tooth surfaces and endowed better protection with significant less carious lesions.

The study further demonstrated that recombinant salmonella could enhance specific immunoglobulin A responses in saliva and protective ability of pGJA-P/VAX, providing an effective mucosal adjuvant candidate for intranasal immunization of an anti-caries DNA vaccine.

A corresponding perspective article, "Prospects in Caries Vaccine Development," was written by Daniel Smith of the Forsyth Institute. Smith wrote that DNA vaccine approaches for dental caries have had a history of success in animal models. Dental caries vaccines, directed to key components of *S. mutans* colonization and enhanced by safe and effective adjuvant and optimal delivery vehicles, are likely imminent.

Everyone knows you can do a composite in your sleep.

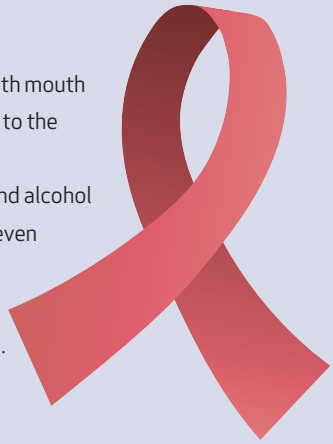
Obesity-Periodontitis Link?

Obesity or periodontal disease-modified microRNA expression and potential interaction between obesity and periodontitis that could involve microRNA modulation were the subjects of a recent study titled, "MicroRNA Modulation in Obesity and Periodontitis," and published in the *Journal of Dental Research*, the official publication of the International and American Associations for Dental Research.

Total RNA was extracted from gingival biopsy samples collected from 20 patients in four groups (five nonobese [BMI < 30kg/m2] participants with a healthy periodontium; five nonobese participants with periodontitis; five obese [BMI > 30kg/m2] participants with a healthy periodontium; and five obese participants with periodontitis), according to a news release. Two microRNA species (miR-18a, miR-30e) were up-regulated among obese individuals with a healthy periodontium. Two microRNA species (miR-30e,miR-106b) were up-regulated in nonobese subjects with periodontal disease and in the presence of periodontal disease and obesity, and nine microRNAs were significantly up-regulated (miR-15a,miR-18a,miR-22,miR-30d,miR-30e,miR-103,miR-106b, miR-130a,miR-142-3p,miR-185 and miR-210). The authors concluded that the data were consistent with the concept that miRNA that are induced by chronic nutritional stress leading to obesity may also non-parsimoniously modulate inflammatory pathways within periodontal tissues and affect disease expression.

"The expression of specific microRNA species in obesity provides new insight into possible mechanisms of how risk factors might modify periodontal inflammation and may represent novel therapeutic targets," said William Giannobile, DDS, MS, DMSc, *Journal of Dental Research's* editor in chief.

Mouth Cancer Cases Expected to Continue Increasing



It is forecasted that more than 790,000 people worldwide will be diagnosed with mouth cancer by 2030, an increase of more than 63 percent compared to 2008, according to the International Agency for Research on Cancer.

Most of the risks for mouth cancer are related to one's lifestyle: tobacco use and alcohol abuse. Excessive drinking can increase risk by up to four times; those who smoke (even smokeless tobacco and the chewing variety) and drink are up to 30 times more likely to develop the disease. It is predicted that more than 460,000 people will die from mouth cancer, more than two-thirds (67.6 percent) higher than 2008 rates.

As such, the World Health Organization believes "modifying and avoiding" risk factors could result in up to 30 percent of cancers being avoided, according to a news release. Nigel Carter, DDS, chief executive of the International Dental Health Foundation, said greater worldwide knowledge on mouth cancer and associated risk factors could have a major influence on the lives of millions.

"Although cancer is not wholly preventable, mouth cancer is very closely related to lifestyle choices. Making more people aware of the risks and symptoms for mouth cancer will undoubtedly save lives," Carter said. "We know that early detection can transform survival rates from 50 percent to 90 percent and simple campaigns like these — supported by health professionals — can make a real difference."

Routinely checking for warning signs, Carter said, is something everyone can do. "These include ulcers that do not heal within three weeks, red and white patches in the mouth, and unusual lumps or swellings in the mouth."

Graft Prevents Gum Recession Following Implant

After a tooth has been replaced with an implant, gum recession can be a real concern. Areas of root are exposed, which can be painful for the patient.

In a recent issue of the *Journal of Oral Implantology,* a report was presented on a case series of 10 people who received a single immediate tooth replacement with a subepithelial connective tissue graft, which proved successful in making gingival tissue more resistant to recession.

In the procedure, a failing tooth was removed and an implant was immediately placed into the socket. Tissue was then harvested from the palate using a single incision. The graft material was inserted into a prepared space between the labial bony plate and the gingiva of the extraction site. The graft preserved soft-tissue levels, making the gum less likely to recede, according to the authors.

Another way to measure the success of an implant is with the marginal bone level, which can be influenced by the way the abutment and implants unite. "Platform switching" refers to the size discrepancy between these two components and can be useful in preserving the marginal bone level.

CUSTOMER SERVICE, CONTINUED FROM 13

they've been heard and they're special."

Mausolf, a motivational speaker with two decades of experience as a dental office manager, outlined the positive impact of exceptional customer service during her September lecture at *CDA Presents* in San Francisco, "People Will Forget Everything Except How You Made Them Feel — The Secret is in the Service."

According to Mausolf, the secret to providing customer service starts with three components of value: connection, consistency, and care.

"We need to connect with people on a personal basis," said Mausolf, who urged front office dental team members to answer the phone as if it were their most important task of the day. "Find out from patients why they want to come to the office — focus on their wants, needs, and desires. You want to ask open-ended questions and let them talk, the 80-20 rule."

After connecting with patients, Mausolf advised dental practices to offer consistency in their customer service by treating every patient the same, every time they step foot in the door.

"We have to kill our patients with kindness and figure out a way to make them feel comfortable so every visit is special," said Mausolf, who also cautioned that all team members need to be on board with the concept. "You're only as strong as your weakest link – one bad apple changes it and you've lost a patient."

Care is Mausolf's third component of value, which includes a patient-focused experience rather than an individual task-focused appointment.

"People want to know that you actually care about them," stated Mausolf. "If you want someone to know that you care, you need to slow down and ask questions — ask if they have any questions about the suggested treatment plan. When you lose connections with patients that's why they go to another office."

Mausolf urged dental professionals to be extra considerate of anxious patients and reinforce with them how well they do during appointments, as well as thanking all patients for coming in to the office.

"Patients become a number 1 priority, everything else you're doing gets dropped, "said Mausolf, who encouraged dental practices to cross-train team members to perform other jobs in the office as long as it's legal and within their scope of licensure. "You can't have great customer service if a team member has a bad attitude — it's everyone helping everyone whenever they can to focus on the patient and their needs."

By doing so, a patient can experience smooth transitions and handoffs between team members responsible for briefing each other on a patient's completed treatment and future appointment needs.

"Customer service is follow-up, too. We may think we're bugging our patients, but if a patient says they'll call and they don't, give the person a call to find out what's going on," said Mausolf.

Above all, Mausolf, who's known for her affinity for smiley faces and wearing the color orange, stated the easiest thing dental team members can do to ensure exceptional customer service in the office is to smile.

"How many of you smile consistently in your office?" asked Mausolf. "Most of you have great teeth, so show them, smile!"

Sweet! Licorice Root Extract Helps Zap Caries-Causing Bacteria

A study has found that lollipops containing the extract of licorice root drastically decreased the bacteria that triggers tooth decay, especially in preschool-age children who have a high risk of caries.

The orange-flavored, sugarless lollipops containing licorice root extract were developed using FDA-approved materials by Wenyuan Shi, PhD, a microbiologist at the University of California, Los Angeles, and C3 Jian, Inc., a research and development company in California, according to a news release. The lollipops are manufactured by Dr. John's Candies of Grand Rapids, Mich.

In the study, 66 preschool students aged 2 to 5 and enrolled in a Head Start Program in Michigan were given a lollipop for 10 minutes twice a day for three weeks.

Results showed a significant reduction in *Streptococcus mutans*, the primary bacteria responsible for tooth decay, during the three-week period when the lollipops were being used and lasting for an additional 22 days before beginning to rebound, according to a news release. Using a saliva test, the amount of *S. mutans* in the patient's mouth was measured before and during the three-week period where lollipops were used, as well as for several weeks thereafter.

"The use of the licorice root lollipops is an ideal approach as it will stop the transfer and implantation of the bacteria that cause dental decay from mothers to their infants and toddlers," said Martin Curzon, editor-in-chief, *European Academy of Pediatric Dentistry*. "It also has the merit of being a low-cost high-impact public dental health measure."

The study was funded by the Research and Data Institute of the affiliated companies of Delta Dental of Michigan, Ohio, Indiana, Tennessee, Kentucky, New Mexico, and North Carolina. The investigation was a collaborative effort of the Greater Lansing Area Head Start Program, the University of Michigan, and UCLA. Delta Dental's Research and Data Institute provided the grants as part of its mission to remain on the cutting edge of finding solutions to oral health problems.

"Dental decay is one of the most common childhood diseases with more than half of children ages 5 to 17 having had at least one cavity or filling," said Jed J. Jacobson, DDS, MS, MPH, chief science officer at Delta Dental. "We are working to find simple, effective regimens that will encourage prevention and control of dental disease. While the results of this pilot clinical trial are encouraging, more research is needed to confirm these early findings."

UPCOMING MEETINGS

2012	
March 29–April 1	CSPD/WSPD Annual Meeting, Portland, Ore., drrstewart@aol.com
April 22–28	United States Dental Tennis Association's 45th Annual Spring Meeting, Kiawah Island, S.C., www.dentaltennis.org or 800-445-2524
April 26–28	World Federation for Laser Dentistry, 13th Annual World Congress, Barcelona, Spain, wfldbcn2012.com
May 3–5	*CDA Presents the Art and Science of Dentistry,* Anaheim, 800-CDA-SMILE (232-7645), cdapresents.com
Oct. 18–23	ADA 153rd Annual Session, San Francisco, ada.org

To have an event included on this list of nonprofit association continuing education meetings, please send the information to Upcoming Meetings, CDA Journal, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to 916-554-5962.

cda PRESENTS

The Art and Science of Dentistry

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Anaheim, California

Thursday-Saturday

May 3-5, 2012

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CDA Presents Headlining Speakers

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Restorative Dentistry/Occlusion

Anterior Esthetic Techniques and Materials
Thursday morning lecture

Occlusion in Everyday Dentistry
Thursday afternoon lecture

Fabricating Exquisite Anterior Provisionals
Friday workshop


Dennis G. Brave, DDS
Kenneth A. Koch, DMD

Endodontics

Changing Paradigms in Endodontic Therapy
Thursday lecture

Changing Paradigms in Endodontic Therapy Workshop
Friday workshop

Gerard J. Chiche, DDS

Cosmetic

Smile Design, Occusal and Esthetic Techniques
Saturday lecture

Karen Davis, RDH, BSDH

Dental Hygiene

America's Sweet Tooth Obsession and Its Impact on Oral and Systemic Health
Saturday morning lecture

Creating the Ultimate Doctor-Patient Hygiene Exam
Saturday afternoon lecture

Terence E. Donovan, DDS

Dental Materials

Restoration of the Worn Dentition
Friday lecture

Update in Contemporary Restorative Dental Materials
Saturday lecture

Robert C. Fazio, DMD

Periodontics

Antibiotics and Dentistry
Friday morning lecture

Medicine, Dentistry and Drugs
Friday afternoon lecture

Periodontitis and Peri-Implantitis: The Good, the Bad and the Ugly
Saturday lecture

Henry A. Gremillion, DDS

Occlusion

The Dynamics and Function of the Masticatory System: The Multiple (Inter)Faces of Occlusion
Friday lecture

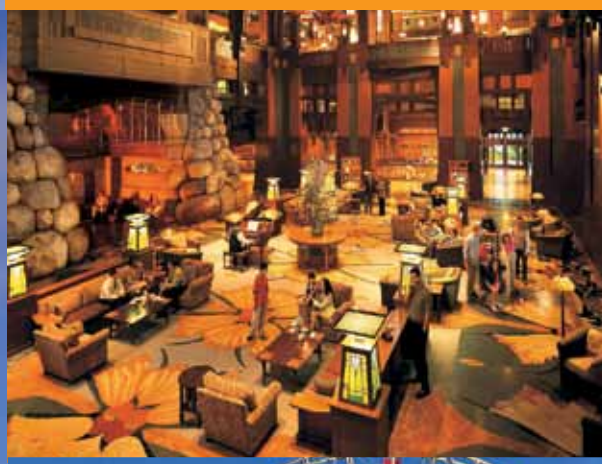
Gerard Kugel, DMD, MS, PhD

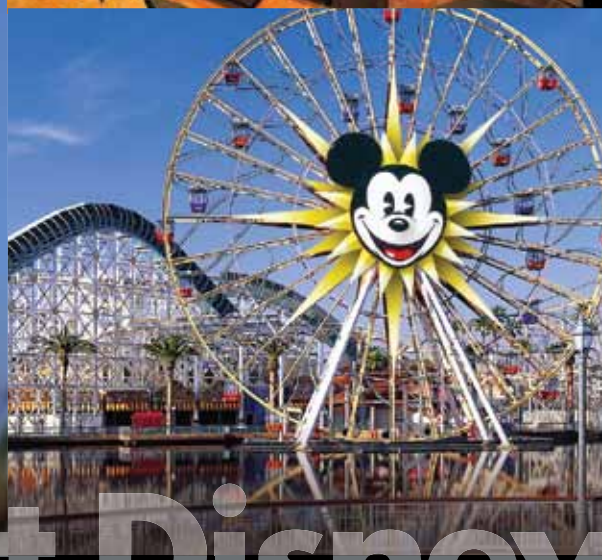
Esthetic Dentistry

The Do's And Don'ts of Porcelain Laminate Veneers
Thursday workshop

Esthetic Dentistry: Materials and Techniques Update
Friday lecture

Special Event





CDA's Night at Disney

Oh, what a night it will be. Just $65 gets you a Twilight Park Hopper® Ticket and all the fun at both *Disneyland*® and *Disney California Adventure*® Park, plus a $25 meal voucher to enjoy in the theme parks. Join in the fun at CDA's Night at Disney.

Date: Friday, May 4, 2012
Time: 4 p.m. – Park Closing (Midnight for *Disneyland*® and 10 p.m. for *Disney California Adventure*® Park)
Event #: 055
Fee: $65

Purchase tickets at cdapresents.com

Exhibit Hall

CDA Presents will feature more than 550 exhibiting companies showcasing the latest in dental technology, products and services. Stay ahead of the curve by exploring the innovative new products being launched in the exhibit hall.

Thursday–Saturday,
May 3–5, 2012

Visit cdapresents.com to maximize your tradeshow experience.

Grand Opening

Thursday, 9:30 a.m.

New Exhibit Hall Days and Hours

Thursday, May 3, 9:30 a.m.–5:30 p.m.

Friday, May 4, 9:30 a.m.–5:30 p.m.

Saturday, May 5, 9:30 a.m.–4:30 p.m.

Family Hours

Daily, 9:30 a.m.–noon

This contemporary lounge in the exhibit hall features a Cool Product display, Net Café and charging station, a C.E. Pavilion, and an educational theater that is the venue for the Smart Dentist Series of free, one-hour lectures.

Thursday

9:30–10:30 a.m.	Nutrition (C.E.: none) *Juli Kagan, RDH, MEd*
11 a.m.–noon	Establishing an Office Policy Handbook (C.E.: 20% – 1.0) *Robyn Thomason*
Noon–1 p.m.	Handling Refund Requests From Insurance Plans (C.E.: 20% – 1.0) *Patti Cheesebrough*
1–2 p.m.	Nutrition (C.E.: none) *Juli Kagan, RDH, MEd*

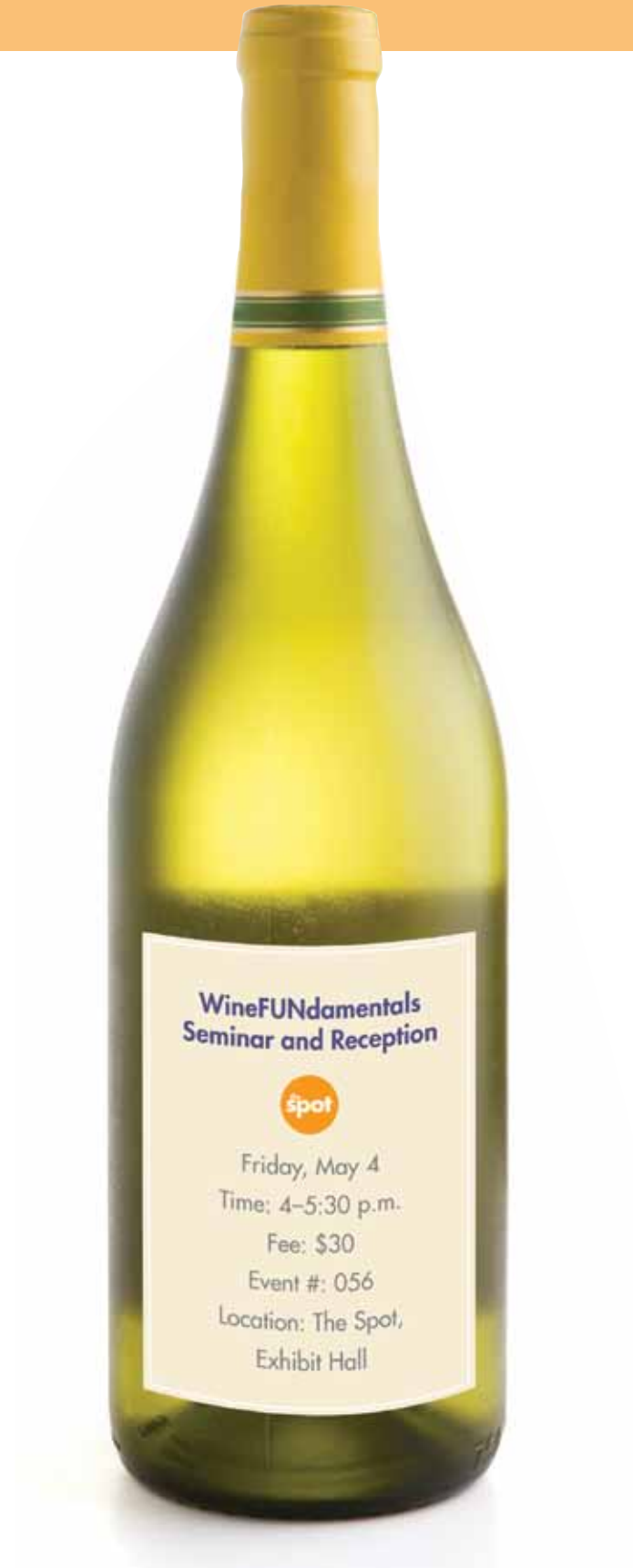
Friday

9:30–10:30 a.m.	Yogernomics (C.E.: 20% – 1.0) *Juli Kagan, RDH, MEd*
11 a.m.–noon	Patient and Parent Communication (C.E.: 20% – 1.0) *Katie Fornelli*
Noon–1 p.m.	Managing Patient Conflicts (C.E.: 20% – 1.0) *Brooke Kozak*
1–2 p.m.	Yogernomics (C.E.: 20% – 1.0) *Juli Kagan, RDH, MEd*
4–5:30 p.m.	Wine Seminar (Ticket Required)

Saturday

9:30–10:30 a.m.	Staff Building (C.E.: 20% – 1.0) *Art Wiederman, CPA*
11 a.m.–12:30 p.m.	Making the Best Decisions for Your Practice (C.E.: 20% – 1.5) *William Van Dyk, DDS*

Reference On-Site Show Guide *for updated program information.*



Join us for interactive wine activities and trivia. You'll learn to distinguish the various scents and flavors in wine by tasting both white and red varietals and about pairings with both cheese and chocolate. Plus, you'll have the opportunity to put your knowledge to the test and win prizes!

Three Ways to Register

Online: cdapresents.com
(Best option) Receive immediate confirmation

Fax: 877.714.3184

Mail: *CDA Presents*
1201 K St., 16th Floor
Sacramento, CA 95814

Registration Information

- Register at **cdapresents.com** to secure an immediate spot in your preferred workshop, required course or special event based on availability. A confirmation email will be sent upon completion of your registration.
- Registration forms that are faxed or mailed to CDA will be processed in the order received and do not guarantee an immediate spot in workshops or special events. Phone registrations cannot be accepted.
- CDA member dentists will be registered at no charge.
- **Dentists may register staff and guests, but not other dentists. Dentists may not register under any category except dentist, and nonmembers must be identified. Membership dues must be paid for the current year to register as a member.**
- **Special $75 registration fee for California nonmembers:** Nonmembers can save $815 on registration by taking advantage of a special $75 one-time meeting registration fee. If you are already a member, tell your nonmember colleagues about this limited offer. Materials for this category will not be mailed in advance, but will be available on-site at the membership counter. If you have already taken advantage of this special rate at either *CDA Presents* meeting, your fee will be the standard nonmember rate. If you had a membership in 2011, you are not eligible for the nonmember $75 one-time registration fee for 2012.
- Register by **March 1, 2012,** to have your materials mailed to you in advance. *(Note: Badge mailing will begin early March for registrations completed prior to this time.)* This excludes the one-time nonmember reduced rate.
- Extended online registration will be available starting March 2, 2012. (Faxed and mailed registrations will not be accepted after March 1, 2012.) If you register online during this extended period, obtain your materials at Email Express Pick-Up at the Anaheim Convention Center beginning at 6:30 a.m. on Thursday, May 3, 2012.
- If you register an employee who is no longer attending, bring the badge of the person not attending to exchange on-site for a new badge at no charge.
- To ensure a seat for every ticket holder, courses will not be oversold.
- Refunds will be given if requested in writing and badges and tickets are returned by **March 28, 2012**.
- CDA will process and mail your registration materials at least two weeks prior to the meeting. If you do not receive your materials within this time frame, please call CDA at 800.232.7645. If you have corrections, additions or changes, please notify CDA in writing before March 28, 2012.

General Information

- All courses have limited seating.
- Some courses do not provide C.E. units.
- No videotaping, photography or audio recording with personal equipment is allowed.
- No speaker or product has any endorsement, official or otherwise, from CDA, except CDA Endorsed Programs.

Types of Classes

Lectures

Free nonticketed courses are available on a first-come, first-served basis. Preregistration is not needed for lectures. Please arrive early to ensure you get a seat.

Workshops

Ticketed courses are available for purchase during preregistration as well as on-site, if space is still available.

Express Lectures

Lectures that feature up-and-coming speakers who are new to *CDA Presents*. Be among the first to hear them! These speakers have not yet been scouted by the Board of Managers and have accepted the invitation to present and be scouted at this meeting without an honorarium.

Corporate Forums

Corporate-sponsored courses that may or may not be ticketed.

Get Your Guaranteed Seat for Limited Lectures

Due to the popularity of many lectures, *CDA Presents* is testing a new "reserved seating" option. How does it work? For just $10, you can guarantee yourself a seat at any of the lectures below. Please note: **This program is strictly optional, and reserved seating is limited. Participants can still attend at no cost on a first-come, first-served basis.**

Lectures with reserved seating are listed below. For more information and to purchase reserved seats, visit **cdapresents.com**. Reservation tickets are only available in advance. No onsite sales.

Receive your seat in these popular lectures for $10.

Thursday, May 3

Lee Ann Brady, DMD
Anterior Esthetic Techniques and Materials (a.m.)
Page 39, Event # 063

Occlusion in Everyday Dentistry (p.m.)
Page 39, Event # 064

Kirk Behrendt,
Seven Breakthrough Steps to High Performance Teams (full day)
Page 38, Event # 065

Friday, May 4

Terence E. Donovan, DDS,
Restoration of the Worn Dentition (full day)
Page 58, Event # 066

Tieraona Low Dog, MD.
Nutrition for the Dental Team (a.m.)
Page 64, Event # 067

Life in the Balance: Strategies for Optimal Health (p.m.)
Page 64, Event # 068

Saturday, May 5

Gerard J. Chiche, DDS,
Smile Design, Occlusal and Esthetic Techniques (full day)
Page 73, Event # 069

Ticket Details

- Seat will be held up to 15 minutes after the program begins.
- Seat will be released if the room is full 15 minutes after the start of the program.
- Ticket must be presented at the door.
- Please treat the ticket like cash — It is nonreplaceable.

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CDA Research

KERRY K. CARNEY, DDS

The January and March issues of the *Journal of the California Dental Association* focus on several of the key studies that helped to shape the recommendations made in the three-phase access proposal that was passed by the 2011 CDA House of Delegates.

AUTHOR

Kerry K. Carney, DDS, is editor-in-chief of the *Journal of the California Dental Association.*

Central to the access proposal is the need to develop a dental public health infrastructure in California. The benefits of this are detailed in "California's State Oral Health Infrastructure: Opportunities for Improvement and Funding," by Joel Diringer, JD, MPH, and Kathy R. Phipps, DrPH, RDH. Diringer and Phipps document lost opportunities in California and lessons learned from states with successful state oral health programs. They make a compelling argument that sustainable changes to oral health programs must be supported at the highest levels of state government.

Paul Glassman, DDS, MA, MBA, provides a comprehensive exploration of dental residency programs in "Advanced Dental Education Programs: Status and Implications for Access to Care in California." He describes the history, funding, opportunities, and challenges of advanced dental education programs for general dentists.

In "Economic Feasibility of Alternative Practitioners for Provision of Dental Care to the Underserved," Anne Matthieson, MHA, MBA, evaluates the comparative economics of a dental therapist (New Zealand model), a dental health aide therapist (Alaska native model), and the advanced dental hygiene practitioner (ADHA proposed model). Hers is a comprehensive economic analysis of proposed new dental team members. She considers the length and costs of education, the resulting debt burden, costs to set up practice and likely revenue generated from care provided.

This issue of the *Journal* includes a comprehensive literature review on the safety and quality of irreversible dental procedures performed by nondentist providers worldwide. Ananda Dasanayake, BDS, MPH, PhD, examined the question "Are the irreversible procedures performed by any auxiliary provider category safe compared to the same procedures performed by dentists?" This first-of-its-kind research revealed there is insufficient evidence to accurately answer this question.

Publishing these proprietary studies provides CDA members and the profession with easy access to primary sources and essential information. ■■■■

Typical Patient

I just don't get how I have new cavities after spending all that money on fillings. Did we fix it?

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CDA JOURNAL, VOL 40, Nº1

California's State Oral Health Infrastructure: Opportunities for Improvement and Funding

JOEL DIRINGER, JD, MPH, AND KATHY R. PHIPPS, DRPH, RDH

ABSTRACT California has virtually no statewide dental public health infrastructure leaving the state without leadership, a surveillance program, an oral health plan, oral health promotion and disease prevention programs, and federal funding. Based on a literature review and interviews with 15 oral health officials nationally, the paper recommends hiring a state dental director with public health experience, developing a state oral health plan, and seeking federal and private funding to support an office of oral health.

AUTHORS

Joel Diringer, JD, MPH, is the founder of Diringer and Associates, a health policy consulting firm based in central California, specializing in oral health and access to care.

Kathy Phipps, DRPH, RDH, is a California-based oral epidemiologist with considerable experience in community-based oral health research and surveillance working with national organizations and tribal organizations.

California has virtually no statewide dental public health infrastructure. The state has no dental director, no oral health plan, no statewide oral health surveillance system and no statewide prevention programs. Dental services for low-income adults are limited to emergency-type procedures and most children on Medi-Cal do not have regular dental visits. The lack of leadership within California's state government means the state forgoes necessary funding for oral health and preventive programs are not implemented.

This article is intended to review the dental public health infrastructure in California and other states, identify potential funding sources for oral health activities in California, and provide recommendations for policies to be adopted in California to ensure it has a viable infrastructure that can develop, support, fund, and coordinate oral health programs.

Methodology

This article is based on a literature review of documents relevant to state oral health infrastructure and funding, as well as semistructured key informant interviews conducted in 2010 with 15 experts on state oral health infrastructure including federal officials in Health Resources and Services Administration (HRSA) and the Centers for Disease Control and Prevention (CDC), seven state dental directors, a national oral health organization, and California stakeholders.

California's Oral Health Crisis

California's oral health programs have been decimated in recent years. In 2009, the Legislature eliminated all but emergency-related dental benefits for adults in the Medi-Cal program. Similarly, the Legislature "indefinitely suspended" funding for the California Children's Dental Disease Prevention Program (CCDDPP)

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that provided screening, oral health education, fluoride applications and sealants serving more than 300,000 school and preschool children in 32 counties.

- Fewer than one in five (19 percent) of California children aged 0-5 on Medi-Cal had a dental visit in 2007. Benefits have now been eliminated for nearly all adult services under Medi-Cal.[1]
- More than seven in 10 (71 percent) California children suffer from tooth decay by the time they reach the third grade.[2]
- Nationally, tooth decay is the most common chronic disease among children, five times more common than asthma.[3]
- Despite having 14 percent of the nation's dentists and 12 percent of the nation's population, California has 21 percent of the 4,230 federally designated dental health professional shortage areas.[4] These shortage areas are found throughout California, in both urban and rural areas.
- Fewer than six in 10 (59 percent) of California residents received fluoridated water as of 2008.[5]

While California is still under the national average for fluoridation, this is a major improvement over prior years. With the implementation of fluoridation in the San Diego area in 2011, an estimated 62 percent of Californians have fluoridated water.[6]

National Standards for State Oral Health Infrastructure

After years of analysis and refinement, the characteristics of efficient and effective state oral health infrastructures have been well-defined by national organizations, including the Association of State and Territorial Dental Directors (ASTDD) and the CDC. These guidelines provide an excellent roadmap of where California's oral health infrastructure should be and how to get there.

The 2000 ASTDD report, "Building Infrastructure and Capacity in State and Territorial Oral Health Programs," identifies elements that would build capacity for state oral health programs to achieve the Healthy People Oral Health Objectives.[7] The report specifies that a key infrastructure element is having leadership to address oral health problems, with a full-time state dental director and an adequately staffed oral health unit with competence to perform core public health functions.

DESPITE HAVING

14 percent of the nation's dentists and 12 percent of the nation's population, California has 21 percent of the 4,230 federally designated dental health professional shortage areas.

ASTDD further describes the role of a state oral health program as providing leadership and programming to improve oral health through the public health core functions of assessment, policy development, and assurance. The assessment role is fulfilled through a state-based oral health surveillance system. The policy development role is to provide leadership to address oral health problems with a full-time state dental director, developing a state oral health plan and promoting policies for better oral health and health systems. The assurance role is to provide communications and education to the public and policy-makers, build linkages with coalitions, committees and workgroups; coordinate and implement population-based prevention interventions; build community capacity to implement community-level interventions; develop health systems interventions to facilitate quality dental care services; and leverage resources to adequately fund public health functions.[8]

The CDC's Division of Oral Health has used ASTDD's expertise to establish national standards for its funding and technical assistance to help state health agencies develop and operate public health programs to improve oral health.

The CDC has developed a collection of tools for state health officials to plan, develop, implement and evaluate oral health programs that include health promotion and disease prevention.[9] Among other things, these resources include tools for developing a strong state program infrastructure to ensure successful oral health programs. How California infrastructure measures up to CDC's components is contained in **TABLE 1**.

The importance of state oral health infrastructure is endorsed by the Institute of Medicine in its recent report, "Improving Access to Oral Health Care for Vulnerable and Underserved Populations," where it recommended that the federal health care agencies "ensure that each state has the infrastructure and support necessary to perform core dental public health functions (e.g., assessment, policy development, and assurance)."[10]

California's State Oral Health Infrastructure

California Health and Safety Code Section 104750 requires the Department of Public Health to maintain a dental program whose role includes, but is not limited to:

1) Development of comprehensive dental health plans within the framework of the state plan for health to maximize utilization of all resources;

2) Provide the consultation necessary to coordinate federal, state, county, and city agency programs concerned with dental health;

3) Encourage, support, and augment the efforts of city and county health departments in the implementation of a dental health component in their program plans;

4) Provide evaluation of these programs in terms of preventive services; and

5) Provide consultation and program information to the health professions, health professional educational institutions, and volunteer agencies.

Section 104755 mandates that the dental program be administered by a licensed dentist.

Compliance with the legislative requirements of sections 104750 and 104755 appears to be minimal. There has been no state dental director for the dental program for 15 years. The oral health unit's "chief" and sole staff person is not a dental professional. There is no state oral health plan nor is there any evaluation of programs. Moreover, there is no capacity to provide consultation and support to local health jurisdictions, health professions, or educational institutions. There is also a lack of ability to apply for and manage federal and other grant programs to support oral health.

Available Federal Funding and Support

Most states with comprehensive oral health programs rely heavily on federal funding to support their programs and use minimal state funds. The two major sources of state oral health funding from the federal government are the CDC and HRSA, which includes Maternal and Child Health block grant funds. In addition, some states finance their oral health programs using matching federal Medicaid (Medi-Cal) funds.

The national health reform legislation —

TABLE 1

How California Measures up Against CDC's Elements for State Oral Health Infrastructure

1. Leadership capacity CDC recommends a full-time dental director who is an oral health professional with training in public health and other professional staff.	No dental director with dental or public health experience, or minimum staff capacity
2. Data collection and surveillance CDC recommends the development of a dedicated oral health surveillance system which measures key oral health indicators (e.g., fluoridation status, caries experience, and complete tooth loss) using standard and comparable approaches.	Needs assessment last done in 2004-2005 for children by Center for Oral Health and funded by private and federal funders. System for California Oral Health Reporting (SCOHR) was developed by the San Joaquin County Office of Education to compile statewide data for AB 1433 – the kindergarten dental check-up law implemented in 2007.
3. State oral health plan CDC recommends a state oral health plan to include specific objectives related to oral health promotion, disease prevention and control, and specific risk factors.	None
4. Statewide oral health coalition CDC recommends the formation of an active, independent statewide oral health coalition with diverse representation and help formulate plans, guide program activities, and seek funding.	Oral Health Access Coalition (OHAC) is administered by Center for Oral Health and California Primary Care Association
5. Policy development CDC recommends that the state oral health program conduct a periodic assessment of laws, regulations, administrative policies, and systems-level strategies that have the potential to reduce oral diseases.	None from the State Department of Public Health
6. Evaluation of oral health programs CDC recommends expert assistance in planning and conducting an evaluation of the state oral health program can assist in determining if its goals and objectives are being met.	No overall evaluation plan
7. Community water fluoridation program CDC establishes guidelines for a state water fluoridation program to promote, implement, and maintain consistency of community water fluoridation efforts.	There are state water fluoridation consultants paid for with federal grants, as well as a fluoridation council administered by the California Dental Association Foundation.
8. School-based dental sealant program CDC recommends school-based dental sealant programs that are highly effective programs to prevent tooth decay in children targeting vulnerable populations that may be at greater risk of developing decay and have difficulty in accessing care.	Suspended indefinitely

the Patient Protection and Affordable Care Act (PPACA) — significantly expands federal funding for oral health. It expands CDC's funding for cooperative agreements for oral health infrastructure from the current 16 states to all states. It also expands funding for school-based sealant programs to all 50 states. These funds must be requested by a state, and only state agencies can be the recipient of these funds. These funds have been authorized but not as yet appropriated.

In addition to its funding through cooperative agreements, the CDC has also provided staff directly to states. These staff members from the public health service have been assigned to act as dental directors or subject matter experts for a period of time. Often, these staff assist the state in applying for additional federal funding to further develop programs and infrastructure.

Lessons From the States

A number of lessons were learned from interviews with state and federal officials that are relevant to California.

Key Elements in a State Program Structure

Leadership, Leadership, Leadership

The most critical element for an effective state oral health office identified by the dental directors was leadership. It is essential to have a person with an oral health background and public health orientation, and a vision for how to improve the oral health status in a state.

Strong Support From Department and Policy-makers

While it is essential to have a strong director in the oral health office, it is also important to have an understanding and support of leadership in the state health department, as well those in policy-making roles in the executive and legislative branches.

Visibility in State Agency Is Critical

A state oral health office must have sufficient visibility in the state health department to be considered a core component of the health infrastructure and department funding. Access to department heads and policy-makers is key to developing and implementing strategic agendas.

State Legislation Establishing an Office of Oral Health and Director Position Is Helpful but Not Essential

Many states have codified the role of the office of oral health and minimum qualifications of a dental director. However, some states with strong oral health offices do not have any legislative mandate for an office of oral health. Having a legislative mandate however, does not guarantee an effective office.

Key Development Lessons

Models and Infrastructure Support Are Readily Available From CDC and ASTDD

Some states have developed their oral health offices from scratch with the support of the CDC and ASTDD. These agencies have national standards for offices of oral health, tools and roadmaps for developing a strong infrastructure, funding, and technical assistance. California could greatly benefit from the support and guidance of national organizations to develop a strong office of oral health and effective oral health programs.

Not All Work Needs to Be Done by the State

The state dental directors emphasized that the state oral health office does not generally operate large programs, but rather partners with other agencies in the public and private sectors to implement programs. The basic roles of the state office of oral health are assessment, policy-making, and assurance rather than actual administration of programs.

Doing Something Is Better Than Doing Nothing

It took a number of years for the successful programs to develop. Rather than trying to plan and implement all components at one time, the directors developed the programs over time. Having a strong leader, developing an oral health plan in partnership with statewide coalitions, and accessing available funding are important first steps.

Funding Lessons

The First Reason for Not Getting a Grant Is Not Applying

The federal government has had funds available to support state oral health infrastructures for many years, but California has not applied. California should begin applying now for CDC infrastructure funds and strongly consider applying for additional HRSA funds. If the state does not currently have the capacity to prepare a grant application, a number of partners can assist in the effort.

State Funding Is Not Key to an Effective Oral Health Program

A number of the state dental directors noted that they receive little or no state funding for their programs. When state funds are allocated, they are primarily used for core infrastructure, with other funds being leveraged for programs. According to a national survey of state oral health funding conducted by the Pew Center on the States, 94 percent of funding for California's Oral Health Unit is state funding compared to many states where less than half of the funds come from the state. The current state funding is for one staff person to provide administrative support for the few contracts and grants that the state has.

Creativity and Flexibility in Grant Seeking Is Essential

Effective dental directors bring together funding from various sources to support their offices and ensure that effective statewide oral health programs are in place. Many states rely heavily on Maternal and Child Health block grant funds and some use Medicaid matching funds to support their offices. State programs have also partnered with philanthropies to develop programs focused on vulnerable populations.

Partnerships

Coalitions and Partnerships at the Statewide and Local Levels, Both in and out of Government, Are Critical

State oral health programs rely heavily on coalitions and partnerships to develop and implement their strategies. These partners include associations of dental professionals, educational institutions, dental plans, local health jurisdictions, health advocates and policy-makers. It is also important for oral health offices to develop strong relationships with other state departments such as Medicaid, Title V Maternal and Child Health programs, professional licensing, and education.

Build on Successes and Existing Programs and Resources

California is fortunate to have a wide array of programs and funders such as dental schools, engaged dental and dental hygienist associations, First 5 commissions, oral health advocacy groups, school-based programs, a statewide oral health access coalition, and private philanthropies, and some local health department programs. Building on these programs and drawing from their experiences and resources will support the success of an oral health program.

Build Partnership and "Champion" Strategies

Developing and strengthening programs requires strategies for building partnerships and champions. Having strong champions for oral health on local and statewide levels is critical to garnering support from policy-makers and funding sources. The nurturing of these partnerships is an essential part of successful programs.

State Oral Health Plan and Evaluation

If You Don't Know Where You Are Going, You Won't Know if You Are Getting There

Having a comprehensive state oral health plan will guide program development, grant seeking, and funding allocation. It also enables evaluation to measure the success of programs and strategies. A comprehensive plan will also include strategies to ensure the public is informed about oral health policy and the direction the state is going.

Data Can Drive Work and Highlight Successes

Building a surveillance system that monitors and reports the burden of oral disease with periodic updates allows oral health programs to track progress on key indicators, develop new strategies and highlight its successes to policy-makers and the public. Having accurate data is critical to decision-making and garnering support from partners and policy-makers.

Recommendations for California for Building a State Oral Health Infrastructure

Based on the interviews with state and national oral health infrastructure experts and review of relevant literature, the following recommendations are made for California:

Hire a Director With Dental Public Health Experience

California needs to hire a dental director with public health experience. There has been no dental director in California for more than 15 years despite the mandate of Health and Safety Code Section 104755. The dental director needs to have the full support of the department and policy-makers in developing and implementing an oral health agenda in California. Without the leadership of a dental director and strong support from policy-makers, it will not be possible to develop an effective oral health program in California and address the growing oral health needs of the population.

HAVING STRONG CHAMPIONS for oral health on local and statewide levels is critical to garnering support from policy-makers and funding sources.

Develop an Oral Health Plan Building on What Exists Throughout California

California has no state oral health plan to guide policy-makers, state departments, local health jurisdictions, advocacy organizations, professional associations, funders, educational institutions and community-based programs. Nor are there effective assessment tools to measure progress in meeting oral health goals from those programs in effect at the local level.

The oral health plan needs to be built upon what exists, identify needs and gaps in programs and develop strategies to fill the gaps. It must be developed through a collaborative, inclusive process that brings together California's stakeholders and draws upon in-state and out-of-state expertise.

Work With Existing Stakeholders and Programs

California has a myriad of statewide and local oral health coalitions and programs. There are also national experts at California's dental educational institutions and professional associations. The state's oral health unit should maximize their inclusion in strategy development, program implementation, and evaluation. The role of the office should be to ensure adequate funding for programs, but not necessarily to operate the programs itself.

Seek Federal and Private Funding to Support Programs

California has not taken advantage of the millions of dollars of federal assistance that is provided to states for oral health infrastructure. With the expansion of federal assistance for oral health, California needs to immediately investigate federal funding to support an office of oral health and the development and implementation of an oral health plan. In addition, California should look to the experience of other states that have used other available funds such as MCH block grants, Medicaid (Medi-Cal) funds, and philanthropy to support their offices of oral health.

Develop New Childhood Prevention Programs

With the "indefinite suspension" of the decades-old school-based Children's Dental Disease Prevention Program, California has an opportunity to reinvigorate a school-based oral health program using the latest strategies and interventions, as well as seek new funding streams. Promising practices, such as using preschools, Head Start, and WIC sites to link very young children and their parents to dental care and education, should be investigated. Services for older children through school-based preventive and treatment programs can also be expanded.

Conclusion

California should not continue to ignore its responsibility and the legislative mandate to have coordinated strategies to improve the oral health of its residents. The first step for overcoming the neglect of the past decades is to appoint a dental director to provide leadership in mapping out proven health improvement strategies. Far smaller states than California have received substantial federal support to fund this effort. The national health reform legislation makes additional oral health funds available to states, but states need to have an adequate infrastructure to apply for and administer these funds. Without leadership and support, Californians will continue to suffer with preventable dental disease, while other states receive federal funds to improve the health of their populations. ■■■■

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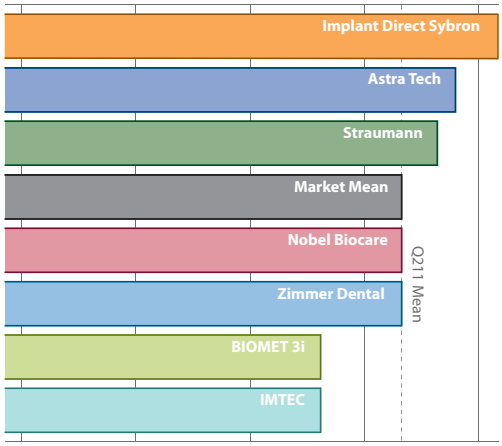

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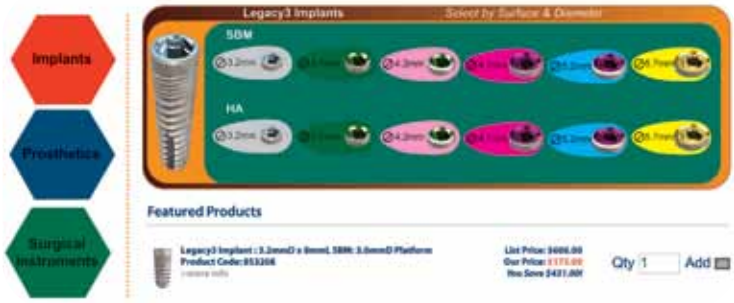

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Advanced Dental Education Programs: Status and Implications for Access to Care in California

PAUL GLASSMAN, DDS, MA, MBA

ABSTRACT Primary care residencies in dentistry include general practice residency and advanced education in general dentistry — collectively known as postdoctoral general — dentistry and pediatric dentistry. These primary care programs are the most likely to serve underserved populations during the training experience. An expansion of primary care dental residency positions in California has the potential to positively impact access to care in California. However, there are significant political and financial barriers to realizing this potential.

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Primary care residencies in dentistry include general practice residency (GPR), advanced education in general dentistry (AEGD), collectively known as postdoctoral general dentistry (PGD), and pediatric dentistry (PED). These primary care programs represent the largest group of dental residencies, the fastest-growing, and the most likely to serve underserved populations during the training experience. They are also the most likely to add new programs and positions if the number of dental residency positions were increased. For this reason, the history of dental residency education in this paper and other topics in the paper will focus on primary care dental residencies.

The first dental residency positions were started in the early 1900s. Like medical residency positions that were first established in the United States in the 1700s, they were created to provide a labor force for hospital dispensaries.[1,2] These informal hospital-based training sites became rotating internships or mixed programs in the middle of the 1900s. The first dental specialty accreditation standards were adopted in 1963.[3,4] In 1972, the American Dental Association's (ADA) Council on Dental Accreditation (CODA) officially changed the name of the hospital–based internships to "residency" and issued accreditation requirements for GPR because they perceived that the programs in existence at that time were not well-defined and not always of high quality.[5,6] Since the GPR programs and their precursors had their origins in hospitals and offered all the available PGD positions, the requirement that these programs be sponsored or

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co-sponsored by a hospital was incorporated into the accreditation requirements.

In the period from 1974 to 1982, a number of nonhospital institutions wanted to offer residency programs and began advocating to be able do so.[5,7] The result of these efforts was the development of accreditation standards for AEGD programs, thus allowing nonhospital institutions to sponsor PGD programs.[8] Subsequent revisions to the AEGD and GPR accreditation standards have preserved the two accreditation tracks although the necessity for this has been questioned.[9] In January 1998, the commission adopted a major revision of the accreditation standards for both AEGD and GPR programs.[10] These standards became effective in January 2000. They incorporated competency concepts, were more flexible than previous standards, promoted program innovation, and have similar language and structure throughout the AEGD and GPR standards. This change was illustrative of the strong links and overlapping structure and goals between these programs. A subsequent revision of the AEGD and GPR standards in 2007 retained the parallel language and structure.[11]

Expansion of Dental Residency Positions: Graduate Medical Education Funding

The federal government has supported teaching hospitals through graduate medical education (GME) funding since the 1970s. At that time, a major change was made in the funding mechanism for Medicare hospital stays from a cost-based reimbursement mechanism to a payment mechanism based on diagnostic-related groups (DRG). The DRG system reimbursed hospitals based on the diagnosis of the patient's condition irrespective of the length of stay or costs of providing care. This mechanism was adopted because it provided strong incentives for hospitals to reduce costs. However, the government realized that costs were higher in teaching hospitals than in nonteaching hospitals so they added additional GME payments, based on resident count and the number of Medicare bed days for teaching hospitals. Subsequent legislation allowed hospitals to support dental residency positions in affiliated outpatient sites and many dental schools began to develop affiliation agreements with hospitals to obtain GME support for their dental residency positions.

GRADUATE MEDICAL education funding remains a viable option for expansion of dental residency programs and sites.

In 2003, the U.S. Center for Medicare and Medicaid Services (CMS) restricted the use of this GME support to the formation of "new" programs. Schools that had developed affiliation agreements with hospitals to support pre-existing programs were no longer eligible to receive this funding. This change and other restrictions on the use of GME funding (such as a three-year phase in for funding) has reduced the number of hospitals and schools willing to develop new programs and add positions. In spite of these developments, some hospitals have continued to expand and develop new programs. GME funding remains a viable option for expansion of dental residency programs and sites.

Expansion of Dental Residency Positions: Financial Implications

There are a number of variables that impact the financial implications of adding GME-supported dental residency positions. These include:

- Variations in GME reimbursement rates for hospitals;
- The required three-year phase-in of GME support;
- Variations in "credit" received by hospital-based dental departments for GME reimbursement;
- Variations in negotiated agreements between nonhospital settings and hospitals for reporting and sharing of GME reimbursement; and
- Variations in production and expenses of residents in different settings and institutions.

Hospitals are reimbursed for dental residency positions through "direct" GME payments (DME), which are supposed to cover the cost of resident's stipend, benefits, and certain teaching costs. They also receive "indirect" GME payments (IME), which are supposed to cover hospital overhead for having residents such as costs for the medical education office staff, hospital administrations, and similar expenses. The amount of total GME support for residency positions varies tremendously from hospital to hospital. Some hospitals report total GME reimbursement rates of $25,000 per resident. If they are paying stipends in that range or above, there is no direct financial benefit, at least in terms of GME reimbursement versus direct costs, to the hospital for adding a dental resident. Other hospitals receive total GME reimbursement close to or more than $100,000 per resident. For these hospitals adding a dental resident is a clear financial benefit, even without counting any income from patient care or other resident activities. The result of all these factors is

that some hospitals lose money by adding dental residency positions and some make a profit for every position added.

Another factor in a hospital's decision to add dental residents is the three-year phase-in for GME payments. This mechanism is referred to as the "three-year rolling average." Hospitals receive payments in arrears so the effect is that they receive no money in the first year, one-third of their eventual payment amount after the second year, two-thirds after the third year, and full payment only after the fourth year. This means that even hospitals that will eventually realize excess revenue over expenses from GME payments for dental residents must be willing to invest in subsidizing these positions for several years before they begin to receive net income from adding these positions. Even those hospitals with high GME reimbursement rates may not want to make the initial investment or take on another program, especially with the uncertainty about long term CMS support.

In addition, some hospitals do not give the hospital dental department "credit" for the revenue received by the hospital for the dental residents. The dental department may be presented with a budget that reflects the salary and other costs for having residents while the CME payment to the hospital that pays for those costs is assigned to other areas in the hospital's budget.

Finally, the financial impact of adding dental residents depends on the revenue generated by the residents and the associated expenses. Variations in patient population, payer mix, physical facilities, dental staff, and other factors can produce widely differing revenue and expenses from resident's efforts from hospital to hospital. The elimination of most dental benefits for adults under the Denti-Cal system in July 2009 has impacted revenue for dental residents who were treating a significant number of patients with Denti-Cal coverage.

GME-supported dental programs outside of hospitals are permitted and can be located in dental schools and community health centers. The hospital can count residents placed in these sites on the hospital's resident count if an appropriate affiliation agreement is developed with the affiliated site. There are many nonhospital sites that have developed affiliation agreements with hospitals and do receive GME-based payments from the hospital. These sites include many dental schools. However, the arrangements and payment structure is extremely variable. Even though the hospital is obligated to cover the resident's stipend and benefits and certain teaching costs, some hospitals require the affiliated institution to share some "clinic revenue" or develop other charges that effectively reduce the payments received by the affiliated institution.

DENTAL STUDENTS return from community rotations with better skills in working in a real delivery system.

Those dental schools that have tracked the impact of dental student or resident rotations on the school's income and expenses have generally found the results to be positive. There are several factors that contribute to this outcome. First, dental students return from community rotations with better skills in working in a real delivery system. In short, they are "faster" and this translates into higher production in the remainder of their dental school career. Second, many dental school clinics are overcrowded with students waiting in line for chairs or instructors. Having a segment of the student body out of the clinic each day relieves some of this congestion and increases the productivity of the students who remain at the school. Finally, dental schools all subsidize their clinic operations with other revenue. They lose money on every dental chair they operate. Many schools that have created new clinics or remodeled their clinics in the last several years have chosen to build smaller clinics, reduce clinic operating expenses, and increase rotations to community sites.

The California Dental Pipeline Program, funded by The California Endowment, and the National Dental Pipeline Program, funded by the Robert Wood Johnson Foundation, supported a large increase in the last decade in the time dental students and residents spend in community sites during their educational programs. During this time, data has been collected about the financial impact of these experiences on dental schools and community rotations sites. Like other factors described here, the results have been variable. The results varied from reports that they "just break even compared to not having the students or residents" to the conclusion that both students and residents significantly increase the revenue of the CHC.

In one federally qualified health center (FQHC) the dental director reported that the faculty dentists spent so much time supervising dental students and residents that any income generated by the residents was offset by equivalent decreased income from the faculty dentists. Analysis of financial

data at another FQHC found that dental students and dental residents added about $1,000/day to the clinic's income.[12] Clearly, the two clinics described here handled the scheduling and supervision of dental students and residents differently. Some of this variation is related to physical and local circumstances and some related to educational philosophy. The conclusion is that specific operational and educational arrangements are critical to determining the financial impact of dental students' and residents' presence in community clinics. The same holds for the impact of adding resident positions to dental schools or hospital clinics.

TABLE 1

National Advanced Education Programs and Dental School Graduates: 2009-10

ADVANCED EDUCATION PROGRAMS		
	#	%
Specialty	439	61%
PGD	285	39%
Total	724	
ADVANCED EDUCATION 1ST YEAR ENROLLMENT		
	#	%
Specialty	1,543	49%
PGD	1,609	51%
Total	3,152	
DENTAL SCHOOL GRADUATES		
Graduates	4,873	
Available Positions	3,152	65%

Expansion of Dental Residency Positions: National Calls for Expansion

Postdoctoral education became mandatory for licensure in medicine in the 1940s, driven by the need for hospitals to have a stable and low cost in-hospital workforce.[1] Although hospital financial considerations do not play a role in dentistry, there has, nevertheless, been discussion about expanding the role of postdoctoral education in dentistry for many years.

In the last 30 years, numerous national commissions have called for expanded or required postdoctoral education for dental graduates. In 1983, the American Dental Association Strategic Plan for Dentistry recommended there be a requirement that all graduates take a year of postdoctoral training.[13] In 1992, the American Association of Dental Schools formed a postdoctoral year 1 (PGY-1) Commission that recommended increasing opportunities for postdoctoral education in order to create a PGY-1 position for every dental school graduate who wants one.[14] In 1993, the Pew Commission called for the integration of all phases of dental education and a mandate for postgraduate education as condition of licensure.[15] Again in 1995, the Pew Commission recommended the creation of postgraduate education opportunities for all graduating dentists.[16] In 1995, the Institute of Medicine suggested that postdoctoral programs be expanded over five years to accommodate every dental graduate.[17]

In 2002, the executive summary of the American Dental Association's future of dentistry report stated that "when economically and logistically feasible, a PGY-1 year should be a requirement for all dental graduates."[18] In 2003, the American Dental Education Association called for dental schools to encourage graduates to pursue a year of service and learning that would not only make the students more competent to provide increasingly complex care, but also serve to improve access to oral health care, and called on ADEA to work with other organizations to advocate for a requirement that all dental graduates participate in a year of service and learning in an accredited PGY-1 program.[19]

In 2005, HRSA recommended developing and supporting a national strategy for implementing universal dental residency training in order to accelerate system changes that will better serve the public's interests.[20] Finally, in 2011, the Institute of Medicine (IOM) recommended that HRSA should dedicate Title VII funding to support and expand opportunities for dental residencies in community-based settings and subsequently, state legislatures should require a minimum of one year of dental residency before a dentist can be licensed to practice.[21]

The thrust of many the national reports listed above has been the need for further education of dental graduates in order to be prepared to treat an increasingly complex patient population and to become competent in the increasingly complex field of dentistry. Another phenomenon that has paralleled these discussions is the attention that state legislatures and policymakers have given to the issue of lack of dental care for underserved populations. In order to address the increasingly visible inability of underserved populations to obtain oral health services a number of organizations and states have passed or

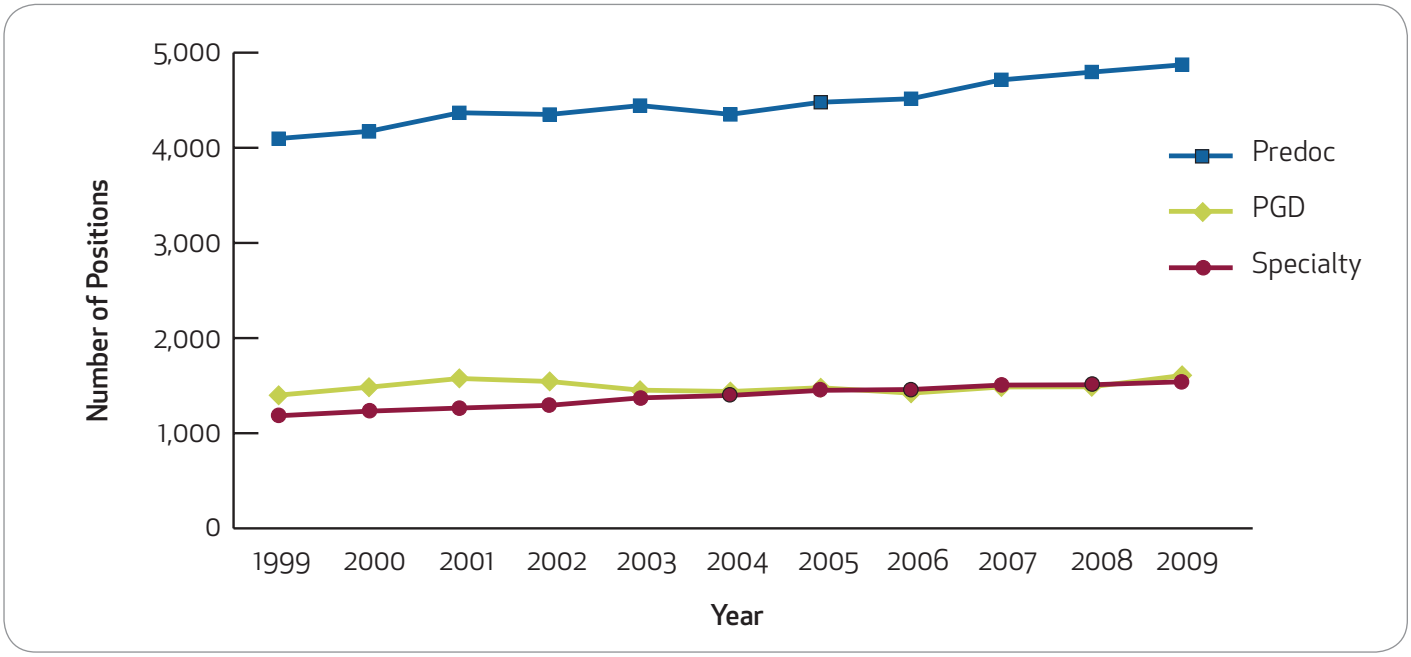

FIGURE 1. Comparison of dental school graduates with specialty and PGD first-year enrollment.

are considering measures that would bring foreign dentists to the state, revamp licensure requirements to encourage or require postdoctoral education, expand the role of allied dental personnel, and enlist nondental personnel in providing oral health care.

Required Postdoctoral Education

There are numerous private and governmental initiatives that are taking place to increase availability of oral health care for underserved populations. However, many of these have had, and are predicted to have, very minor effects. In one analysis, the Center for California Health Workforce Studies at the University of California, San Francisco, compared all of the strategies for increasing provider workforce for underserved populations in California, including the impact of required residency education. They concluded that the strategy with the largest potential for increasing oral health services to underserved populations was the requirement for a required year of "service and learning" in an accredited residency program.[22]

Although there has not been a national mandate to require postdoctoral training to obtain a dental license, several states have adopted regulations with this requirement. Delaware has for many years required completion of an accredited residency program in order to be eligible to take the state licensure examination. In 2002, New York adopted legislation that allows dental school graduates to substitute completion of the first year an accredited residency program (PGY-1) for the clinical portion of the licensure examination. Several other states have adopted similar regulations including Washington, Minnesota, and California. In California, this exemption applied only to graduates of PGD programs. In 2007, New York changed its regulations to require the completion of an accredited PGY-1 year in order to obtain a licensure in that state. As of that date there was no requirement to take a licensure examination nor was passing a licensure examination a part of the process for obtaining a license to practice in New York.

The 2011 IOM report specifically cites the evidence that a mandatory postgraduate year of training can improve access to care.[24] That evidence plus considerations of the educational benefits are listed as justification for the recommendation to create a required year of residency education prior to licensure.

Current Status of Postdoctoral Education in Dentistry

National Data

The American Dental Association publishes a Survey of Advanced Dental Education. The latest survey available contains data from the 2009-10 academic year.[23] That publication lists the number of accredited advanced education programs and enrollment and trends from 2005-06 to 2009-10 and other data over the last decade. This data is summarized in **TABLE 1 AND FIGURE 1.**

There are several items to note in the survey results, some of which are illustrated in **TABLE 1 AND FIGURE 1:**

1. PGD education includes dental anesthesiology and oral medicine. However, these programs were only

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recently accredited and constitute very few programs and positions.

2. PGD programs tend to be larger than specialty education programs. In the 2009-10 academic year, specialty education constituted 61 percent of programs but only 49 percent of first-year enrollments. It should be noted that for the purpose of this paper, first-year enrollment is the best predictor of the number of future practitioners with a particular educational background.

3. The total number of first-year positions in accredited advanced education programs has risen from 2,581 in 1999 to 3,152 in 2009, an increase of 571 positions. However, during the same period, the number of dental school graduates has increased from 4,095 to 4,873, an increase of 778. While the percent of accredited advanced education positions available for dental schools graduates has remained constant over the last decade, varying between 63 percent and 65 percent, the gap between the number of graduates and the number of positions is wider today than it was a decade ago.

California Data

In California, as of the 2009-10 academic year, the ADA survey lists 35 total accredited advanced education programs offered in dental schools with 30 being specialty and five being PGD programs. In nondental school settings there were 19 institutions offering a total of 26 accredited advanced education programs with eight being specialty and 18 being PGD programs. Combined dental school and nondental school programs in California include 61 total programs with 38 being specialty and 23 being PGD programs. In these programs the first year enrollment is 131 for PDG programs and 140 for specialty programs. This means that there are enough California positions for 42 percent of the California dental school graduates. This data is summarized in **TABLE 2.**

TABLE 2

California Advanced Education Programs and Dental School Graduates: 2009-10

ADVANCED EDUCATION PROGRAMS		
	2009-10	2009-10 %
Specialty	38	62%
PGD	23	38%
Total	61	
ADVANCED EDUCATION 1ST YEAR ENROLLMENT		
	2009-10	2009-10%
Specialty	140	52%
PGD	131	48%
Total	271	
DENTAL SCHOOL GRADUATES		
Graduates	641	
Available Positions	271	42%

The number advanced education positions available in California for dental school graduates is lower than the national average with there being enough positions in California for 42 percent of graduates and enough positions for 65 percent of graduates nationally. While a number of California graduates seek advanced education positions in other states there are also graduates from other states seeking positions in California. In any case, there is a net shortage of positions for California graduates. The results of previous surveys and informal discussions have indicated that only about 50 percent of California dental school graduates pursue advanced education compared to more than 90 percent of graduates at many East coast schools.

There have been several initiatives to increase the number of available accredited advanced education positions in California. The California Pipeline Program — a collaboration of California dental schools, the California Dental Association, and the California Primary Care Association and funded by The California Endowment — developed a plan to have the dental schools form a consortium to negotiate with one or more hospital to provide GME support for a combined California program. However, the majority of dental schools did not want to participate in a program that was not "their own program." One recent activity that should be noted is an increase in the number of programs and positions affiliated with the Lutheran Medical Center (LMC) in Brooklyn. LMC is the institution in the United States that has developed the most widespread network of affiliated residency sites supported by GME funding. LMC uses distance education technology to support the didactic portion of its affiliated programs and develops affiliation agreements with community health centers for the clinical training of residents. As of the 2010-11 academic year, LMC has about 10 affiliated sites in California hosting about 15 LMC PGD residents.[24] LMC is in discussion with a number of other community health centers and plans to continue to increase the number of affiliated sites and programs in the state.

Federal Support for Primary Care Dental Residency Programs and Health Reform

In addition to GME support described earlier, the federal government has supported the expansion of primary care dental residency positions since 1978. Handelman reviewed the federal grant support for advanced training in general dentistry from the 1970s to 1990s, which began with the Health Professions Educational Act of 1976.[5] The original and continuing purpose of the federal grant program was to increase the number of training positions in PGD programs. There was the perception that overspecialization was an increasing problem in dentistry, as in medicine, and that the federal government should support primary care initiatives that would expand the skills of the general dentist and reduce reliance on specialists. Between 1978 and 1990, the government invested almost $40 million in funding the development and expansion of PGD programs. Since that time, Title VII funding has continued with various federal administrations increasing or decreasing the amount of funding. In the 1990s, pediatric dental residency programs were added to the list of primary care programs eligible for funding under this mechanism.

The most significant provision of recently enacted health care reform legislation related to the subject of this paper is a renewed and increased commitment to fund expansion of primary care residency programs. The legislation establishes a unique appropriations line item for training of general, pediatric, and public health dentists and appropriates $30 million for fiscal year 2010 to train oral health workforce (Note: Currently, dental and medical training is appropriated in a single, lump sum).[25]

The other potential impact on advanced dental education in health care reform is a large increase in the number of people eligible for Medicaid benefits and a continuation of the decade-long expansion of community health centers. To the extent this increase includes expansion of children eligible for Denti-Cal services and an expansion of CHC dental departments, there could be a large increase in the need for dental providers willing to accept Denti-Cal for payment and willing to work in the CHC system.

THE EXPANSION OF dental residency positions has been proposed as one part of a strategy to improve the oral health of underserved populations.

Implications of Dental Residency Education for Access to Care

The expansion of dental residency positions has been proposed as one part of a strategy to improve the oral health of underserved populations. It is difficult to quantify how much benefit would be derived from an expansion of the number of programs or positions. Some items to note include:

1. A 2002 analysis of the impact of PGD training on practice patterns of program graduates concluded that PGD training has an enduring impact on practice patterns and improves access to dental care for underserved populations.[26]

2. As described earlier, a comparison of various workforce strategies by the Center for California Health Workforce Studies at the University of California, San Francisco, concluded that the strategy with the largest potential for increasing oral health services to underserved populations was the requirement for a required year of "service and learning" in an accredited residency program.[22]

3. There has been considerable speculation about the impact that the requirement in New York for completion of an accredited residency program in order to receive a New York dental license would have on graduates behavior and access to care issues. Discussions by the author of this paper with program directors in New York do not reveal much change in the number of applicants to residency programs. In fact, they report a decrease in the number of applicants for licensure in New York. There are far too many variables involved to separate the impact of New York's educational requirement from other factors, but it should be noted that prior to the enactment of this requirement New York had a high rate (around 90 percent) of dental school graduates attending advanced education programs. Thus, there was little room for an increase in that area.

4. Informal conversations between the author of this paper and directors of community health center (CHC) dental departments affiliated with the Lutheran Medical Center revealed CHC dental directors feel that having a dental resident at their site has allowed them to increase the number of services they provide. Some health centers have experienced a large increase in the number of services provided and the number of patient's served after adding residency positions to the dental department.[12]

Opportunities and Challenges in Expanding Accredited Advanced Education Programs in California

There are a number of available opportunities and challenges to overcome in expanding accredited advanced

education programs in California. Several of these are described here.

California adopted legislation to allow graduates of PGD programs to obtain licensure in California without completing a clinical licensure examination. However, relatively few graduates obtain licenses using this mechanism and program directors have not reported a significant increase in applications since these regulations were adopted. It is not likely that this "optional" mechanism will have a significant impact on the number of graduates seeking postdoctoral education or on access to care in the future.

The alternative to expanding residency education through the current optional mechanism is to enact a requirement for mandatory primary care residency training. There are a number of ways this could be structured. Since relatively few (approximately 50 percent) graduates of California dental schools attend advanced education programs, there could be a significant increase in the number of dental school graduates attending advanced education programs if this was a requirement for licensure. If new programs were developed in community health centers, then an increase in the workforce of approximately 300 dentists would be added to the CHC system in California.

If there were a requirement for completion of an advanced education program prior to obtaining a dental license in California, as there is in New York, new positions would need to be created to accommodate at least the graduates from California dental schools. A mechanism that has been proposed for this expansion is to locate new programs and positions in health centers. There are more than 250 health centers in California that provide dental services and many of these have the capacity to host residency positions. The cost of this expansion could be covered using the federal GME funding described previously. In fact, as noted earlier, this mechanism has been used in the last few years to create 15 new programs and there is the potential to create many more.

Advocates of this approach have referred to this approach as creating a required year of "service and learning" to indicate the dual benefits of this strategy in producing dentists better prepared to serve an increasingly complex population while at the same time providing needed services to underserved populations during these training programs.

THE ALTERNATIVE TO expanding residency education through the current optional mechanism is to enact a requirement for mandatory primary care residency training.

Opposition to a required year of "service and learning" will come from dental students opposed to lengthening the period of their educational program before beginning dental practice. Although residents are paid a salary and loans can be deferred, some are concerned there will be reduction in their lifetime practice income. Many graduates of advanced education programs feel this is not the case as they are able to care for a wider variety of patients, perform a wider variety of procedures, complete them more quickly, and have a better understanding of how to run a practice than their peers who did not complete advanced education programs.

There will also be opposition from policy-makers concerned about the cost of creating new residency positions and the increased billing of dental services through any significant expansion of dental providers treating patients with Denti-Cal benefits. As just described, the cost of creating new positions can be minimal if the federal GME mechanism is used. However, there will be a cost to any solution that increases care provided to underserved populations. The challenge for oral health advocates is to demonstrate this cost will be more than offset by reduced emergency room visits, hospitalizations, missed days of work and school, and other consequences of poor oral health in these populations.

Conclusions

Primary care residencies in dentistry include GPR, AEGD, collectively known as PGD, and PED. These primary care programs represent the largest group of dental residencies, the fastest growing, and the most likely to serve underserved populations during the training experience. An expansion of primary care dental residency positions in California has the potential to positively impact access to oral health care in California. However, there are significant political and financial barriers to realizing this potential. ■■■■

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Economic Feasibility of Alternative Practitioners for Provision of Dental Care to the Underserved

ANNE MATTHIESEN, MHA, MBA

ABSTRACT This study assesses the viability of three alternative practitioner types for provision of dental care to the underserved. Key factors modeled include compensation, training and practice costs, productivity, and payer mix scenarios. Utilizing dental therapists or dental health aide therapists is cost-effective for enhancing access. However, to be sustainable, the practices will require a subsidy or a better reimbursement than modeled. Without tuition support, the debt burden will deter applicants most likely to treat the underserved.

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Nationally, there has been much discussion of deploying alternative dental practitioners to resolve disparities in access to dental care. New types of dental practitioners have been and are being introduced without economic analysis of their sustainability and its likely impact on their efficacy in addressing the access issue. This study, commissioned by the California Dental Association and conducted in March 2010, evaluated the dental therapists (DT), dental health aide therapists (DHAT), and advanced dental hygiene practitioners (ADHP) with respect to providing dental care for the underserved. The study was constructed to focus on the economic viability of the practice model, the financial sustainability of the career for the practitioner, and the likelihood that the practitioner could be recruited from a culturally and/or socioeconomically diverse background. This economic study is based on a number of assumptions. The assumptions detailed below were developed to ensure maximum: transparency about the true, unsubsidized costs of providing dental and training these practitioners; applicability of costs of providing care in a variety of settings relevant to the underserved; and comparability of the practitioners. The study also sought to apply the current research about the access benefits of having a workforce that reflects the underserved population and, as a result, incorporated costs attendant to the successful education of underrepresented minority and socioeconomically disadvantaged practitioners. Both public policy and other external factors impact the outcome of this study, accordingly, assumptions about loan rates, educational subsidies, practice

TABLE 1

Comparative Characteristics of Typical Alternative Practitioners

	DT	DHAT	ADHP
Prerequisites	High school	High school	High school or prior associate or bachelor in hygiene
Training duration	18- to 24-month CC/technical school program and preceptorship. Modeled as 24-month	18- to 24-month CC/technical school program and preceptorship. Modeled as 24-month	Varies by prerequisite. With a high school degree, a 72-month university-based program (as modeled)[1]
Compensation	Salaried (exempt or hourly); market-based benefits	Salaried (exempt or hourly); market-based benefits	Salaried (exempt or hourly); market-based benefits
Employment	Employed by public health system (e.g., county, regional, state, school)	Employed by public health system (e.g., county, regional, state, school)	Employed by public health system (e.g., county, regional, state, school)
Practice setting	School or public health setting[2,3]	Predominantly public health settings[3]	Predominantly public health settings[3]
Billing practice	Does not bill third-party commercial or government insurance on a procedural basis[4]	Does not bill third-party commercial or government insurance on a procedural basis[4]	Any payer. Bills third-party commercial or government insurance on a procedural basis
Independence/ supervision required	Dental supervision or remotely, using teledentistry technology[5]	Dental supervision or remotely, using teledentistry technology[5]	No supervision requirement. Referral of complex dental care only
Scope of services	Preventive, basic restorative, and simple surgical services for children (those under 21 years of age)	Preventive, basic restorative, some periodontal, and simple surgical, (e.g., extractions of primary and permanent teeth)	Preventive, basic restorative, diagnostic, periodontal, prescribing authority, and simple surgical (e.g., extractions of primary and permanent teeth)
Patient population served[6]	Underserved children (50% or more of the patients are on public insurance or receive free/reduced lunch)	Underserved children and adults (50% or more of the patients are on public insurance or are uninsured)	Underserved children and adults (50% or more of the patients are on public insurance or are uninsured)

1. A 24-month program after a four-year bachelor degree in dental hygiene. The 48-month program assumes hygienist training at the associate level. A 72-month program assumes only a high school degree.
2. The intention is for these services to be located so they are maximally accessible for children.
3. Services may be provided in a private practice clinic, assuming the patient population meets the definition provided. This analysis is not dependent on practice location.
4. Billing is performed by the employing entity (e.g., the community clinic, other public health service).
5. Supervision consists of standing orders.
6. The patient population is based on licensure limitations and is for modeling purposes to keep the practice settings compatible.

finances, reimbursement rates, and other critical factors are provided to inform the reader of the many variables as they currently exist. This should also remind the reader that the economic viability of any practitioner-based approach to dental access will be dependent on the existing market forces and the public policy response.

Practitioners

The DT, DHAT, and ADHP training and scope of practice are based on existing or proposed practitioner types with modification for model comparability and for provision of dental care to the underserved.

The DT model is based on the New Zealand practitioner model. The DHAT model is based on the Alaska DHATs trained in the DENTEX program through the University of Washington. The Alaska DHAT program was also modeled on the New Zealand DT program, and the first Alaska DHATs trained in New Zealand. Of the practitioner types in this analysis, the DHAT is the only model that has active practitioners in the United States. The ADHP model was developed by the American Dental Hygienist's Association and also is the basis for the recently initiated Minnesota DT training programs.

Differences among practitioners include training duration, supervision required, and the scope of services. DTs and DHATs have an ongoing supervision requirement, consisting of standing orders and remote supervision using teledentistry. DT and DHAT training is typically an 18- to 24-month community college-type or technical school-type program, followed by a paid preceptorship. DTs and DHATs also have an intensive biannual accreditation process. This analysis assumes a 24-month

TABLE 2

Annual Mean Salary Data for Dental Practitioners, 2008, and ADHP Estimate

State	Dentist[1]	DH	Average of Positions	Alternative Practitioner Salary
Alaska	$203,000	$92,300	$147,650	$154,112
California	$140,990	$85,030	$113,010	$117,956

1. Source: Bureau of Labor Statistics, Occupational Employment and Wages, 29-2021 Dental Hygienists and Dentists, May 2008. Annual wages have been calculated by multiplying the hourly mean wage by a year-round, full-time hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

TABLE 3

Annual Mean Salary Data for Dental Practitioners, 2008, and DT/ DHAT Estimate

State	DH[1]	DA	Average of Positions	Alternative Practitioner Salary[2]	Percentage Difference
Alaska	$92,300	$41,830	$67,065	$70,000	104%
California	$85,030	$33,910	$59,470	$62,073	104%

1. Source: Bureau of Labor Statistics, Occupational Employment and Wages, 29-2021 Dental Hygienists and Dental Assistants, May 2008. Annual wages have been calculated by multiplying the hourly mean wage by a year-round, full-time hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.
2. According to Mary Williard, DDS, DHATs earn between $60,000 and $80,000. The average is applied here. To estimate the California salary requirement, applying the ratio of this to the average of the DH and dental assistant (DA) salary results in $62,073.

training period and includes a preceptorship for both the DTs and DHATs. They are only distinguished by the age of their patient populations. The DT sees only patients under 21, whereas the DHAT and ADHP serve all ages. The ADHP may practice and bill independently within a defined scope of services and has no postgraduate preceptorship requirement. ADHP training is university-based and similar to dental school in scope and duration (six years). Although the typical applicant has previous hygiene education and completes a shorter course of study, for comparability to the DT and DHAT, ADHP training costs are modeled beginning with a high school degree.

For the purpose of model comparability and based on the objective of providing dental care to the underserved, training prerequisites, employment, practice setting, and billing practice are the same for all practitioners. The practice setting is expected to be a public health setting. This may be a community clinic, a mobile van, or, in the case of the DT, a school clinic. In these settings, billing is usually done by the employing entity and is likely to be on an encounter rather than procedural basis. However, in this analysis, practice costs are modeled to be independent of setting and reimbursement scenarios are based on a blend of payers and procedural billing assumptions relevant in California. The patient population for the practitioner types defined above would be underserved children or underserved children and adults. In this case, underserved is defined as 50 percent or more of the patients on public insurance or uninsured. Typical practitioner characteristics based on enhancing access for the underserved are summarized in TABLE 1. Specific practitioner features in this analysis are further detailed below.

Dental Practitioner Economics — Retention and Sustainable Salary

Alternative practitioners recruited to practice in an underserved setting must find it economically feasible to do so relative to their educational debt levels and other practice opportunities.

Given that the DT/DHAT and ADHP will have a scope of practice that covers many basic functions of a dentist, absent other barriers, the practitioner would soon be recruited to function within a dental practice at a salary similar to that of an employed dentist or, at minimum, a dental hygienist (DH) (as provided in TABLE 2).

In the Minnesota DT model and in Alaska, the retention concern was addressed by limiting the scope of practice. In addition, sustainability of the career is a function of debt level relative to income. In Alaska, sustainability was addressed by establishing funding to prevent DHATs from incurring educational debt and by predetermining salaries through employer contracting with students prior to initiation of their training. To date, DHAT practitioners have been successfully recruited and retained within the desired practice settings at compensation ranging from $60,000 to $80,000. This is approximately the average Alaska salary of the DA and

TABLE 4

Annual Tuition Estimates for Dental Practitioner Programs, Class Size 30

	DH			DT		Dentist	
	California CC[1]	University of Nebraska[2]	Western Career College[3]	University of Minnesota[4]	Alaska DHAT Program[5]	University of Washington[6]	University of Nebraska[7]
Tuition (actual)[8]	$8,543	$13,818	$28,651	$10,033	$50,645	$22,006	$31,500
Actual class size	20	24	30	12	30	55	45
Total program cost (annual)[9]	$170,850	$331,632	$859,515	$120,400	$1,519,347	$1,210,330	$1,417,500
Annual cost per student, class size 30 students[10]	$5,695	$11,054	$28,651	$4,013	$50,645	$40,344	$47,250
Estimated unsubsidized tuition[11]						$53,068	$62,152

Note: All information based on information accessed February-March 2010.
1. Based on tuition information posted on Cabrillo College website. Assumed to be representative of tuition at California CCs.
2. 2009 to 2010 DH program tuition costs. Source: University of Nebraska website.
3. Source: Mr. Freddie Sinsua, admissions representative, Western Career College.
4. Tuition basis for both the baccalaureate and master's degree programs is the University of Minnesota undergraduate tuition. The program duration is eight semesters, excluding prerequisites. Source: Mr. Jeff Karnitz, principal office specialist, Office of Admissions, Office of Academic Affairs, University of Minnesota, School of Dentistry.
5. Source: Mary Williard, DDS, Alaska Native Tribal Health Consortium (ANTHC) DENTEX program director. ANTHC and University of Washington School of Medicine MEDEX Northwest Division of Physician Assistant Studies. Dental Health Aide Training Program.
6. Source: University of Washington School of Dentistry website.
7. Source: University of Nebraska College of Dentistry website.
8. Based on resident tuition rates for a year. With the exception of the DHAT program, each of these has prerequisites of 1.5 to three years; reported tuition represents the technical portion of training related to the degree.
9. Total program cost is estimated based on current enrollment.
10. This calculation approximates the cost of other programs, assuming total program costs are fixed as student costs increase or decrease. Modifying programs for class size did not take into account changes in cost structure that might occur as a program is expanded or contracted. The greater the difference between actual and adjusted class size, the less reliable the results. However, in most cases, the class size of 30 will be more representative of expected costs.
11. Unsubsidized tuition calculated based on the assumption that tuition represents 16.8 percent of total program revenues and other funding sources represent 28.2 percent.

DH who both have a similar training duration and practice under a dentist's supervision.[1] See **TABLE 3** for the U.S. Bureau of Labor Statistics data on DH and DA salaries for 2008 in Alaska and California.[2] Assuming a midrange of $70,000, this is approximately 104 percent of average DA and DH salary. It is noteworthy that this is a lower compensation that the DH in spite of a greater scope of practice. It is likely that this is possible because of a combination of barriers preventing future DHAT practitioners to compete for DH jobs: 1) They are recruited into the program at a time that they are not competitive candidates for DH program; 2) The selection process selects for commitment to their underserved community; 3) There are license barriers that limit their ability to function as DH's post-training. Since there are no other sources of information about salaries for the modeled practitioners, this analysis is initiated by assuming a similar ratio could be successful in California; the DHAT salary would have to be approximately $62,000. However, as in Alaska, barriers to functioning as DH's in physician practices, or otherwise limiting their practice to the underserved, would have to be in place.

Applying this same methodology to the ADHP, comparing the educational duration and freedom and scope of practice to dentists and DHs, results in a salary of nearly $118,000. It is notable that this level of compensation is similar to that received by a dentist practicing in a public health setting. Given the total educational duration, it is reasonable that compensation would be similar.

To assess whether this compensation level is sustainable for the DT, DHAT, and ADHP, the study estimated training expenses and associated educational debt.

Dental Practitioner Economics — Tuition Expenses

In order to fully consider the economics of a new practitioner type, this model estimates the unsubsidized tuition cost/true cost of educating the DT, DHAT, and ADHP. Tuition costs of current DHs, DTs, and dental schools were reviewed and are provided in **TABLE 4**. However, there are several indications that these, unadjusted,

are not good proxies for the true cost of educating alternative practitioners. There is a noticeable variance in annual tuition, which seems independent of program type. For example, based on reported tuition, the yearly cost of a DH program is as much as that of a dental program, and the DT programs are both more and less expensive than the DH or dentist education. This is likely due to variance in class size as well as some programs (e.g., public institutions) receiving subsidies that reduce the cost paid by the student. Accordingly, adjustments were made to better estimate actual costs and expected tuition for each practitioner.

First, programs were adjusted for class size. Assuming that the tuition per student multiplied by the class size reflects the total cost to operate the programs, this total program cost was divided by a class size of 30 to estimate per student costs (**TABLE 4**). The resulting tuition levels suggested that great variances in tuition for similar programs might be due to subsidies. For example, the tuition in the for-profit Western Career College DH program is several times more expensive than the community colleges or public university-based programs, which are known to be subsidized.

Second, since unsubsidized tuition costs were not available for all of these programs, several modifications were made to the these costs, and choices were made about the most appropriate and comparable estimates of actual tuition expected for the DT, DHAT, and ADHP programs, based on their particular characteristics. According to a 2004 American Dental Association (ADA) study of the economics of dental education, public dental schools received only 16.8 percent of their funding through tuition and fees, state and local subsidies, as well as philanthropic support, represent nearly 55 percent of total program revenues.[3] Once the tuition was adjusted accordingly, the estimated unsubsidized cost of dental school was as much as or slightly more than that of the Alaska DHAT program.

It is not surprising that dental school and DHAT programs would have comparable and higher costs than DA or DH programs. Regardless of total class size, the clinical nature of training requires a maximum 8:1 ratio of students to instructor. Furthermore, dental practitioner training programs require dentist instructors compared to hygiene or assistant programs that may have hygienist instructors.

REGARDLESS OF TOTAL class size, the clinical nature of training requires a maximum 8:1 ratio of students to instructor.

Given that the Alaska program is the basis for the DT and DHAT practitioner types, unsubsidized tuition costs were available, and the level of instructor and student-to-instructor ratios are as would be expected in the new practitioner programs, the Alaska DHAT program tuition was used in the model of DT/DHAT practitioner economics. Although the cost of living is typically higher in Alaska, this is offset by other program costs that are lower than expected in other settings (e.g., the Alaska DHAT program administrative overhead is approximately 10 percent of the total program cost).

Unlike the DT/DHAT programs, there are no current ADHP programs appropriate to use for estimating tuition. The Minnesota DT program is based upon the ADHP model; however, tuition at the state university is clearly subsidized when compared to other tuitions and only includes the costs for students entering with a hygienist associate or bachelor degree. For comparison to the DT and DHAT, total ADHP tuition costs must also include all post-high school training.

Accordingly, it is assumed that training includes a prerequisite general education element similar to a DH program or associate degree program and is followed by an intensive clinical element in the last three years, requiring smaller and more expensive student-to-dental-instructor ratios. The first three years of the ADHP program costs are based on the estimated unsubsidized college costs, represented by the Western Career College tuition adjusted for class size (**TABLE 4**). The last three years are based on the unsubsidized cost levels of the Alaska DHAT program, since these years represent the clinically intensive portion of the program, and the scope of practice will require equipment and faculty levels similar to the other alternative practitioner programs.

Dental Practitioner Economics — Cost of Living

Cost of living typically includes some fees, books and supplies, room and board, transportation, and personal expenses (e.g., health insurance). For the maximum cost and broadest applicability, these estimates are based on 12 months living away from home for a single person. The annual average of cost-of-living estimates from the financial aid offices of various programs, $17,057, was applied in the model.

The tuition, cost of living, and resulting total expenses for the DT/DHAT and ADHP degrees are provided in **TABLES 5 AND 6**.

Dental Practitioner Economics — Debt Burden

The rising debt challenge in medical school and dental schools is well-

TABLE 5

Total Tuition and Cost-of-Living Estimate, DT/DHAT

	Cost
Tuition[1]	$101,290
Living expenses[2]	$34,113
Total expenses for degree	**$135,403**

1. Based on DHAT program expenses modified for a class size of 30.
2. Estimated living expenses are based on an average of various program estimates of costs per year. These costs are multiplied by the two-year program duration.

TABLE 6

Total Tuition and Cost-of-Living Estimate, ADHP

	Cost
Tuition (3 Years)[1]	$ 85,952
Tuition (3 Years)[2]	$151,935
Living expenses	$102,340
Total expenses for degree	**$340,226**

Note: Figures may not be exact due to rounding.
1. Assumes the first three years are based on the cost structure of an unsubsidized technical college tuition (see **TABLE 4**), similar to the hygiene program prerequisite to the current MN DT (ADHP type) program.
2. Assumes the last three years are based on DHAT program costs modified for a class size of 30. (See **TABLE 4**). Program requirements and cost structure being similar to the intensive and university-based DHAT, MN DT (this model's ADHP), or dental school programs.

documented as are its implications: the limitations of financing, the effect on practice selection, the adverse effect on enrollment by students of lower socioeconomic status, and underrepresented minorities.[4] Debt levels must also be evaluated for alternative practitioners. It is important to understand the factors that determine debt level to intervene as necessary to avoid the negative impacts seen in other health professions.

In addition to living costs, tuition, and program duration, debt level is based on available savings, family contribution, income during study, loan terms and grants. Debt burden is measured relative to income level post-training.

Based on the intensive nature of the programs and the level of education of the entering student, it is anticipated that students will be unable to earn significant income while in school. High school students have limited part-time earning potential. Furthermore, both the DHAT experience and academic support suggestions for disadvantaged applicants suggest that programs that successfully train providers to treat the underserved deter students from working while in school. To further standardize the model for all socioeconomic levels, it is assumed that the student and his/her parents would not have savings to contribute toward the cost of tuition. Accordingly, the debt model anticipates that students will have to borrow the full tuition and living expenses associated with the program.

Rates, terms, and availability of government and private loans vary based on debt level and degree pursued. Both government and private loans have limitations. Although government loans may be available, for undergraduate students, the combined subsidized and unsubsidized limit is approximately $10,000 annually. For graduate and professional students, the total limit is $138,500, with an interest rate of 6.8 percent (the 2010 and prevailing rate). While it is not clear whether graduate or undergraduate loans would apply to the DT, DHAT, and ADHP degree, no government loans will cover the full loan amount required. Furthermore, the loan term is limited to 10 years, which results in a high annual payment. **TABLE 7** demonstrates the annual payment level at the 6.8 percent rate and 10-year term, assuming it could cover the full loan. For comparison, the resulting debt level for the public health dentist is included, assuming four years of undergraduate school and four years of public dental school with the same average cost of living as for the other degrees. The resulting numbers substantiate California's challenge to fill public health dentist vacancies, particularly with socioeconomically disadvantaged applicants that would be able to serve their communities of origin. Even for the alternative providers, these debt levels are high.

Assuming no federal subsidy was available for this course of study, a private loan would be necessary. Loan terms, rates, and maximums vary; however, the best private loan terms are available to those with good credit ratings who also have a credit-worthy cosigner. Considering the underrepresented minority (URM) and socioeconomically challenged applicant, the highest rates would be applied. The advantage of these loans is that they have higher maximums and longer repayment periods. However, the maximum loan for health professions is $225,000. **TABLE 8** demonstrates the annual payment assuming the full training cost was borrowed for a 25-year term and at 10 percent interest (based on loan availability and prevailing rates in March 2010).

Opinions vary regarding what is considered an excessive debt burden. Some sources recommend that educational loan pay-

TABLE 7

Debt Estimate, Government Loan

Annual Income After Debt	DT/DHAT	ADHP	Dentist
Practitioner salary	$62,073	$117,956	$118,000
Educational debt	$19,101	$47,994	$70,484
Net income/(loss)	**$42,972**	**$ 69,962**	**$47,516**
Debt burden	**DT/DHAT**	**ADHP**	**Dentist**
Total loan amount	$135,403	$340,226	$499,661
Annual debt expense	$19,101	$47,994	$70,484
Salary	$62,073	$117,956	$118,000
Debt percentage of salary	**31%**	**41%**	**60%**

Note: Net income and salary have not been adjusted for income taxes and Social Security.

TABLE 8

Debt Estimate, Private Loan

Annual Income After Debt	DT/DHAT	ADHP	Dentist
Practitioner salary	$62,073	$117,956	$118,000
Educational debt	$14,917	$37,482	$51,289
Net income/(loss)	**$47,156**	**$80,474**	**$66,711**
Debt burden	**DT/DHAT**	**ADHP**	**Dentist**
Total loan amount	$135,403	$340,226	$465,548
Annual debt expense	$14,917	$37,482	$51,289
Salary	$62,073	$117,956	$118,000
Debt percentage of salary	**24%**	**32%**	**43%**

ments not exceed 10 percent to 15 percent of income. Others suggest that the debt should be no more than the annual starting salary. As an indication of maximum burden, banks typically refuse loans if total debt payments, including home, car, and all other loans, exceed 37 percent of income.

Based on these metrics, even the private loans are barely sustainable for the DT/DHAT, whereas neither private nor government loans would be sustainable for the ADHP. In 2008, only 10 percent of dental students reported debt higher than $300,000. Based on the information above, it is unlikely that dentists with such debt levels would practice in a public health setting.

Actual loans are likely to be a blend of government loans and private loans, as well as grants or other student aid.[5] However, regardless of the combination, additional support is required for the debt level to be sustainable for applicants from all socioeconomic tiers. Given the research suggesting that those most likely to serve the poor, uninsured, and minority populations are practitioners from those communities, the economic deterrents to education and practice are even higher for these potential students and practitioners.

Addressing the Debt Problem

The most likely source of support would be the state/public health infrastructure/employer through subsidies for schools providing the training or provision of tuition grants or debt waivers to students.

One of the most efficient ways of addressing the debt problem is to minimize training duration and subsidize educational costs directly. By using less-direct approaches, such as loan repayment for service in underserved areas, or through greater salary levels, a portion of the subsidy accrues to the financial institution. The Alaska DHAT program recognized the debt issue and has addressed it by having the future employer, the tribal organizations, pay both the living expenses and tuition directly. Furthermore, the program does apply for and receive some educational grant subsidies. Such subsidies were critical in initiating the program.

Depending on the loan, a total subsidy of approximately $50,000 to $70,000 is required for the DT/DHAT program, and $312,000 to $346,000 is required to keep the ADHP program at a 15 percent debt burden.

Assuming no tuition support or program subsidy, the alternative would be salary support. Based on a career of 25 years, the salary required to meet the annual private debt payments would be approximately $100,000 for a DT/DHAT or $250,000 for an ADHP. Assuming a government loan of 10 years, the salary would need to be higher during the loan term to keep the debt ratio under 15 percent. Clearly, these compensation

levels are higher than the market pays for education of comparable duration and cannot be sustained by the clinical revenues received in underserved areas.

Result of Practitioner Economic Analysis

The unsubsidized cost of training is lowest for the DT/DHAT and is below the 37 percent maximum loan ratio. However, regardless of loan type or term, none of the practitioner types meet the test of a reasonable debt burden. Furthermore, only the DT/DHAT program loan amount falls within the maximum loan limits. Clearly, none of these are sustainable without tuition subsidies, grants, or other approaches to decreasing the debt burden. Relative to the ADHP and dentist, the DT/DHAT program is more economical to subsidize, whether through tuition or direct salary augmentation.

Practice Economics

For the purpose of understanding the economics under the simplest practice model, the dental practice is modeled based on the assumption that each practitioner operates with one chair and a DA. This is the minimum space and assistance required, regardless of whether the practice is in a mobile clinic, a school-based setting, an independent rural practice, or within a larger dental or medical clinic. Dentists typically have at least two chairs and assistants, and practice profitability is associated with a greater number of operatories and assistants. However, alternative practitioners, by virtue of their scope of practice, reimbursement mix, and the communities in which they serve, will have limited ability to enhance their practice income through the scale or services typically provided by dentists practicing under a multioperatory model.

TABLE 9

Billing Codes Within the New Practitioner's Scope of Practice

Codes	Description
D0120	Periodic oral evaluation — established patient
D0140	Limited oral evaluation — problem focused
D0150	Comprehensive oral evaluation — new or established patient
D0210	Intra-oral — complete series
D0220	Intra-oral — periapical first film
D0230	Intra-oral — periapical each additional film
D0272	Bitewing — two films
D0274	Bitewing — four films
D0330	Panoramic film
D1110	Prophylaxis — adult
D1120	Prophylaxis — child
D1203	Topical application of fluoride — child
D1204	Topical application of fluoride — adult
D1351	Sealant — per tooth
D1510	Space maintainer — fixed unilateral
D1515	Space maintainer — fixed bilateral
D2140	Amalgam — one surface
D2150	Amalgam — two surfaces
D2160	Amalgam — three surfaces
D2330	Resin-based composite — one surface, anterior
D2331	Resin-based composite — two surfaces, anterior
D2332	Resin-based composite — three surfaces, anterior
D2335	Resin-based composite — four or more surfaces, anterior
D2391	Resin-based composite — one surface, posterior
D2392	Resin-based composite — two surfaces, posterior
D2930	Prefabricated stainless-steel crown — primary tooth
D2931	Prefabricate stainless-steel crown — permanent tooth
D2940	Sedative filling (interim therapeutic restoration)
D2970	Temporary crown
D3220	Therapeutic pulpotomy
D3221	Endodontic — pulpal debridement
D4341	Periodontal scaling
D4355	Full-mouth debridement
D7111	Extraction, coronal remnants — deciduous tooth
D7140	Extraction, erupted tooth or exposed roots
D9110	Emergency (palliative) treatment

Note: Some codes may be primarily performed on adults or children. Other codes within the scope of practice may be performed infrequently.

TABLE 10

Estimated Collections

Payer Mix A		Payer Mix B		Payer Mix C		Public Health Practice[1]
DT	DHAT/ADHP	DT	DHAT/ADHP	DT	DHAT/ADHP	
$109,738	$99,617	$152,028	$148,607	$202,218	$200,913	$235,205

1. Actual collections for one FTE in a public health practice adjusted to 60 percent productivity based on one operatory and assistant and to 1,900 hours for one FTE.

Revenue Assumptions

Revenues are defined by three elements: type of procedures/scope of services, productivity, and reimbursement. TABLE 9 provides a list of procedures within the scope of practice of a new practitioner that are used for modeling practice revenues. In addition to these procedures, the ADHP has diagnostic and prescribing authority; however, these are not included in the financial analysis as they cannot be billed.

Revenues are modeled based on estimated procedures and the associated reimbursement. The procedural mix from a public health setting within the new practitioners' scope of practice is used to estimate the number of procedures performed by each new practitioner. Productivity is adjusted to one operatory and DA, which is assumed to be 60 percent of the productivity of a public health dentist with two operatories and assistants. Furthermore, one FTE practitioner is assumed to be clinically active 1,900 hours per year. Administrative functions are assumed to be limited based on practicing within a larger public health setting and are not included in the practitioner costs.

Three different payer mixes are modeled:

Payer Mix A: 75 percent Denti-Cal and 25 percent sliding-fee scale.

Payer Mix B: 50 percent Denti-Cal, 25 percent sliding-fee scale, and 25 percent average private dental benefits plan.

Payer Mix C: 50 percent Denti-Cal and 50 percent average private dental benefits plan.

The Denti-Cal fee schedule is used to represent reimbursement for government payers. Private plan rates are median values from the ADA 2007 Survey of Dental Fees. The pediatric values are from the table of national pediatric dentists. The adult reimbursement is based on general practitioners in the Pacific region. The sliding-fee reimbursement is assumed to be 30 percent of the private plans. It is important to note that the DHAT and ADHP have the same reimbursement rates, but the DT rates are pediatric-specific due to this assumed limitation on the DT scope of practice.

The resulting revenues for the DT and DHAT/ADHP are provided in TABLE 10. Payer Mix C most closely replicates the collections attained by a dentist in the public health setting. Since Payer Mix C is a better payer mix (i.e., it includes private dental plan reimbursement) than that of the public health practice, the difference must be due to highly reimbursed procedures specific to dentists. It is also noteworthy that DT revenues are higher than DHAT/ADHP revenues. This is due to several DT procedures being performed more quickly for children. The resulting productivity outweighs the minor and limited reimbursement differentials between adult and pediatric procedures.

Expense Assumptions

Practitioner Compensation

Practitioner compensation is based on a ratio of compensation of dental practitioners with similar educational durations (DA, DH, dentist, etc.) and actual average compensation of the Alaska DHAT (see TABLES 2 AND 3).

Staff

This model assumes each practitioner is supported by one nonregistered DA, paid a salary of approximately $35,000, and a benefits rate of 27.5 percent ($9,626).

Supervision Compensation

Approximately $3,000 is included in the DT and DHAT practice expenses for annual compensation to a supervising dentist for the provision of biannual accreditation and daily supervision duties. Based on the Alaska DHAT experience, daily time requirements are minimal – five minutes to preview and review the day, with additional contact when there is an issue (this is described as similar to being on call, requiring response within five minutes). The most time-intensive requirement is the two-week biannual review. However, this is completed in the supervising dentist's office and is billable. Expenses are estimated based on:

- One week (40 hours) per year (an average of the biannual accreditation period).
- An average of 15 minutes per day (40 hours annually based on 52 weeks).

No precepting costs are included. The supervising dentist has typically served as the preceptor for the DT/DHAT that he/she supervises. Minimum preceptorship duration is 400 hours and may be longer as required by the preceptor; however, costs are not included in the model, as the DT/DHAT is billable during this period and it is a one-time expense to the training program rather than an ongoing practice cost.

TABLE 11

Practice Financial Projections for Three Payer Mixes

	DT			DHAT			ADHP		
Payer mix[1]	**A**	**B**	**C**	**A**	**B**	**C**	**A**	**B**	**C**
Revenue	**$110**	**$152**	**$202**	**$100**	**$149**	**$201**	**$100**	**$149**	**$201**
Expense									
Practitioner compensation	$79	$79	$79	$79	$79	$79	$150	$150	$150
Ancillary salary and benefits expense[2]	$48	$48	$48	$48	$48	$48	$45	$45	$45
Other operating expense	**$70**	**$70**	**$70**	**$70**	**$70**	**$70**	**$70**	**$70**	**$70**
Total expenses	**$197**	**$197**	**$197**	**$197**	**$197**	**$197**	**$265**	**$265**	**$265**
Net income/(loss)	**$(87)**	**$(45)**	**$5**	**$(97)**	**$(48)**	**$4**	**$(165)**	**$(116)**	**$(64)**
Clinical revenue percentage of expenses	**56%**	**77%**	**103%**	**51%**	**76%**	**102%**	**38%**	**56%**	**76%**

Note: Dollars in thousands. Annual income/(loss). Based on one operatory at 60 percent productivity of a two-operatory model.
1. Payer Mix A: 75 percent Denti-Cal and 25 percent sliding-fee scale. Payer Mix B: 50 percent Denti-Cal, 25 percent sliding-fee scale, and 25 percent average private dental benefits plan. Payer Mix C: 50 percent Denti-Cal and 50 percent average private dental benefits plan.
2. Ancillary salary and benefits for DAs and for a supervising dentist for the DT and DHAT.

Depreciation and Finance Expenses

Equipment expense includes depreciation and financing totaling $20,000, based on clinical equipment totaling approximately $67,000 and a laptop. Due to the similarities in practice scope, it is assumed all practitioners require the same equipment. The equipment expense estimate was provided by Patterson Dental, a national distributor of dental equipment and is based on installation of one low-end operatory with equipment required for practicing in a broad number of settings. No specific teledentistry equipment is included beyond intraoral cameras, which are also used for reimbursement purposes. This decision to exclude this equipment is based on the considerable additional cost, approximately $10,000, and because supervision can be provided without it. Currently, most Alaska DHATs practice without sophisticated teledentistry equipment, managing with a digital camera and email/telephone contact.

Rent/Lease Expense

Space costs are based on standard dental office area square-footage requirements. Approximately 400 square feet are identified as minimal and incremental requirements. It is assumed that other amenities or spaces will part of the larger setting (e.g., bathrooms would be available within the school or larger clinic setting). Lease costs are based on average annual lease costs for medical/dental buildings in several dental health provider shortage areas (HPSAs). Resulting lease costs are approximately $6,000 annually. While rent/lease expenses would not be applicable in a mobile setting, it is expected that this setting would result in other comparable costs (e.g., gas, vehicle, insurance, maintenance).

Other Operating Expenses

Approximately $44,000 in expenses is estimated based on analysis of actual data from a public health setting applied on an FTE basis. Office supplies include telephone, postage, copier, general office supplies, subscription, printing, etc. Based on the types of procedures performed external lab services are expected to be nominal and are included in miscellaneous expenses. This also includes maintenance costs and nonspecified office overhead.

Results

TABLE 11 presents a summary of the net income or loss for each practitioner under various payer mix scenarios. The ADHP model is not sustainable in any scenario. Payer Mix C breaks even for the DT and DHAT; however, it is unlikely that a payer mix consisting of 50 percent reimbursement from private dental plans would be present in a public health clinic. It is common for public health settings to have a net loss and require additional grant support or other forms of subsidy. As **TABLE 11** indicates, for the DT and DHAT, Payer Mix B revenues cover nearly 80 percent of expenses, which is similar to other public health settings.

Ultimately, these findings suggest that with procedural-based reimbursement and a public health payer mix (Payer Mix A), these clinics cannot break even. Although the DT and DHAT provide a more efficient model of care than the ADHP, based on a one-operatory model, they will require additional support.

TABLE 12

Encounter-Based Revenue Estimate

Productivity Statistics	Procedures per FTE	Visits per FTE	Encounter-Based Revenue
One provider, two operatories[1]	6,828	3,099	N/A
One provider, one operatory (60%)[2]	4,097	1,859	N/A
DHAT/ADHP[3]	3,438	1,560	$195,049
DT[3]	4,191	1,902	$237,769

1. Based on data provided for a public health setting. It is assumed that this is per FTE based on a model of one provider with two DAs and two operatories. Provider hours are 1,800.
2. Estimated per FTE productivity for one DA and operatory, based on the ratio of procedures to visits from the data above. Provider hours are 1,800.
3. Procedure volumes consistent with other analysis. Visits per FTE estimated based on an assumption of 2.2 procedures per visit from the public health clinic data above. Visits paid at $125, which is comparable to current encounter-based receipts in the public health setting.

Variables and Alternatives — Making the Economics Work

What Adjustments Might Result in a Sustainable Practice Model?

There are few opportunities for expense-side reductions, and none are considerable enough to reach break-even. Rent and equipment expenses can be slightly reduced by co-locating the practitioner within a current dental practice setting (e.g., approximately a $6,000 reduction in finance and depreciation expense).

Incremental productivity assumptions and working hours have a significant impact on the sustainability of the practice but may be less realistic. Increasing productivity to 70 percent of the two-operatory model results in an additional $20,000 to $35,000 to the margin and nearly attains break-even for the DT and DHAT Payer Mix B. Increasing annual clinical working hours to 2,000 hours adds $7,000 to $11,000 to the margin, but is unlikely to occur given the operating hours in a typical public health setting, particularly a school-based setting, or be an economically reasonable expectation given employment conditions for other dental practitioners (i.e., increasing expected work hours relative to other practitioners would adversely impact choice of career and function as a reduction in the hourly compensation). Although a two-operatory model is considered more efficient, it does not alter the outcome. Due to volume or space constraints, it is unlikely to be an option for many settings.

The greatest and most realistic impact on the revenue side of the model would be a shift to visit-based reimbursement. Visit-based reimbursement greatly increases the viability of the DT and also the DHAT model. Assuming $125 for all visits, the DT and DHAT break even. (TABLE 12 estimates expected revenue for this payment approach.) Encounter-based reimbursement is also key to long-term practice sustainability and functions as an incentive to meet public health goals. In contrast, as practitioners successfully impact dental health, income from higher procedural-based billing codes will be reduced.

Critical Elements in Access — Linking Diversity and Economics

The purpose of exploring new practitioner models is to provide the underserved with access to dental care. One aspect of this is ensuring that the practitioner models are economically viable; however, simply increasing the supply of practitioners will not guarantee they will practice in areas where the need is greatest. Studies suggest that the programs that are most successful in placing and retaining practitioners in underserved areas recruit practitioners who are socioeconomically and culturally similar to those populations they will serve. However, URMs and the socioeconomically disadvantaged are challenged in obtaining higher levels of education as well as bearing the cost of training. The burden of educational debt decreases the likelihood that URMs will practice in underserved areas.[6] Understanding the relationship between diversity, debt, and service is key to crafting approaches that address access by successfully recruiting and retaining disadvantaged candidates.

The Diversity Challenge

Statistics indicate that in California, the highest rate of untreated cavities in children is in Mexican-Americans and, secondarily, in other nonwhite races/ethnic groups.[7] Several studies of health care practitioners have indicated that minorities are more likely to practice in minority communities.[5] According to the Healthy People 2010 companion document on workforce development, minority physicians are more likely than their white counterparts to serve in communities where there is a shortage of physicians and to treat minority patients.[8] This suggests that successfully addressing the access issue will require recruiting dental practitioners from these populations. Currently, some minorities are underrepresented in advanced dental degrees. Black and Latino dental health practitioners are most highly represented as DAs, a job that requires the lowest education level (TABLE 13).

Studies document the challenges of recruiting and retaining socioeconomically disadvantaged minorities in the medical and dental professions.

TABLE 13

Dental Worker by Race, 2008[9]

Practitioner	White	Black or African American	Asian	Hispanic or Latino	Total Minorities	URMs[1]
Dentist	80%	3%	12%	5%	21%	9%
DH	89%	4%	2%	5%	11%	9%
DA	74%	7%	2%	17%	26%	24%

1. The Institute of Medicine committee defined underrepresented racial and ethnic minorities as African Americans, Hispanics, and Native Americans – groups that are both underrepresented and characterized by a group history of deprivation. Source: Kelley WN, Randolph MA, (eds), Careers in Clinical Research: Obstacles and Opportunities, Institute of Medicine, National Academy Press, Washington, D.C., 1994.

Recruitment challenges include:

- Being aware of the opportunities available (e.g., role models in applicants' earlier years, recruiting outreach to these populations);
- Having adequate prerequisites for admission. On average, when compared with white students, racial and ethnic minority students receive a K-12 education of measurably lower quality, score lower on standardized tests, and are less likely to complete high school[10];
- Encountering barriers in the California educational system to selecting applicants based on minority status; and
- Having the financial resources to attend training.

Financial barriers to URM enrollment include high and rising tuition, higher living costs at schools in major metropolitan areas, higher tuition at private schools, and school location far from the applicant's hometown. Furthermore, studies suggest that both recruitment and retention can be impacted by the reputation or experience of schools being unwelcoming to minorities, being academically too challenging, or not having sufficient URM students and faculty to serve as role models and mentors.[11]

Addressing the Diversity Challenge

Educational eligibility and access are pipeline issues that have to be addressed well in advance of professional education. The American Association of Colleges of Nursing (AACN) published an article that addressed the issue of attracting a diverse population.[12] Key factors included:

- Presenting an inclusive image in program marketing materials;
- Appointing minority outreach/recruitment coordinators;
- Supporting students through the application process;
- Mentoring students for the educational duration; and
- Providing Head Start classes that target skills to successfully transition to professional school (e.g., computer, reading comprehension, math, study skills, writing).

Programs report that these types of efforts result in 77 percent to 100 percent increases in minority enrollment and retention rates of up to 94 percent. Other programs have had success by increasing the competitiveness of URM applicants to dental school with summer enrichment programs for undergraduate students focusing on study skills and self-management skills, including time management, promptness, and organization. In addition, these programs strengthen students' background in the basic sciences and provide counseling and mentoring to ensure selection of appropriate prerequisites and to support applicants through the dental school admissions process.[13]

The Disadvantaged Student Recruitment Manual for California Dental Schools recommends similar approaches. It also recommends "whole-file review" of applicants, rather than a grade- and test score-centric selection process. This approach emphasizes the applicants' educational, financial, and family histories, and the personal challenges applicants had to overcome in order to obtain an education.[14]

The Alaska DHAT program has employed some of these efforts and more with considerable success. The program's extensive efforts start with developing a targeted pipeline of recruits and continue with supportive measures throughout the educational program, as well as strategies that ensure professional success and retention in URM communities.

Cost of Training and Debt

Although prerequisites and approach are important in recruitment and retention success, the costs of training and the associated debt must also be addressed.[4] The issue here is twofold: cost is a barrier to entry and to choosing to practice in underserved areas.

Expected debt level impacts choice of profession. A 1998 Association of American Medical Colleges (AAMC) study found that premedical students are dissuaded from medical careers because of financial concerns. Students of color cited the cost of medical schools as the primary reason for not pursuing medical careers. Similarly, a 2002 ADA study indicated that decreased admissions among black and Hispanic students may have been due to cost increases in dental education.[15] This impact is likely to be greater for minority and socioeconomically disadvantaged students. Research indicates that URM students are more likely than non-URM students

to come from low-income families and are therefore disproportionately affected by the rising costs of higher education and adverse trends in the availability of financial aid.[16] They are less likely to have savings to contribute toward their educations or to have families that can contribute to their educations. Disadvantaged students and those with poor credit ratings face difficulty obtaining loans. Minorities are more likely to have pre-medical school debt. Of 2007 medical school matriculants, 59 percent of African-American/black and 43.7 percent of Hispanic/Latino matriculants had debt; in contrast, 68 percent of Asian and 64 percent of white matriculants reported having no debt. This is despite the fact that 52.6 percent of blacks have their schooling funded through scholarships.[17] URM students are more likely to rely on the more expensive unsubsidized loans to fund their educations.[18] Moreover, students who are married and/or have children generally must borrow in excess of the estimated student budget, leaving them with private loans that cannot be consolidated following graduation.

Educational duration exacerbates the debt burden and reduces the likelihood of practitioners serving in lower-salaried public health settings. DHs graduating from associate degree DH programs rather than the longer baccalaureate programs are more likely to practice in public health.[19] This may be due to having a less expensive education and therefore not requiring as high a salary. Recruitment of dentists also continues to be a problem in community health center (CHC) dental practices. Slightly fewer than half of the responding CHCs (47.8 percent) reported at least one vacant dentist position. Mean salaries in CHCs are slightly higher than in academic positions but several times less than in private practice employment or ownership.[20]

Data from the Robert Wood Johnson Foundation (RWJF) Dental Pipeline projects indicates that financial factors were the major barrier to graduates providing dental care to underserved patients. The combination of high educational debt and low compensation at community clinics and from public insurance programs such as Medicaid are deterrents. One quote by Judy Stavisky, original RWJF program officer, is particularly telling about the impact of educational debt, "It needs to be mentioned, however, that the Dental Pipeline program never had in its original thinking that students would change their expectations about where to practice, because so much of that decision is based on debt. Rather, we anticipated that wherever students did end up practicing, they might be more accommodating to low-income patients and perhaps volunteer at those types of clinics where they worked as students. Low-income, non-URM students were less likely to expect to care for underserved minorities or disabled patients after graduation than were URM students.[11] Thus, to meet the goal of increased underserved access to dental care, this issue must be addressed for the alternative practitioners as well.

EDUCATIONAL DURATION exacerbates the debt burden and reduces the likelihood of practitioners serving in lower-salaried public health settings.

Current Comparative Models

The two existing models of alternative providers offer an opportunity to compare approaches to addressing the access and diversity challenge. The Alaska DHAT model incorporates most of the program characteristics that studies indicate are key to addressing the access issue, while the Minnesota model's primary feature is to increase the supply of practitioners.

The ANTHC has been able to recruit socioeconomically disadvantaged minorities to serve native communities because the DENTEX training/DHAT program is paid for by the future employer. The program has broken the link between the cost of training and student debt identified in this and other analyses. Furthermore, the program has been successful in retaining these practitioners. Keys to the program's success include:

- Retention — Federal licensure is limited to treatment of Alaska natives. Applicants have a four-year employment contract when they start the program.
- Untraditional admission — Applicants are recruited out of the population they will serve and through their future employer.
- No cost/no debt — The employer pays tuition and living expenses.
- Support — There is a high degree of cultural consideration, remedial courses, and individual attention during the training program.
- Flexibility — Training is based on competency and students receive additional support and repeat specific procedures/training until they pass.
- Preceptorship and ongoing accreditation — Quality is ensured by limiting the practitioner's scope of practice to the level of competency demonstrated at the end of his/her preceptorship. The precepting dentist is typically part of the public health structure and/or under

TABLE 14

Minnesota DT Prerequisites and Program Duration

	Minnesota DT BS	Minnesota DT MS
Prerequisites	1 year college, prerequisites 3.0 college and high school GPA. 1,100 SAT/2,400 ACT	BS or BA, prerequisites 3.0 college and high school GPA. 1,100 SAT/2,400 ACT
Training duration	40-month, dental school program	28-month, university-based program

TABLE 15

Comparison of Practitioner Models, Key Criteria for Success

Criteria	DT/DHAT	ADHP
Low cost: Duration and cost of training	Low	High
Access: Entrance requirements for URM	Low	High
Service: Ability to limit practice to target populations	High — limited licensure; recruitment and employment practice ensure service	Low — the model is least economically viable, even if limited by licensure; a public health setting would be better served by a DT/DHAT
Oversight/Quality Assurance: Quality of training and supervision, functions as a part of the dental team, continued accreditation	High — ongoing supervision, stringent biannual accreditation, training to competency, and licensure limited by individual skill	Moderate — longer duration of training, practices independently of dentist, lower ongoing assurance
Scope of practice: broad enough to provide care	Yes	Yes — broadest

contract with the same tribal organization. Ongoing support is ensured by having the DHATs report to a supervising dentist who typically was their preceptor. While the practitioners may practice under standing orders, they typically report daily to a dentist by telephone to preview cases. They also use a digital camera or more sophisticated teledentistry equipment to review and refer cases as needed. The supervising dentist also performs the practitioner's intensive biannual accreditation. This is a two-week process during which the practitioner works in the supervising dentist's office.

In contrast, the DT model in Minnesota is likely to fail to address a number of socioeconomic or diversity issues. The programs are relatively high in cost, with university tuition levels. Prerequisites and program duration add to the total expense of completing the program. The DT BS degree requires one year of college prior to entering the 40-month program, and the DT MS degree is a 28-month program following completion of a bachelor's degree. Admission standards are high, requiring standardized test scores and a history of academic success. The scope of practice is no broader; in fact, it may be more limited than the DHATs (at the time of this study, the scope of procedures taught in the program was not yet available). This combination of factors suggests that this model is unlikely to have a major impact in areas with poor access (TABLE 14).

Evaluating Alternative Practitioners

TABLE 15 provides a quick summary of the key criteria against which potential practitioner models must be assessed. The DT and DHAT models score most favorably on the majority of the criteria: cost, ability to recruit and retain URMs, service to the target populations, and quality of care. The minor differences in practice scope do not significantly impact the ability to provide needed services to the disadvantaged communities. Compared to the ADHP, the DT and DHAT models are more economically viable from the practitioner and system perspective. The shorter training duration should also be more successful for deploying diverse and disadvantaged people to practice in underserved settings. As indicated in TABLE 13, few current DHs meet the URM criteria; thus, the ADHP model must start with high school applicants to increase practitioner diversity.

Conclusion

Both the dental practice model and the individual practitioner economics must be sustainable. Based on this analysis, the DHAT and DT practitioners are cost-effective but will require a direct subsidy similar to that received by current public health clinics, more sustainable Denti-Cal procedural reimbursement, or an encounter-based payment. Educational programs will also require subsidies, and these will be lowest for the DHAT and DT. Studies suggest that such intensive technical training programs can effectively train quality practitioners and that the shorter duration reduces

the cost of education to the student and society while enabling a more rapid response to the current access issue.[21]

Due to the longer training duration, the ADHP was not economically viable in any of the modeled scenarios, including at an encounter-based reimbursement level of $125. Although the educational model could build on an existing practitioner pipeline, these potential candidates do not have the characteristics to successfully address the access issue, and, given the economics of public health practice, they would be unlikely to choose this setting after incurring additional training expense.

Beyond the economics, policies and approaches must be in place to successfully recruit and retain practitioners. Creating a pipeline of practitioners specific to the access need and limiting their scope of practice ensures that they complete training and are retained in their original profession. Providing reimbursement levels specific to care for the underserved and/or compensation levels in public health settings to keep the practitioner's debt burden bearable, while limiting the transferability of their license, ensures that the practitioner is retained. It means that there is no option that is more lucrative unless the practitioner wants to re-educate as a DH or dentist.

Recruiting practitioners from a culturally and/or socioeconomically diverse background will require additional effort and financial resources to overcome the barriers to higher education that exist in lower socioeconomic strata. However, educating a person from a disadvantaged community and reinserting him/her into that community has benefits beyond the effective provision of access to care. This person becomes a role model of achievement in that community and stimulates the area economy. ■■■■

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Are Procedures Performed by Dental Auxiliaries Safe and of Comparable Quality? A Systematic Review

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ABSTRACT The objective of the current study was to systematically evaluate the existing evidence in relation to the safety, quality, productivity or cost-benefit, and patient satisfaction of the procedures performed by the different groups of dental providers. Due to the diversity of the procedures performed and the outcomes measured, it was not possible to create pooled estimates in a meaningful manner. Therefore, summary results of individual studies are presented and critically evaluated.

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Due to the fact that certain population subgroups have limited access to care, those who were less trained than dentists started joining the oral health care delivery teams around the world from the 1920s. These providers have different levels of training, perform both reversible and irreversible procedures either independently or under direct supervision of a dentist, and are given different titles such as the dental nurses or therapists in New Zealand, dental hygienists, expanded-function dental assistants, and dental health aide therapists in Alaska. In addition to these existing providers, there are several categories that have been proposed or that are under consideration in the United States.

Historically, the earliest consideration of adding nondentist members to the oral health care delivery team in the United States can be traced back to 1885 when Dr. C. Edmund Kells of New Orleans announced the appointment of the first-known dental assistant.[1] In 1906, Dr. Alfred C. Fones coined the term "dental hygienist." In 1921, a group of "dental nursing students" began a two-year training program sponsored by the New Zealand federal government to address the high levels of dental disease among preadolescent schoolchildren. These personnel were called New Zealand dental nurses/therapists (NZDN/T) and provided reversible and irreversible procedures under the general supervision of a dentist.[2] Later, the "dental nurse" title was replaced with "dental therapist." This model led to many similar programs around the world. As of 2008, there were 53 countries utilizing more than 14,000 dental therapists.[3] Historical perspectives of the development of these auxiliary providers in other countries as well as in the United States are well-documented

in several earlier publications.[3-7] More recently, in a 2010 position paper, American Academy of Pediatric Dentistry (AAPD) also reviewed these existing models.[8] The models reviewed included the NZDN/T model, Canadian dental therapist, Alaska dental health aide therapist, and the expanded-function dental auxiliaries/assistants. AAPD concluded that the quality of care given by these providers is generally comparable to that of dentists.

However, they also raised the question of whether these providers have the knowledge and experience needed to determine when to perform which procedures. In addition, models that were proposed or that were under consideration at the time in the United States were also reviewed in the above position paper. These included the advanced dental hygiene practitioner (a model proposed by the American Association of Dental Hygienists), the Minnesota dental therapist model, and community dental health coordinator (a model proposed by the American Dental Association). A detailed description of these and other models are depicted in **TABLE 1**.

The U.S. Surgeon General's report, *Oral Health in America: A Report of the Surgeon General,* in 2000 brought to light the constraints of the U.S. public health infrastructure in addressing oral health needs of disadvantaged groups.[9] Furthermore, as the U.S. population reached 308,745,538 in December 2010, based on the reported number of 179,594 professionally active dentists in the country (ADA figure for 2006), the dentist-to-population ratio became approximately 1,719 (or 58.2 dentists per 10^5 people) in 2010. Within this context, a closer look at the usefulness and the value of the dental care providers other than dentists is now warranted more than ever. The objective of the current study, therefore, was to systematically evaluate the existing evidence in relation to the safety, quality, productivity or cost-benefit, and patient satisfaction of the procedures performed by the different groups of dental providers.

Materials and Methods

The authors conducted a systematic review using the guidelines given in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis: The PRISMA Statement.[10] The authors' primary question was "Are the irreversible procedures performed by any auxiliary provider category safe compared to the same procedures performed by dentists?" Removal or interference with oral structures either mechanically or surgically was considered irreversible. Due to the limited number of studies available to answer the above question, the authors added quality, productivity or cost-benefit, and patient satisfaction as secondary outcomes, and also expanded the search to both reversible and irreversible procedures.

A CLOSER LOOK AT
the usefulness and the value of the dental care providers other than dentists is now warranted more than ever.

The Cochrane, Medline, Embase, and PubMed databases were searched to identify the published reports that satisfied the study objectives. With the help of two librarians (New York University Bobst Library and the Waldman Dental Library), a structured search strategy was developed to capture all relevant articles published by November 2010. Details of this search strategy are given in **FIGURE 1**. Due to the potential differences in cataloging the MeSH headings in earlier publications, the yield was lower than expected, and, as such, bibliographies of the articles found were hand-searched, and additional search strategies were used to obtain the remaining pertinent articles. Two publications that became available after the search period were also included in the study.[11,12] Search filters included human studies and were limited to publications in English language. When the original articles were not electronically available, authors were contacted. Two independent reviewers (AD and BSB) screened all the articles by titles and abstracts to determine the eligibility. Full-text review of the selected articles was then completed by both reviewers independently and any disagreements were resolved by discussion (**FIGURE 1**). The above search strategy yielded 25 studies published between 1950-2010 that had original data and several review articles relevant to the study.

Upon review of the full texts of the original articles, five articles were discarded as having insufficient or inapplicable data. Data from the resulting 20 original articles were abstracted and summarized in a Summary of Findings Tables using a style similar to the one in *Cochrane Handbook for Systematic Reviews of Interventions*.[13] Study design and the quality of the study in terms of sample size, internal and external validity, biases, and statistical methods were used to weigh the credibility of the evidence presented. Due to the diversity of the procedures performed and the outcomes measured, it was impossible to create pooled estimates to quantify the safety, quality, productivity, and patient satisfaction in a meaningful manner. Therefore, summary results of individual studies are presented and

TABLE 1

Auxiliary Providers in Dentistry and Their Training

Acronym	Full Name (Functions)	Country/State (within U.S.)	Level of Training
ADHP	Advanced dental hygiene practitioner. Can practice without the supervision of a dentist, can perform diagnoses and irreversible procedures (e.g., restorations and extractions).	New workforce model to improve access to oral health care in the U.S.	2-year master's program Licensure required
CDT	Canadian dental therapist (Works in conjunction with licensed dentists under general supervision.)	Canada	2-year training program
CDHC	Community dental health coordinator (Promote oral health and provide preventive services: screenings, fluoride treatments, sealants, temporary fillings and simple teeth cleanings until more comprehensive care from a dentist or a hygienist is available.)	New workforce model to improve access to oral health care in the U.S.	18-month training program Certification required
DHAT	Dental health aide therapist (Provide oral health education, preventive services, diagnosis and treatment of caries, uncomplicated tooth removal, and pulpotomies. They may also supervise all categories of dental health aides.)	Alaska (New workforce model to improve access to oral health care)	2-year training program beyond high school. Certified by the Indian Health Service Board
EFDA	Expanded-function dental assistants/auxiliaries (Work under the direct supervision of a licensed dentist, perform various reversible restorative procedures. Specific procedures vary between states.)	Military/ Armed forces (U.S.)	This class of auxiliary generally includes those who have previously been trained and have experience as a dental assistant, certified dental assistant, or a dental hygienist. Educational programs for training EFDAs vary from state to state.
EFDHA	Expanded-function dental health aide (Range of preventive and restorative procedures that vary depending on the EFDHA type.)	Alaska	Specific training programs for each type of EFDHA have been developed by the Indian Health Service
EFDHA I	Expanded-function dental health aides I (Assist dentist, perform prophylaxis, place restorative materials in prepared cavities, and place stainless-steel crowns.)	Alaska	
EFDHA II	Expanded-function dental health aides II (Perform all functions of EFDHAs I along with filling simple and complex cavities.)	Alaska	
OPA	Oral preventive assistant (Preventive services on all patient types including disease prevention, oral hygiene instruction, fluoride and sealant application, coronal polishing, and scaling for periodontal type I [gingivitis] patients.)	Play a role in public facilities such as community health centers and schools	Education program with at least 12 months of formal training. Certification needed. Curriculum is under development. *Curriculum has both didactic and clinical elements. Eligibility: Students who have successfully completed the certified dental assistant exam or 3-month equivalent full-time training.*
PDHA	Primary dental health aide (Provide dental education and preventive services including "toothbrush" prophylaxis, topical fluoride applications, and oral cancer screenings.)	Alaska	All categories work under varying degrees of supervision by a dentist. Alaska natives are trained. The role of the aide varies, depending on the availability of professionals in the village and the policies of the specific regional native health corporation.
PDHA I	Primary dental health aide I (Provides education, prophylaxis, fluoride treatment, and oral cancer exams.)	Alaska	
PDHA II	Primary dental health aide II (Provides oral hygiene instruction, prophylaxis, fluoride treatment, oral cancer exams, radiographs, handle dental emergencies, atraumatic restorative treatment (ART), and assist dentists.)	Alaska	
RDA	Registered dental assistant	U.S.	Credentialing provided by the Dental Assisting National Board. *Specific training programs vary by state.*
RDH	Registered dental hygienist	U.S.	Eligible for licensure after graduating from a nationally accredited educational program. *Each accredited program is at least two years in length and usually includes general college-level class work before the dental hygiene portion of the curriculum begins, bringing the total class time up to a total of three years.*

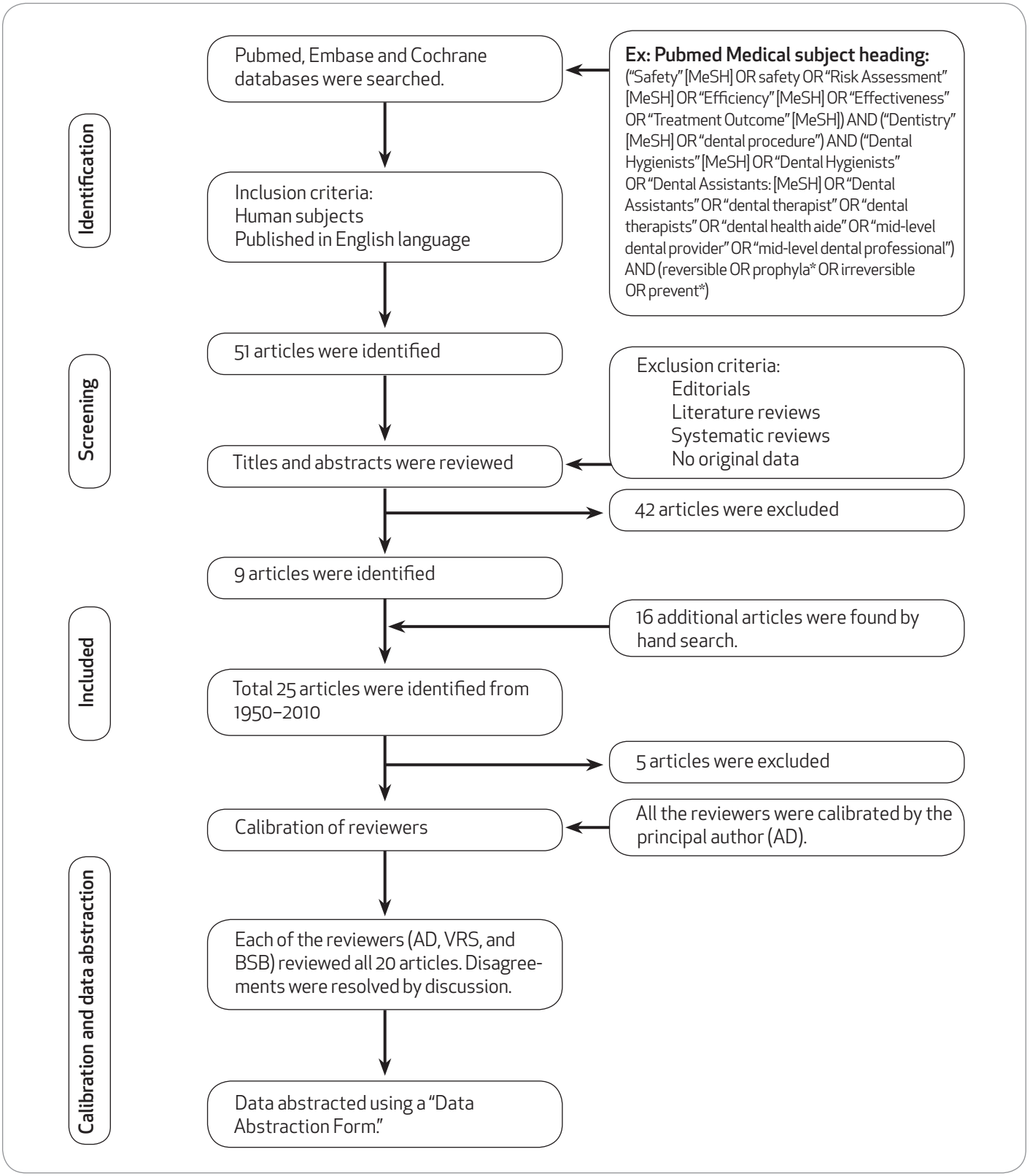

FIGURE 1. Literature search and data retrieval calibration and data abstraction.

TABLE 2

Description of Studies in Relation to Safety: Summary Findings and the Level of Evidence

Study	Location	Objective	Design	Study Size	Findings	p-Value	Level of Evidence
Lobene, 1979	USA: Boston	Comparison of infiltration and block anesthesia given by dental hygienists	Prospective	19,849 injection attempts	90% success after 1st attempt; no severe complications		Level 2
Scofield, 2005	USA: Texas	To collect quantitative data addressing safety when dental hygienist administer local anesthesia	Retrospective (survey)	26 dental state boards that authorized dental hygienists to administer local anesthesia. 69% responded	No disciplinary action against dental hygienists for local anesthetic-related complications		Level 3
Bolin, 2008	USA: Alaska	To determine, via a systematic chart review, if DHATs practicing in rural Alaska communities were delivering dental care within their scope of training in an acceptable manner	Retrospective (systematic chart review)	2 Alaskan regional hub clinics and 5 DHATs. 640 procedures (27% by dentists, 34% by DHAT under direct supervision; 39% by DHAT under general supervision)	3% complications that required a visit back to the clinic but no group differences		Level 3
RTI, 2010	USA: Alaska	To evaluate implementation of DHAT program with a particular emphasis on assessing care and current practice characteristics that may be influencing changes in levels of access to care	Cross-sectional	No. of DHATs = 5; 37 extractions and 54 restorations	No surgical complications, one restoration-related complication		Level 3

critically evaluated. The level of evidence within each study was graded by the experienced lead author (AD) using the modified Strength of Recommendation Taxonomy (SORT) as published in the *Journal of Evidence-Based Dental Practice*.[14]

Results

Studies that have addressed each of the four outcomes are shown in **TABLES 2-5** in relation to the study population, objective, study design, study size, summary findings, and the level of evidence.

Safety

Surprisingly, very few studies have even made attempts to evaluate the safety of the irreversible procedures performed by the auxiliary providers (**TABLE 2**). A valid assessment of the safety of procedures performed by various providers needs large studies where subjects are randomly assigned to various provider groups (auxiliaries versus dentists) and where safety is assessed within a meaningful time period using objective criteria by independent evaluators who are unaware of the provider type who performed the procedures. Instead, what is found in the literature is limited in scope as well as to a handful of smaller studies.

Local anesthesia can lead to complications such as paresthesia, trismus, hematoma, and facial nerve paralysis. This procedure is delegated to auxiliary providers in some states. In the 1979 Project Rotunda at Forsyth, Lobene et al. showed that local anesthesia injections (infiltration and block) given by dental hygienists with advanced skills achieved more than a 90 percent success rate after the first attempt (total attempts=19,849) with no severe consequences.[7] Scofield et al. surveyed 26 dental boards that authorized dental hygienists to administer local anesthesia in the United States in order to compare the disciplinary actions taken against dental hygienists and dentists in relation to complications arising from said procedure over the preceding 10 years.[15]

Eighteen (69 percent) boards out of 26 approached responded. A majority of the responders reported there were no disciplinary actions taken against dental hygienists (72 percent) or dentists (67 percent) while 5 percent reported disciplinary actions taken against dentists. However, this is not a direct comparison between the safety of administering local anesthesia by auxiliary providers and better-trained dentists, and the considerable rate of nonresponders (28 percent) introduce additional bias to the study.

Bolin did a pilot study to address the safety of the irreversible procedures performed by Alaska DHATs in 2006.[16] Using randomly selected charts related to the procedures performed by DHATs that were obtained from five Alaskan

TABLE 3

Description of Studies in Relation to Quality: Summary Findings and the Level of Evidence

Study	Location	Objective	Design
Abramowitz, 1966	USA: IHS	To determine whether the quality of dentistry accomplished by the teams using EFSAs would be comparable to the quality of dentistry performed by the control team that functioned according to traditional methods	Experimental; nonrandomized; cross-over, blind clinical and radiographic evaluation of reversible procedures
Hammons, 1967	USA: Alabama	To evaluate the qualitative performance of restorations by EFDAs to that of dental students	Experimental; nonrandomized; blind evaluation
Hammons, 1971	USA: Alabama	To evaluate the quality of procedures done by EFDAs to that of dentists	Experimental; randomized; blind evaluation
Rosenblum, 1971	USA: Minnesota	To compare quality and quantity of procedures performed by EFDAs with that of senior dental students	Experimental; not blinded
Lotzkar, 1971	USA: Louisville	To investigate the feasibility of expanding the functions of dental auxiliaries	Experimental
Brearley, 1972	USA: Minnesota	To compare the quality and quantity of performances of auxiliaries and dentists; to evaluate the effect on team productivity of varying number of dental assistants	Experimental (RCT)
Abramowitz, 1973	USA	To determine the feasibility of dental practice utilizing auxiliaries with expanded functions quality amount and types of service, and economic considerations.	Experimental (RCT)
Lobene, 1979	USA: Boston		
Folke, 2004	USA: Minnesota	To evaluate the sealant success rate, comparing the provider types – dentists, registered dental hygienists, and registered dental assistants – while controlling for patient variable previously shown to alter success rates	Retrospective cohort study

Study Size	Findings	p-Value	Level of Evidence
4 Team (each with 1 dentist and 2 EFDAs)	**Unsatisfactory CL II:** DDS = 28% EFDA = 31% (over 75% overhang and poor marginal adaptation for both)	NS	Level 2
Advance undergraduate dental students = 20 EFDAs = 6	**Unacceptable:** **Unfinished** (EFDA = 5.2% 4,990; DS = 7.5% or 2878); **Finished** (EFDA = 2.3% of 4,979; DS = 1.7% of 1480); **Temp. Restoration** (EFDA = 1.7% of 289; DS = 11.6% of 189); **Matrix Band** (EFDA = 3.8% of 2,639; DS = 11.6% of 935);, **Rubber Dam** (EFDA = 1.7% of 2,395; DS = 9.8% of 1412)	p<0.05 for all	Level 2
Dentists = 8 EFDAs = 4	**Unacceptable:** **Amalgam** (EFDA 1% of 2,282; DDS = 1.8% of 1851; **Silicate** (EFDA = 3.4% of 799; DDS = 1.8% of 884); **Total** (EFDA = 1.6% of 3,081; DDS = 1.8% of 2735); **Temp. Restorations** (EFDA = 1% of 264; DDS = 0% of 139); **Matrix Band** (EFDA = 2% of 2,294; DDS = 3.2% of 2,315).	P<0.05 P<0.05 NS NS P<0.05	Level 2
Dental students = 30; EFDAs = 4	Rubber dam and polishing CL II – EFDA better; polishing class I – dental students better	For both p>0.05	Level 3
No. of Dentists = 7 No. of Dental Auxiliaries = 22 Total No. of procedures = 55,214	To perform a procedure, trained dental assistance took more time in comparison to experienced dentists but their work received a quality rating comparable to the dentists		Level 3
No. of dental students = 30 No. of dental auxiliary trainees = 4	All the comparisons either statistically in favor of experienced dental auxiliaries or there were no significant differences	p = <0.05	Level 2
No of Dentists = 2 No of Dental assistants = 3 expanded duty dental auxiliaries = 5	The restorations completed by dental auxiliaries were of comparable quality to those provided by the dentist.	p = <0.05 (out of 6, 3 were in favor of dental auxiliaries) p>0.05 (out of 6, 3 were equal)	Level 1
No. of Dentists = 4 No. of registered dental assistants (RDA) = 8 Registered dental hygienists (RDH) = 3	The risk of sealant failure was significantly lower in sealants placed by RDHs compared to those placed by dentists or RDAs (HR = 0.50, p<0.05)	p<0.05	Level 2

dental clinics and supervising dentists' charts obtained from two regional hub clinics (all procedures done around the same period and similar geographical areas or sampling frames), the safety of the irreversible procedures, such as alloy and posterior composite restorations and extractions, etc., was evaluated. The complications that required a visit back to the clinic were less than 3 percent in all cases and there were no reported group differences. Smaller sample size is a major limitation of this study.

Five years after the Alaska DHAT program was initiated in 2003, the W.K. Kellogg Foundation and other organizations began to objectively evaluate the program in 2008 and a report was released in October 2010.[11] In a cross-sectional manner, using five villages where DHATs were working and some regional hubs, investigators used questionnaires and interviews, direct observations of procedures by trained and calibrated examiners, and a blind review of the previous work to evaluate the safety of the procedures, performance quality, and patient and community satisfaction. A baseline oral health status for future comparisons also was established.

In terms of safety, based on record auditing, in the above study, it was reported that there were no complications related to 37 extractions (seven done in children) but there was one complication in 54 restorations (25 done in children). The cross-sectional nature, smaller number of DHATs (five), lack of direct comparison of DHAT procedures to that of dentists, and convenience samples and records, prevented this study from drawing robust conclusions regarding the true safety and other aspects of the DHAT program. Authors also cautioned that the findings are not generalizable. Furthermore, DHATs are trained in differ-

TABLE 4

Description of Studies in Relation to Quality: Summary Findings and the Level of Evidence

Study	Location	Objective	Design
Baird, 1963	Royal Canadian Dental Corps	To establish whether clinical technicians (dental hygienists) can be trained economically undertake additional responsibilities and employed effectively under conditions existing in the average clinic of the Royal Canadian Dental Corps	Observational
Sutcliffe, 1969	UK	To assess productivity of a dentist working with an auxiliary	Retrospective chart review
Lotzkar, 1971 (b)	USA: Louisville	To assess the performance of dentists who worked as head of dental teams with varying number of EFDAs	Experimental; nonrandom; nonblind evaluation
Brearley, 1972	USA: Minnesota	To compare the quality and quantity of performances of auxiliaries and dentists; to evaluate the effect on team productivity of varying number of dental assistants	Experimental (RCT)
Abramowitz, 1973	USA	To determine the feasibility of utilizing auxiliaries with expanded functions, quality, amount and types of service, and economic considerations	Experimental (RCT)
Redig, 1974	USA: San Francisco	To determine whether the performance of more routine reversible dental procedures by dental auxiliaries would permit the dentist to spend his time on more complex procedures	Experimental
Harris, 2004	UK: Liverpool	To describe the type of patients seen and work undertaken by dental therapists employed in four personal dental service practices and to report their cost effectiveness	Observational (prospective cohort)
Brown, 2005	USA: Colorado	To analyze the economic aspects of unsupervised private hygiene practice and its impact on access to care in Colorado	Observational study

ent programs (i.e., New Zealand versus United States) and this needs to be taken into consideration in future evaluations.

Quality

In an IHS experimental study of crossover design, Abramowitz evaluated the quality of randomly selected class 2 amalgam restorations done by four teams of clinicians[17] (TABLE 3). Each team had a dentist and two expanded-function dental auxiliaries (EFDA). To be eligible for the study, each team had to have at least one year of clinical experience and comparable work records. During the study, each team performed more than 1,500 restorations while changing the experimental/control group assignment (crossover) in the middle of the study. Using two independent and double-blind evaluators, who used visual as well as radiographic examinations, the investigator reported that the unsatisfactory class II amalgam restorations done by dentists (28 percent) was similar to that of EFDAs (31 percent; $p>0.05$). Close to 45 percent of the above unsatisfactory restorations were due to poor marginal adaptation. However, the two evaluators disagreed with the quality of the restorations 25 percent of the time. In an extension of this study, the same authors concluded that EFDAs were able to provide restorations of acceptable quality.[18] The superior study design, considerable sample size, and the direct double-blind clinical and radiographic evaluation added credibility to this study.

In another study, Hammons et al. compared hundreds of reversible procedures done by six carefully selected EFDAs to that of advanced dental students.[4] In this nonrandomized experimental study,

Study Size	Findings	p	Level of Evidence
No. of dentists = 1 No. of dental auxiliaries = 3	DH addition increased the team productivity by 61.7%. Waiting period decreased from 6-8 weeks to 2-3 weeks. Operation cost increased by 33.9% (DH salary).		Level 3
No. of dentists = 1; Auxiliaries = 1	64% increase in patients seen/day; 50% increase in procedures/day; 79% more restorations and 29% more extractions		Level 3
No. of dentists = 6 No. of dental auxiliaries = 15 Total No. of patients = 6,400	110%-133% productivity over baseline with 1:4 dentist:EFDA ratio. 62%-84% increase with 1:3 ratio		Level 3
No. of dental students = 30 No. of dental auxiliary trainees = 4	33% increase in productivity with addition of expanded-duty dental auxiliaries. Addition of a second dental assistant increased 18.5% productivity	P>0.05	Level 2
No. of dentists = 2 No. of dental assistants = 3 EFDAs = 5	The efficient use of EFDAs resulted in decreased fees, increased net income or a combination of both		Level 2
No. of dentists = 10 No. of dental auxiliaries = 6	The use of EFDAs was economically feasible and permitted the dentists to deliver more dental services		Level 3
No. of dentists = 13 No. of dental therapists = 4	The dental therapists may play an important role within the dental team, particularly in relation to prevention	P>0.05	Level 3
No. of dentists provided data = 279 No. of dental hygienists = 20	The impact of unsupervised dental hygienist practices is limited and their economic viability is questionable		Level 3

they independently evaluated a random sample of procedures selected from each group using pretested criteria. The procedures compared included inserting and finishing amalgam and silicate restorations, temporary restorations, placing matrix bands, and placing rubber dams. Unacceptable unfinished amalgam and silicate restorations were significantly lower in the EFDA group. Finished amalgam restorations were of equal quality while the silicate restorations were significantly better among the students. Unacceptable temporary restorations and matrix band and rubber dam placing were also significantly higher among the dental students. These findings are also of little value due to small study size as well as the lack of direct comparisons of EFDA procedures to that of trained dentists. Once again, there were no irreversible procedures assigned to the EFDAs.

Using four of the same EFDAs, Hammons et al. extended the above study by comparing their performance on the same irreversible procedures to that of eight dentists (six private practice and two university instructors).[19] More than 100 reversible procedures were randomly allocated to them and the quality was blindly evaluated using pretested criteria as before. Unacceptable finished amalgam restorations and matrix band placement were significantly lower among the EFDAs while the dentists had a lower proportion of unacceptable finished silicate fillings. In a similar manner, Rosenblum compared 20 teams (each comprising of a senior dental student, an EFDA, and an assistant) who treated 363 patients over nine months to 10 teams (each only had a senior student and an assistant) who treated 118 patients.[20]

Patients were randomly allocated to experimental and control groups. Reversible procedures such as rubber dam use and polishing class II restorations were statistically significantly better in EFDAs compared to dental students in this study. However, the procedures were evaluated by unblinded and uncalibrated evaluators. By adding a group of newly trained EFDAs to the teams, these investigators also showed that after 10 weeks of clinical experience, quality of procedures of newly trained EFDAs was similar to that of more experienced EFDAs and both groups remained significantly superior to the dental students in performing several reversible procedures.[21] In this study, more than 90 percent of the participating dental students favored the expansion of the role of dental assistants.

In an elaborate and methodologically sound NIH sponsored 5.5-year study, Lotzkar et al. trained 32 assistants to perform expanded-duty reversible functions and independently evaluated their performance and found out that although they required more time to perform these procedures compared to dentists; 53 percent to 93 percent of their procedures met the required standard.[22]

TABLE 5

Description of Studies in Relation to Patient Satisfaction: Summary Findings and the Level of Evidence

Study	Location	Objective	Design
Sisty, 1974	USA: Iowa	To determine whether patients accepted expanded, intraoral procedures performed by dental hygiene students	Experimental (RCT)
Holst, 1994	Sweden	To evaluate the dental assistant selection of caries risk children up to age 3 by comparing dental health variables in 4-year-olds in the test clinic with those for the whole country	Prospective cohort
Gutkowski, 2007	USA: California	To evaluate the role of clinical and administrative staff in maintaining a practice with a focus on disease prevention and management	Observational study
Sun, 2010	UK: Liverpool	To investigate whether there were any differences in patient satisfaction after a visit to a therapist compared to a visit to a dentist	Observational study
RTI, 2010	USA: Alaska	To evaluate implementation of DHAT program with a particular emphasis on quality, safety, and patient satisfaction	Cross-sectional

In phase 3 of the same study, they compared EFDA procedures to that of seven dentists and found out that 83 percent of the EFDA phase 3 procedures met the required standard, a proportion similar to that of the dentists during phase 1.[23] Although the numbers of assistants and dentists used in the study are still small, the independent evaluation of the outcomes adds credibility to this study.

In 1949, the Forsyth experiment, a five-year program where dental hygienists were trained to do fillings, was started but was abandoned after one year due to political and other reasons at the time. In 1972, the project restarted in a refined manner as Project Rotunda, but was again terminated in 1972. In 1975, the project report came out that also met with sharp criticisms that led to a Blue Ribbon Commission Report in 1976.[7] However, in this elaborate study, dental hygienists with advanced skills performed cavity preparation, restorations, and local anesthesia (infiltration and block). Although some sample sizes were small, the performance of hygienists was blindly and repeatedly evaluated both internally and externally while also evaluating the patient satisfaction. Dental hygienists (N=19) received acceptable mean quality points (10.2) that were comparable to what was given to 15 dentists (10.6; a score of 9 was the acceptable value) for cavity preparation. Amalgam restorations also received higher quality points that were comparable to dentists (12.9 versus 12.5). Interestingly, radiographic examination of fillings done by the hygienists only showed overhangs in 5 percent of the 528 fillings. This value was much smaller than the value of 24.9 percent obtained from 556 fillings done by dentists at baseline.

Another procedure that is delegated to several types of auxiliary providers is dental sealants. Using 3,194 first molar sealants (in 810 subjects) done in a private practice setting in Minnesota where the operators (four dentists, three hygienists, and 10 dental assistants) used identical protocols and four-handed dentistry, Folke et al. conducted a 10-year retrospective follow-up study to evaluate the factors related to sealant failure.[24] Mean survival of sealants in the dentist group was 3.45 years, dental assistants, 3.65, and dental hygienists, 7.7 ($p<0.05$). After controlling for the other potential factors related to sealant failure, they showed that the risk of sealant failure was significantly lower for dental hygienists compared to dentists and dental assistants (HR=0.5; $p<0.05$). It should be noted that the sealants were placed by a smaller number of providers in this study as well.

Bolin evaluated 640 procedures done on 406 subjects (27 percent done by dentists, 34 percent by DHAT under direct super-

Study Size	Findings	p	Level of Evidence
No. of dental students = 30 No. of dental hygiene students = 12	Dental hygiene students received higher ratings than the dental students on preventive periodontal functions	p>0.05	Level = 3
No. of dental assistants = 2	The % of children with no caries in the test clinic was more than whole country and time spent in clinic was less. But the % was same for >=4 & >=8 deft		Level = 3
	The team approach to caries management by risk assessment is integral to the disease in the incidence and prevalence of dental caries among various populations		Level = 3
No. of dentists = 42 No. of dental therapists = 11	There is a difference in patient satisfaction between patients reporting on care provided by a dental therapist compared to a dentist	p<0.001	Level = 3
No. of DHAT = 5	The five therapists who were included were performing well, operating safely & appropriately within the defined scope of practice. The patients were generally very satisfied with the care they received.		Level = 3

vision, and 39 percent by DHAT under general supervision) using the applicable IHS quality assessment criteria.[16] DHATs treated significantly younger patients (mean age=16.9 years) compared to dentists (mean age=24 years; p<0.02) but the types of procedures are reported to be similar except for more stainless-steel crowns done by DHATs.[16] There was a deficiency in adequate radiographs for younger children treated by DHATs. The use of just one evaluator has minimized the examiner variability in this pilot study but the DHAT program was at its infancy at the time of the study (6 months of age) thus restricting the study size. A chart review has certain limitations and some data were restricted to census surveys rather than actual chart reviews, further compromising the validity of the findings. Chart selection may also have favored dentists due to logistics. Furthermore, the age differences in the patient groups treated by the two types of providers may have partially led to the observed results.

Within the limitations of the Kellogg report previously identified under the safety section of this paper, in terms of quality of the DHAT procedures, the study indicated that the deficiencies in preparation and restoration of composite restorations (total N=15 preparations and 73 restorations) were similar between DHATs and dentists (12 percent-15 percent).[11] However, the proportion of deficient amalgam restorations was smaller among DHATs (12 percent) compared to dentists (22 percent). Although the oral health impact profile (OHIP-14) is not a true direct measure of the quality of DHAT procedures, based on subjects experiencing at least one impact factor (e.g., painful aching mouth) either "fairly often" or "very often," the OHIP prevalence for Alaska was reported to be 19.3 percent in this study, a prevalence that is higher than that in the United States (where there are no other DHATs), and much lower than that in New Zealand where dental therapists have been around for more than 90 years, further confirming the limitations of this study.[11]

Productivity (Cost-Benefit)

In a small observational study, Baird et al. tried to establish whether clinical technicians (dental hygienists) can be trained economically to undertake additional responsibilities and be employed effectively under conditions existing in the average clinics of the Royal Canadian Dental Corps[25] (**TABLE 4**). Using one dentist and three hygienists with 3.5 years of experience and additional training, they showed that the addition of the hygienist increased the team productivity by 61.7 percent while the waiting period decreased from six to eight weeks to two to three weeks. This step only increased the cost in terms of salary to the operation by 33.9 percent. While the results had certain merits, use of only one dentist and three dental hygienists and the restriction of procedures to reversible procedures were major limitations of this early study.

In a retrospective review of day books obtained from a clinic where the clinician worked the whole day, Sutcliffe evaluated the increase in baseline clinic productivity (more than 167 working days) when an auxiliary was added to the dentist-assistant team and observed for another 114 subsequent days.[26] While it is not surprising to see that two operators can see more patients and do more procedures compared to just one operator, there was a 64 percent increase in the number of patients seen/day and a 50 percent increase in procedures done/day (79 percent more restorations and 29 percent more extractions). A dentist's performance was not diminished as a result of having to supervise the auxiliary either.

Although irreversible procedures were also included in the study, the investigator missed the opportunity to make direct comparisons of the safety and quality of these procedures done by the auxiliaries. Rosenblum's comparison of EFDAs to senior dental students also indicated a 40 percent increase in productivity (2.6 procedure per half day without the EFDA in the student and assistant team compared to 4.3 when an EFDA is added to the team).[20] Lotzkar et al. also showed an increased productivity of dental teams when EFDAs are added to the team, as has been shown by Abramowitz.[18,22,23] Using four private dental offices in the San Francisco Bay Area and six EFDAs, Redig et al. extensively evaluated the productivity aspect of adding auxiliary providers to private dental offices.[27] By evaluating 19,034 reversible procedures performed in these offices (40 percent were related to placing and finishing permanent restorations), they demonstrated a net increase in the number of patient visits per eight hours during the 12-month study period compared to the baseline. Although the quality or the safety of the procedures was not independently evaluated, the authors concluded that the use of EFDAs in private settings is not only feasible but also allows dentists to provide more services in less time.

In a United Kingdom study done by Harris et al., the cost-effectiveness of adding a dental therapist to four personal dental services was evaluated.[28] Based on day sheets related to 30 consecutive sessions kept by therapists and 20 sessions of dentists, they observed the therapists to see more children and to perform more sealants, but the gross fees and patient charges generated by the dental therapist in all four practices failed to cover the cost of salary and related overhead. However, the results of this small study may not be generalizable to other settings and populations.

In a purely theoretical exercise, the PEW Center claimed that hiring an allied provider can make business sense for various private dental practices by increasing the clinic productivity while providing care to low-income Americans who do not currently have access to such care.[12] By adding auxiliary providers to solo pediatric and general practices and a small group practice, they extrapolated more than 50 percent profit and productivity impact in solo practices and close to 20 percent impact in the small group practice without adding Medicaid patients to the mix. The impact was much lower, yet was still positive, when the assumption was made that the practice served 20 percent Medicaid patients. Although this is a theoretical exercise, the authors included this here because similar evaluations can be done using actual data from various practices using well-designed studies.

A DENTIST'S performance was not diminished as a result of having to supervise the auxiliary either.

Patient Satisfaction

Patient-reported outcomes are considered a measure of quality of care provided. As Lotzkar et al. showed, Sisty et al. also showed an acceptable patient satisfaction of the procedures performed by the auxiliary providers[22,23,29] (**TABLE 5**).They compared junior dental students (N=30) and randomly selected expanded-function dental hygiene (EFDH) students (N=12) and used 338 patient surveys related to periodontal procedures done by EFDHs and 319 surveys related to the same procedures done by the dental students. They concluded that the patients were equally or more satisfied with the EFDH students. When the operative procedures were compared using 273 surveys related to EFDH procedures and 211 related to dental student procedures, similar results were seen. Inclusion of irreversible procedures such as cavity preparation and surgical management of periodontal soft tissues and the masking of the patient to the operator status increased the quality of this study. Project Rotunda also showed that 99.1 percent of the 1,200 patients surveyed were satisfied with the procedures performed by the advanced-skills hygienists.[7]

In a 2010 study, Sun et al. compared patient satisfaction related to the procedures performed by dental therapists to that of dentists in eight practices in the area northwest of England.[30] They used a 10-item overall patient satisfaction scale and three subscale outcomes (related to communication, understanding, and competence) to survey 240 consecutive patients who were treated by therapists and 400 treated by dentists. They concluded that the overall patient satisfaction as well as subscale satisfaction were significantly higher for the therapists ($p<0.001$). These differences remained significant after controlling for selected covariates. Limitations of this study are the much lower response rates of patients treated by therapists (54.2 percent) compared to the response rate for dentists (75.3 percent), which may have biased the results, nonrandom sampling, and the investigators inability to control for the types of procedures performed (a factor directly related to patient satisfaction). Furthermore, these findings may not even be generalizable to the United Kingdom.

The Kellogg Report also addressed the patient and caregiver satisfaction related to DHATs in Alaska.[11] Authors reported that the caregivers rated their DHATs with a mean rating score of 8.3 out of a best rating of 10. Limitations of the Kellogg study identified earlier apply to this observation as well.

Discussion

The supply or availability of dentists is constrained at least in some geographic locations and in low-income and minority groups while the need to contain cost is escalating. In the medical profession, this same issue was addressed by the nurse-doctor substitution or by adding physician assistants. In a Cochrane review, appropriately trained nurses were shown to produce as high quality care as primary care providers and achieved as good health outcomes for patients.[31] Although the above review has the limitation of not having enough studies with adequate power, the medical profession continues to use nurse practitioners and physician assistants. This same approach of delegating at least certain functions to auxiliary providers within dentistry goes back to the 1920.[2] ADA House of Delegates recommended that research be carried out to identify the functions that can be delegated without putting patients at risk as early as in 1962 (see Abramowitz et al.).[18]

The general notion at the time was that diagnosis and treatment planning, prescriptions, surgical procedures, and other procedures that required advance skills should not be delegated. Judging from the letters to the editors and position papers, there are numerous arguments made against the use of auxiliary providers in dentistry.

Among these arguments are the notions that the patients will receive second-class care from the auxiliary providers, these providers may perform procedures that are not authorized, they may perform irreversible procedures without adequate supervision thus compromising the patient safety, and perhaps no care may be better than providing potentially harmful care. Leaving all these speculations behind, one should critically evaluate the safety, quality, productivity, as well as the patient satisfaction related to the procedures that have been performed by various providers over the years.

One way to evaluate the auxiliary providers is to conduct valid comparisons of the procedures performed by them to that of dentists. Such comparisons should be done using randomized control trials (RCTs) with sufficient statistical power that achieves baseline comparability in terms of various confounding factors that might influence the results. Final evaluations should be performed by masked evaluators using valid and tested evaluation criteria. This design is challenging as not all auxiliary providers can perform all the procedures that are performed by dentists. Disease, as well as patient characteristics and practice characteristics, may also influence the outcomes. As such, there is a need to use stratified randomization using the procedure types, disease, patient, and practice characteristics when allocating subjects to various providers within the rules and regulations governing the practices. Unfortunately, such studies are not available in the literature most likely due to obvious logistical challenges.

FINAL EVALUATIONS should be performed by masked evaluators using valid and tested evaluation criteria.

The authors conducted a systematic review of the available literature using standard methodology to obtain unbiased estimates of the safety, quality, productivity, and patient satisfaction related to the procedures performed by the auxiliary providers. While there were no studies with the highest level of evidence to demonstrate the true safety of various procedures performed by these providers compared to dentists, a smaller number of studies have made attempts to compare the safety of local anesthesia and some irreversible procedures.[7,11,15,16] These studies are subjected to inadequate power, biased subject selection, and less-than-adequate comparisons as shown within the results section related to each study.

There were numerous experimental and observational studies that addressed the quality of the reversible as well as irreversible procedures (**TABLE 3**). Some of these studies were of high quality including experimental studies funded by the NIH, but these early studies were only focusing on the quality of the reversible procedures, again as shown within the "Results" section. In addition, a large retrospective study has convincingly shown better survival of sealants placed by dental hygienists.[24] However, the quality of the irreversible procedures is at best inconclusive due to numerous methodological deficiencies of these studies as shown within the "Results" section.

Several studies have addressed the cost-benefit of adding the auxiliary providers to practices (**TABLE 4**). As expected, most of these studies show evidence for increase productivity and a reasonable cost-benefit ratio, which goes well with some of the theoretical projections.[12] Relative merits of each of these studies are also shown within the "Results" section.

Patient-reported outcomes and their satisfaction are important considerations in evaluating health care or other services. Evidence that indicates the patients are generally satisfied with the performance of the auxiliary providers (**TABLE 5**) is based on limited observations and may not be generalizable to populations other than the study groups.

Limitations

One of the limitations of the authors' study is the fact they restricted the studies to the English language. They also could not create summary or pooled estimates to demonstrate the overall safety, quality, cost-effectiveness, and patient satisfaction of the auxiliary providers due to the diverse nature of the procedures performed and the outcomes measured.

Future studies

As indicated earlier, there definitely is a need for a fully powered randomized controlled trial to obtain valid estimates related to safety, quality, cost-benefit, as well as patient satisfaction related to the procedures performed by the auxiliary dental providers. Given that the NIH has three practice-based research networks (PBRN) that are already in place, as a prelude to this RCT, valid observational studies can be performed within these PBRNs to generate sufficient data to design a fully powered RCT and to test the feasibility of such a RCT before designing and implementing RCTs within the same PBRNs or other settings. A multicenter international collaboration may further enhance the value and the usefulness of the study as it then can be taken into account the baseline differences in health care systems, population and disease characteristics, types of providers and their level of training etc. Such a study may appear to be too ambitious at the outset, but it can be done with careful planning if there is sufficient interest and adequate resources.

Conclusions

Available evidence is sufficient to a larger extent to conclude that the auxiliary providers are capable of providing safe and high quality reversible procedures while enhancing the productivity of the practices. Patients have generally shown satisfaction with their performance. However, the evidence in relation to the irreversible procedures related outcomes is insufficient and there is a need for further investigations using adequately powered and well-designed randomized control trials and other large observational studies. ■■■■

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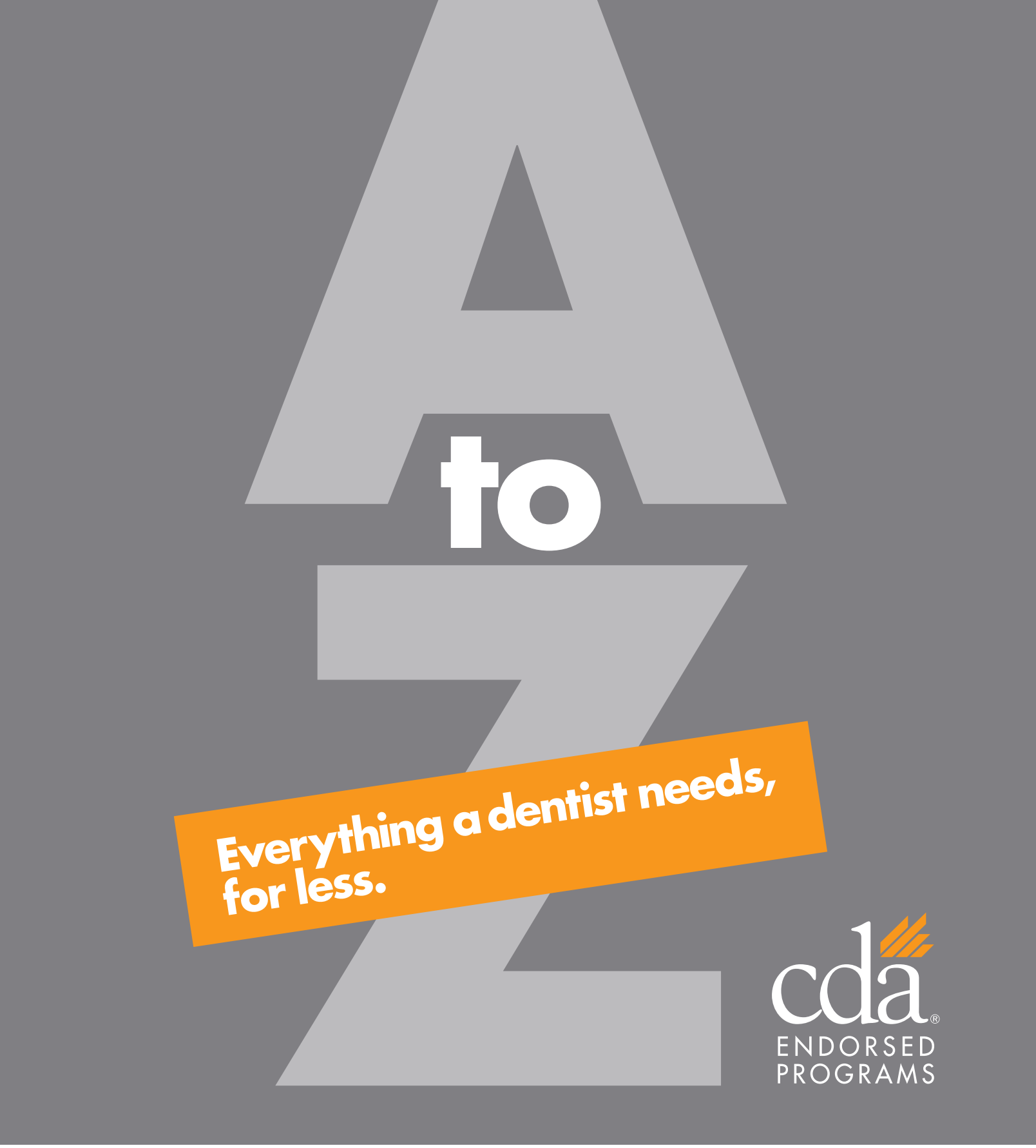

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Classified ads for publication in the *Journal* must be submitted by the fifth of every month, prior to the month of publication. Example: Jan. 5 at 5 p.m. is the deadline for the February issue of the *Journal*. If the fifth falls on a weekend or holiday, then the deadline will be 5 p.m. the following workday. After the deadline closes, classified ads for the *Journal* will not be accepted, altered or canceled. Deadlines are firm.

Classified advertisements available are: Equipment for Sale, Offices for Sale, Offices for Rent or Lease, Opportunities Available, Opportunities Wanted, and Practices for Sale.

For information on display advertising, please contact Corey Gerhard at 916-554-5304 or corey.gerhard@cda.org.

CDA reserves the right to edit copy and does not assume liability for contents of classified advertising.

OFFICES FOR RENT OR LEASE

OFFICE FOR RENT OR LEASE — Professionally designed/built and newly equipped dental office for lease. Call 408-839-4090.

OFFICE FOR RENT OR LEASE — A turnkey dental office is available for a reasonable rent in the nicest neighborhood of Vacaville, CA. Everything is present for a doctor (specialist or generalist) who desires to start from scratch, or relocate an existing practice. The office has 3 operatories, digital x-rays, & can be easily converted to a paperless practice with existing computers & software. It is a ground-floor office, located across from a beautiful city park, one mile from Highway 80, & one mile from downtown Vacaville. An Endodontist, Oral Surgeon, & Orthodontist, & Prosthodontist are within walking distance. An experienced, cross-trained RDA is also available. Call 707-695-7229.

OFFICE FOR RENT OR LEASE — Starting in February 2012, prime office space of 2,150 sq. ft. available in Salinas, CA. This office suite is in ideal location across the street from Salinas Valley Memorial Hospital. This is a great opportunity to start a new practice or relocate an existing

CONTINUES ON 82

CLASSIFIEDS, CONTINUED FROM 81

practice. Office comprised of 5 plumbed operatories, lab, reception, sterilization, conference or lunch room with wet bar, and upstairs are two private offices with storage rooms. No patient records or dental equipment included. All operatories have cabinets and sinks. Contact Dr. John Hirasuna at hi2jtsumo@gmail.com or 831-484-9439. Upon request, photos will be emailed.

OFFICE FOR RENT OR LEASE — Hitomi Dentistry (General Practice) is seeking for a long term contract opportunity to rent our office space to a Specialist on Mondays/Thursdays/Saturdays/Sundays 7 a.m. to 7 p.m. Three fully equipped operatories: Digital X-ray, Dexis sensor, hand pieces, physics forceps, basic set up tray and disposables including anesthetic. Near 10, 605 and 60 Freeways. Wireless Internet, telephone and FAX. Parking lot. Paid Utilities Rent per day is negotiable. Our RDA will assist on hourly base (paid in addition to rent). Hitomi Dentistry, 11525 Lambert Ave., El Monte, CA 91732. Call 626-443-5900 or email office@hitomidentistry.com. For pictures visit www.facebook.com/HitomiDentistry or www.hitomidentistry.com.

OPPORTUNITIES AVAILABLE

OPPORTUNITY AVAILABLE — Established and updated private dental practice seeking a part time to full time associate dentist. We are looking for a great team player who enjoys treating both adults and children. Our office has been successful in providing high quality general, implant & cosmetic dentistry and wish to continue our success with the addition of one associate who could be either new or experienced and has the desire to provide a wide range of treatment. We are located in a wonderful town that is centrally located and minutes away from both Fresno and Visalia. Resumes can be emailed to kingsburgfamilydental@gmail.com or faxed to 559-897-2622.

OPPORTUNITY AVAILABLE — United Indian Health Services (UIHS), a nonprofit community clinic providing health care to American Indian people & their families, is seeking a FT Dentist to provide outpatient care. Located in beautiful northern California, UIHS offers an opportunity for personal and professional growth. This position will work closely with a team of other dentists & hygienists in providing culturally sensitive, high quality & comprehensive health care services to the Indian Community. Computer skills & ability to work in fast paced environment required. Competitive wages & benefits. Salary $109,907/yr and up DOE Closes: Open until filled. Contact trudy.adams@crihb.net or call 707-825-4036.

OPPORTUNITY AVAILABLE — Looking for RDA with minimum 2 years exp in Pedo. Position is for two Fridays out of the month. Bilingual is a strong plus! Please reply by email to nuevodentalclinic@gmail.com or fax 951-928-2842.

CONTINUES ON 86

WESTERN PRACTICE SALES

John M. Cahill Associates

BAY AREA

A-8941 SAN FRANCISCO– Move-In Ready! Two Fully Equipped ops/plumbed for 1 add'l **Only $65k**

B-9791 OAKLAND Historic building 2,050 sf w/ 4 fully equipped ops **$275k**

B-9851 SAN RAMON Facility—This opportunity will not wait! Office ~ 1,700sf w/ 3+ ops **$219k**

B-9941 Central Contra Costa-Stellar reputation - Strong, loyal patient base. 863 sf w/3 ops **$675k**

BN-031 BERKELEY - Established 30 + yrs, "State of the art" FFS Practice ~1200sf w/5 ops **$1.3M**

BG-029 Facility ANTIOCH-Would cost more to duplicate! Spacious, attractive, 2-story mixed Prof complex. Great location! 1,650 sq. ft. w/5 ops **$80k**

C-8901 SANTA ROSA– Residential area. 40+ new pats/mo. Highly Visible! 1291sf & 3 + 1 op. **$468k**

C-976 PETALUMA—Prestigious area! ~ 800 sf w/2 fully equipped ops **$295k**

C-989 SANTA ROSA - Foot traffic generates new patients & continuous growth for this modernly equipped office. ~ 2,500sf w/ 5ops. **ONLY $199k**

C-1016 MARIN CO-Well-established w/wonderful patient base! 800 sf w/3 ops **$280k**

CG-025 NAPA FACILITY- Large, picturesque, floor-to-ceiling windows capture scenes of bustling heart of town! 1,285 sf w/ 4 ops. Only **$45k**

CG-021 SUISUN CITY-Quality, FFS Practice. With only 2 DDS in town of 28k, this is expertly located in historic Dwntwn on Main St.1,200 sf & 3 ops **$348k**

CC-027 MILL VALLEY-Quality practice w/stable patient base! 2,088sf w/5 ops **$650k**

D-9091 ATHERTON -Turnkey operation 969 sf & 3 ops ***Call for Details!***

D-845 San JOSE *Facility Only* - Great Location! Office is ~2080sf, 5 ops + 1 add'l**. Now Only $79k!**

D-960 *Facility only* SAN JOSE - *Reasonable rent and great lease*. **Opportunity to purchase condo suite also!** 1,158sf w/3 ops **$85k**

D-965 WATSONVILLE - Office ~ 2,400 sf, w/ 4 equipped ops + plumbed for 4 add'l ops. **$420k**

D-967 SAN JOSE – FACILITY— Beautiful! Office ~1,600+ sf w/ 4 ops **Only $110k Seller fin. avail. to qualified buyer w/10% down!**

D-982 SUNNYVALE Facility - 2 ops & space to add an add'l op & business office - Rent only $1,750 including triple-net! **Now Only $108k**

D-991 SANTA CRUZ-Practice by the beach! 1,050 sf w/ 3 ops + plumbed for more! ***$195k***

BAY AREA CONTINUED

D-9921 SANTA CRUZ CO - Professional center, good design for patient flow. 1,140 sf w/3 ops **$225k**

D-1015 SAN JOSE - 1,160 sf w/3 ops w/ plumbing and space for 2 additional ops **$250k**

D-997 SAN JOSE -Well established, FFS practice. ~ 1,008 sf w/ 3 ops + 1 add. **$230k**

D-1020 CASTRO VALLEY - Quality, fee-for-service practice. 1,784 sf w/5 ops **$545k**

DG-028 LIVERMORE – Well maintained, free standing Prof Bldg. 1,400sf w/4 ops **$425k**

NORTHERN CALIFORNIA

E-8641 SACRAMENTO-FACILITY - 2,100+ sf w/ 3 ops & plumbed for 1 add'l **$50k**

E-969 FAIR OAKS Everyday will be a joy to come to work. Office is ~ 600sf w/2 ops. **$250k**

E-995 ELK GROVE -Quality, FFS practice. $900k+ in 2010! ~1,692sf w/ 5 ops. **$600k**

E-1018 *Facility Only* FOLSOM—Sparkling! Medical/Dental building. ~2305sf w/ 5ops**. $150k**

EN-026 ROSEVILLE—Warm Caring Environment, ~1000sf, w/ 3 ops . **$380k**

F-1013 FORTUNA-Well respected FFS GP. Loyal stable patient base. 1,000 sf w/ 3 ops **$195k**

G-875 YUBA CITY–Estab. 30+yrs, GP, FFS, 3,575sf /9 ops, **$1.63m w/Cerec ~ Buy-In Op!**

G-883 CHICO VICINITY – Quality FFS GP. Attractive Prof Plaza. 1,990 sf w/ 5 ops **$495k**

G-998 CHICO/PARADISE—Surrounded by breathtaking natural beauty! ~898sf, 3 ops. **$275k**

H-856 SOUTH LAKE TAHOE Over 50 new patients/mo Respected & Growing! 1568 sf & 4 ops **$325k**

G-1019 CHICO AREA—Small Community practice! ~1,600sf w/ 2 ops. **$215k**

GN-034 PARADISE—Central Local and great views! ~1168sf w/ 3ops. **$210k**

SOUTHERN CALIFORNIA

K-986 NEWPORT BEACH -Attractive, multi-story Medical/Dental bldg. 1,000 sf w/2 ops **$195k**

KG-023 IMPERIAL VALLEY- Free-standing, Medical Prof Bldg. 1,050 sf w/3 ops **$195k**

CENTRAL VALLEY

I-966 MODESTO - Facility Newly renovated, w/ prof. décor and floor plan~ 700sf w/2 ops, **$89k**

I-9721 STOCKTON –Prof. complex 1,450 sf w/3 ops & plumbed for 1 add'l op. **$75k.**

I-974 MODESTO FACILITY – Newly Remodeled / Reasonable Rent! 950sf w/3ops **NOW ONLY $45k**

I-996 MERCED- Collected $500k w/owner dds. Ready for new owner to revitalize wall of charts. 1,450 sf - 3 ops **$140k**

I-1005 SAN JOAQUIN VLY- Long-established High-End Restoratives. 2,500+ sf w/ 6 ops **$650k**

I-1012 MANTECA- Location, Growth, High Profit. Well-equipped 780 sf w/2 ops **$479k**

IN-024 MERCED - This immaculate practice is an absolute jewel! ~1250sf, 3 ops + 1 add'l **$240k**

IN-032 GREATER MERCED AREA - Prime Location! Modern equip ~1,100 sf w/ 4 ops **$335k**

J-1000 TULARE— *Real Estate Available too!* Great highly visible location! ~ 1650sf w/ 4op. **$349k and R.E. $249k**

J-1001 LINDSEY— All American City! Conveniently located ~ 3,380sf w/5 ops $325k

J-928 ATWATER - Established & respected for gentle treatment. 1,313 sf w/3 spacious ops **$230k**

J-1009 VISALIA- Buy 50% or 100%! Prof Bldg. Desirable area. 4 ops. **$250k /$500k**

SPECIALTY PRACTICES

I-7861 CTRL VLY ORTHO- 2,000sf, open bay w/8 chairs. FFS. 60-70 patients/day. Prof Plaza. **$370k**

D-892 MORGAN HILL ORTHO- Remarkable Oppty! 1900sf & 6 chairs in open bay. **$275k**

I-9461 CENTRAL VALLEY/ORTHO - .~ 1,650 sf w/5 chairs/bays + (2) add'l plumbed. **$140k**

E-980 SACRAMENTO VICINITY ORTHO – ***4 for the price of 1***! Sold as cluster of satellite offices in multiple locations, grab this w/ no regrets! **$1.5M**

J-983 CENTRAL VALLEY ORTHO - Attractive, single-story ~1,773sf w/ 6 chairs/bays. **$325k**

G-975 CHICO ORTHO—Providing quality care 2 Denti-Cal patient base. ~ 900 sf w/ 2 + ops . **$90k**

DN-022 ENDO TRI-VALLEY-~ 30 new pats/mo. 975 sf w/ 2 fully equipped ops **$275k**

BC-033 ALAMEDA CO ORTHO – ~ 50 pats/day. Highly visible. 1,250 sf w/4 Chairs/Bays **$450k**

Timothy G. Giroux, DDS

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- **EL DORADO HILLS:** *For Sale*-General Dentistry Practice. 2009 GR $790,758, adjusted net income of $312K. Intra-oral camera, pano, Softdent software, 4-equipped ops. 6-hygiene days. Practice has been in its present location for past 18 years. Owner retiring. SOLD
- **EL DORADO HILLS:** *For Sale*-General dentistry practice. Gross Receipts of $834K with adj net of $389K, 53% overhead. Office has five equipped operatories in 1485 sq.ft. Pano, Intra-oral Camera, Dentrix, 5 days of hygiene. Owner retiring. SOLD
- **FOLSOM:** *For Sale*-General Dentistry Practice. Gross Receipts in 2010 were $703K with an adjusted net income of $300K. 5 days of hygiene and approx 3300 active patients. Leased Office is 2,000 sq ft with 4 equipped operatories-5 possible. Patient Base software. Owner to retire. SOLD
- **FOLSOM:** *For Sale*-General Dentistry Practice. Gross Receipts in excess of 1.5M the past three years. Adjusted Net of $550K. 2,700 sq. ft. office with 7 ops, Digital, Dentrix, Intra-Oral Camera, Laser, 5+year old equipment, 8 days hygiene. Beautiful office, great location. Owner retiring. #14336 SOLD
- **FOUNTAIN VALLEY:** *For Sale*-General Dentistry Practice. Gross Receipts $284,000 with only a 47% overhead. Practice has been in its present location for the past 37 years. There are two equipped operatories in this 5 op office. E2 2000 software. Doctor is retiring.
- **FRESNO:** *For Sale*-General Dentistry IV Sedation Practice. (MERGER OPPORTUNITY) Owner would like to merge his practice into another high quality general dentistry or IV sedation practice. The merger would be into Buyers office. Seller would like to continue to work as either a partner or associate after the merger. 2010 collections were $993K with a $422K adjusted net income. There are 7 days of hygiene. #14250.
- **GLENDALE:** *FACILITY SALE*-General Dentistry Office Space & Leasehold Improvements Sale- Office located in a medical plaza, 1760 sq. ft. 7 operatories, computerized equipment approximately 5 years old. Two 5-year options available. #14373
- **GRASS VALLEY:** *For Sale*-General Dentistry Practice. GR of $307,590 (3 days/wk) with adjusted net income of $105K. 3 Ops. refers out most/all Ortho. Perio, Endo, Surgery. Intra-Oral Camera, Diagnodent, EZ Dental Software. Good Location. Owner retiring. #14337.
- **GRASS VALLEY:** *For Sale*-General Dentistry Practice. GR 545K 3 days/wk (4 avail). 3 hygiene days/week. 5 Ops (6 Avail) 1,950 sq ft. Refers out most/all Ortho, Perio, Endo, Surgery. Office has Laser, Intraoral Camera, Pano, & Dentrix Software. Owner retiring. #14372.
- **GRASS VALLEY:** *For Sale*-General Dentistry Practice. Gross Receipts $491K with an adjusted net income of $130K. Overhead 73%. Office leased 1,555 sq ft. 4 equipped operatories 5 available. Laser, Intra-Oral Camera, Cerac, & Eaglesoft software. Owner would like to retire. #37108.
- **GREATER CHICO:** *For Sale*-General Dentistry Practice. Gross receipts in 2010 were $584K, with an adjusted net income of $152K. Approx 1,100 active patients. 4 operatories, Pano, Intra-Oral Camera. Easy dental software. Leased office 1,200 sq. ft. Owner is retiring. #14359.
- **GREATER SAN JOSE AREA:** *For Sale*-General Endodontic Practice. 2009 Collections were $1,187MIL with an adjusted net income of $696K. There are 4 ops in this nicely decoreated 1,400 sq ft office space. 4 microscopes. Owner has been in same location for 26 years with long-term employees. Owner is retiring but will continue to work 1 ½ to 2 years through the transition with the buyer. SOLD
- **HAWAII (MAUI):** *For Sale*-General dentistry practice. Gross Receipts of $636K. Office has four equipped operatories in 1198 sq.ft. Pano, Laser, I.O. Camera, Fiber Optics, 2 ½ days of hygiene. Owner retiring: Don't miss this opportunity to live and work in paradise. #20101
- **HAYWARD:** *For Sale*-General Dentistry Practice. This practice consists of 1,600 sq ft with 4 treatment rooms in an excellent location. 2010 Collections was $501,000 with a $228K adjusted net income. Dental Vision software, Average age of equipment is 8 yrs. Approximately 1,200 active patients. SOLD
- **IRVINE & COSTA MESA:** *For Sale*-General Dentistry practice combined. Gross receipts combined $781K with adjusted net of $396K. Both office spaces are leased with 4-5 ops in each. Both are 1,600 sq. ft. Irvine is equipped with Intra-Oral Camera, Pano & Dentrix. Costa Mesa is equipped with Laser, Intra-Oral Camera, Pano and Dentrix. #14355.
- **LAGUNA NIGUEL:** *For Sale*-General Dentistry Practice. 2010 gross receipts were $503k. 4 operatories, Pan, computerized with EZ dental software. 1,500 sq. ft. lease. 10 years in present location. Owner retiring. #14352
- **LAKE COUNTY:** *For Sale*-General Dentistry Practice. Gross Receipts 904K with adjusted net $302K. Practice has been in same location for past 23 yrs, and 25 yrs in previous location. 2,600 sq ft with 8 equipped treatment rooms. Intral-Oral Camera, Pano, and Data Con software. Owner to retire. #14338
- **LANCASTER:** *For Sale*-General Dentistry Practice. This 4 operatory office is located in 2,360 Sq Ft on the second floor of an attractive Medical Dental office building. Gross receipts were $676,000 with a $174K adjusted net income. Dentist is retiring after 39 years. 4 days of hygiene. Additional operatories could be added to existing space. Great location.#14376.
- **LEMOORE/HANFORD AREA:** *For Sale*-General Dentistry Practice & Building. Owner has worked in this location since 1971. Gross Receipts were $378K with $139K adj. net income. There are 3 equipped operatories and 3 days of hygiene. Purchase of the building is optional to the Buyer. 100% financing is available for both building and practice. Excellent opportunity for new grad or satellite practice. #14375.
- **LINDSAY:** *For Sale*-General Dentistry Practice & building. Gross Receipts $330K with adjusted net income of $219K. Owner has operated in present location for 27 years. Office space 1,489 sq. ft., 3 operatories available (2 equipped), Intra-Oral Camera, Soft-Dent software. 3-hygiene days a week. Owner retiring. #14363.
- **LIVERMORE:** *For Sale*-General Dentistry Practice. 2009 Collections were $688K with an adjusted net income of $287K. There are 4 ops in this nicely updated 1,082 sq. ft. office space. Dentrix software, 6-days/wk hygiene. Owner has been in same location for 36 years with long-term employees. Owner is retiring. #14326 SOLD
- **LOS ANGELES:** *For Sale*-General Dentistry Practice.1,200 sq ft 4ops, 29 yrs in present location. Gross Receipts $274K with adjusted net income of $89K. Owner to retire. #14348
- **MARIN COUNTY:** *For Sale*-General Dentistry Practice. This is a small 650 sq.ft. office with three treatment rooms. The practice has a very low overhead of only 48%. 2010 gross receipts were $179,000 with $90,000 adjusted net. Practice includes Panoramic X-ray and Easy Dental Software. Refers out O.S., Perio., & Endo. Practice has been in its present location for 30 years. This is an ideal practice for the new grad or satellite practice for the established dentist. Owner is retiring. #14370
- **MODESTO-TRACY-STOCKTON AREA:** *For Sale*-Pediatric Practice. $677,000 in collections in 2010 with a $357,000 net income. This 3-chair office is located in approximately 1,250 sq ft & has recently been remodeled. Patient Base software. Office equipped for NO2 & IV sedation. Practice has operated in its present location for 20 years.
- **NEWPORT BEACH:** *For Sale*-General Dentistry Practice. Practice has operated at its present location since 1986. Located in a highly affluent Newport Beach community. Three (3) hygiene days per week. Leased office space with 4 ops. in 1,450 sq. ft. Pano & Practice Works software. #14354. SOLD

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- **NORTHERN FRESNO:** *For Sale*-General Dentistry Practice. This is a perfect starter or satellite practice. Excellent location in North Fresno. Gross Receipts in 2010 were $173K. Approximately 450 active patients. 3 operatories. Dentrix software. Leased office 1,200 sq. ft. Owner has been accepted to an Endodontic Residency after starting practice 1 1/2 years ago.

- **NORTHERN CALIFORNIA:** *For Sale*-Endodontic Practice. This Endodontic practice is located in an upscale professional office complex. The owners condominium occupies 1,770 sq ft, There are 4 equipped treatment rooms with an additional 5th room available. Gross Receipts were $638K with $239K adjusted net income. Owner will stay for transition to introduce buyer. Owner is retiring. #14251

- **NORTHERN CALIFORNIA:** *For Sale*-Pediatric practice. Owner has operated in same location for 32 years. Approx 1,760 active pts, 1,160 sq ft, panoramic X-Ray, Dexis Digital and Dentrix software in this 3–chair office. 2009 Gross Receipts $713K with 48% overhead. Owner retiring. Call for Details. SOLD

- **OCEANSIDE:** *For Sale*-Modern looking office. 4 op, office space and equipment only. Belmont chairs. Gendex x-ray system, intraoral camera, approx 1200 sq ft. Low overhead-Rent is $1,900/month, and it's a 5 year lease. Staff is available for rehire-front desk $15/hr, assistant 13/hr. Update all the computer systems after purchasing the office in 07. Computers and monitors in every room. #14346 SOLD

- **PLEASANTON:** *For Sale*-General Dentistry Practice. Owner has other practice in Bay Area only in Pleasanton 1 day/wk. 300 active patients. Excellent location-beautiful 1600 sq.ft. 5-op office. Equipment like new, intra-oral camera, pano, Easy Dental software. Must See. #14364.

- **PLUMAS COUNTY:** *For Sale*-3 equipped ops. Space available for 4th op. 1,245 sf office in good location. Gross Receipts $475K. Practice in present location over 50 years. Owner is retiring. #14318

- **RENO:** *For Sale*-General Dentistry Practice and Dental Building: 2009 Gross Receipts $517K with adjusted net income of $165K. 4 ½ hygiene days/week. 1, 800 sq. ft. with 6 equipped ops. (7 Avail). Dentrix software, Pano. Practice has been in its present location for 40 years. Owner retiring SOLD

- **ROCKLIN:** *For Sale*-General Dentistry Practice. Gross Receipts $593K in 2010 with $240K adjusted net income. Office is 1,630 sq. ft., with 4 operatories equipped with fiber optics. Owner has been in present location for the past 13 years. 3 1/2 days hygiene. Intra-Oral Camera, Dentrix software. Owner to retire. SOLD

- **ROSEVILLE:** *For Sale*-General Dentistry Practice. Great Location. 2009 GR $900K with adjusted net income of $300K. 1,975 sq. ft. with 4 ops, 3 days hygiene/wk. Digital, Intra-Oral Camera, Dentrix, Trojan, fiber optics, P & C chairs - all less than 5 years old. Owner is retiring. #14327 SOLD

- **SACRAMENTO:** For Sale-General Dentistry Practice. Gross Receipts $546K with adjusted net income of $159K. Office is 2,400 sq ft with 7 operatories. Practice has been operating in the same location for the past 50 years. Pano, Softdent software. Owner to retire. #14374

- **SACRAMENTO/ROSEVILLE:** *For Sale*-One of many partners is retiring in this highly successful General Dentistry Group Practice. Intra-Oral Camera, Digital Pano-Dexis, electronic charts, owner Financing. Call for further information. #14334

- **SAN BERNARDINO:** *For Sale*-General Dentistry Practice. GR $972K. Practice has been in its present location for the past 35 years. Leased 4,500 sq ft of office space- 12 equipped operatories. Dentrix software, Pano and Cerac. Accepts HMO. Multi-specialty practice. Owner to relocate. #14377

- **SAN DIEGO:** *For Sale*-General Dentistry practice. Gross Receipts $414K. Practice has been operated by the same owner for the past 6 years. Leased 950 sq. ft. office with 3 equipped operatories. Dentix software, Intra-Oral camera, Panoramic X-Ray. Owner to relocate. #14356.

- **SAN DIEGO:** *For Sale*-General Dentistry Practice. 6 ops, Intra-Oral camera, Eagle Soft Software. Office square feet 2,300 with 3 years remaining in lease. 2009 Gross Receipts $1,448,520, with an adjusted net income of $545K. Doctor would like to phase out then retire. #14331 SOLD

- **SANTA BARBARA:** *For Sale*-General Dentistry Practice. This excellent practice's 2009 gross Receipts $891K with steady increase every year. Practice has 6 days of hygiene. 1,690 sq. ft., 5 ops, Laser, Intra-Oral Camera, Schick Digital X-Ray, Datacon software. Doctor has been practice in same location for the past eleven years of his 31 years in Santa Barbara. Doctor is retiring. #14333 SOLD

- **SAN LUIS OBISPO:** *For Sale* - Two Doctor General Dentistry Practice. Gross receipts $1,537,142 for 2010 with an adjusted net income of $691K. The office has 2,331 sq. ft. with 8 equipped operatories. Pano, E4D, and Dentrix software. Practice started in 1990 and has been in its present location since 1998. Approx. 3000 active patients. Great location with nice views. #14353.

- **SANTA CLARA:** *For Sale* - BUILDING ONLY: This building is located just west of Westfield Mall and Santana Row. The building has two units. One side is designed and plumbed for dentistry and the other was a law office. There is 3,776 sq. ft. of office space. The dental office is approximately 1,800 sq. ft. with 6 operatories. The building has been recently re-roofed. Excellent opportunity for a startup practice or for the dentist that needs more space. Financing available through various dental lenders. #14368

- **SANTA CRUZ:** *For Sale*-General Dentistry practice. Gross Receipts $300K with a 57% overhead. Office is 1,140 sq. ft. 3 equipped operatories. Intra-Oral Camera, Pano, Digital X-Rays, and Dentrix software. Practice has been in its present location since 1980. Owner retiring. #14358. SOLD

- **SANTA CRUZ:** *For Sale*-General Dentistry practice. This excellent practice is centrally located in a professional complex. Office is approx. 1,885 sq. ft., 4 operatories with room for one additional. There are approx. 2000 active patients with 6 days of hygiene per week. Practice Pano, Intra-Oral Camera and Easy Dental software. Owner is retiring. Reasonable lease available. #14361

- **TORRANCE:** *For Sale*-General Dentistry practice. This excellent practice is centrally located in a professional complex. Office is approx. 1,885 sq. ft., 4 operatories with room for one additional. There are approx. 2000 active patients with 6 days of hygiene per week. Practice Pano, Intra-Oral Camera and Easy Dental software. Owner is retiring. Reasonable lease available. #14320 SOLD

- **TORRANCE:** *For Sale* - General Dentistry Practice. Gross Receipts $413K with an adjusted net income of $203K. 50% overhead. Practice has been in its present location for the past 25 years. The office has been tastefully remodeled. Office is 800+ sq. ft. with 3 equipped operatories. 4 -hygiene days per week. Doctor is to retire. #14369

- **TRACY:** For Sale-Equipment, furnishings, and leaseholds only. In the Central Valley. Fully equipped including 4 Belmont Accutrac chairs, 2 Midmark chairs, 6 DCI rear delivery units, 3 Gendex x-ray units, 1 Sondexdigital x-ray processor, 1 Statim 5000, 1 Harvey autoclave. 2,800 Sq ft, 6 Ops. New lease available from landlord. #14335.

- **VISALIA:** For Sale- General Dentistry Practice. Gross Receipts $616K with an adjusted net income of $ 321K. Office is 1,380 sq ft with 3 equipped operatories. Intra-Oral Camera, Digital X-Rays, Mogo software, equipment & leaseholds look new. 5 years in present location. Owner to relocate. #14347 SOLD

CALIFORNIA / NEVADA REGIONAL OFFICE

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HENRY SCHEIN®
PROFESSIONAL PRACTICE TRANSITIONS

CLASSIFIEDS, CONTINUED FROM 82

OPPORTUNITY AVAILABLE — Excellent part-time, (evenings and Saturdays), opportunity for a highly qualified Cosmetic/General Dentist. Dentist must be highly skilled in all phases of Endo. Our well established multi-specialty practice is conveniently located in San Francisco's Financial District. Contact Mr. Steck at 415-874-4336.

OPPORTUNITY AVAILABLE — University of Southern California Ostrow School of Dentistry Master of Science in Orofacial Pain and Oral Medicine A new program at the Ostrow School of Dentistry of USC will allow dentists to enrich their clinical skills - all from the convenient location of their own dental practices. The Ostrow School of Dentistry Master in Orofacial Pain and Oral Medicine program is a three-year online program designed to give dentists a deeper understanding of treating patients with mouth and facial pain, sleep-disordered breathing, oral and maxillofacial infections, temporomandibular joint disorders, and other complex issues that affect the mouth and face. Designed for practicing full-time dentists the curriculum involves video lectures, weekly live video conferences of patient cases, a short visit to campus each summer, and the preparation of a research article. To learn more about the new online Master in Orofacial Pain and Oral Medicine Program please email gtc@usc.edu.

OPPORTUNITY AVAILABLE — General private dental practice seeking for an associate dentist who can deliver quality service for our patients. Must be able to do ALL phases of dentistry including posterior RCT and extractions. Must be able to work on Saturdays. Please fax or email your resume attention to Ted Teodoro (office manager) at tdcoh@att.net or 510-245-3004.

OPPORTUNITY AVAILABLE — OM with high sense of purpose to work in relationship-based practice with no insurance contracts built on a purpose of wellness. High sense of ethics, excited about the idea of utilizing her exquisite talents in further-

CONTINUES ON 88

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3069 NAPA VALLEY ENDO
Endodontic practice now available in Napa Valley. Gorgeous state-of-the-art 1,450 sq. ft. facility w/4 fully-equipped ops & microscope in every op. Single story professional building. Well-established w/seasoned & loyal staff. Avg. GR over $1M past 3 years w/4.5 doctor days. Excellent referral sources and upside opportunity.

3049 SAN JOSE GP
Well-located, across from O'Connor Hospital, general practice in 2,118 sq. ft.state-of-the-art facility w/ 3 fully-equipped ops. 2 pvt. offices (1 can be plumbed for 4th op.). This office is beautifully designed and is stunning. In addition to his general practice, owner treats sleep apnea patients. He is selling just the general operative portion of the practice and is willing to help for a smooth transition. Ideal for an experienced dentists looking to merge an existing practice. Asking $195K.

3059 SANTA CRUZ COUNTY GP & BDG
Charming practice tucked among soaring redwoods in Santa Cruz County. Located in a single level professional building in the heart of town. Well established and part of the small community landscape. 2010 GR $595K+ w/3 doctor days. All fee-for-service. Owner retiring and willing to help for a smooth transition. This is a great turn key practice and opportunity to own a hidden gem. Practice asking price $373K, building is also available.

3061 SAN JOSE DENTAL FACILITY
Dental facility ideal for Pediatric or easily converted to GP. Located in desirable Evergreen area in a two-story, handicap accessible, high profile, medical and professional building. Gross lease with utilities included expires July 2013 with 5 year option to renew. Modern, tastefully designed, approximately 1,321 square feet. Asking $95K.

3060 SACRAMENTO COUNTY GP
General & Cosmetic practice located in the charming, picturesque town known as "The Jewell of Sacramento County". For those who enjoy cycling, running and other outdoor activities. The American River parkway winds through this town and can be ridden all the way to Folsom Lake.

PENDING

Beautifully & thoughtfully designed, this well appointed office has 6 fully equipped ops with state-of-the-art equipment and facility. The practice is located in a single occupancy, free standing, single story professional building of approximately 2,000 sq. ft. The building's lot has ample on-site parking and is located on a major thoroughfare with fantastic visibility. Approximately 1,500 current/active patients (all fee-for-service) with an estimated 16 new patients a month. 2010 GR $1.6M with an adjusted net income of almost $500K. Asking price $950K.

3064 SAN JOSE GP
Now available. Great turnkey opportunity. Beautiful 1,500 sq. ft. facility with 4 fully equipped ops. State-of-the-art fully networked office, Dentrix software, digital x-ray & recently purchased dental & office equipment. Avg. GR $328K+ with 4 doctor-days. Owner relocating out of the area. Asking $220K.

3065 FREMONT GP
Don't miss this opportunity. Spacious 1,150 sq. ft. office w/ 3 ops. No Capitation. 2010 GR 169K+ w/ just 2-2.5 doctor days. Perfect opportunity to take this practice to the next level. Owner retiring. Asking $124K.

SOLD

3057 SAN JOSE GP
Priced to sell. Located in 2 story professional building w/3 fully-equipped ops. in 990 sq. ft. office. Part of historic Rose Garden neighborhood, block from the Alameda, & near a well travelled intersection. Seller transitioning due to health reasons. FY 2010 GR $415K. Asking Price $120K.

SOLD

3052 PETALUMA GP
Well-established 3 Dr. day practice in 2,268 sq. ft. office w/6 ops. Avg. gross receipts for past 3 years $315K. Located just a mile from the Petaluma River in the historic town of Petaluma. Centrally located 32 miles north of SF in the Sonoma County Wine Country. Bldg. is available for purchase. Asking $145K.

SOLD

Upcoming:

3068 MONTEREY COUNTY GP

Contact Us:
Carroll & Company
2055 Woodside Road, Ste 160
Redwood City, CA 94061

Phone:
650.403.1010

Email:
dental@carrollandco.info

Website:
www.carrollandco.info

CA DRE #00777682

CLASSIFIEDS, CONTINUED FROM 86

ing the practice purpose. Protocols to reverse decay & perio disease; rehabilitative treatment w natural esthetics & healthy oral function. Time allotted towards pt ed regarding pt role in attaining optimum oral health via HC skill development & high involvement with individual health protocols. TMJ-related migraines, head/neck problems tx'd with workable, long term solutions. Recognition/rewards based on unique contributions. Not suited for job-seeker but an individual career oriented, confident in talents & in an earnest search for an opportunity to express it. Practice is owner occupied in unique & quaint area. Please only sincere, qualified applicants respond via resume to mcbridedds@aol.com. Website authored by practice owner: www.longbeachholisticdentist.com.

OPPORTUNITY AVAILABLE — Summary of Essential Job Functions: Sterilize and disinfect instruments and equipment. Prepare treatment rooms, instruments and tray setups for dental procedures. Greet and prepare patients for treatment. Take digital radiographs Assist the dentist during examinations and treatment procedures. Conduct work in compliance with office policies and procedures, safety, and OSHA guidelines. Record medical and dental histories and vital signs of patient. Record treatment information in patient records. Participate in the achievement of patient satisfaction and office production goals by working efficiently and providing a high level of patient service. Assist with other duties as directed from the Permitted Duties. Provide patient education materials. Maintain an appropriate office environment. Minimum Requirements Current CPR Certification Radiation Safety Certificate (x-ray license) Good communication skills. Ability to perform detailed work acco. Email yourladentist@gmail.com or call 310-482-3971.

OPPORTUNITY AVAILABLE — Looking for Spanish speaking dentist. Able to work general dentistry and productive in well-civilized Spanish speaking community area. Various pay option and flexible to work at clean office. Email j9dds@yahoo.com or call 323-567-9999.

OPPORTUNITY AVAILABLE — Our 2 op office is looking for a dental assistant and a BILINGUAL [Spanish] receptionist. Experience is preferred but we will be welcoming applicants who need training. Office is open M-F Please email or fax resume with references to meltemd3@yahoo.com or call 805-481-3363.

OPPORTUNITY AVAILABLE — Full time Dentist with experience to work on pediatric pts. 5 years old and older. Most work is restorations, Pulpotomies, & stainless-steel crowns. Email dr.mg@bachour.org or call 209-723-5005.

SEEKING MANAGING DENTISTS — If you're looking for a long-term commitment and desire to be productive the opportunity is yours! Seeking full-time, managing dentists to join large group practice in the following areas: Los Angeles, Orange County, Inland Empire, San Diego and doctors willing to relocate to Arizona. Steady patient flow in high volume HMO environment. Required: 3-5 yrs experience and proficient in molar endo. Benefits include: medical, dental, vision, 401K, malpractice coverage and competitive pay! For available positions please call: 714-428-1305, submit your resume to kristin.armenta@smilebrands.com or fax to 714-460-8564.

OPPORTUNITIES WANTED

OPPORTUNITY WANTED — After over 20 successful years, I sold my upscale, private practice and I am looking to relocate to CA. Let me e-mail you my list of advanced CE courses I have attended, as well as testimonials and photos from my previous patients. This will let you get to know a little about me, as well as the high quality of restorative and cosmetic dentistry I can provide. I have an excellent chair side manner, my patients and staff really know I care. I have my CA license, and I am currently in Scottsdale, AZ, so I can quickly be wherever needed when the right opportunity arises. I am looking for a long-term relationship in a high quality, patient centered office. Email tamjag@aol.com or call 480-634-8568.

OPPORTUNITY WANTED — Are you thinking about retiring? Want to make sure your patients are well taken care of? Female GP, UOP grad, looking for a general practice in the Pleasanton, Dublin or San Ramon area. Ideally looking for a practice grossing between $ 500,000-$750,000 annually. I am a prequalified buyer willing to pay above the appraised price for the right practice. Please contact bayareadentisto8@gmail.com for more info.

OPPORTUNITY WANTED — In the Greater San Francisco Bay Area. Implant Surgery/Bone Grafting/Perio Surgery/3rd Molar Extractions. Email bayareaperio@gmail.com or call 617-869-1442.

OPPORTUNITY WANTED — General dentist with over 8 years experience looking for FT/PT position. Available to cover for maternity leave, vacations, and any other time off. Location: Sacramento and surrounding areas including Roseville, Rocklin, Lincoln, and Yuba City. For more information, please feel free to contact me at 916-580-3945 or email aicha_benbrahim@hotmail.com.

OPPORTUNITY WANTED — Do you want to increase your revenue and work fewer hours? Are you thinking of selling your practice? Do you have a unique opportunity where you need a dentist? I am an experienced, professional, compassionate, efficient dentist relocating to the Bay Area after the New Year looking for employment opportunities. I am open to associating, purchasing, covering leave, consulting, full-time or part-time employment or any other opportunity. CV and references readily available. I look forward to hearing from you! Email farahanidds@gmail.com or call 206-293-7915.

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If you want your practice "SOLD", contact us!

5999 **"SOLD" PLEASANTON** Adjacent to Hacienda Business Park. 2011 tracking $900,000. Strong profits. Digital radiography with computers in Ops. Great visibility.

6003 **"SOLD" PINOLE - HERCULES AREA** 4-days of Hygiene. 90%+ effective Recall. Produced $740,000 and collected $709,500. Low AR balance. Endo referred.

6004 **"SOLD" SAN JOSE'S SANTA TERESA AREA** Asking slightly more than what it would cost to replicate this office today. Digital & paperless 3-Op suite. 2010 produced $385,000 with collections of $277,000 and Profits of $190,000+. Gorgeous facility. Lease allows occupancy thru 9/30/2024.

6008 **MENDOCINO COAST - FORT BRAGG** Nestled in desirable cultural haven creates attractive lifestyle. 4-days of Hygiene. 2011 shall top $700,000 in collections making this its best year ever. Owner works 3-day week and states he could work more if desired. Computerized Ops and digital radiography.

6010 **"SOLD" BERKELEY – ALTA BATES MEDICAL VILLAGE** Attractive revenues. Last 2-years Profits have averaged $225,000. 2011 doing better!

6011 **"SOLD" SAN JOSE – WEST OF I-280** Long established practice off Saratoga Avenue. Has averaged $400,000 per year in collections. 3-Ops with 4th available in 1,000 sq. ft. suite.

6012 **"SOLD" FREMONT** Well established practice as evidenced by 6+ days of Hygiene. Fantastic Recall System. Great location. Collects just shy of $900,000 per year. Total Available Profits in 2010 were $360,000. 5-Ops.

6013 **"SOLD" LIVERMORE** Not yet 4-years old, tracking $430,000+ in collections 2011. Attractive 4-Op suite fully networked, employs computer charting and digital radiography.

6014 **"SOLD" SAN FRANCISCO** Located in "Heart" of the Mission. Owner does not speak Spanish. 2011 tracking $425,000+ with $185,000 in Profits on 3-day week. 3-Ops. Great opportunity for Successor who shall devote more attention. Building has private garage for tenants.

6015 **SONOMA COUNTY'S HEALDSBURG** Vibrant economy and great small town atmosphere. Anchored by 4-day per week Hygiene schedule and great Office Manager. Revenues tracking $545,000 with Profits of $235,000 in 2011.

6017 **CAMPBELL** 2011 shall collect $600,000. Adec delivery systems, computer charting, digital radiography, Biolase Waterlase, Panorex. $380,000 invested here. Full price $350,000.

6018 **SAN JOSE'S CAMPBELL** Senior partner in esteemed Group Practice is retiring. Produced $460,000 and collected $420,000 in 2010 with Profits of $190,000+. Great opportunity to simply treat patients and go home as Administrator oversees all front-end operations. Full price $230,000.

6019 **ALAMEDA** Best location, adjacent to upscale neighborhoods. Owner works relaxed pace. Attractive 2-Op office with 2-more Ops available. Excellent upside. Asking price warrants immediate investigation.

6020 **"COMING UP" - PEDO PRACTICE - SACRAMENTO AREA** Generates $500,000 per year. Beautiful office. Shall be available shortly.

For complete details on any of these opportunities, go to www.PPSsellsDDS.com

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This shall be the best decision you make regarding this important change in your life!

"I listed with a competitor for 12 months. Had two people visit my practice. First weekend PPS had my listing, I had 3 people visit and an offer by the end of the first week. Thank you for allowing me to move on to the next step of my life."

"It was a pleasure to work with PPS. I had to sell because of health complications. Mr. Irving listed my practice on Jan 1st, we closed escrow on Feb 27th. It took him less than 60 days to complete the sale as promised."

"When I decided to sell my ortho practice, I sought the services of a large company. Over the 12-month contract, I had one buyer visit. Word was out. It had a devastating effect on my bottom line. Fortunately, I found Ray and Edna Irving! When I finally sold, I choose between two good offers. My regret was the time and money lost with the other guys."

"When I signed the Listing on June 1st, Ray stated he would have the practice sold by Labor Day. The sale was concluded on Sept 1st, two days before Labor Day. Wow!"

"I will always remember your statement when I questioned your contract being only four months. You stated: 'If I can't sell your practice in that time, you should get someone else.' Well, you did with time to spare!"

"Before I called Ray, I had a listing with another prominent Broker. After eleven months without a sale, I called Ray. He sold it in about a month! Would I recommend Ray? Yes!"

"In April, I asked Ray Irving to sell my practice. At the same time my friend decided to sell his practice. He employed another firm. My practice sold June 22. My friend's practice still hasn't sold and he was putting his dreams on hold."

PPS of The Great West's reputation is built upon grounded ethics and effectiveness. Our trademark "client services" include accurate assessments, impeccable marketing plans, complete transparency, generating quick responses, realizing multiple Offers, securing 100%+ financing in days, expert papering of our transactions and sound counsel. Everything is done to protect our Client and to effect a successful transfer. Our intent is simply to provide the best service imaginable for this very important engagement.

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CLASSIFIEDS, CONTINUED FROM 88

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PRACTICE FOR SALE — General Practice dental office with a 40 plus year history of goodwill in the Sacramento, CA. area looking to find a wonderful, kind practitioner to purchase practice. The office is conveniently located in a highly visible, easily accessible professional building with close proximity to an upscale retail mall. The office occupies approximately 1,200 sq. feet and consists of 4 fully equipped ops (+ 1 additional plumbed), a reception area, a doctor's office, a business office, a sterilization area, a staff lounge, a lab, and restroom. The practice generates approximately 12-15 new patients per month. The doctor will work back in the practice or mentor (if desired) to help the new doctor with a successful transition. This is only at the request of the purchasing dentist. The practice is located in a great community in which to live and practice dentistry. Please send your CV to: sacramentodmd@gmail.com.

PRACTICE FOR SALE — One of the most respected practices in Ventura County with 41 years of good will. Loyal staff of eight and an associate of two years. 4 ops., 1 op equipped for implants. Fully computerized, digital X-rays and cameras. $860,000 annual collection. Buyer must have a love for dentistry and a good sense of humor. Email drjohndds@mac.com or call 805-486-6327.

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PRACTICE SALES AND LEASING

Paul Maimone
Broker/Owner

HAPPY NEW YEAR!

BAKERSFIELD #21 - (10) op G.P. & Bldg. on a main St. (3) ops fully eqt'd. (3) ops part eqt'd & (4) add. Plmbd. Store front. Collects ~$500K/yr. Cash/Ins/PPO/< 1 % Denti-Cal. **NEW**.
CENTRAL VALLEY/So. FRESNO CTY. - (3) op compt. G.P. Newer eqt., digital x-rays & Dentrix s/w. Limited competition. Cash/Ins/PPO. New bldg out in 2009. **SOLD**
COVINA #2 - (4) op comput. G.P. (3) ops eqt'd 4th plmbd. Mixed pt base. 2010 Gross Collect $250K on a 3 day wk. Can rent space or buy 2,150 sq ft duplex bldg. **REDUCED AGAIN**
COVINA #3 - (3) op compt. G.P. Cash/Ins/PPO. Gross Collect $242K+ on an easy (3) day wk. Located in a small prof/medical/dental bldg. w off street parking. Seller retiring. **NEW**
GLENDALE #6 – (5) op state of the art comput. G.P. 4 ops eqt'd, 5th op plumbed. Digital x-ray & networked. Mixed pt base. In a free stand bldg. Annual Gross Collect.~ $500K**.**
L.A. (SILVERLAKE - ATWATER) – (3) op G.P. located in the trendy Silverlake-Atwater area. (28) years of Goodwill. Cash/Ins/PPO. Gross Collect $140K p.t. Retail Store front**. NEW**
NEWPORT BEACH - (5) op comput. G.P. 4 ops eqt'd/5th plmbd. In a prof. bldg. on the Marina. Cash/Ins/PPO small % cap. Dentrix & Shick. Collects $400K+ on a (2) day wk. **NEW**
No. COUNTY SAN DIEGO - (4) op comput G.P. in a shop ctr. w excell exposure & signage. Cash/Ins/PPO/HMO pts. Dentrix s/w, paperless & digital. Gross Collections $900K+/yr.
OXNARD #5 - (4) op comput G.P. Can purchase w or w/o single use free stand. bldg. Mixed pt base. 2011 Project Gross Collect $447K**.** Locate on a heavily traveled main Rd. **REDUCED**
RESEDA #6 - (3) op comput G.P. located in a well know, easily accessible prof. bldg. Cash/Ins/PPO pts. Annual Gross Collections ~ $150K on a p.t. schedule.
SANTA BARBARA #2/GOLETA - (4) op computerized G.P. located in a garden style prof. bldg. w St. frontage. (3) ops eqt'd/4th plumbed. Cash/Ins/PPO pt. base. (4) days of hygiene/wk., approx. (20) new pts/mos. Pano eqt'd. Collects. $400K+/yr. on a (4) day wk. **REDUCED**
SANTA BARBARA #3 - (3) op comput. G.P. in a prof/med/dental bldg. Cash/Ins/PPO. 8-10 new pts/mos Gross Collect. $250K+ on a (4) day wk. Digital x-ray. Seller retiring**. REDUCED**
UPLAND #3 - (5) op comput G.P. & Speciality Pract. in a free stand bldg. Gross Collect $525K-$625K/yr. Digital x-ray. Excell opp. for G.P. who likes to do Endo. **BACK ON MARKET**
VACAVILLE – (3) op compt. G.P. turnkey w charts. Shunted 5 mos. Great start up op. **NEW**
WEST HILLS - (3) op compt G.P. in a prof. bldg. Newer leaseholds. Cash/Ins/PPO. Digital x-rays & Dentrix s/w. 2010 Gross Collect. ~ $305K part time. Seller retiring. **PENDING**
UPCOMING PRACTICES: Camarillo, Corona, Covina, Irvine, Long Beach, Montebello, Panorama City, Pasadena, SFV, San Diego, Thousand Oaks, Torrance, & West L.A.

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DR. BOB, CONTINUED FROM 94

makes sense; you're in bed anyway, so multiple rest periods requiring no preparation other than squirming, offer something to look forward to.

Here comes the blood delivery lady and her spooky accomplice, looming up silently out of the Stygian shadows. Both are bearing hand-held scanners, since everything including the urinal is bar-coded. Efficiency is the keynote. In less time than it takes to wonder why this is being done at such an ungodly hour, they complete their scanning, hookup, disassembly, and record-keeping to make way for the next cheerful night person, Maria, the blood removal lady.

Maria, RN, is unnaturally cheerful at this hour for anybody except vampires. She skillfully extracts approximately the same amount of donated blood the preceding crew has just given me. I am a middle-man for the recycled blood business. I mention this to this nice lady with the needle. "Ha, ha," she convulses, as if never having heard this observation before.

Diplomacy and tact are surely two of the most necessary courses on the curriculum at nursing school. On a Tuesday in 1859, Florence Nightingale stated, "It may seem a strange principle to enunciate as the first requirement in a hospital it should do the sick no harm." One can have a morning face like 10 miles of bad road, bed hair resembling Bozo the clown and the demeanor of a rodeo bull and these Florence Nightingales of St. Jude will greet you each morning with honeyed assurance that "you're lookin' good" just as if you weren't, in fact, the whiniest, most disruptive and demanding patient to ever be admitted.

By 4:30, the queue diminishes once the EKG guy has completed his survey and the drip-pack replenishment nurse tidies up and dematerializes. All of them have scanned my color-coded wrist bands, asked my name, DOB and disposition to allergies. I don't have any allergies, which is an obvious disappointment as there is a place for noting them on my chart.

The parade will re-form before long to ascertain whether I've disturbed any of the tubes, wires and cables while trying to find an elusive comfortable position in this high-tech bed.

It is rest time again. The parade will re-form before long to ascertain whether I've disturbed any of the tubes, wires and cables while trying to find an elusive comfortable position in this high-tech bed. It pulsates periodically in an unnerving fashion as if I had acquired an inquisitive ferret as a bedmate.

All this activity is accomplished very quietly. It is necessary in night-time hospital protocol to maintain a funereal silence for two reasons: (1) your rest is important to you and (2) staff needs to clearly hear the gong/beep/buzzer system that replaces verbal communication between you, them and the machines tethered to you.

What could go wrong? Everything, apparently. The urgency of the GBB System's messages is abundantly clear to the nursing staff that interprets the sounds by their frequency, volume and degree of irritation. The machines talk to each other as well; one device eager to report another device's failure or pass on a request for maintenance. The total result is a nocturnal symphony not unlike a Jamaican steel drum group tuning up for a concert.

"How do you like working the night shift?" I asked Sandy, who is assigned to caring for any needs I have — other than sleep — at 4:30.

"Fine," she said, "It's calmer around here at night."

"Really? I … "

"You get used to it," she interrupted, anticipating my question.

Maybe, but the most basic thing — that of getting a morning bath — may take a little more getting used to. Back in the day when modesty and dignity were more de rigueur, a bath in a hospital setting featured a washcloth handed to the patient with the firm understanding it was for a specific reason. Today a hospital bath is a marvel of precision and efficiency. The thing closest to it is the Penske Racing Team changing tires at a 20-second Indy 500 pit stop.

Zip! goes a shower cap impregnated with shampoo over my head. A team member approaches from either side of the bed. In a move only capable of being recorded in slo-mo by high-speed cameras, the bed sheets are whisked from beneath me, replaced and I have been scrubbed from head to toe — like completely — without any of my assistance. Blotted dry and whisked into a clean, backless gown, it wasn't until later that I realized I had surrendered my last vestige of human dignity — and worse yet, I kind of enjoyed it!

If you ever wish to be treated like royalty, actually be patiently and cheerfully waited upon by people who are thoughtful, kind, gentle and probably underpaid, I recommend spending a few days in a modern hospital. Just don't expect to be cured of insomnia. ■■■■

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She skillfully extracts approximately the same amount of donated blood the preceding crew has just given me.

Robert E. Horseman, DDS

ILLUSTRATION BY DAN HUBIG

"Robert?" I awoke suddenly from a fitful sleep, searching near-sightedly about the dimly lit room. From the doorway, a narrow slit of light widened as a hushed voice again queried, "Robert?"

"Yeah, yeah, Denise. What can I do for you this time?"

"Robert Horseman?" the gentle voice replied. "Date of birth?"

"Three-eleven-twenty," I sighed. Squinting at the big clock on the wall — near as I could tell without my glasses — it was a little after one o'clock in the morning.

"Denise, what's the matter with you? You've asked me that 16 times a day for the last five days. I'm tethered to a bed 4½ feet off the floor with IV drips in both arms and compression booties wrapped around my legs." Denise knows this. She also is aware of the 10 EKG leads snaking out from under my air-conditioned hospital gown.

"Shhh. Time for your temperature," Denise quietly replied, ignoring me.

During the next four hours at this hospital (Motto: We Never Sleep — Nor Shall You), other ghostly figures waft in and out. Their mission is either to give you something, or to take something from you, frequently both at the same time. Hospitals believe in rest — lots of it. Unlike the dedication to the magic number "eight" most of us feloniously profess to observe, e.g., eight hours of sleep, eight glasses of water and eight hours of work, hospitals like to divide the rest period up into as many as 16 increments of a half-hour each. This

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- ***May 3rd, 2012*** **- California Dental Association, Anaheim Session;** ***Dental Practice Act.***
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