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CDA JOURNAL, VOL 40, Nº3

DEPARTMENTS

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FEATURES

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Journal

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ASSOCIATION MEDIA & PUBLISHING

AADE American Association of Dental Editors

CDA JOURNAL, VOL 40, Nº3

Spectacles

KERRY K. CARNEY, DDS

I got my first pair of prescription glasses at the age of 13. The drive home was a trip through a different world. Trees were no longer cartoon-like green lollipops. They had depth and fascinating, scintillating leaves.

Every visual event contained more information. I had always thought the actors in a stage play were supposed to be iconic, like the traditional masked actors of ancient theater. It was a surprise that in a theatrical production, the audience is supposed to be able to see the facial expressions of the actors on stage. Corrective lenses brought me a new intimacy with reality.

Eyeglass lenses were so common by the beginning of the 14th century that their manufacturing strictures were incorporated into guild regulations. Only the wealthy could afford them initially but imagine the impact of corrective lenses in those times. It must have seemed miraculous, magic. To be able to see clearly: what a revelation.

The study of optics facilitated Galileo's observations of the moon and Jupiter in the first part of the 17th century. His careful documentation of what he observed through the telescope became the fulcrum of change for cosmological thought. Being able to see clearly is a tremendous aid to understanding.

However, seeing something clearly does not always mean we agree on what we are looking at.

The other night I had dinner with four friends. Four of us had been in the same class in dental school; three of us are in private practice and two work solely in public health (clinical and consulting). During the course of conversation, the subject of the Alaskan DHATs (dental health aid therapists) came up.

However, seeing something clearly does not always mean we agree on what we are looking at.

At one point, our friends in public health were agreeing with each other that if they were in private practice they would be eager to hire someone like a DHAT so that they could focus their efforts on producing veneers. I was stunned. That was what they thought private practice was about.

I spent some time thinking about that conversation. The three of us in private practice have very similar professional styles. We have small offices. We operate in one or two chairs. Only one of us employs a hygienist. We can count the number of veneers we produce per year on one or two hands. We spend a lot of time trying to educate our patients in oral health. We help our patients get the most for every dollar that they spend on their oral health care. Our reward is greatest when we see a patient turn around and begin to value his/her oral health, and partner with us to take steps to ensure its continued improvement.

It made me sad to think that my friend and colleague had bought into the view of private practice as solely production and cosmetic-focused.

Now shift the scene to a lunch meeting of dental school representatives. The subject of PGY-1 (required postgraduate year residencies) comes up. There is discussion about the potential need for more residency locations and the possibility of locating more residencies in community clinics should one-year postgraduate residencies ever become mandatory.

The thought is expressed by one of the dental school representatives that those residencies in community clinics might be viewed as a lower level of training due to the limited resources for extensive prosthetic experience. Again, I was stunned. Some of the highest quality dentistry I have seen has been in community clinics where skill and creativity had to be combined to mitigate the disconnect between oral health need and available resources. I reflect that my own conservative, prevention- and caries management-oriented practice, and my reluctance to embrace high-cost technology would probably be viewed with the same implied distain.

I suppose we are all looking at the same elephant but focusing on different parts. There are many aspects to the delivery of care. The private practice model is flexible and has survived economic downturns over a long period of time. However, there has always been a significant portion of the population that has not been able to access that model.

There is no problem communicating when we interact with those who see the elephant just the way we do. The dissonance arises when we interact with people who see the elephant through a different lens, focusing on a different part.

Timothy G. Giroux DDS/Broker

ASK THE BROKER

Question:

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

TIME IS OF THE ESSENCE in this situation!

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

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

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

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

Timothy G. Giroux, DDS is currently the Owner & Broker at **Western Practice Sales (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**

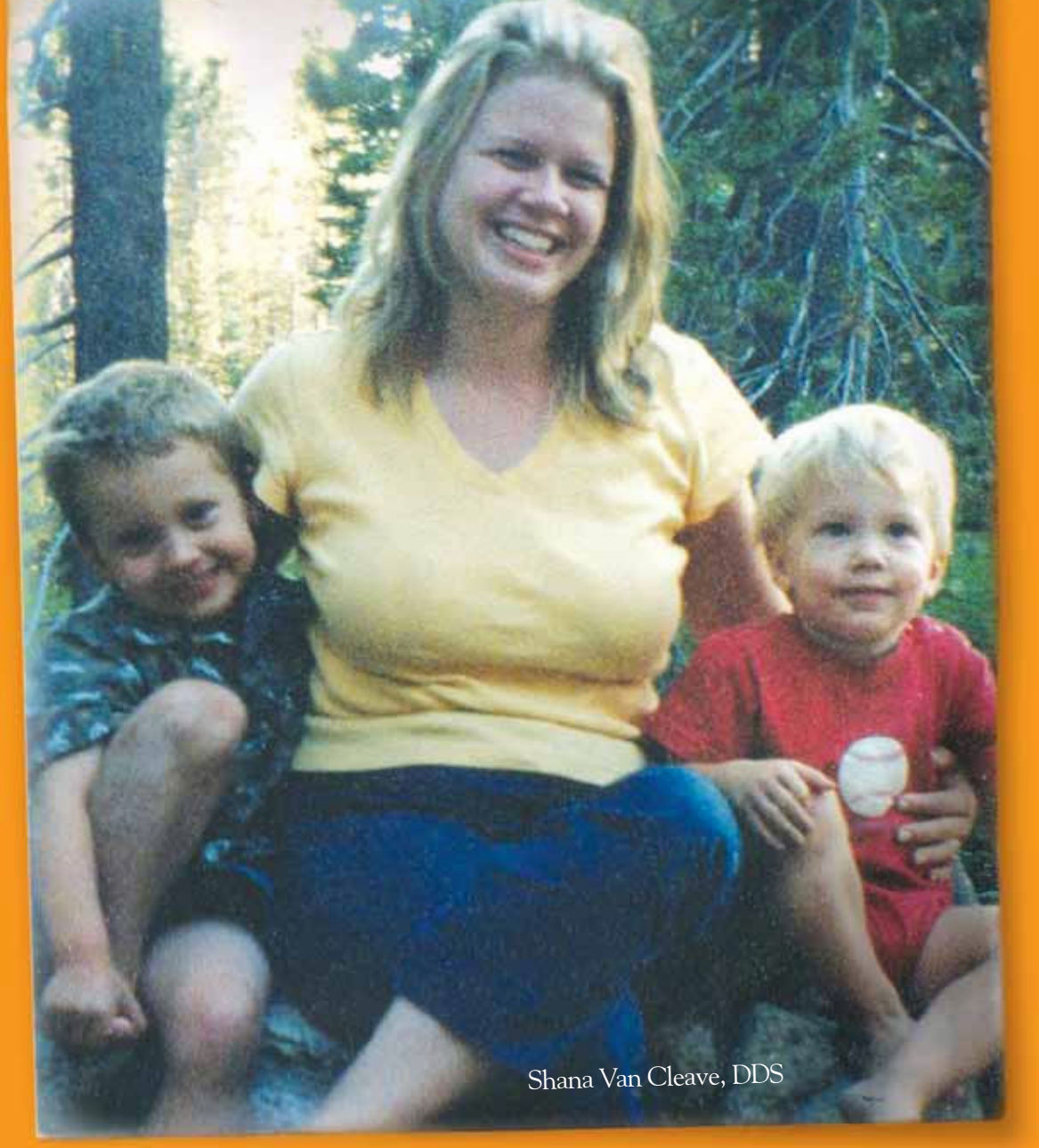
The commentaries in public health publications tend to depict private practice dentists as salesmen, our heads down, providing care, unable to see the big picture. Commentaries in proprietary dental publications tend to depict public health professionals as policy wonks who cannot make it in a real world combining business success and patient welfare.

Reading public health research and proprietary dental magazines is like reading about life in alternate universes: existing in close proximity but unable to communicate or "see" one another. How we see the world plays a large role in how we interact with it.

Examining barriers to oral health care and thinking about various potential ways to address those barriers is like putting on someone else's spectacles. It can cause headaches but it does give you a glimpse of the world you live in with a different focus. ■■■■

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 email 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 nor 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.*



One dental visit, two lives changed. When Shana's son Nathan was 5, he didn't appear to be growing, but his pediatrician wasn't too concerned. After all, Shana and her husband weren't very tall. Nathan's dentist, however, thought it might be growth hormone deficiency, which could be determined by a simple wrist X-ray. The X-ray illustrated not only the bone of a 2 ½-year-old, but how dentistry is about caring for more than teeth. And with that, Shana the college student became the dental student.

Every dentist has a unique story behind why they chose this profession, but 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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Matt Mullin

The Five Cs

BY DAVID W. CHAMBERS, PHD

Every individual who seeks dental care should expect it to be comprehensive, continuous, competent, compassionate, and coordinated.

Comprehensive oral care means treating the whole patient. Emergency care, the first tentative restorative work, and recall appointments should all be performed with a view toward the best overall level of health achievable. Treating up to the allowable insurance coverage or prioritizing options based on the best margin for the dentist are simply unethical. Placing cosmetic concerns first, even when the patient requests it, is a moral minefield.

Continuous care aims for a lifetime of oral health. Arguably the greatest cause of suboptimal oral health is episodic treatment. Patients who go to the dentist only when it hurts have missed the ideal time for intervention (during the early

CONTINUES ON 211

Crooked Teeth? Blame Our Farming Ancestors

When humans turned from hunting and gathering to farming approximately 10,000 years ago, they set our species on a road of genetic variation that led from longer, sturdier mandibular structures to shorter jaws better suited to chewing softer food. As a result, tooth overcrowding — and orthodontia — are now one of the hallmarks of civilization.

According to a study published in the November 2011 issue of *The Proceedings of the National Academy of Sciences,* and reported on in the Nov. 21 issue of *Science,* global variations in jaw structure, in contrast to skull shape and facial features, are not attributable solely to genetic shift, but to a limited kind of natural selection.

To test the hypothesis, researcher Noreen von Cramon-Taubadel, PhD, an anthropologist at the University of Kent in the United Kingdom, looked at skull and jaw shape in 11 populations, six of which live by farming and five of which are hunter-gatherers. The populations included people from Africa, Asia, Australia, Europe, and the Americas.

von Cramon-Taubadel concluded that the transition to farming — and easier-to-chew food led to smaller, less-robust jaw structures and, according to the study abstract, "to increased prevalence of dental crowding and malocclusions in modern postindustrial populations."

Patients Not Daunted by Inked Dentists; Quality of Work Remains a Factor in Professional Image

Tattoos of all types have become increasingly prevalent, and consequently their acceptance in the workplace has grown. However, the degree to which visible tattoos in the workplace are appropriate is still a hotly debated issue, especially where a professional image is vital.

In the December 2011 issue of *ASDA News,* David Reed excerpted responses to several questions from the American Student Dental Association blog post "Tattoos and the Dental Profession." While many comments showed concern over the number of tattoos and whether certain tattoos could be considered offensive, respondents seemed to be comfortable enough visiting a tattooed dentist, assuming they would receive good quality care. In fact, "Everyone surveyed said that they would go to a dentist displaying visible tattoos."

Tattoos didn't seem to have much effect on perceived levels of education, either. "When participants were asked if they thought a dentist with visible tattoos was less educated the response was unanimous: 'No.'"

Differences began to appear when the issue of trust arose, however, as "tattoos created a lack of confidence for some people." Responses varied widely in this regard, and many participants cited previous experiences with tattooed people as a guide.

The most obvious negative aspect of tattoos was their effect on professionalism. "Every person surveyed responded that a dentist with visible tattoos would be less professional." This was by no means the final word on tattoos, as a professional image was only one of many aspects participants considered, for all respondents also said that "their choice to stay with the dentist, even with visible tattoos, would be based on their personal interactions and the quality of their work, not on their appearance."

ADA Offers Free Survey Research to Members

Reports and publications related to the economics of dentistry are available in the print and downloadable electronic formats from the American Dental Association's Health Policy Resources Center. The cost to members is free; the information in both formats also are available to nonmembers for purchase.

On the ADA website, descriptions and titles of the reports are listed by topic area. Select publications are available for free download for members. Among the reports are:

- The Quarterly Survey of Economic Confidence, which contains information regarding dentists' perceptions of the economic performance of their practices on a variety of metrics;
- Net income and gross billings from private practice for owner dentists by age, hours worked, employment status, and region is available in the Survey of Dental Practice; and
- The State and County Demographic Report provides pertinent information at the county level on dentist demographics, population characteristics, and other variables of interest for dentists looking to relocate or expand a dental practice.

To access the link to the ADA's Health Policy Resources Center, go to ADA.org/surveyresearch.

Risk of Stroke, Heart Attack Reduced by Professional Dental Cleanings

In a study from Taiwan and presented at the American Heart Association's Scientific Sessions, professional tooth scaling was associated with fewer strokes and heart attacks.

Of those 100,000 people who had their teeth scraped and cleaned by a dentist or dental hygienist, 24 percent had a lower risk of heart attack and 13 percent lower risk of stroke compared to those who never had a dental cleaning. The participants were followed for an average of seven years.

"Protection from heart disease and stroke was more pronounced in participants who got tooth scaling at least once a year," said Emily (Zu-Yin) Chen, MD, cardiology fellow at the Veterans General Hospital in Taipei, Taiwan, who coauthored the study with Hsin-Bang Leu, MD.

If tooth scaling occurred at least twice or more in two years, scientists considered it "frequent"; "occasional" if it occurred once or less in two years. The study included more than 51,000 adults who had received at least one full or partial tooth scaling and a similar number of people matched with gender and health conditions who had no tooth scaling, according to a news release in *Science Daily*. None of the participants had a history of heart attack or stroke at the beginning of the study.

Additionally, researchers did not adjust for risk factors for heart attack and stroke, such as whether they were smokers, their race, or weight.

Chen said professional tooth scaling appeared to reduce inflammation-causing bacterial growth that could lead to heart disease or stroke.

FIVE CS, CONTINUED FROM 209

stages of disease or before) and often accept only that treatment needed to remove the symptoms. Except for trauma, virtually all oral problems are chronic conditions. The fact that dentistry and medicine are compensated "per intervention" and that late interventions often return the largest profits, creates an ethical challenge. There is no CDT code for creating the habit of continuous care, but dentists who practice as if there were are the paragons of professionalism.

Competent care meets or exceeds professional standards. Patients expect the level of care the profession as a whole promotes to the public. Every intervention may not be flawless. There are legitimate surprises and unanticipated circumstances. What counts against an ethic of competence is the dentist not having a justifiably high expectation of a satisfactory outcome going into the treatment. This also covers dentists not knowing whether they are competent or not. A general dentist who botches a molar endo is incompetent on three grounds: endodontic technique, diagnosis, and ethical standards.

Compassionate dental care is considerate of the entire patient, including his or her values. Pressuring or tricking a patient into accepting a treatment option that the dentist feels is optimal but which the patient would regret if fully informed is questionably ethical. There are emotional, economic, status, self-image, and family dimensions of oral health. Care that is otherwise excellent but fails to address these concerns may meet the dentist's but not the patient's needs. It is presumptuous.

Coordinated care recognizes that oral health is provided by a collective resource, and patients should have the benefit of the full team. This includes hygienists, patient education and financial counseling staff members, specialists, and colleagues who are available for consultation. Communication among members of the larger oral health care team and with the patient are the keys to coordinated care.

The Nub:

1. The best evidence of a dentist's skill is not a before-and-after photo: it is the patient's history in the charts.
2. Dentists judge the success of their careers over a lifetime, using a range of criteria: the same standard applies to successful patient care.
3. Patients cannot be forced to participate across the five Cs of care, but they should always be given the opportunity.

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

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Now, let's see if we can help you navigate those required postings.

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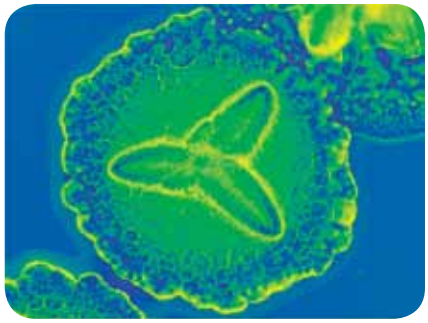

Microbiome Sorted in Human Mouth Thanks to Novel Fluorescent Imaging

During an annual meeting of the American Society for Cell Biology, information was presented on "new fluorescent labeling technology that distinguishes in a single image the population size and spatial distribution of 15 different taxa, which has uncovered new taxon pairings that indicate unsuspected cooperation — and standoffishness — between members of the microbe biofilm that covers teeth."

Members of the genera prevotella and actinomyces showed the greatest ability to interact, suggesting a central role for them in producing biofilms, according to a news release. Researchers were able to determine "who's who" in the human mouth. While both genera are factors in periodontal disease, species of prevotella have been recovered from anaerobic lung infections. Actinomycosis is an infection of antibiotic-resistant strains in the gastrointestinal tract and mouth.

Alex Valm, PhD, Gary Borisy, PhD, and other researchers referred to their new fluorescent labeling technology system as combinatorial labeling and spectral imaging (CLASI). It was designed to overcome a significant limit of the existing fluorescent labeling system, whose original green fluorescent protein (GFP) tag occurred in one color (green), according to a news release from *Medical News Today*.

The research team's first CLASI system used binary combinations of six fluorophores to perform the first quantitative analysis of a large number of microbes in a biofilm. Utilizing novel linear "unmixing" algorithms, the CLASI system now is being scaled up to look at more than 100 differently labeled microbes in each image and to construct the first systems-level structural analysis of the entire human oral microbiome.

A whole range of colors now is available to scientists through a growing selection of fluorescent proteins or the addition of glowing molecular add-ons called fluorophores.

Researchers Identify Potential Risk Factors for TMD

Researchers have identified a list of characteristics they say will eventually help health professionals identify patients who are at risk of developing temporomandibular disorders, according to a report published recently in an issue of the *NYSDA News*.

In following a large number of control individuals, as well as people reporting temporomandibular disorder pain, Richard Ohrbach, DDS, PhD, director of the Oral Diagnostic Sciences at the University of Buffalo School of Dental Medicine and a clinical psychologist, and other researchers found that a high rate of variables they assessed were associated with painful temporomandibular disorders.

Some symptoms of temporomandibular disorders can include:

- Pain in the chewing muscles or jaw joint;
- Pain in the jaw, neck, or face;
- Stiff jaw muscles;
- A jaw that locks or has limited movement;
- Painful clicking, popping, or grating in the jaw joint; and
- Changes in the fit between upper and lower teeth.

Temporomandibular disorders are estimated to affect more than 10 million Americans; women more so than men, according to the National Institutes of Health.

Smoking Cessation Tools Created Just for Teens

A typical teen's constant companion may be the solution to them kicking the nicotine habit.

SmokefreeTXT, a free mobile phone messaging service developed by cessation experts, provides around-the-clock advice, tips and encouragement to helping teens quit smoking.

"With 75 percent of youths between the ages of 12 and 17 having a cell phone, there is immense potential for mobile technologies to affect health awareness and behavior change among teens," said Erik Augustson, PhD, a behavioral scientist in the National Cancer Institute's Tobacco Control Research Branch. NCI, a part of the National Institutes of Health, led the initiative.

Once signed up, teens receive text messages timed accordingly to their selected quit date. They will continue to receive texts up to six weeks beyond their quit date. Research has shown that continued support following the first few weeks of cessation is important. To sign up online, teens can go to teen.smokefree.gov or text QUIT to iQUIT (47848).

An estimated 20 percent of teens currently smoke and most will do so into their adulthood unless they quit now. By connecting with teen smokers on their mobile phones, NCI hopes to more effectively engage young people in quitting with proven cessation tools and strategies, according to a news release.

Knowing a Patient's Lifestyle Is Key to Improving Oral Health

In an effort to ensure all health professionals discuss with their patients their lifestyles, a major oral health foundation has backed government calls to do so.

With exercise, diet, smoking, and alcohol intake huge factors in one's oral health, the British Dental Health Foundation believes the discussion will spur more people to take into consideration how they live their lives affect their oral health as well as their overall health.

"We know people will only change their ways if they want to, but by approaching the topic of lifestyle on a regular basis, health care professionals will at least know they have given the patient the information needed to improve their health and well-being," said Nigel Carter, DDS, chief executive of the British Dental Health Foundation.

As initially delineated in the Health and Social Care Bill, a panel of government advisers recommended all health professionals "make every contact count," a move met by criticism in some section of the health field.

Frequent consumption of sugary beverages and foods can damage oral health, according to previous studies. Other research has also demonstrated that people who stay fit and healthy are 40 percent less likely to develop tooth-threatening gum infections that might lead to gum disease.

In the United Kingdom, mouth cancer also remains a big issue with the incidence of cases rising 46 percent in the last 15 years. An estimated 30,000 people will die from mouth cancer in the next 10 years unless more is done to change lifestyles, especially attitudes toward alcohol consumption, smoking, exercise and diet; some of the main risk factors for mouth cancer, according to a news release.

As such, Carter declared the Foundation's support for the recommendations in order to drive oral health improvements across the United Kingdom.

"Taking the time out to discuss a patient's smoking habit, alcohol consumption levels or poor diet could save lives, as all of those are associated with the risk of developing mouth cancer," he said.

"Cells have had to contend with fluoride toxicity for billions of years, and so they have evolved precise sensors and defense mechanisms to do battle with this ion."

RONALD BREAKER, PHD

Bacteria's Fluoride Fighter Revealed

Scientists at Yale have exposed "the molecular tricks" bacteria uses to battle the effects of fluoride.

Sections of RNA messages, known as riboswitches that control the expression of genes, are able to distinguish a build-up of fluoride and subsequently trigger the bacteria's defenses including those contributing to caries, according to a recent online issue of *Science Express*.

"These riboswitches are detectors made specifically to see fluoride," said Ronald Breaker, PhD, the Henry Ford II professor and chair of the Department of Molecular, Cellular and Developmental Biology and senior author of the study.

Over-the-counter and prescription-strength toothpastes have been credited with reducing caries ever since the products were introduced to the public in the 1950s. It has long been known that high concentrations of fluoride is noxious to bacteria. Riboswitches work to thwart fluoride's effect on bacteria. "If fluoride builds up to toxic levels in the cell, a fluoride riboswitch grabs the fluoride and then turns on genes that can overcome its effects," said Breaker.

Since both fluoride and some RNA sensor molecules are negatively charged, they should not be able to bind, he said, adding, "We were stunned when we uncovered fluoride-sensing riboswitches. Scientists would argue that RNA is the worst molecule to use as a sensor for fluoride, and yet we have found more than 2,000 of these strange RNAs in many organisms."

Tracking fluoride riboswitches in numerous species, led the research team to conclude that these RNAs are ancient — meaning many organisms have had to overcome toxic levels of fluoride throughout their history, according to the authors of the paper. Organisms from at least two branches of the tree of life are using fluoride riboswitches, and the proteins used to combat fluoride toxicity are present in many species from all three branches.

"Cells have had to contend with fluoride toxicity for billions of years, and so they have evolved precise sensors and defense mechanisms to do battle with this ion," said Breaker, who also is an investigator with the Howard Hughes Medical Institute. Now that these sensors and defense mechanisms are known, said Breaker, it may be possible to manipulate these mechanisms and make fluoride even more toxic to bacteria. Fluoride riboswitches and proteins common in bacteria are lacking in humans, and so these fluoride defense systems could be targeted by drugs. The Yale team discovered protein channels that flush fluoride out of cells. Blocking these channels with another molecule would cause fluoride to accumulate in bacteria, making it more effective as a cavity fighter.

Yale's findings reveal how microbes overcome fluoride toxicity. The means by which humans contend with high fluoride levels remains unknown, said Breaker, adding that the use of fluoride has had clear benefits for dental health and that these new findings do not indicate that fluoride is unsafe as currently used.

National Institutes of Health funded the research. Breaker is co-founder of a biotechnology company that has licensed intellectual property on riboswitches from Yale.

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., 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

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Kenneth A. Koch, DMD

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Changing Paradigms in Endodontic Therapy
Thursday lecture

Changing Paradigms in Endodontic Therapy Workshop
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Gerard J. Chiche, DDS

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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

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 on-site sales.

Receive your seat in these popular lectures for $10.

Thursday, May 3

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

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

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

Friday, May 4

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

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

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

Saturday, May 5

Gerard J. Chiche, DDS,
Smile Design, Occlusal and Esthetic Techniques (full day)
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.

Save time and money and reach all the CDA hotels with one phone call.

Our ability to offer you the best conference dates and competitive hotel rates is directly tied to the number of rooms that are reserved under our block in the Anaheim Resort.™ Reserve early to get the hotel of your choice. A limited number of rooms is available at these preferred rates, so call CDA's Housing Bureau as soon as possible. Every effort will be made to accommodate your first hotel choice. If your requested hotel is not available, CDA's Housing Bureau will confirm comparable accommodations for you. **Hotel reservations must be made by April 6, 2012.**

Phone
714.765.8868
Office hours are 8:30 a.m.–5 p.m., Pacific Time.

Fax
714.776.2688

Online/New Reservations
Making reservations is easier than ever. Just log onto **cdapresents.com**, and you can make your hotel reservation. The online service has been upgraded to be more convenient and flexible in making and changing reservations. You may phone, fax, complete the online housing form, or write to make your reservations. Be sure to have a copy of the housing form and your credit card information on hand if you call, or complete the housing form and mail or fax to CDA's Housing Bureau. Please do not do both!

Reservation Acknowledgments
Will be sent to you directly from CDA's Housing Bureau.

Mail
CDA Housing Bureau
800 W. Katella Ave.
P.O. Box 4270
Anaheim, CA 92803

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*

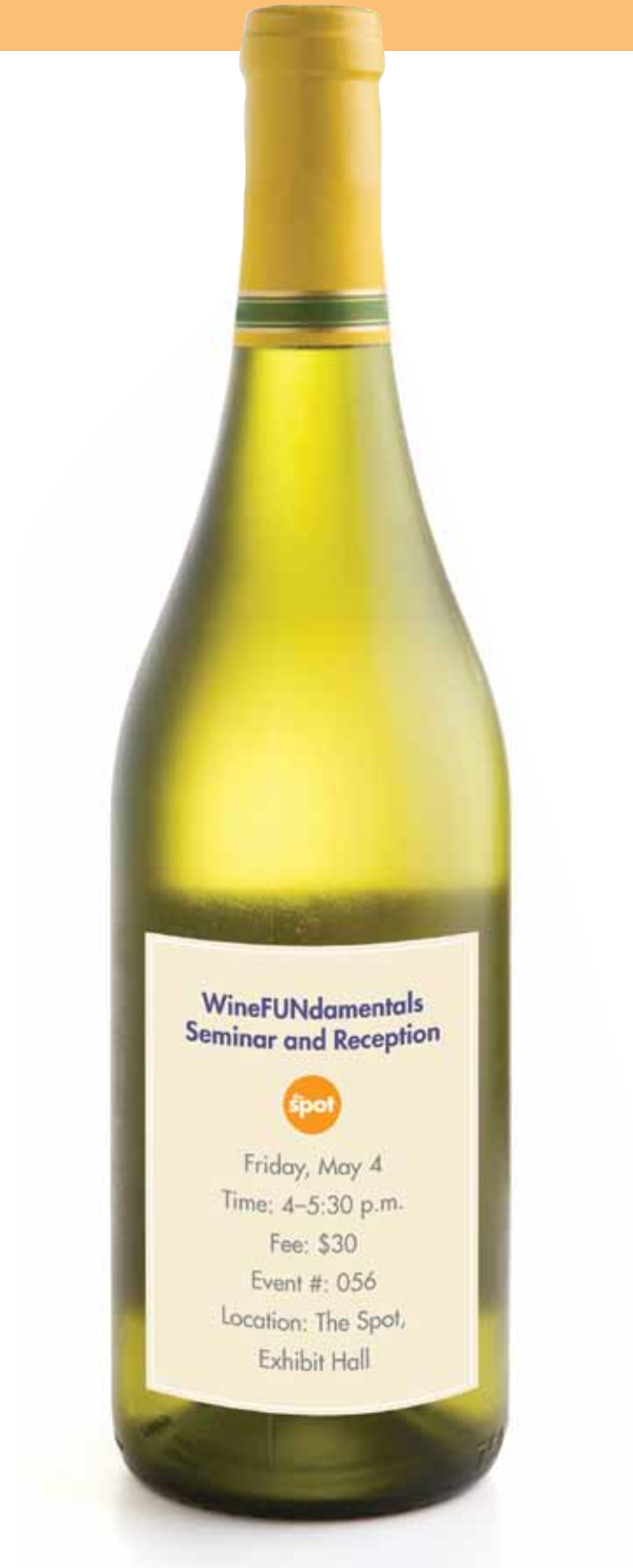
Friday

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*

Check the 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!

Prepaid Parking and Lunch

Prepaid Early Bird Parking

To make your parking experience easier, CDA is offering the opportunity to purchase parking vouchers in advance for the Anaheim Convention Center. Tickets will also be available at on-site registration for next day(s) use only. If you arrive by 8:30 a.m., this will guarantee a parking space with the added convenience of not worrying about having cash on hand. Purchase the tickets along with your registration.

The following conditions apply:

- Tickets are $12 per day and are available for Thursday, Friday and Saturday.
- Arrive by 8:30 a.m. — prepaid parking spaces will not be honored after that time.
- Parking passes are nonrefundable. Refunds cannot be given for lost or forgotten passes.
- Original passes must be used.
- Passes must be surrendered upon entry to the lot.
- Passes are only valid at the Anaheim Convention Center. They cannot be used at off-site parking or Disney lots.

Traffic and Parking Recommendations

If you are driving to the Convention Center, traffic is anticipated to be heaviest on Thursday and Friday mornings. To minimize any inconvenience, early arrival is strongly recommended. The peak traffic and parking time is projected to be from 8 to 11 a.m. Please watch the traffic control signs as you exit the freeway for the most updated parking information. For additional details, watch for electronic attendee news blasts or visit **cdapresents.com**.

Prepaid Food Vouchers

Treat your staff to lunch with vouchers for the Anaheim Convention Center concession areas. Available in increments of $10, vouchers allow a prepaid, hassle-free option to grab something quick or sit down and enjoy a meal with your team while attending the exhibit hall or between C.E. courses. Menu options include specialty coffee and breakfast items, Grab 'n' Go for lunch, Mexican taqueria, made-to-order sandwiches, All American Grill, barbecue, rice bowl and pizza. Exact locations and food selections will be included in your registration packet and on **cdapresents.com**. These vouchers are nonrefundable and must be used for amount shown. Change cannot be given if purchase is less than $10.

Purchasing Vouchers

Purchase prepaid food and parking vouchers when you register online at **cdapresents.com** or by submitting the advance registration form.

Prepaid Parking Voucher

Fee: $12

Event #: 059 Thursday
060 Friday
061 Saturday

Prepaid Food Voucher

Fee: $10

Event #: 062

CDA Presents is pleased to offer a children's program by KiddieCorp.

KiddieCorp professionals are bonded, qualified child-care specialists who are carefully selected and trained. Age-appropriate activities are selected for the children who join them during the meeting.

Please note: For the safety and productivity of all attendees, children 10 and younger will only be permitted on the exhibit floor from 9:30 a.m. to noon each day.

Dates: May 3–5, 2012
Location: Hilton Anaheim Hotel
Time: 7 a.m.–6 p.m. Thursday
7 a.m.–6 p.m. Friday
7 a.m.–4:30 p.m. Saturday

Ages 6 Months Through 6 Years

Parents with infants must provide diapers, changing supplies, milk, formula, baby food, etc. Please label personal belongings and lunches. Nutritious snacks and beverages will be provided by KiddieCorp. Meals can be supplied by parents or purchased at the children's program registration area.

Cost:	Full day:	$40
	Half day:	$20 (7 a.m.-1 p.m. or 1-6 p.m.)

Questions regarding the children's program can be directed to KiddieCorp at 858.455.1718 or **info@kiddiecorp.com**. Register online at **kiddiecorp.com/cdaspringkids.htm**.

Ages 7 Through 12 Years

Specially designed for children 7 through 12 years old, this program by the professionals at KiddieCorp will keep your kids entertained while you attend lectures or visit the exhibit floor. Activities, games and movies will be provided in a structured environment for your child's entertainment.

Cost:	Full day:	$30
	Half Day:	$15 (7 a.m.–1 p.m. or 1–6 p.m.)

Registration and Cancellation Deadline

The advance registration deadline is April 5. Advance registration is strongly encouraged. Cancellations received within 4 weeks of the start date will not be eligible for a refund.

No-Show Policy

Parents who do not arrive within 15 minutes of their reserved times may forfeit their reservations and not be eligible for a refund.

Strollers and Exhibit Hall

For the convenience and safety of all attendees, strollers are not permitted on the exhibit floor. A stroller check will be available for $2 per item.

Disney Tickets

Significantly discounted *Disneyland*® Resort theme park tickets are available to attendees during *CDA Presents*. These tickets will only be available for purchase online. These tickets are created just for you, and not all are available at the front gates of theme parks. Buy in advance and save! To purchase these tickets, please visit **cdapresents.com** or **disneyconventionear.com/ZACE12A**. Please note that purchase of theme park tickets is separate from *CDA Presents* registration. Ticket store closes at 9 p.m. Pacific Time on Thursday, May 3, 2012. **All tickets valid May 1–14, 2012.**

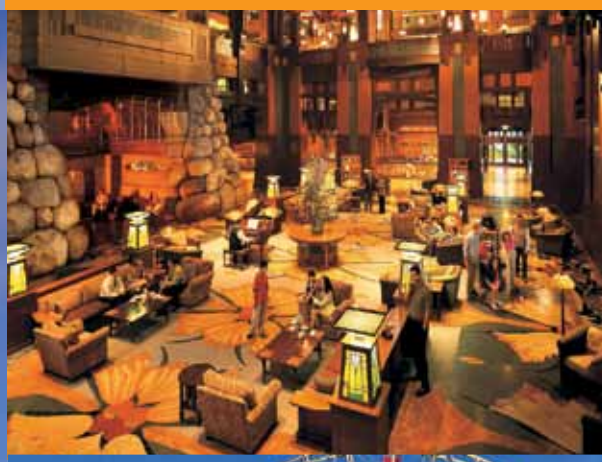
Disneyland RESORT
LET THE MEMORIES BEGIN

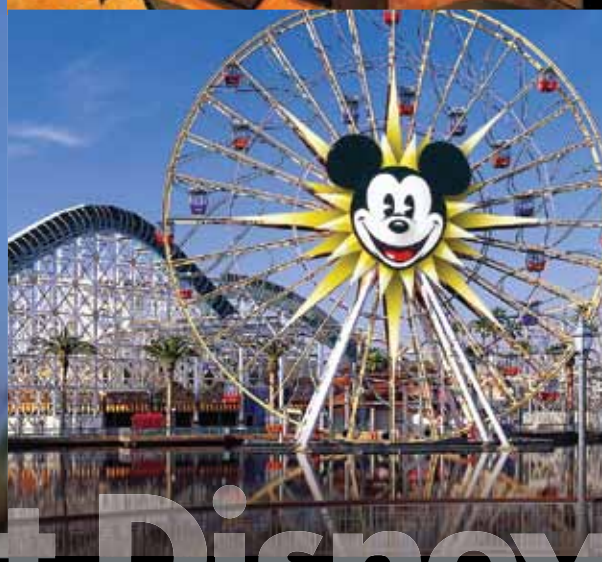
ONE DAY/ONE PARK	Admission to either *Disneyland*® Park or *Disney's California Adventure*® Park for one day.	Adult: Child (3–9 years):	$71 $66
ONE-DAY PARK HOPPER®	Admission and ability to visit both *Disneyland*® Park and *Disney's California Adventure*® Park on the same day for one day.	Adult: Child (3–9 years):	$91 $86
TWO-DAY PARK HOPPER®	Admission and ability to visit both *Disneyland*® Park and *Disney's California Adventure*® Park on the same day for two days.	Adult: Child (3–9 years):	$147 $136
THREE-DAY PARK HOPPER®	Admission and ability to visit both *Disneyland*® Park and *Disney's California Adventure*® Park on the same day for three days.	Adult: Child (3–9 years):	$175 $162
FOUR-DAY PARK HOPPER®	Admission and ability to visit both *Disneyland*® Park and *Disney's California Adventure*® Park on the same day for four days.	Adult: Child (3–9 years):	$184 $170
FIVE-DAY PARK HOPPER®	Admission and ability to visit both *Disneyland*® Park and *Disney's California Adventure*® Park on the same day for five days. *Enjoy two free days of magic when you visit both Disney's California Adventure*® Park and *Disneyland*® Park for *five days for the price of three!*	Adult: Child (3–9 years):	$187 $173
TWILIGHT CONVENTION TICKET	An ideal admission option for after meetings or events! Admission is valid for one visit to either *Disneyland*® Park or *Disney's California Adventure*® Park after 4 p.m., or four hours before park closing, whichever is earlier, since park hours are subject to change. "Back and forth" privileges are not included.	All ages:	$45

Tickets are printed on demand from your home computer. Purchase is separate from meeting registration.

NOTE: The special pricing on this page is available only with your advance, pre-arrival purchase. Box office tickets will be available at the *Disneyland*® Resort Main Gate Ticket Booths at regular prices. Prices subject to change.

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

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Improving the Oral Health of California's Most Vulnerable Populations

KERRY K. CARNEY, DDS

The March issue of the *Journal of the California Dental Association* completes the presentation of research commissioned by CDA in 2009-2010 on the subject of reducing barriers to dental care in California.

AUTHOR

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

This issue of the *Journal* includes a proposal for early and effective prevention programs for children, a model for analyzing the impact of additional dental providers (dentists and nondentists) on existing private practice dentists, an analysis of the capacity of the dental care system in California, and a companion piece offering additional context for and clarification of the capacity study.

Numerous factors influence the oral health of children from minority and low-income families and lead to significant oral health disparities for these children. In "A Comprehensive School-Based/Linked Dental Program: an Essential Piece of the California Access to Care Puzzle," Jared I. Fine, DDS, MPH; Robert E. Isman, DDS, MPH; and Catherine B. Grant, RDH, discuss the role school-based/linked dental programs play in overcoming key barriers to accessing oral health services and improving the oral health of vulnerable children.

Two separate economic analyses undertaken by CDA during its research project and completed by the Petris Center, University of California, Berkeley, School of Public Health are presented. The first, "The Impact of Additional Dental Providers in the Dental Labor Market on the Income of Private Practice Dentists," by Timothy T. Brown, PhD, and Ju-

liette S. Hong, MS, creates an economic model to estimate the potential impact of additional dentists, as well as other potential providers of dental care on the income of existing dentists in private practice in California. This study models "new" providers that have a smaller scope of practice than dentists. It analyzes the impact of dentists and "new" providers into the dental labor market with no restrictions with regard to practice location or population treated.

The second analysis, "Access to Dental Care and the Capacity of the California Dental Care System," by Timothy T. Brown, PhD; Nadereh Pourat, PhD; Paul Glassman, DDS, MA, MBA; Jessica Chung, PhD; Gina Nicholson, MPH; and Juliette S. Hong, MS, uses measurements of the technical efficiency of community dental clinics and private practice dentists to estimate the capacity of the dental delivery system in California.

In "The Capacity of the Dental Systems in California Study: a Review," Dr. Irving Lebovics, discusses Dr. Brown's study. Dr. Lebovics' article is not a critical review of Brown's statistics, methodology, or conclusions, but, rather, an attempt to help readers understand this complicated analysis and how it was used by the volunteers to develop the recommendations in CDA Access Proposal, "Phased Strategies for Reducing the Barriers to Dental Care in California."

This collection is not the end of the research required to make informed decisions with regard to identifying effective strategies to improve the oral health of California's most vulnerable populations. It is a beginning. Additional research and an ongoing commitment to being an engaged partner with other agencies and advocates will be necessary if the profession is to realize its commitment to improving the oral health of all Californians. ■■■■

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A Comprehensive School-Based/Linked Dental Program: An Essential Piece of the California Access to Care Puzzle

JARED I. FINE, DDS, MPH; ROBERT E. ISMAN, DDS, MPH; AND CATHERINE B. GRANT, RDH

ABSTRACT California children suffer more from dental disease than any other chronic childhood disease. Disparities in access and oral health are disproportionately represented among children from minority and low-income families. A comprehensive school-based/linked dental program is one essential ingredient in addressing these problems. Described here are the goals, program elements, and challenges of building a seamless dental services system that could reduce barriers care, maximize resources, and employ best practices to improve oral health.

AUTHORS

Jared I. Fine, DDS, MPH, is the dental health administrator, Alameda County Health Care Services Agency, Public Health Department.

Robert E. Isman, DDS, MPH, is a dental program consultant, California Department of Health Care Services.

Catherine B. Grant, RDH, is manager of School-based and School-linked Oral Health Services, Alameda County Public Health Department.

Most recent data show that California children still suffer more from dental disease than any other chronic childhood disease. Children from minority and low-income families suffer disproportionately with more extensive and more severe disease.[1] The "2006 California Smiles Survey, an Oral Health Assessment of California's Kindergarten and Third-Grade Children," found that by third grade, almost two-thirds of California children were affected. Twenty-eight percent of all surveyed elementary school students in kindergarten and third grade were reported to have untreated tooth decay and 4 percent were found to need urgent dental care because of pain or infection. Moreover, children from minority and low-income families had approximately 50 percent higher levels of untreated decay than their more affluent counterparts.

Children frequently miss school because of dental disease and it is often named by school administrators as the most frequent cause for absenteeism.[2] In 2007, California children were reported to have missed an estimated 874,000 school days due to dental problems, costing school districts an estimated $29.7 million.[3]

Any strategic and comprehensive effort to reduce the barriers to care must include a school-based/school-linked dental program as an essential ingredient. School-"based" services are defined as those provided at school and "linked" are those services systematically provided in the community rather than at the school site including case

management or care coordination services. Overcoming barriers in access to dental care is a complex challenge that requires a multifaceted set of solutions. Schools provide an ideal setting for providing oral health education and prevention activities, for example, with approximately 88 percent of U.S. children attending public schools in 2008.[4] Reducing the burden of preventable dental disease and increasing access to care are both necessary. A successful school-based/linked program can increase the number of children receiving preventive and restorative dental care by providing care to children where they are most accessible: at schools.

History of School-Based Dental Disease Prevention

Modern school-based prevention programs began to emerge nationally by the 1980s after studies had demonstrated the effectiveness of preventive strategies such as fluoride mouthrinse. The efficacy of fluoride mouthrinse was demonstrated by the National Institute of Dental Research that had conducted a 20-city community demonstration program. With numerous studies also confirming the effectiveness of dental sealants and the gradual expansion of scopes of practice for dental auxiliaries, school-based programs also began to include dental sealants as well.

During the 1970s, a few counties in California initiated school-based screening, education and fluoride mouthrinse programs with local support from health departments, dental societies, Delta Dental, and other organizations. Between 1976 and 1981, the American Fund for Dental Health, the foundation arm of the American Dental Association, partnered with the Rand Corporation with funding from the Robert Wood Johnson Foundation to conduct a National Preventive Dentistry Demonstration Program in 10 cities across the nation, five nonfluoridated, and five fluoridated communities of which Hayward, Calif., was one.[5]

The elements of the National Preventive Dentistry Demonstration Program included various combinations of what were considered to be the best preventive dental strategies at the time, provided in a school-based setting using portable dental equipment. The measures included dental examinations, classroom education, prophylaxis, and applications of fluoride and dental sealants. Labeled as the most comprehensive demonstration of school-based dental prevention strategies to date, this $10 million effort received much national attention and validated the benefits of fluoridation and dental sealants and underscored that the greatest benefit of fluoride applications is for students in high-risk schools.[6,7]

OVERCOMING barriers in access to dental care is a complex challenge that requires a multifaceted set of solutions.

California's school-based program, the Children's Dental Disease Prevention Program (CCDDPP), was initiated in 1979. CCDDPP annually served approximately 348,000 children from low-income schools (schools where at least 50 percent of the children are eligible for the federal free and reduced-price lunch program) in 31 counties. This program was funded by the state's general fund ($3.3 million annually) and provided oral health education, screenings and referral, fluoride, and (in limited numbers) dental sealants. Although the proportion of states with fluoride mouthrinse programs had decreased by 15 percent in 2003, of the 50 states and the District of Columbia reporting to the 2010 Association of State and Territorial Dental Directors State Synopsis, 35 states had fluoride mouthrinse programs, primarily targeting high-risk schools in nonfluoridated communities.[8] Despite the obvious benefit, however, in 2009, funding for the CCDDPP was eliminated, leaving California without any organized program to deliver essential dental disease prevention services to the state's neediest children.

The Vision

Dental disease, both caries and periodontal disease, is transmissible and in large part preventable. In order to address the progressive and multifactorial nature of these diseases and their effects, the vision of such a program for California is: To build a seamless oral health services delivery system that would reduce barriers to receiving services, maximize existing resources in the community, and employ best practices to achieve improved oral health.

In order to achieve this vision, key, value-based principles such as those adopted by the broadly representative California-wide Children's Dental Health Initiative (CDHI) should guide the development of its goals and objectives.[9] The CDHI was a 30-member with representation from child health advocacy, dentistry, dental hygiene, state and local governments, nonprofit foundations, education, and health centers convened by the Dental Health Foundation with support from the California Endowment over a two-year period to create a plan to address the "neglected epidemic" of dental disease in California's children. The following are the principles they adopted:

Children's Rights to Oral Health Care: Every child has a right to a dental home: a place to receive care that

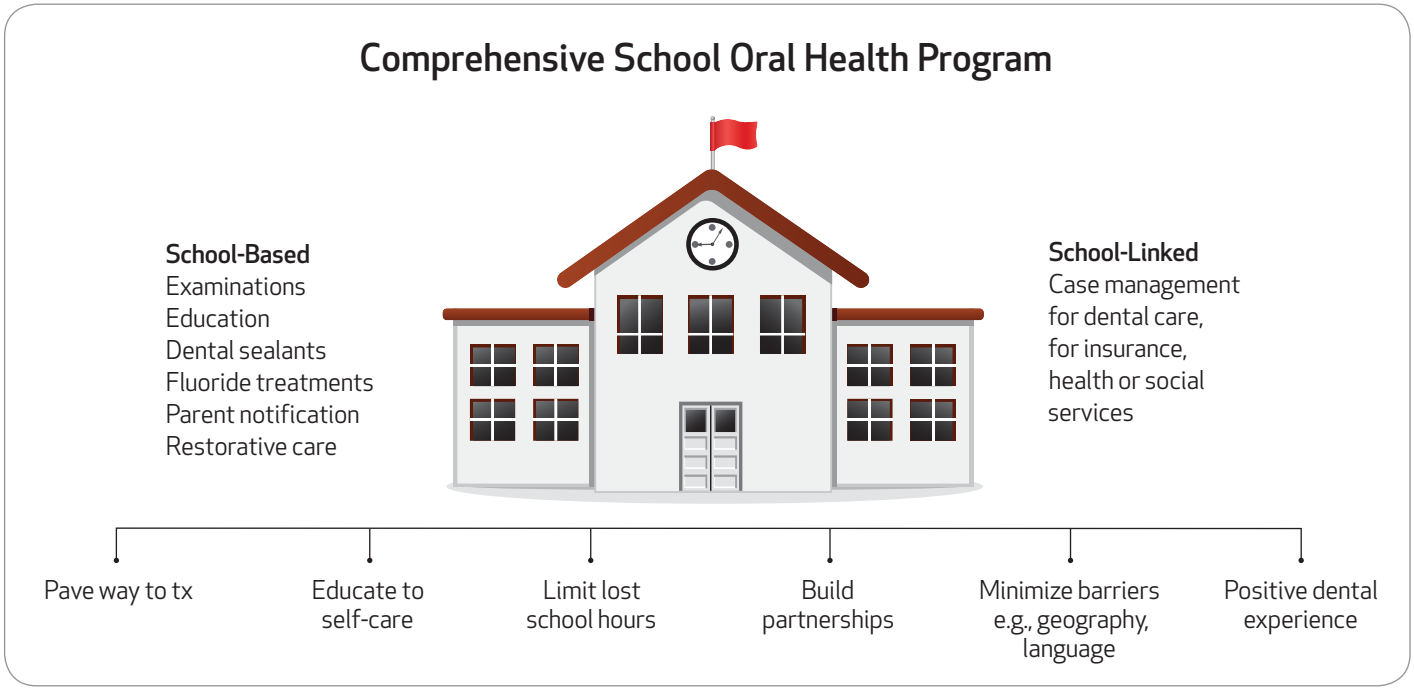

FIGURE 1. Advantages of a school-based/school-linked oral health program.

is family-centered, easily accessible, continuous, comprehensive, and culturally and developmentally appropriate.

Quality of Care: Oral health services should be of high quality, evidence-based and reflect best practices. They should include nutritional counseling and assessment as well as treatment and be available where people can easily access them such as at WIC, Head Start, or schools. Oral health should be viewed as integral to overall health.

Prevention and Education: Prevention as far upstream as possible should take precedence over cure, but need for urgent care should also be addressed. Oral assessment, preventive services and treatment should begin by the first birthday. Oral health education should be a required part of public school health education. Outreach and case management are integral to enabling families to access and enjoy oral health care and the health care system.

Stakeholder Participation in Fostering Children's Oral Health: Local communities must be responsible for local solutions and the solutions should be reflective of the communities they are intended to serve. Publicly supported oral health care is needed to fill gaps between oral health care needs and existing provider resources. Oral health surveillance and regular dissemination of findings are essential to assess and evaluate program effectiveness.

The overarching goals of a school-based/linked program should be to:

- Decrease dental disease;
- Increase the number of children who receive preventive services, including fluoride and dental sealants;
- Decrease absenteeism;
- Establish a system of care at the local level; and
- Increase the number of children with a source of continuous, comprehensive dental care (**FIGURE 1**).

There are many advantages to conducting dental programs at the school site. Bringing services to schools where high-risk children are easily reached can overcome many of the barriers that obstruct access to dental preventive and treatment services. For example, transportation to an off-site dental office, which might be a barrier for families, is not required. Language needs may be more easily addressed at the school site and the familiarity of the school site and staff may enable children and families to feel more at ease.

Preventive dental programs are for the most part a positive and nontraumatic experience often focusing on fluoride and sealant applications, thus mitigating fear of pain too often associated with dental treatment. Time lost from school (and work for parents) for dental care is minimized and the educational process is maximized. By having the dental program at school, there is an opportunity to grow awareness of the importance of dental health and build partnerships with faculty, administrators, and parents to establish a school environment that promotes oral health.

There is also an opportunity for the dental community (private and public sector) to collaborate with the school dental program to address the identified needs. In addition to establishing an environment that promotes healthful eating, the school curriculum can be infused with dental health information, oral hygiene skill building and self-care, and promotion of healthful di-

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etary choices. Further, this positive experience at school can pave the way for families and children to take the steps needed to access ongoing dental care in the community.

Reaching Children Prior To Traditional School Entry

It is known that dental caries and the underlying causal factors start long before school age. Evidence of dental caries can begin as early as 6 months of age when the first teeth erupt in a young child's mouth. Since caries is a progressive disease, if oral health-promoting hygiene and dietary practices are not implemented along with professional services at an early age, it will become more severe and destructive over time. Therefore, a California-wide comprehensive children's dental disease prevention program should also include education-focused settings where parents and other caregivers and children can be reached, such as the Special Supplemental Nutrition Program for Women, Infants and Children's Program (WIC), Head Start, Early Head Start, and state preschools in order to reach children as early as 6 months of age.

Engagement with caregivers in these settings is an essential ingredient of disease prevention and ongoing oral health promotion for the young child. Including parental and age-appropriate education can enable self-responsibility, understanding of the decay process, health-promoting dietary practices, understanding how to prevent disease, and the building of a lifetime of good daily oral health habits and oral health.

1. Key Program Elements

Regardless of whether services are provided at the preschool or school-age level, there is a set of essential elements required of any school-based/linked dental program. Oral health assessment, screening or examination, serves to determine oral health status, informs the family of the child's condition, informs the process of oral health education and establishes the basis of eligibility for additional services provided on site or by way of linkage to resources in the community.

Preventive services would include, at minimum, age-appropriate application of topical fluoride and dental sealants. Policies of the Association of State and Territorial Dental Directors (ASTDD) recommend both topical fluoride and dental sealant applications as a best practice in school-based dental programs especially where exposure to optimal systemic and topical fluoride is low.[9,10]

REGARDLESS OF WHETHER services are provided at the preschool or school-age level, there is a set of essential elements required of any school-based/linked dental program.

Oral health education that builds oral health literacy is adapted for each developmental stage of the child and engages the caregiver in the process appropriate for each setting. This education can be both individualized as well as conducted on a school- or communitywide basis.

Case management (CM), care coordination or patient navigation as it has variously been called, is now considered an essential ingredient for any program designed to link and enable families and children to access necessary services not based at the site but rather in the community. These CM "linked" services that are most often conducted from outside of the school site in a variety of forms and performed by a variety of personnel (e.g., public health nurses, dental staff, school aides or community outreach workers) should, at minimum, assist families to identify an appropriate source of dental care, and overcome scheduling, transportation, and financial and language barriers. CM services should include a pathway that will also include insurance eligibility and enrollment assistance for those who lack dental insurance coverage. These services will enhance the ability of local programs to assure that by 2014 all those who are eligible will be enrolled in dental coverage and assured of a dental home.

Comprehensive ongoing regular dental care would be assured through referral and case management to a dental provider in the community. If dental care services are available at the school site, case management would also support the utilization of those services.

Beyond the services provided to children and their families, the program would benefit from the oversight of a local advisory committee, the purpose of which is to provide guidance on program logistics, outcomes, advocacy, and resource development. It also may serve as a forum for community involvement engaging the public/private sectors and assist in building a network of ongoing community-based comprehensive dental care. The local advisory committee should be strengthened by a broad array of community partnerships including representation from schools, youth groups, churches, philanthropies, advocacy groups, policy-makers, and public agencies.

The basis of determining the quality and extent of program services must be established through regular collection of program surveillance and service data at set intervals. These data would not only be essential to program management but also to the local advisory committee in the conduct of its function.

Ages 0-5

There are two great advantages to providing dental disease prevention programs at locations such as WIC, Head Start, and state preschools. The first is that the caregivers are more accessible both because of the educational nature of the setting and because of their frequent need to be present. In as much as dietary and oral health care practices are dependent on caregivers, engaging a caregiving family member in the process is crucial.

The second advantage is the opportunity to address the needs of the very young child early. At WIC, Early Head Start, Head Start, and state preschools parental involvement can be maximized, and children can begin being seen as early as 6 months of age. Services should include at minimum a knee-to-knee oral assessment, risk assessment, anticipatory guidance, appropriate preventive services such as fluoride varnish applications and referral/case management to a regular source of dental care either on site or in the community. These sites can play a powerful role in mitigating dental disease in a high-risk population, long before the disease can effect costly damage in both human and economic terms. Outreaching to the agencies and programs that service the 0-5-year-old population is an important element in developing an effective program to reduce dental disease in children.

Elementary School

The elementary school program for students from kindergarten to fifth grade can be an anchor for a proposed program for California's children. Clearly it is where most children at risk of dental disease can be located at a relatively early age and where the historical and legislative precedents have established dental programs for California's children. In 2006 with the passage of AB 1433, California mandated oral health assessment for all kindergarten and first-graders entering public school for the first time, the value of dental health for school children was established in law.[11] AB 1433 raised awareness across the state about early assessment and despite funding pressures, is still being implemented in many school districts where the value of oral health has been established.

Oral health education is critical for students in elementary school as they can begin to experience a broad range of dental health concepts, develop individual oral hygiene skills and take on some responsibility for self care. Screening in kindergarten, second and fifth grades provides compliance with AB 1433, the oral health assessment for kindergarten students, and determines eligibility for the second- and fifth-grade students to receive dental sealants for the most newly erupted permanent molars. In conjunction with case management services into a dental home, these screening, fluoride and sealant applications form the basis of the school-based/school-linked program.

IN AS MUCH AS
dietary and oral health care practices are dependent on caregivers, engaging a caregiving family member in the process is crucial.

Middle and High School

School dental programs, while not very prevalent throughout California, are growing in popularity with the movement to establish comprehensive school-based health centers. While this growth is both politically and economically dependent, even in the absence of such health centers, specific elements should be considered as requirements for the conduct of such programs at the middle and high school level. Age-appropriate oral health education that engages students in individual responsibility is even more critical at this age level because students are capable of self-care and of making food choices that can affect both their oral health as well as their overall health.

Screening students at the seventh- and 10th-grade levels will afford the opportunity to identify those who could benefit from preventive services at school, including fluoride and dental sealants, as well as provide a measure of surveillance data to establish both baseline dental health status levels and program progress over time. Moreover, referral and case management for students to ongoing care either at the school site or linked to a dental provider in the community is essential.

2. Eligibility for Participation

The intent of the proposed program is to bring services to the children with the highest needs and at greatest risk of developing dental disease. It is commonly said that 80 percent of dental caries occur in 25 percent of the population. The Centers for Disease Control and Prevention, Division of Oral Health, Oral Health 2000: Facts and Figures stated that "the burden of oral diseases is spread unevenly throughout the population. Many more poor people and some racial/ethnic minority groups have untreated oral health needs than does the population as a whole." Participation in the federal free and reduced school lunch program (FSLP) is a well-established method to identify elementary

school children in need. A higher rate of participation in the FSLP indicates higher need, i.e., a school with 95 percent participation has more children from low-income families than a school with a participation rate of 40 percent.

Programs at the elementary school level should focus resources on schools with a FSLP participation rate of at least 50 percent. Schools in the county with the highest FSLP rates should be targeted first. This method and others such as profiles from the California Department of Education would be used to determine the focus of program eligibility for middle and high schools. This would be enhanced by taking feeder schools into account as well as locally determined health and socioeconomic indicators of need. In the case of children age 0-5 years, the very nature of program qualifications for WIC, Early Head Start, Head Start, or state preschools would define their eligibility for participation in the proposed dental program.

Educational and/or requirements for dental examination and linkage to care for these programs enhance the collaborative partnerships that should pave the path to integrating dental programs for the participating children and families in these programs. Because of the shared goals, the school-based/linked program should partner with these agencies as a natural and effective means of reaching young children and families with a high risk of developing dental disease.

3. Program Requirements

The school-based/linked program proposed here places responsibility for the development, organization, and implementation of the oral health programs with the county health department, and program requirements, oversight, and technical assistance with the state. It prioritizes services for children with the highest needs and is financially sustainable. In addition to the emphasis on oral assessment, preventive and treatment services, the program includes case management to assure access to comprehensive oral health services.

Each county has a unique set of pre-existing resources and collaborative partners. While these resources vary, key program requirements can be standardized. Deliverables are based on the total number of children enrolled in the county program each year and are outlined as a proportion of that total.

MOST ESSENTIAL IS A DENTAL director — someone to provide the leadership, advocacy, and expertise within the state administration, and to coordinate oral health programs throughout the state.

Program deliverables set forth by the state would define the proportion of children expected to be served including those who:

- Receive a dental screening (based on standardized state surveillance protocols);
- Have a regular source of dental care, measured by the first validated appointment and the number of treatment plans completed each year;
- Receive oral health education;
- Receive fluoride and dental sealant applications;
- Participation in a program for children 0-5 years of age; and
- Receive case management to link families to insurance assistance or other health and social services as needed.

4. Requirements at the State Level

Two major sources of state oral health funding from the federal government are the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA), which is the source of Maternal and Child Health Block Grant funds. In addition, some states finance at least a portion of their oral health programs using matching federal Medicaid funds. The national health reform legislation — the Patient Protection and Affordable Care Act (PPACA) — significantly expands authorization of federal funding for oral health, but to date no funds have been appropriated by Congress for this purpose. Had there been an appropriation, CDC's funding for oral health infrastructure and school-based sealant programs would have been expanded to all 50 states.

CDC funding for oral health infrastructure, however, is contingent upon the state meeting some basic requirements. Most essential is a dental director — someone to provide the leadership, advocacy, and expertise within the state administration, and to coordinate oral health programs throughout the state. In addition to a dental director, the Association of State and Territorial Dental Directors (ASTDD), the national resource for successful state oral health programs, recommends program administrators, an oral epidemiologist, and other additional staff to effectively operate a statewide program.

A state program advisory committee would also be a valuable asset. Committee members would contribute in much the same way as the local advisory committee. The state committee, however, would also be responsible for reviewing "requests for proposals" if/when the state receives the federal funding needed to be distributed to local programs, reviewing year-end reports and considering changes to enhance or change the program conduct or its deliverables.

A centralized database with standardized reporting and data collection forms to assure comparability of counties (and even with other states) to which all programs report is essential. These data are essential for evaluating whether programs are having their desired impact and are also useful for program advocacy, assistance in determining the need for and validating programmatic changes and to track changes in the oral health status of California's children. In addition, the development of an electronic program for case management, claims information tracking, and evaluation is critical to ensure that local programs have the tools and the technical support to accomplish program goals.

Requirements at the Local Level

The California Health and Safety Code, Sections 104830-104865, direct the county health officer to organize a program to apply topical preventive agents.[12] Specifically, Section 104830 mandates that children in elementary and secondary schools "shall be provided the opportunity to receive within the school year, the topical application of fluoride, including fluoride varnish, or other decay inhibiting agents to the teeth in the manner approved by the department."

Sealants are considered a decay-inhibiting agent and therefore fall within the purview of this code. Section 104840 states that "The county health officer of each county shall organize and operate a program so that treatment is made available to all persons specified in Section 104830. He shall also determine how the cost of such a program is to be recovered. To the extent that the cost to the county is in excess of that sum recovered from persons treated, the cost shall be paid by the county in the same manner as other expenses of the county are paid." Further, Section 104860 of the code states, "The department shall adopt and enforce all regulations necessary to carry out this article."

While this law has never been enforced, the establishment of appropriate leadership at the state level would certainly be an important step to implement and enforce it. The state can then provide guidance and technical assistance to ensure compliance.

School District Board Support: Health and Safety Code Section 104845 also requires school district board cooperation with the county health officer to carry out the program and states that "The governing board of any school district may use any funds, property, and personnel of the district for that purpose."[14]

CHILDREN NEED access to a dental provider who can provide continuous and comprehensive care.

Community Partnerships: Partners in the community are vital to the success of a school-based/linked program. These partners may include but are not limited to other county-based programs such as the Child Health and Disability Prevention Program (CHDP), Maternal Child and Adolescent Health, WIC, Head Start, social services, community clinics, federally qualified health centers (FQHCs), and community-based dentists either individually or in conjunction with the local dental society.

Children need access to a dental provider who can provide continuous and comprehensive care. Partnerships with the local dental society to build a network of providers who accept government insurance programs is essential to ensuring that children from low-income families have a regular source of dental care. FQHCs can be an ideal partner when that is possible because they receive support from the federal government for the very purpose of providing care to individuals who have government insurance coverage or who are uninsured.

Sustainability

A program such as this requires sustainability through a variety of financial sources, including existing insurance reimbursement systems, federal funding, county funding, community support, and, to the extent that it might be available, state general fund support. Further expected increases in dental coverage for children as a result of national health care reform will increase the number of children with a payer source by 2014, further broadening the base of financial sustainability.

Financial sustainability at the local level could more specifically include a variety of options that are dependent on the type of personnel and function being served by each. Services provided by a program manager could be from a combination of sources that fund administrative functions that are designed to assist individuals on Medi-Cal to access services provided by that program. These nonclinical functions include, for example, coordination, development of resources among stakeholders and/or service providers, quality assurance, program planning, and evaluation. This funding is provided through a partnership with the federal government known as federal financial participation (FFP) and requires local or state nonfederal matching funds.[15]

Case managers who perform this function can also be funded through this arrangement in partnership with the Maternal, Adolescent and Child Health (MCAH) or the Child Health and Disability Prevention (CHDP) Program. The cost of

services rendered by dentists, registered dental hygienists, dental assistants performing clinical services could be offset by fee-for-service Medi-Cal or through a FQHC reimbursement if the program has a clinic partner with the scope of services that includes portable dental services in community settings such as schools.

Aiding local programs to maximize the FFP MCAH/CHDP funding opportunity would be a principal technical assistance role for state dental health staff. Unlike in the past when local programs were more dependent on the base funding of state general funds, it will be incumbent on local programs to diversify the financial resources in combination with whatever funds might be available from the state or federal government to assure financial viability and accomplishment of program service objectives over time.

Other Challenges

■ Alignment with best practices: In order to maximize dental health outcomes and cost effectiveness, it is essential to maximize use of the best current evidence-based practices. Aside from community water fluoridation, fluorides and dental sealants have proven effectiveness and yet even their application requires discrimination as to which age groups and means of delivery achieve the best health outcome for the effort employed. Health education is a more challenging area in which the evidence of health outcome benefits has been elusive except in controlled clinical investigations. Consequently, discretion is needed to determine the level of staff and partner effort dedicated to achieve the health education services. Embracing the "oral health literacy" model requires the ability to maximize the interaction with family members typically present in the preschool-age environment but less likely in the school-age population. Engagement with the school administration and staff will be the challenge to generate opportunities to engage parents as well as integrate oral health messaging into the curriculum.

■ Programmatic strategies: With an emphasis on case management and other means to facilitate the assurance that children reach a dental home, several new challenges emerge. Local programs will need to develop partnerships, for example, with Maternal and Child Health programs, public health nursing, the Child Health and Disability Prevention program, nonprofit foundations to institute and provide the case management or care coordination function. Equally important is the assurance of a network of providers capable of serving the children requiring a dental home whether in the private or public sector. In addition, implementing new models of service delivery at WIC, Early Head Start, Head Start, and state preschools based on recent success will require stretching the paradigm to provide services early, before the effects of dental disease in economic and human terms have already occurred.

■ Political will: The energy needed to achieve the establishment of a program statewide cannot be understated. Best practices, based on the most well-established science and the most creative programmatic strategies alone will only leave two legs of a three-legged stool to topple over. It is imperative that dental health infrastructure at the state level be established to provide the leadership and coordination essential to advocate for and move a comprehensive children's program agenda forward. Such leadership is needed to provide guidance and technical assistance at the state and local level as well as to access federal funding as it becomes available. Such leadership could, for example, work to expand the "four walls" of FQHCs thus allowing them to contract with private dentists. This would allow more dentists to participate in providing care to those covered by Medi-Cal without expensive and time-consuming capital expansion. The broadest partnership will be needed to achieve both the infrastructure and the leadership to generate the school-based/school-linked dental program for California's children (**FIGURE 2**).

FIGURE 2. Required elements to establish a children's dental program in California.

Conclusion

Leadership and collaboration are needed to establish and successfully manage a comprehensive school-based/linked oral health program for California's children. Existing California law supports public oral health programs. However, statute amendments to update and expand parameters of a statewide program, bring modalities of disease prevention current and ensure that care is comprehensive are needed to fully implement this proposal. Successfully achieving these results will be the underpinning of a program that has the power to significantly reduce the burden of dental disease and increase access to care. ■■■■

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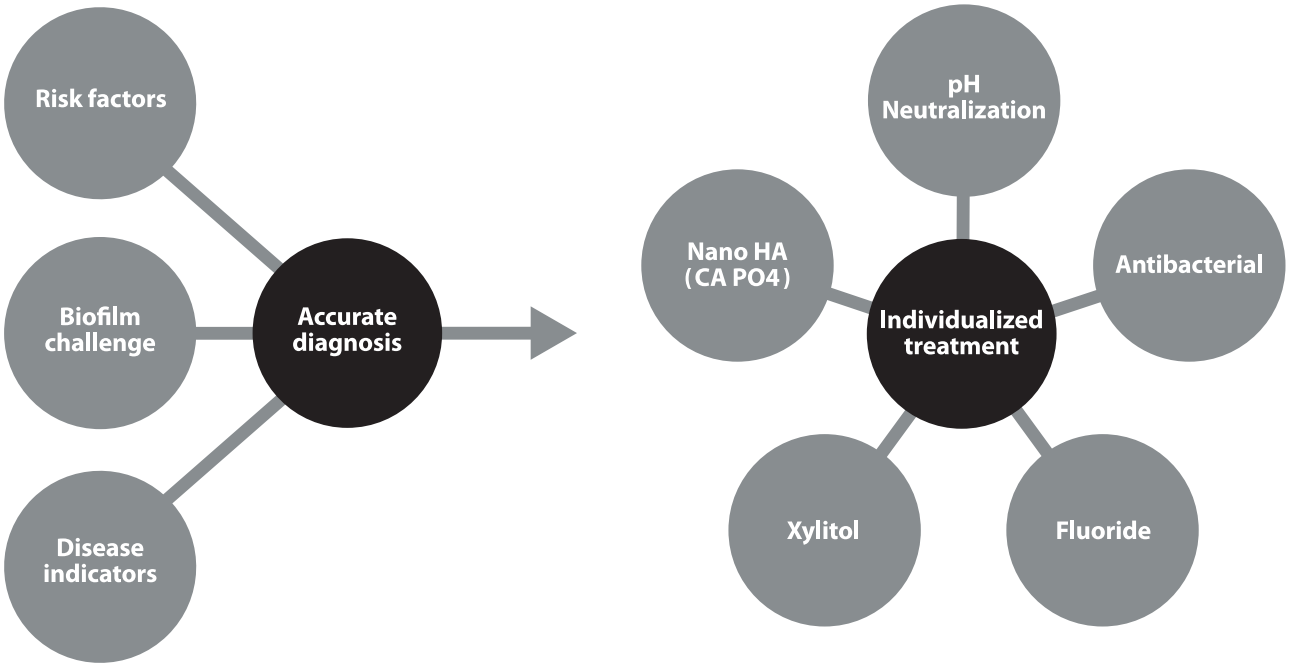

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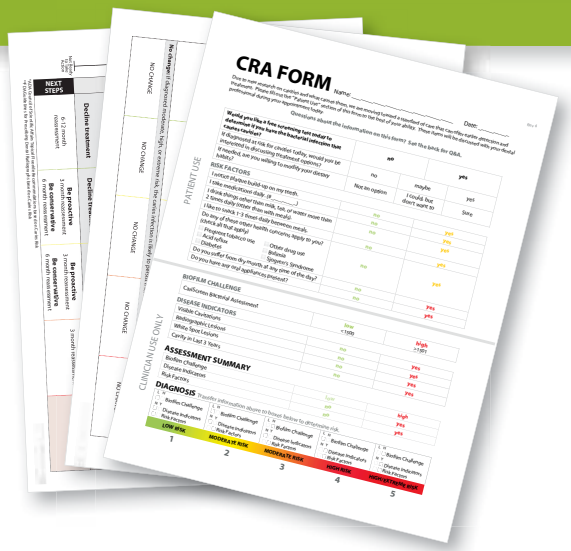

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The Impact of Additional Dental Providers in the Dental Labor Market on the Income of Private Practice Dentists

TIMOTHY T. BROWN, PHD, AND JULIETTE S. HONG, MS

ABSTRACT This study estimates the impact that the entrance of hypothetical allied dental professionals into the dental labor market may have on the earnings of currently practicing private practice dentists. A simulation model that uses the most reliable available data was constructed and finds that the introduction of hypothetical allied dental professionals into the competitive California dental labor market is likely to have relatively small effects on the earnings of the average dentist in California.

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A widely discussed policy option to increase access to dental care in the United States is the introduction of new dental providers. Three proposed new providers, the dental therapist (DT), the dental health aide therapist (DHAT), and the advanced dental hygiene practitioner (ADHP), are examined in this study. A description of each of these is available elsewhere.[1] Since none of these providers exists in California, the authors refer to these as hypothetical allied dental professionals (HADPs).

This study examines three questions: 1) What is the economic value produced by each HADP relative to a dentist?; 2) What is the impact on the earnings of private practice dentists from the entry of additional private practice dentists into the dental labor market?; and 3) What is the hypothetical impact on the earnings per hour of private practice dentists from the entry of HADPs into the dental labor market? This study answers these questions using the conceptual framework of microeconomic theory. The study purposefully assumes minimal regulation of HADPs and that consumers see HADPs as perfect substitutes for dentists within the scope of practice of a HADP. This is done in order to show an upper bound with regard to the impact on the earnings of dentists from the entry of HADPs into the dental labor market.

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The Importance of Context: Practice vs. Market

When considering the potential effect of HADPs on the earnings of private practice dentists, two contexts must be considered: The individual practice and the market for dental labor. In the first context, we theoretically assume that any staff added to a practice will usually improve and never reduce the earnings of the dentists in that practice. This is a standard assumption in economic theory.[2] The owner of a practice fully controls the staffing of the practice and will alter the composition and number of practice staff to maintain practice profitability.

However, the owner does not control the market for dental labor. The entrance/exit of HADPs outside of the average dentist's practice may affect the earnings of the average dentist via competition for patients that may lower the average earnings of dentists. The key point here is that, according to economic theory, it is possible for the entrance of a given number of HADPs to result in lower average earnings for dentists, while at the same time resulting in temporarily higher average earnings for dentists who are in the subset of practices that are able to initially profitably employ HADPs.[3] However, economic theory also states that temporary disequilibrium states move toward equilibrium and will not prevail in the long run.[2] This implies that, for policy purposes, examining the effect of the entry of HADPs into the dental labor market should be done using equilibrium models of what would prevail in the long run. This study therefore examines the labor market for dentists using simulations based on an equilibrium model of earnings determination for dentists.

Materials and Methods

Factors That Influence Earnings Determination

To determine the hypothetical effect on dental earnings of the entry of HADPs requires accounting for all major factors affecting earnings determination. The average valuation of a dentist's time, earnings per hour, is defined as annual income divided by annual hours worked. The average level of earnings per hour that prevails in the labor market for dentists will be affected by factors affecting the demand for dental care and factors affecting the supply of dental care including the structure of the labor market, individual-level characteristics of dentists, regulations, and other factors.

THE STRUCTURE of the labor market for dentists in California is generally competitive and is stable.

The structure of the labor market for dentists in California is generally competitive and is stable. Most practices are small, having fewer than five employees, and the distribution of dental-practice size has been stable over 2000-2007.[4] Individual dental practices are generally too small to affect the dental labor market such that they significantly reduce or increase the average earnings per hour of dentists.

Individual Characteristics of Dentists

Individual characteristics, such as specialty and experience, will explain a portion of the variation in earnings per hour across dentists. Dentists who provide specialized procedures provide greater value per hour relative to general dentists. Similarly, dentists with more experience will tend to be able to accomplish more in a given time period than less-experienced dentists. There also appear to be gender differences in the way dentists practice that may affect earnings.[5-9]

Demand, Supply, and Regulation

Factors related to the demand for dental care (the extent to which individuals are willing and able to purchase dental services) include dental insurance, income, age, and race/ethnicity. The percentage of individuals with private or public dental insurance measures the degree to which individuals can purchase dental care with minimal out-of-pocket expense. Per capita income measures the degree to which the average individual can purchase dental care apart from dental insurance. The age distribution of patients impacts the distribution of oral health conditions that individuals demand care for (data on oral disease rates by county are not available). Finally, the racial/ethnic breakdown of the population will measure the degree to which each group demands dental care.[10]

Area-level supply factors include nonpediatric dentists per capita, pediatric dentists per capita, hygienists per capita, and dental assistants per capita. The authors break out pediatric dentists separately because they wanted to determine if there are different effects from the entry of dentists who focus on children relative to other dentists. Finally, regulations that address the degree to which allied dental professionals (hygienists) can

TABLE 1

Hypothetical Percentage Change in Earnings Per Hour of Current Private Practice Dentists Due to Entry of Dental Professional (one per 100,000 population)†

	Entry of one dental professional per 100,000†				
Characteristics of currently practicing dentists	**Pediatric dentist**	**DT**	**Nonpediatric dentist**	**DHAT**	**ADHP**
Average percentage of patients with public/private insurance and average percentage of patients who are children	+1.49%‡	+0.19%‡	−0.32%	−0.07%	−0.14%
Average percentage of patients with public/private insurance and 100% patients who are children	No detectable change‡	No detectable change ‡	-0.73%	−0.17%	−0.33%

† In 2009, this is equal to 382 dentists, 2,938 (382/0.13) DTs, 1,661 (382/0.23) DHATs, or 849 (382/0.45) ADHPs statewide. Since DTs only treat children, DT-to-population ratios would usually be expressed in terms of the population of children. However, the authors expressed DT-to-population ratios in terms of the overall population for purposes of comparability with dentists, ADHPs, and DHATs. (38,246,598 population)/(100,000 population) = 382.46. Department of Finance. Demographic Research Data Files. www.dof.ca.gov/research/demographic/data/ Accessed Jan. 9, 2012.

‡ This association only occurs up to 3.82 pediatric dentists per 100,000 population (in a county) depending on model specification. In 2009, there were (918 pediatric dentists)/(382.46) = 2.40 pediatric dentist per 100,000 population. (Number of dentists by specialty field. Kaiser Family Foundation State Health Facts. statehealthfacts.org/comparetable.jsp?ind=444&cat=8&sort=a&gsa=2 Accessed Jan. 9, 2012. To reach the turning point of 3.82 would require the addition of approximately 543 pediatric dentists or approximately 4,177 DTs. See the **TECHNICAL APPENDIX** for more information.

be reimbursed directly measure a portion of the intensity of competition between dentists and allied dental professionals.

Dental Services Relative Value Index

The authors used the Dental Services Relative Value Index (DSRVI) to determine the relative value of each HADP relative to a dentist. The DSRVI is the ratio of the earnings per hour of a given HADP relative to a dentist: EPHHADP/EPHDDS, where EPHHADP is the earnings per hour of a given HADP and EPHDDS is the earnings per hour of a dentist. The DSRVI ranges from 0 to 1. The DSRVI is an approximate measure of the productivity of HADPs relative to dentists and approximately measures the relative amount of revenue that each HADP is responsible for within a practice as compared to a dentist. Its validity is based on the following principles from microeconomic theory.

In a competitive labor market, dental practices will theoretically hire employees up to the point where the earnings per hour paid to the last employee hired from a given occupation equals the additional amount of revenue produced by the practice due to the presence of that last employee. This relation can be expressed as follows: EPH=MRP, where MRP is marginal revenue product that is defined as the marginal product, MP (the additional units of dental services produced per hour by the practice due to the additional employee being hired), multiplied by the marginal revenue, MR (the fees charged per hour for each additional unit of service produced by the practice due to the additional employee being hired). In other words, the average earnings per hour of an occupation is a theoretically correct measure of the additional value produced by the average individual within an occupation.

Economic theory also states that in a competitive labor market all practices will hire individuals up the point where the ratio, MP/EPH, is equalized across different occupations. This implies that the ratio of earnings per hour for two different occupations will be equal to the ratio of the marginal productivity of each class of labor:

$$\frac{MP_{HADP}}{MP_{DDS}} = \frac{EPH_{HADP}}{EPH_{DDS}}$$

(1) where MP_{HADP} is the marginal productivity of a given HADP category and MP_{DDS} is the marginal productivity of a dentist. Although this principle applies to an individual practice, the last person hired in each practice will be paid market earnings per hour and will theoretically be producing the same marginal product. (Marginal revenue product is likely to be equal to or less-than-average marginal product in the relevant range. For simplicity it is assumed to be equal.)

The DSRVI is applied to a statistical model incorporating the above factors, the details of which can be found in the **TECHNICAL APPENDIX**. Since an average HADP produces some fraction of the services that an average dentist produces (measured by the DSRVI), the effect of a given number of HADPs entering a labor market, other things equal, will be approximately the same as the effect of the same number of dentists entering a labor market multiplied by the DSRVI.

Results

TABLE 1 presents the results of the analysis based on the statistical model presented in the **TECHNICAL APPENDIX**. The statistical model assumes that consumers view HADPs as perfect substitutes for dentists within the scope of practice of the HADP. We find that the average nonpediatric dentist whose practice has the average proportion of patients cov-

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ered by private and public insurance and the average proportion of patients who are children faces an earnings-per-hour reduction of 0.32 percent when nonpediatric dentists per 100,000 population increase by one. In California, this would be equivalent to an increase of 382 nonpediatric dentists statewide.[11] In contrast, the average dentist whose practice has the average proportion of patients covered by private and public insurance, but sees only children (e.g., a pediatric dentist) would see an earnings-per-hour reduction of 0.73 percent if nonpediatric dentists per 100,000 population increased by one.

The entrance of pediatric dentists has strikingly different results. The average nonpediatric dentist whose practice has the average proportion of patients covered by private and public insurance and the average proportion of patients who are children would face an earnings-per-hour increase of 1.49 percent from the entrance of one pediatric dentist per 100,000 population. In contrast, the average dentist who has the average proportion of patients covered by private and public insurance, but sees only children (e.g., a pediatric dentist) sees no statistically detectable change in earnings per hour if pediatric dentists per 100,000 population increased by one. This is true as long as the dentist has fewer than 75 percent of their patients publicly insured.

However, the beneficial effect to the average nonpediatric dentists from the increase in pediatric dentists will only occur up to an increase of 3.82 pediatric dentists per 100,000 population. In 2009, there were 2.40 pediatric dentists per 100,000 population. To reach the turning point in California would require the addition of approximately 543 pediatric dentists. A similar analysis of DTs indicates it would take approximately 4,177 DTs to reach this turning point. (This assumes that either pediatric dentists or DTs are increased but not both.)

There is no statistically detectable negative effect on the earnings per hour of pediatric dentists when the number of pediatric dentists per 100,000 increases to any level, assuming these dentists are serving the average proportion of patients with public and private insurance. This finding is likely due to the small number of pediatric dentists nationally. It is possible that there is no place in the United States where pediatric dentists have increased to a large enough level such that there is measureable competition between pediatric dentists. However, this does not mean that such competition could not occur. A reasonable guide as to the level at which this may occur is the level at which pediatric dentists become competitive with nonpediatric dentists as discussed above.

PEDIATRIC DENTISTS are the gateway through which many children enter the dental care system.

Hypothetical Allied Dental Professionals

The DSRVI for ADHPs is 0.45, the DSRVI for DHATs is 0.23 and the DSRVI for DTs is 0.13 (see the **TECHNICAL APPENDIX**). Applying the above information to the estimated statistical model presented in the **TECHNICAL APPENDIX** yields the results listed in **TABLE 1**. The size of the effect of the entrance of the HADP is the same size as the effect of the entrance of the relevant type of dentist multiplied by the relevant DSRVI. For the effects of **TABLE 1** to be realized would require the entrance of 382 dentists, 2,938 DTs, 1,661 DHATs, or 849 ADHPs.

Discussion

This study examined three questions: 1) What is the economic value produced by each HADP relative to a dentist?; 2) What is the impact on the earnings of private practice dentists from the entry of additional private practice dentists into the dental labor market?; and 3) What is the hypothetical impact on the earnings per hour of private practice dentists from the entry of HADPs into the labor market?

The answer to the first question is as follows. The DSRVI for ADHPs is 0.45, the DSRVI for DHATs is 0.23 and the DSRVI for DTs is 0.13. These relative economic values do not imply that, for example, 7.7 DTs (1/0.13 = 7.7) are clinically equivalent to one pediatric dentists since DTs can only perform a fraction of the services provided by a pediatric dentist. What it does mean in this example is that 7.7 DTs produce approximately the same economic value as one pediatric dentist, albeit through a different mix of services.

The answers to the second and third questions are as follows. The answer to the third question assumes that consumers see HADPs as perfect substitutes for dentists within the scope of practice of HADPs and that HADPs are only regulated with regard to the types of procedures they can perform and are otherwise regulated identically to dentists. In other words, the findings with regard to the third question are overstated to the degree that consumers do not see HADPs as perfect substitutes and would also change if regulations regarding scope of practice, reimbursement, and setting are stricter than assumed.

The entrance of pediatric dentists or DTs has a positive impact on the earnings per hour of all nonpediatric dentists. There is no impact on the earnings per hour of pediatric dentists who serve fewer than 75 percent publicly insured patients.

The reasons for this are likely twofold. First, pediatric dentists are the gateway through which many children enter the dental care system. At some point these children will transition to general dentists, increasing the demand for nonpediatric dental services and thus the average earnings per hour of nonpediatric dentists, other things equal. Second, children entering the dental care system by visiting a pediatric dentist have parents who may, as a result of taking their children to a pediatric dentist, begin to demand the services of a general dentist if these parents were not already receiving such services. This would also increase the demand for nonpediatric dental services and thus the average earnings per hour of nonpediatric dentists, other things equal.

In most areas, pediatric dentists are in shortage and thus are not directly competing against one another.[12] As long as there is a shortage of pediatric dentists in an area, the entry of additional pediatric dentists will generally not negatively affect the average earnings per hour of pediatric dentists already practicing in the area.

However, the above findings are only valid up to 3.82 pediatric dentists per 100,000 population that is the economic equivalent of approximately 543 additional pediatric dentists or 4,177 DTs in California, using 2009 figures. After this point, the entrance of additional pediatric dentists or DTs decreases the earnings per hour of currently practicing nonpediatric dentists (and likely pediatric dentists) due to competition for patients.

The entrance of nonpediatric dentists, DHATs, and ADHPs negatively impacts the earnings per hour of all currently practicing dentists and has a greater negative impact on the earnings of currently practicing pediatric dentists (those who serve 100 percent children).

The authors suggest that the greater negative impact on pediatric dentists is likely due to the fact that while approximately 28 percent of generalist dentists do not treat children younger than 4 years of age, nine out of 10 generalist dentists do serve children.[13] In addition, only about 17 percent of generalist dentists often or always refer children ages 3 to 5 to pediatric dentists.[14] Thus, general dentists who enter an area and attract young parents to their practice may also tend to serve the children of these young parents, children who may have been seeing, or otherwise would have seen, a pediatric dentist. Such a switch would be convenient for many parents, but would decrease the average earnings per hour of pediatric dentists. In other words, while new pediatric dentists likely increase the number of children being served in the dental care system, new nonpediatric dentists generally do not (as they are focused on adults) and any children they serve will tend to be brought into the system via patients who are parents.

IN MOST AREAS, pediatric dentists are in shortage and thus are not directly competing against one another.

Conclusion

The potential introduction of HADPs into the competitive California dental labor market is unlikely to have large effects on the earnings per hour of the average dentist in California. This conclusion is based on a simulation model that uses the most reliable available data.

Technical Appendix

Authors' note: This technical appendix is written in technical language and is intended for technically oriented individuals who wish to understand the specifics of the simulation model used in the study.

Data

The authors' primary data are the American Dental Association's Survey of Dental Practice, 1997-2007.[15] Since the data are collected with reference to the previous year, the actual years analyzed are 1996-2006. The authors linked this information to the corresponding years of data on the number of dentists in each county (nonpediatric and pediatric) from the ADA's State and Demographic Reports.[16] Data on the number of dentists in each county were transformed to dentists per 100,000 population using data from the U.S. Census.[17] County-level information also was used for each year on the age and racial/ethnic distribution of the population from the U.S. Census.[17] Data on county-level per capita income for each year came from the U.S. Bureau of Economic Analysis.[18] Dollar denominated data were adjusted for inflation.[19] Finally, information on regulations regarding direct Medicaid payment to dental hygienists from the American Dental Hygienists' Association also were included.

Following the procedure used by the ADA, the authors reweighted the data to reflect the overall number of dentists located in each geographical area. Also, these weights were adjusted to account for incomplete survey responses.

Econometric Mode

The earnings determination model is specified as follows:

(2) $\ln EPH=\beta_0+\beta_1 S+\beta_2 E+\beta_3 F+\beta_4 Kids+\beta_5 Ins+\beta_6 R+\beta_7 NP\_Dent+\beta_8 Ped\_Dent+\beta_9 Pop\_race+\beta_{10} PCI+\beta_{11}(NP\_Dent\ Ins)+\beta_{12}(NP\_Dent\ Kids)+\beta_{13}(Ped\_Dent\ Ins)+\beta_{14}(Ped\_Dent\ Kids)+\beta_{15} Year+\beta_{16} State+\varepsilon$

where ln EPH is the natural logarithm of earnings per hour. EPH is defined as annual income divided by annual hours worked. Annual income includes salary, commissions, bonuses and/or dividends, as well as retirement plan payments and is calculated after subtracting practice expenses and business taxes.

Dental specialty (generalist, pediatric, other specialists) is denoted as "S," experience and the square of experience is denoted as "E," and female gender is denoted as "F." Information about each dentist's practice is also included: the proportion of patients in a dentist's practice that is under 15 years old is denoted as "Kids," and the proportion of patients that have each type of insurance (no dental insurance, public dental insurance, private dental insurance) is denoted by "Ins."

An indicator of state regulations regarding direct payment by Medicaid to dental hygienists is denoted by "R." Nonpediatric private practice dentists (lagged by one year) per 100,000 county population is denoted by "NP_Dent," and pediatric dentists (lagged by one year) per 100,000 county population and its square are denoted by "Ped_Dent." The county-level proportion of individuals in various race/ethnicity categories (white, Hispanic, black, Asian/Pacific Islander, other) is denoted by "Pop_race," and county-level per capita income is denoted by "PCI." Note, that by including population in the denominator of all county-level variables, the model automatically accounts for changes in the size of the population.

The authors included three sets of interaction terms. The first set of interaction terms interacts nonpediatric private practice dentists per 100,000 county population with each the following: the proportion of patients in each dentist's practice who have public dental insurance, the proportion of patients in each dentist's practice who have private dental insurance, and the proportion of patients in each dentist's practice who are under 15 years old. The second set of interaction terms substitutes pediatric dentists for nonpediatric private practice dentists and otherwise includes the same interactions. Finally, the third set of interaction terms substitutes the square of the pediatric dentists for pediatric dentists and otherwise includes the same set of interactions. All continuous variables used in interaction terms are centered at their means to reduce multicollinearity. Year-fixed effects are denoted by "Year" and state-fixed effects are denoted by "State."

The model omits information on dental hygienists and dental assistants per 100,000 population. This is due to data on dental hygienists and dental assistants only being available from the Occupational Employment Survey (OES).[20] Matching the Survey of Dental Practice with the OES resulted in approximately half of the authors' sample of dentists being lost due to OES data not being available for many areas. The consequences of omitting information on dental hygienists and dental assistants are explained below.

Theoretically, since dental hygienists are partial substitutes for dentists, dental hygienists per 100,000 population should be negatively correlated with the earnings per hour of dentists. In addition, since dental hygienists in most states can only work for dentists, dental hygienists per 100,000 population should correlate positively with dentists per 100,000 population. Thus, omitting dental hygienists per 100,000 population from the equation should result in a negative bias to the parameter estimates for dentists (both nonpediatric and pediatric) per 100,000 population.

Similarly, theory suggests that since dental assistants are complements to dentists, dental assistants per 100,000 population would correlate positively with the earnings of dentists, and would correlate positively with dentists per 100,000 population. This suggests that omitting dental assistants from the equation will result in a positive bias to the parameter estimates of dentists (both nonpediatric and pediatric) per 100,000 population.

Although the authors have omitted variable bias working in opposite directions with regard to their parameters of interest, the net bias is virtually certain to be negative due to the much stronger correlations that dental hygienists per 100,000 population are likely to have with the earnings of individual dentists relative to the same correlations with respect to dental assistants per 100,000 population. This is due to the much greater value that dental hygienists provide relative to dental assistants, which is reflected in the much higher earnings per hour of dental hygienists relative to those of dental assistants.

There are two approaches to correct this omitted variable bias. One is to include the data on dental hygienists and data assistants that would result in the loss of approximately half of the authors' data. The other approach was to use the instrumental variable technique. However, due to the presence of multiple interaction terms in this model, a relatively large set of valid instruments was required which was not available. The authors choose to maintain precision by maintaining their

sample of data and acknowledging omitted variable bias in a negative direction for certain parameters of the model.

The relationship between log earnings per hour and the following independent variables may be subject to reverse causation: nonpediatric dentists per 100,000 population, pediatric dentists per 100,000 population, the proportion of children served, the proportion of patients with public insurance, and the proportion of patients with private insurance. The authors dealt with this issue in two different ways.

While the earnings per hour of any one dentist would not be expected to affect the number of private practice dentists (nonpediatric or pediatric) per 100,000 population, the authors lag each of these measures by one year to minimize any such issue, as noted above. Consistent with the authors' expectation that reverse causation would not be a significant factor, the parameters of the lagged variables were virtually identical to the parameters of the variables when not lagged.

Since dentists may choose the type of patients they serve to maximize their earnings per hour, the authors tested for parameter bias due to reverse causation with respect to the proportion of patients who have private insurance or public insurance and the proportion of children under age 15. We tested various instrumental variable models using two-stage generalized least squares. These models omit the interaction terms described above as they are not essential to perform the tests. Each potentially endogenous variable was tested separately.

The instrument used to test the endogeneity of the proportion of children in a dental practice under age 15 is the proportion of children in the general population under the age of 15. The only way that the proportion of the population under the age of 15 could affect the earnings of dentists is through the proportion of patients in a dentist's practice under age 15. Thus, this instrument is exogenous.

The instrument used to test the endogeneity of the proportion of patients who have public insurance (relative to the combined proportion of private-pay patients and privately insured patients) is the proportion of the population in poverty. Conditional on the inclusion of per capita income, the only way that the proportion of individuals in poverty in the general population could affect the earnings of dentists is through the proportion of patients who have public insurance (the inclusion of per capita income would be expected to pick up the effect of private pay patients on dental earnings). Thus, this instrument is also exogenous.

The authors used a set of two instruments to test the endogeneity of the proportion of patients who have private insurance. The authors used the proportion of firms in an area that have 500 or more employees (such firms are highly likely to offer dental insurance) and the proportion of the population in poverty (since if an individual is not in poverty, they are more likely to have private dental insurance). Conditional on the inclusion of per capita income and the proportion of patients who have public insurance (which below is shown to be exogenous), the only way that the proportion of firms in an area with 500 or more employees could affect the earnings of dentists is through the proportion of patients who have private insurance. Models were estimated using generalized least squares or two-stage generalized least squares using SAS 9.2 and Stata 10. All models accounted for heteroscedasticity and incorporated probability weights.

Results

Descriptive statistics are presented in **TABLE 2**. Implementing the tests discussed above resulted in endogeneity test results that show that neither the exogeneity of the proportion of patients under the age of 15, nor the exogeneity of the proportion of patients with public insurance, nor the exogeneity of the proportion of patients with private insurance could be rejected at the 5 percent level of statistical significance.[21,22] The respective instruments used in each test were all shown to be sufficiently strong according to the Stock and Yogo criteria for two-stage least square estimators.[23] In addition, the single overidentification test of the instruments used for private insurance failed to reject the exogeneity of the identifying instrument at even the 10 percent level of statistical significance.

Thus, the authors' final models included the proportion of patients in a dental practice under age 15, the proportion of patients in a dental practice with public insurance, and the proportion of patients in a dental practice with private insurance all as exogenous independent variables. Final models were estimated using generalized least squares. Note that all of the above findings were based on national data. A model using the California subset of data was also estimated, but was found to be unreliable due to very large variance inflation factors.

The final results are presented in **TABLE 3**. Note that when analyzing log-linear models, the coefficients were transformed to percentages by exponentiation, subtracting one, and then multiplying by 100.[24] The authors have provided this transformation for individual parameters in the last column of **TABLE 3**.

It was found that the average nonpediatric dentist whose practice has the average proportion of patients covered

TABLE 2

Summary Statistics – National Estimates

Variables		Mean	Std. Error	[95% Conf. Limits]		Min	Max
Earnings per hour[1]	1996	99.725	2.244	95.322	104.127	0.013	1205.822
	1997	104.211	1.974	100.339	108.083	0.013	1256.075
	1998	114.390	2.237	110.003	118.777	0.012	4122.695
	1999	121.100	2.752	115.701	126.499	5.942	2510.924
	2000	121.845	2.299	117.335	126.354	2.166	750.474
	2001	120.506	2.430	115.741	125.272	0.011	1193.675
	2002	128.225	3.442	121.468	134.981	0.011	919.258
	2003	128.928	2.297	124.423	133.433	12.786	987.325
	2004	130.040	2.409	125.314	134.767	13.458	889.356
	2005	131.416	2.613	126.291	136.542	7.081	983.102
	2006	133.914	2.780	128.458	139.370	11.600	807.450
Specialty	General practitioner	0.812	0.003	0.807	0.818	0.000	1.000
	Pediatric dentist	0.033	0.001	0.031	0.035	0.000	1.000
	Specialist[2]	0.155	0.002	0.150	0.159	0.000	1.000
Year of practice	Experience[3]	22.953	0.107	22.743	23.163	1.000	65.000
Gender	Male dentist	0.838	0.003	0.832	0.843	0.000	0.000
	Female dentist	0.162	0.003	0.157	0.168	1.000	1.000
Total private practitioners[4,8]		59.109	0.216	58.685	59.533	2.243	152.900
Total pediatric dentists[4]		1.601	0.010	1.581	1.620	0.000	19.803
Regulation	Direct Medicaid reimbursement	0.145	0.003	0.139	0.152	0.000	1.000
Age[7]	15 years old or over	0.778	0.002	0.775	0.781	0.000	1.000
	Under 15 years old[7]	0.222	0.002	0.219	0.225	0.000	1.000
Insurance[5]	Private insurance	0.636	0.002	0.632	0.639	0.000	1.000
	No insurance	0.307	0.002	0.304	0.310	0.000	1.000
	Public insurance	0.057	0.001	0.054	0.060	0.000	1.000
Race/Ethnicity[6]	White	0.704	0.002	0.700	0.707	0.038	0.999
	Hispanic	0.120	0.001	0.118	0.123	0.000	0.947
	Black	0.116	0.001	0.114	0.119	0.000	0.688
	Asian and Pacific Islander	0.051	0.001	0.049	0.052	0.000	0.666
	Others	0.009	0.000	0.008	0.009	0.000	0.715
Per capita income observations = 16,023		37294	108.5	37081	37506	12511	109953

1. Primary practice annual net income divided by total hours per week worked times total weeks worked per year. 2006 constant dollars.
2. Specialist: oral and maxillofacial surgery, endodontics, orthodontics and dentofacial orthopedics, periodontics, prosthodontics, oral and maxillofacial pathology, public health, and oral and maxillofacial radiology.
3. Year of graduation from dental school subtracted from year of survey.
4. Per 100,000 county population.
5. Proportion of patients who visited the entire primary practice during the year.
6. Proportion of county population.
7. Up to 13 years old included in 2003, and up to 17 years old included in 2004-2006. This is a limitation of the survey data which did not consistently define age categories.
8. Pediatric dentists not included.

All values weighted using probability weights and nonresponse weights.

by private and public insurance and the average proportion of patients who are children who face an earnings-per-hour reduction of 0.32 percent represented by the partial derivative of log earnings with respect to nonpediatric dentists per 100,000 [-0.32=100(exp(-0.00315)-1), p<0.01] where nonpediatric dentists per 100,000 population increase by one. (Note that all of the interaction terms in this first partial derivative are equal to zero due to the centering of each variable in each interaction at its respective mean.) In California, this would be equivalent to an increase of 382 nonpediatric dentists statewide.[11] In contrast, the average dentist whose practice has the average proportion of patients covered by private and public insurance, but sees only children (e.g., a pediatric dentist) would see an earnings-per-hour reduction of 0.73 percent [–0.73=(100(exp(–0.00315–0.00540(1–0.222))–1), p<0.01] if nonpediatric dentists per 100,000 population increased by one.

The entrance of pediatric dentists has strikingly different results. The average nonpediatric dentist whose practice has the average proportion of patients covered by private and public insurance and an average proportion of patients who are children would face an earnings-per-hour increase of 1.49 percent from the entrance of one pediatric dentist per 100,000 population represented by the derivative of log earnings with respect to pediatric dentists per 100,000 [1.49=(100(exp(0.02683–(2)0.00604)–1), p=0.055]. In contrast, the average dentist who has the average proportion of patients covered by private and public insurance, but sees only children (e.g., a pediatric dentist) sees no statistically detectable change in earnings per hour [–0.34=(100(exp(0.02683–(2)0.00604–0.03856(1–0.222)+(2)0.00763)(1–0.222)-1), p=0.882] if pediatric dentists per 100,000 population increased by one.[17] This is true as long as the dentist has fewer than 75 percent of their patients publicly insured.

However, the beneficial effect to the average nonpediatric dentists from the increase in pediatric dentists will only be effective up to an increase of 3.82 pediatric dentists per 100,000 population. (This assumes the proportion of patients with public insurance and the proportion of children are at their means.) In 2009, there were 2.40 pediatric dentists per 100,000 population (2.40=(918 pediatric dentists)/(382.46 100,000 population)).[25] To reach the turning point of 3.82 pediatric dentists per 100,000 population in California would require the addition of approximately 543 [543=(3.82–2.40) x 382.46] pediatric dentists statewide or approximately 4,177 DTs (4,177=543 pediatric dentists/0.13 DTs). The number 0.13 is the DSRVI for DTs and is calculated below.

There is no statistically detectable negative effect on the earnings per hour of pediatric dentists (those serving only children) when the number of pediatric dentists per 100,000 increases to any level, assuming these dentists are serving the average proportion of patients with public and private insurance.

Hypothetical Allied Dental Professionals

The EPH for each of the HADPs are calculated as follows. The annual salary for each HADP comes from the California Dental Association Workforce Model Feasibility Study where the assumption was made that each HADP works 1,900 hours per year. This results in earnings per hour of $62.08 for an ADHP ($117,956/1900=$62.08). The authors adjusted this 2008 estimate to 2006 dollars by applying the appropriate consumer price index to obtain $58.13 ($62.08 x 0.9364=$58.13).[26] The authors then divided this by the average earnings per hour of a nonpediatric dentist in 2006 to get a DSRVI for ADHPs of 0.45 ($58.13/$130.43=0.45). The DSRVI for DHATs is similarly calculated and is 0.23 ($62,073/1900=$32.67; $32.63 x 0.9364=$30.59; $30.59/130.43=0.23).

To compute the DSRVI for DTs, the authors used earnings per hour of pediatric dentists since DTs will most closely compete with pediatric dentists. Since DTs and DHATs are assumed to earn identical salaries, the DSRVI for DTs is 0.13 ($30.59/$232.11 = 0.13).

Limitations

Due to the omission of dental hygienists and dental assistants per 100,000 population, the estimated parameters for nonpediatric and pediatric dentists per 100,000 population (and associated interaction terms) are likely to be negatively biased. This means that the negative relationship between an increase of nonpediatric dentists per 100,000 population and log earnings per hour is likely less negative than is shown in the model (the model overstates the negative effects) and the positive relationship between an increase of pediatric dentists per 100,000 population and log earnings per hour is probably more positive than the model shows (the model understates the positive effect). ■■■■

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TABLE 3

Natural Logarithm of Earnings per Hour[a] — National Estimates

Variables		Coefficient	Std. Err.	[95% Conf. Interval]		p-value	Transformed[9]
Year (reference year: 1996)	1997	0.053	0.031	−0.008	0.113	0.089	5.410
	1998	0.126	0.030	0.067	0.186	<.0001	13.461
	1999	0.229	0.032	0.167	0.291	<.0001	25.680
	2000	0.211	0.031	0.150	0.272	<.0001	23.498
	2001	0.234	0.032	0.172	0.297	<.0001	26.416
	2002	0.280	0.039	0.203	0.356	<.0001	32.294
	2003	0.316	0.030	0.257	0.376	<.0001	37.183
	2004	0.347	0.032	0.285	0.409	<.0001	41.460
	2005	0.359	0.034	0.292	0.426	<.0001	43.175
	2006	0.365	0.033	0.300	0.431	<.0001	44.122
Specialty area (reference group: specialist[1])	General dentist	−0.344	0.014	−0.372	−0.316	<.0001	−29.111
	Pediatric dentist	−0.026	0.036	−0.095	0.044	0.472	−2.521
Experience	Experience[2]	0.004	0.001	0.003	0.005	<.0001	0.414
	Experience squared	−0.001	0.000	−0.001	−0.001	<.0001	−0.085
Gender (reference group: male dentist)	Female dentist	−0.257	0.023	−0.303	−0.211	<.0001	−22.643
Total nonpediatric practitioners[2,4,7,8]		−0.003	0.001	−0.004	−0.002	<.0001	−0.315
Total pediatric dentist[2,4,7]		0.027	0.008	0.010	0.043	0.002	2.719
Total pediatric dentist squared		−0.006	0.002	−0.010	−0.002	0.003	−0.602
Regulation	Direct Medicaid reimbursement[7]	−0.068	0.028	−0.124	−0.012	0.017	−6.567
Age[3,6] (reference group: 15+ years old)	Under 15 years old[2]	0.305	0.037	0.233	0.377	<.0001	35.688
Insurance[3] (reference group: no insurance)	Private insurance[2]	0.007	0.046	−0.083	0.098	0.873	0.744
	Public insurance[2]	−0.356	0.070	−0.494	−0.218	<.0001	−29.953
Race/ethnicity[5] (reference group: white)	Hispanic	−0.236	0.085	−0.403	−0.069	0.006	−21.023
	Black	−0.143	0.076	−0.293	0.006	0.060	−13.351
	Asian and Pacific Islander	−0.067	0.191	−0.441	0.307	0.725	−6.508
	Others	−0.037	0.452	−0.923	0.849	0.935	−3.637
Per capita income (in $10,000s)		0.064	0.011	0.043	0.086	<.0001	6.624
Total nonpediatric practitioners x private insurance		−0.007	0.002	−0.011	−0.003	0.000	−0.708
Total nonpediatric practitioners x public insurance		−0.013	0.004	−0.020	−0.005	0.001	−1.252
Total nonpediatric practitioners x under 15 years old		−0.005	0.002	−0.009	−0.002	0.001	−0.539

CONTINUES ON NEXT PAGE

Natural Logarithm of Earnings per Hour[a] — National Estimates (continued)

Variables		Coefficient	Std. Err.	[95% Conf. Interval]		p-value	Transformed[9]
Total pediatric dentist x private insurance		−0.015	0.047	−0.107	0.078	0.756	−1.463
Total pediatric dentist x public insurance		0.195	0.079	0.040	0.351	0.014	21.584
Total pediatric dentist x under 15 years old		−0.039	0.036	−0.109	0.032	0.282	−3.782
Total pediatric dentist squared x private insurance		0.030	0.013	0.003	0.056	0.028	3.003
Total pediatric dentist squared x public insurance		−0.032	0.027	−0.085	0.021	0.240	−3.137
Total pediatric dentist squared x under 15 years old		0.008	0.009	−0.010	0.025	0.386	0.766
Intercept		4.657	0.057	4.544	4.769	<.0001	
R^2: 0.16, F(86,15937) = 34.49 (p<.0001)							
Number of observations used: 16023							

[a] State fixed effects included in analysis, but not reported.
1. Specialist: oral and maxillofacial surgery, endodontics, orthodontics and dentofacial orthopedics, periodontics, prosthodontics, oral and maxillofacial pathology, public health, and oral and maxillofacial radiology.
2. Variable centered at its mean.
3. Proportion of patients who visited the entire primary practice during the year.
4. Per 100,000 county population.
5. Proportion of county population.
6. Up to 13 years old included in 2003, and up to 17 years old included in 2004-2006. This is a limitation of the survey data which did not consistently define age categories.
7. One year prior (lagged one year)
8. Pediatric dentists not included.
9. Assumed one unit increase. Transformations are based on the following formula: [(exp(β)−1)100].

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$500,000 Pedo practice located in Santa Ana, Orange County, Southern California with eight (8) operatories, a three (3) chair ortho bay, sterilization/lab combo, adjustment lab, x-ray room, dark room, reception area, staff lounge, business office, consultation room, storage room, private office, in a professional building. 4000 square foot suite. In Escrow.

$225,000 General Dentistry Practice in San Juan Capistrano, South Orange County, Southern California with three (3) operatories, sterilization room, adjustment lab, 2 x-ray rooms, staff lounge, private office in a business complex. 31 years of goodwill, doctor is retiring. In Escrow

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Access to Dental Care and the Capacity of the California Dental Care System

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ABSTRACT The authors estimated the following levels of technical efficiency for three types of dental practices in California where technical efficiency is defined as the maximum output that can be produced from a given set of inputs: generalists (including pediatric dentists), 96.5 percent; specialists, 77.1 percent; community dental clinics, 83.6 percent. Combining this with information on access, it is estimated that the California dental care system in 2009-10 could serve approximately 74 percent of the population.

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California's dental care system is almost completely private with approximately 94 percent of active dentists practicing privately as of 2007.[1] These private practice dentists serve the population that pays directly for dental care, those with private dental benefit plans and those whose care is paid for by public funds including the Medicaid dental benefit in California known as Denti-Cal. Community dental clinics are another source of dental care and are often the provider of last resort or the "safety-net" system in the state. These clinics primarily offer free or reduced-price dental care to the most vulnerable populations in California including individuals covered by Denti-Cal. However, most individuals covered by Denti-Cal are served by private practice dentists. For example, in 2007, Denti-Cal expenditures in community clinics only comprised approximately 13.9 percent of Denti-Cal fee-for-service expenditures.[2]

What percentage of Californians can this dental care system serve? While California's dental care system is not static and expands and contracts based on market conditions, an estimate of the current capacity of the system is important for policy purposes. As derived below, approximately 74 percent of the California population accessed the dental care system in 2009-10. This is an expansion of approximately 5.1 percent as compared to 2003. **TABLES 1 AND 2** indicate that from 2003 to 2010 access to dental care for adults increased from 67.2 percent to 69.7 percent. **TABLE 2** indicates that from 2003 to 2009 access to dental care for children increased from 75.4 percent to 84.7 percent and that access to dental care for adolescents increased from 86.1 percent to 89.9 percent. Overall population access to dental care in California thus increased from 70.4 percent in 2003 to approximately 74 percent in 2009-10 (using 2010 information on adults and 2009 information on children and adolescents).

This increase in access to dental care coincides with a simultaneous expansion of the California dental care system. Data produced by the University of California, Los Angeles' Center for Health Policy Research on the number of active licensed dentists in California shows that the total number of licensed dentists per 100,000 population increased from 74.97 in 2002 to 82.41 by 2008, an increase of 9.9 percent, with approximately 84 percent of licensed dentists being active in 2008.[3,4] In addition, the total number of employees of dental practices in California per 100,000 population (excluding dentists who are classified as employees for various reasons) increased from 282.7 in 2003 to 284.9 in 2009, an increase of 0.7 percent.[5-7] Assuming that the increase in dentists from 2002 to 2008 was similar in size to the increase in dentists from 2003 to 2009 and that 84 percent of licensed dentists were in active practice in each year, the weighted average of the increase in dentists per 100,000 population and employees in dental practices per 100,000 population yields an increase in overall dental practice personnel per 100,000 population from 2003 to 2009 of approximately 3.1 percent. This is similar in magnitude to the 5.1 percent increase in access to dental care from 2003 to 2009-10.

This growth further coincides with growth in dental insurance (for adults) and family income (from 2003 to 2007). Other research shows that having private dental insurance increases the demand for dental services (measured as the probability of visiting a dental provider at least once in the previous 12 months) by approximately 15.5 percent as compared to people who do not have dental insurance, other things equal.[8] Similarly, among adults, having Denti-Cal benefits increases the demand for dental services by approximately 11.4 percent as compared to people who do not have Denti-Cal.[8] The great majority of the California population is covered by some form of dental insurance as shown in **TABLE 3**.[9]

Higher family income increases the demand for dental services in a manner similar to dental insurance. In California, having family income that is 300 percent or more above the federal poverty threshold increases the demand for dental services (measured as the probability of visiting a dental provider at least once in the previous 12 months) by approximately 12.4 percent relative to those below the federal poverty threshold.[8] **TABLE 4** shows inflation-adjusted per capita income in California from 2003 to 2010. Despite the recession, which started in December 2007 and ended in July 2009, inflation-adjusted family income in 2009 was 4 percent higher than inflation-adjusted family income in 2003, and, as **TABLE 4** illustrates, family income in 2010 is even higher.[10] This increase in family income is similar in magnitude to the 3.1 percent increase in the size of the dental care system from 2003 to 2009.

The simultaneous growth of funding, the size of the dental care system, and access to dental care suggest a dental services market that is responsive to changes

TABLE 1

California Dental Visits – Ages 18 and Older

Year	Percent	95% Confidence Interval
2004	70.5	[68.8-72.2]
2006	68.5	[66.8-70.2]
2008	70.3	[69.1-71.5]
2010	69.6	[68.6-70.6]

Source: Authors' analysis of the Behavioral Risk Factor Surveillance Survey.
Data on this topic are not collected every year.

TABLE 2

California Dental Visits

Year	Percent	95% Confidence Interval
2003		
Children	75.4	[73.9, 76.8]
Adolescents	86.1	[84.4, 87.7]
Adults	67.2	[66.6, 67.9]
2007		
Children	81.5	[80.2, 82.8]
Adolescents	88.1	[86.5, 89.7]
Adults	N/A	N/A
2009		
Children	84.7	[83.1, 86.2]
Adolescents	89.9	[88.1, 91.8]
Adults	N/A	N/A

Source: Authors' analysis of the California Health Interview Survey. Children are ages 2-11; adolescents are ages 12-17; adults are ages 18 and older. N/A: not available.
Data on this topic are not collected every year. Adult data was not collected in 2007 or 2009.

TABLE 3

Dental Insurance in California

Year	Percent of Individuals With Dental Insurance	95% Confidence Interval
2003		
Adults	64.8	[64.1 - 65.4]
Adolescents	79.5	[77.7 - 81.3]
Children	83.9	[82.8 - 85.0]
2007		
Adults	66.3	[65.5 - 67.1]
Adolescents	75.8	[73.7 - 77.9]
Children	83.1	[82.0 - 84.3]

Source: Authors' analysis of the California Health Interview Survey. Children are ages 2-11; adolescents are ages 12-17; adults are ages 18 and older. Data from 2007 for adults reflects having had dental insurance all or part of the past year. The 2007 data for teens and children reflects current dental insurance at time of interview. The California Health Interview Survey is conducted biennially and did not collect data on this topic in 2009.

TABLE 4

California per Capita Income, 2003–2009

Year	Real Per Capita Income
2003	$40,775
2004	$41,904
2005	$42,578
2006	$44,227
2007	$44,742
2008	$43,690
2009	$42,395
2010	$43,238

Source: Authors analysis of data from AND California Statistics and the U.S. Bureau of Economic Analysis. Figures for 2010 are preliminary. All amounts expressed in 2009 constant dollars.

in market conditions. This combined with the competitive nature of the dental services market suggests that at least the generalist portion of the dental care system is likely to be operating at close to full capacity. This is less likely to be true for specialist practices, since specialist practices largely depend on referrals from generalists and are thus partially insulated from the competitive pressures faced by generalists since the dentist rather than the patient generally chooses a particular specialist.

Policy and the Capacity of the Dental Care System

The extent to which the California dental care system is operating at full capacity has significant ramifications for policies aimed at increasing access to dental care. The same policy action can result in different outcomes depending on the economic context in which it takes place.

Capacity, with respect to access to dental care, is defined in this study as the total percentage of a given population that the dental care system could serve over a specific period of time. Capacity may be greater than or equal to the level of services provided at any given time. Capacity can be altered by changing the size of the system (adding or subtracting dentists, hygienists, assistants, office staff, operatories, office space, etc.) and/or altering the configuration of the system (how dental practices are organized). The degree to which capacity can change can be described as the very short run, short run, and long run.

In the very short run, all inputs are fixed: the full-time equivalent number of dentists, hygienists, assistants, office staff, the number of operatories, the size of the office space, etc., cannot be changed and thus no additional dental services can be provided beyond a particular maximum level. In the short run, at least some aspects of dental practices are fixed; only portions of dental practices can be altered. Finally, in the long run, all aspects of dental practices can be changed. Note that the very short run, short run, and long run are not defined as periods of time, but as sets of possible activities. The length of time it takes for each of these changes to occur is a key issue for policy-makers and will vary by context.

For example, of the many possible policy actions to improve access to dental care, two possible policy actions are increasing the percentage of the population covered by dental insurance and increasing the number of dental care providers. These policies are not mutually exclusive. However, taken individually, these two policy actions can have very different effects on access to dental care depending on the current capacity of the dental care system and the speed at which this capacity can be changed.

A policy of increasing the percentage of the population with dental insurance may have no significant effect on access to dental care, slowly improve access to dental care, or immediately improve access to dental care. A key issue is the degree to which excess capacity exists in the system and how quickly capacity can be increased. If there is no excess capacity in the system, other things equal, the above policy will result in no immediate change in access to dental care in the very short run, with access to dental care increasing only at the speed at which capacity can be increased in the short run and the long run.

On the other hand, the degree that excess capacity is present is the extent to which access to dental care will immediately change in the very short run, other things equal, with future increase in access to dental care over the short run and the long run occurring only at the speed by which capac-

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ity can be increased (assuming there is still unsatisfied demand present in the market).

A policy of increasing the number of dental providers also may have no significant effect on access to dental care, slowly improve access to dental care, but cannot immediately improve access to dental care (as training new providers or bringing in providers from other places takes time). If there is excess capacity in the dental care system, other things equal, increasing the number of dental providers will not improve access to dental care in the short run (by definition, there is no very short run when providers are added), as there are already a sufficient number of dental providers in existence to provide the dental care currently being demanded. The same is true with respect to the long run.

However, if there is no excess capacity in the dental care system, increasing the number of dental providers will improve access to dental care significantly in the short run depending on the number of dental providers added to the dental care system, other things equal. In the long run, increasing the number of dental providers will improve access even more, assuming the capacity of the system does not yet satisfy all demand for dental care, other things equal. The speed with which this occurs depends on how fast providers can be added to the dental care system.

Measuring Capacity

Two types of information can be exploited to measure the capacity of the dental care system with respect to access to dental care. The first is information on what percentage of the population is receiving dental care over a given period of time, information that is available from statewide surveys as presented above. The second is information on how close to 100 percent technical efficiency the dental care system is. Technical efficiency is defined as the maximum amount of output (e.g., dental visits per week, patients seen per day) that can be produced from a given set of inputs (e.g., dentists, operatories, dental hygienists, dental assistants, and office staff). The amount of technical inefficiency in the dental care system is the extent to which the system could absorb additional demand without having to increase the amount of dental service inputs currently available simply by reorganizing the way in which dental service inputs are currently being used. This concept is somewhat analogous to the concept of "busyness" in the dental literature, although the results of this study show that while dentists' subjective perceptions of "busyness" may be valuable in other contexts, perceptions of "busyness" do not meaningfully correlate with estimated technical inefficiency.[11-13] This second type of information must be estimated using statistical models, as was done for this study.

A HIGHLY competitive dental services market will require high efficiency for dental practices to succeed.

Using dental care utilization data and estimated technical efficiency, we can estimate capacity as the quotient of the percentage of the population being served and the technical efficiency of the system. The higher the technical efficiency of the system (ranging from 0 to 1 or alternatively ranging from 0 percent to 100 percent), the closer the system is to full capacity.

Studies of technical efficiency in dentistry have been conducted internationally. In Norway, it was estimated that larger practices were more technically efficient and that technical efficiency was very high: 0.93.[14] In contrast, the technical efficiency of the community dental service in England was estimated to be from 0.635 to 0.673.[15] The technical efficiency of public dental health services in Finland which was estimated to be between 0.72 and 0.81.[16] Subsequent analysis in Finland also examined the technical efficiency of public dental services using a later data set and estimated average technical efficiency to be 0.78.[17] A cross-country study evaluated the technical efficiency of dental services in Europe and estimated technical efficiency to be only 0.48.[18] A study completed in 2010 estimated the technical efficiency of generalist dentists in a single unidentified U.S. state to be between 0.8 and 0.9.[19]

Technical efficiency is influenced by competition. A highly competitive dental services market will require high efficiency for dental practices to succeed. Consistent with this, it is expected that the average technical efficiency of U.S. private dental practices will be higher than the average technical efficiency of dental practices in Europe, and that California's private practice generalist dentists will exhibit average technical efficiency that is approximately as high as the above U.S. estimate. Similarly, it is expected that the technical efficiency of private practice specialist dentists and community dental clinics will be lower than the technical efficiency of private practice generalist dentists due to the reduced competitive pressures faced by these two groups relative to private practice generalist dentists.

Materials and Methods

Data

Private Practice Dentists

To analyze the technical efficiency of private practice generalist dentists, the authors used data from the 2003 California Dental Survey, the only known source of data on private dental practices in California with a sufficiently large sample.[3,20] While data are also available from the American Dental Association's (ADA) Survey of Dental Practice, the Survey of Dental Practice is designed to describe dental services nationally and only a relatively small proportion of this data directly measures the California dental services market.

The 2003 California Dental Survey is modeled on the ADA's Survey of Dental Practice, but excludes much of the financial information collected in the ADA survey and some practice information. The strengths of the California Dental Survey are its stratified survey design and the large number of dental practices surveyed. In addition, the California Dental Survey was collected before the elimination of optional adult dental benefits by Denti-Cal in July 2009, making it possible to determine if any technical inefficiencies resulted from dental practices accepting Denti-Cal coverage, which would not have been possible if the survey had been conducted after July 2009.

The authors define generalist dentists to also include pediatric dentists for purposes of this analysis since pediatric dentists serve as primary care dentists for many children. Specialists include endodontists, orthodontists, periodontists, prosthodontists, and other specialists, but excluded are oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists. This exclusion is due to data limitations.

The specific data elements used from the California Dental Survey are as follows: total dental visits per week, total hours worked by the respondent dentist in dentistry per week, the number of operatories per dentist in the practice, the number of full-time equivalent dental hygienists in the practice, the number of full-time equivalent dental assistants in the practice, and the number of full-time equivalent office staff in the practice.

TO ANALYZE THE technical efficiency of private practice generalist dentists, the authors used data from the 2003 California Dental Survey,

Dental visits are commonly used in researching the productivity of dental practices. Dental visits will obviously vary in their content and length depending on the procedures performed during the visit. Thus, also included is the procedure mix of the respondent dentist measured as the percentage of time spent by the dentist on the following activities during a typical week: diagnostic, preventative (fluoride treatment, prophylaxis, pit and fissure sealants, etc.), operative (restorations, amalgams, inlays, etc.), prosthodontics, endodontics, periodontics, orthodontics and dentofacial orthopedics, oral and maxillofacial surgery, general services (anesthesia, patient management, counseling, and miscellaneous), esthetic (bleaching and veneers), implants, and other.

Also included by the authors was information on factors that may contribute to dental practices operating in a technically inefficient manner. For example, different types of dental insurance require varying amounts of time to process and also reimburse according to different fee schedules. In addition, patients with public dental insurance are likely to be systematically different than patients with private insurance. The authors thus included the percentage of patients seen by a practice who pay with cash/credit, are covered by private insurance, or are covered by public insurance.

Measures of language proficiency are also included. In California, where 39.5 percent of the population speaks a language other than English at home, language proficiency in a language other than English can be an important competitive advantage.[21] Also included were measures of whether dentists and staff members spoke only English, English and one other language, or English and two or more other languages.

Finally, the competitive situation of each practice was also included using a subjective measure of "busyness" from the perspective of the respondent dentists which consisted of the following rankings: 1) too busy to treat all people requesting appointments; 2) provided care to all who requested appointments but was overworked; 3) provided care to all who requested appointments and was not overworked; and 4) not busy enough, could have treated more patients.[11–13] Categories 2 and 3 were combined due the ambiguity of the term "overworked."

Community Dental Clinics

To analyze the technical efficiency of community dental clinics, data from the 2005 California Community Clinic

Oral Health Capacity Study was used.[22] Information on the following types of clinics were included in these data: school-based clinics, free-standing dental clinics, mobile clinics, hospital-based clinics, public hospitals, rural health clinics, medical/dental clinics, county health facilities, and free clinics. The majority of clinics that responded to the survey were also federally qualified health centers.

The measure of output used here is patients per day for the entire community dental clinic, not for an individual dentist. Because of this, the authors modeled the organization of the dental practice somewhat differently from above. Included were the number of FTE dentists, the number of FTE dental hygienists, the number of FTE dental assistants, and the number of FTE other staff. A measure of procedure mix was not available.

Similarly to above, factors were included that may contribute to the technical efficiency with which a practice operates. The percentage of operational revenue that comes from Medicaid, private insurance, private payment, and uncompensated care were included. Measures of language proficiency and "busyness" were not available.

The Office for the Protection of Human Subjects at the University of California, Berkeley, has determined that the portion of this research analyzing private practice dentists does not meet the threshold definition of "human subjects" research set forth in Federal Regulations at 45 CFR 46.102(f). The community clinic portion of this research was not evaluated by the Office for the Protection of Human Subjects as it does not meet the threshold definition of "human subjects" research set forth in Federal Regulations at 45 CFR 46.102(f) by definition since the analytical unit is the clinic rather than the individual.

Econometric Model

Statistical models were used to describe the relationships between the various characteristics of dental practice and the outputs of dental practice. A statistical model is used because it derives the magnitude and direction of these relationships from actual data from practicing dentists rather than assuming the magnitude and direction of these relationships. Statistical models do not assume that the relationships estimated are exact, but acknowledges there is a degree of randomness involved. Results are thus reported using confidence intervals that give the degree of confidence the true result lies within a given range. In particular, the authors used stochastic frontier analysis to estimate the technical efficiency of private practice generalist dentists, private practice specialist dentists, and community dental clinics by estimating separate models for each group. See the **TECHNICAL APPENDIX** for a complete description of these models.

USING STOCHASTIC frontier analysis, it is also possible to estimate the amount of dental services that could be provided if all dental practices used their resources in an optimal way.

This approach was chosen by the authors because of the ability of stochastic frontier analysis to handle data collected from complex surveys where each observation in the sample is weighted such that the weight attached to each observation corresponds to the number of dentists in California the observation is intended to represent. The ability of stochastic frontier analysis to use weighted data is essential in drawing conclusions about dental practices in California since much of the data used in the analysis was collected using complex sampling techniques.

Stochastic frontier analysis assumes there are three sources of variation in the production of dental services: 1) the configuration of dental practices (e.g., number of dentists, dental hygienists, dental assistants, office staff, and operatories) including the mix of dental procedures performed; 2) events that may be systematically related to technical inefficiency (e.g., payment sources, busyness, etc.); and 3) events that do not systematically affect the overall amount of dental services produced (e.g., nonsystematic changes in weather, in the built environment, in individuals' preference for dental care, in the individual economic situations of individuals, etc.).

The stochastic frontier analysis approach is able to account for each of these three elements. In addition, using stochastic frontier analysis, it is also possible to estimate the amount of dental services that could be provided if all dental practices used their resources in an optimal way. Stochastic frontier analysis is a standard approach used to understand technical efficiency levels in many industries, including health care, both in the United States and internationally.[23-25] All analysis was performed using Stata 10.

Results

The authors' analysis finds private practice generalist dentists (generalists and pediatric dentists) to be 0.965 or 96.5 percent technically efficient (95 percent confidence interval: [0.962, 0.969]), an extremely high level of technical efficiency. This suggests that in 2003 there was virtually no unused capacity among

generalists. The authors found specialist dentists, which make up the remainder of private practice dentists, to be 0.771 or 77.1 percent technically efficient (95 percent confidence interval: [0.748, 0.794]). Finally, community dental clinics were found to be 0.836 or 83.6 percent technically efficient (95 percent confidence interval: [0.810, 0.862]). Note that these measures of technical efficiency are all averages. This means that among generalist dentists, specialist dentists, and community dental clinics there are practices that are both higher and lower than the averages presented above with respect to technical efficiency.

Reasons for technical inefficiency varied across each of the analyses. Technical inefficiency is reduced among generalist dentists when dentists are multilingual. Paradoxically, technical inefficiency is increased by the presence of staff members who speak more than two languages. Reasons for the technical inefficiency among specialist dentists include dentists who speak more than two languages. Neither the subjective perceptions of busyness nor the percentage of patients with particular types of dental insurance were significantly related to technical inefficiency in either model.

Finally, the technical inefficiency among community dental clinics appears to be due at least in part to the percentage of operational revenue that makes up "uncompensated care," and, surprisingly, the percentage of operational revenue that comes from private-pay patients. For complete details of each analysis, see the **TECHNICAL APPENDIX**.

Discussion

Access to dental care is about access to generalist dental care (individuals usually visit specialist dentists only on the referral of a generalist dentist), thus the technical efficiency of specialist dentists, while relevant to the capacity of the dental care system overall, is not relevant in determining the capacity of the dental care system with respect to access to dental care. In other words, an increase in the technical efficiency of specialist providers would not increase general access to dental care as specialists provide dental care to those who have already accessed generalist care.

Of interest is the lack of correlation between perceptions of "busyness" and technical inefficiency. This is contrary to what was expected and suggests that although perceptions of "busyness" may be valuable for many types of analyses, these perceptions do not relate to actual measures of inefficiency. Similarly, the lack of correlation between the percentage of patients with various types of insurance and inefficiency suggests that, while the distribution of private/public insurance may affect the profitability of private dental practices, it does not appear to affect the efficiency of private dental practices.

TECHNICAL inefficiency is reduced among generalist dentists when dentists are multilingual.

The paradoxical findings regarding language where multiple languages spoken by generalist dentists reduces technical inefficiency while multiple languages spoken by staff members increase technical inefficiency may simply reflect the situation where, compared to the language skills of staff members, the language skills of generalist dentists are better matched with the languages spoken by patients. A less-than-perfect match between the languages spoken by the specialist dentist and the languages spoken by patients may also be responsible for the finding that multiple languages spoken by specialist dentists increase technical inefficiency. Additional language specific research would be needed to better understand these findings.

The finding that the percentage of revenues from uncompensated care and private-pay patients increase technical inefficiency in community dental clinics suggests that the types of low-income individuals who have no insurance (not even Denti-Cal) may be systematically different from other patients, while private-pay patients may require more time to administratively process since community clinics are not generally set up to efficiently process private-pay transactions.

It is important to note that other sources of technical inefficiency are likely present. However, they were unable to be measured in the data available.

Although the technical efficiency of private practice generalists and private practice specialists was determined using data from 2003, it is unlikely that the technical efficiency of at least private practice generalists has significantly changed. The reason for this is that generalists (including pediatric dentists) make up approximately 90 percent of dentists in California, and are subject to the highest level of competitive pressure. It is unlikely that such practices employ more personnel than are needed to meet the demand for dental services or maintain unused office space or operatories that result in reduced profitability.

California's dental care system is extremely efficient and provided access to dental care for approximately 74

percent of the population in 2009-10. With a population of 38 million, each percentage point of the population lacking access represents a very large group of people. While specific policies proposals to change this situation are not addressed in this study, whatever set of policies may be considered should also consider the overall current capacity of California's dental care system. ■■■■

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Technical Appendix

Authors' note: This technical appendix is written in technical language and is intended for technically oriented individuals who wish to understand the specifics of the stochastic frontier analyses used in the study.

Stochastic Frontier Analysis

A technical description of stochastic frontier analysis (SFA) begins with a production function:

(1) $Q_s = Q(L, K)$

where Q_s is the quantity of dental services produced, L is the amount of labor from all dental categories, and K is dental capital equipment.

It is assumed that dental practices attempt to maximize the dental services produced by inputs *L* and *K*. This production function can be statistically estimated as follows

(2) $Q_s = Q(L, K) - \upsilon$

where υ is a non-negative random variable that captures the effects of technical inefficiency for each dental practice. This non-negative random variable may be distributed half-normal, truncated normal, exponential, or gamma (other statistical distributions are possible). However, this error term may also capture the effects of factors not related to technical efficiency. In order to capture the effects of factors not related to technical efficiency, the authors add an additional error term, ε, which can vary positively or negatively and whose mean is equal to zero

(3) $Q_s = Q(L, K) - \upsilon + \varepsilon$.

The maximum of frontier output, Q_{sf}, is equal to

(4) $Q_{sf} = Q(L, K) + \varepsilon$.

Actual output, Q_{sf}, is equal to

(5) $Q_{sa} = Q(L, K) - \upsilon + \varepsilon$.

This model is known as a stochastic frontier model.

The authors used the above general model to construct specific models to estimate the production frontiers of private dental practices and community dental clinics in California. For private dental practices the focus was on the productivity of individual dentists (due to data limitations). For community dental clinics, the focus was on the productivity of the entire practice. The functional form of the production function the authors used is transcendental logarithmic, also known as translog. The main advantage of the particular translog specification used here is that it allows certain factors (dental hygienists, dental assistants, and office staff) to go to zero without forcing dental visits to go to zero. It also places few *a priori* restrictions on the marginal products of each factor and their rates of change. This functional form has been used in previous analyses of dental production and cost functions.[1-3]

For individual private practice dentists, the production function is specified as follows:

(6) $\ln Q_a = \alpha_0 + \alpha_1 hours + \alpha_2 \ln hours + \alpha_3 (Oper/D) + \alpha_4 \ln(Oper/D) + \alpha_5 (Hyg/D) + \alpha_6 (Hyg/D)^2 + \alpha_7 (Da/D) + \alpha_8 (Da/D)^2 + \alpha_9 (OS/DH) + \alpha_{10} (OS/DH)^2 + \alpha_{11} PM - \upsilon + \varepsilon$.

For community dental clinics, the production function is specified as follows:

(7) $\ln Q_b = \beta_0 + \beta_1 D + \beta_2 D^2 + \beta_3 \ln Oper + \beta_4 Oper + \beta_5 Hyg + \beta_6 (Hyg)^2 + \beta_7 DA + \beta_8 (DA)^2 + \beta_9 OS + \beta_{10} (OS)^2 - \upsilon + \varepsilon$.

Equations 6 and 7 are linked to equation 5 as follows: Q_{sa} in equation 5 is altered to become either Q_a, the number of dental visits (of any type) per week, or Q_b, the number of patients per day. Dental labor, *L*, in equation 5 becomes specific types of dental labor: *hours, Hyg, D, DH, DA*, and *OS* (defined below). Dental capital equipment, *K*, in equation 5 becomes *Oper* (defined below). The vector *PM* (defined below) is specific to dental production and does not appear in equation 5.

The variable *hours* is the number of hours an individual dentist spends per week practicing dentistry, *Oper* is a measure of capital, the number of operatories or chairs that a dentist has access to, *Hyg* is the number of full-tine equivalent (FTE) dental hygienists (where an FTE is defined as 35 hours per week or more), *D* is the total number of FTE dentists in the practice, *DH* is the sum of *D* and *Hyg*, D*A* is the number of FTE dental assistants in the practice, and *OS* is the number of FTE office staff in the practice. The vector *PM* is a vector of procedure mix variables defined as the percentage of time spent by the dentist being analyzed in each of the following activities: diagnostic, preventative (fluoride treatment, prophylaxis, pit and fissure sealants, etc), operative (restorations, amalgams, inlays, etc.), prosthodontics, endodontics, periodontics, orthodontics and dentofacial orthopedics, oral and maxillofacial surgery, general services (anesthesia, patient management, counseling, and miscellaneous), esthetic (bleaching and veneers), implants, and other. Controlling for the mix of services performed in health care is important to accurately measure technical efficiency.[4-6]

Note that equation 7 does not contain the natural logarithm of the number of FTE dentists. This is because some community dental clinics have no dentists, thus the dentist variable must be specified such that the number of patients seen per day does not go to zero when the number of FTE dentists goes to zero.

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The technical inefficiency parameter, υ, is specified as half-normal. The authors used the natural logarithm of total FTE staff less the dentist being analyzed (other dentists, hygienists, assistants, and office staff) to model for heteroscedasticity in ε.

Assuming that productive inefficiency does exist in the model, the following models were estimated:

(8) $\upsilon = \emptyset_0 + \emptyset_1 Lang + \emptyset_2 INS + \emptyset_3 CMP + \varsigma$

(9) $\upsilon = \theta_0 + \theta_1 INS2 + \varsigma$

where technical inefficiency may be due to issues of language, dental insurance, or competition. The vector *Lang* includes a vector of variables measuring whether dentists or staff members speak only English, English and one other language, or English and two or more other languages.

The vector *INS* is vector of variables measuring the percentage of patients in the practice covered by no insurance, private dental insurance, or public dental insurance and *INS2* is vector of the percentage of operational revenue that is comes from Medicaid, private insurance, private payment, or uncompensated care. Finally, the vector *CMP* includes indicators of the competitive situation of each dental practice defined as follows: 1) too busy to treat all people requesting appointments; 2) provided care to all who requested appointments but was overworked; 3) provided care to all who requested appointments and was not overworked; and 4) not busy enough, could have treated more patients. This measure is called "busyness" in the dental literature.[7-9] Measures 2 and 3 are combined.

Equations 6 and 8, and 7 and 9 are estimated simultaneously since using sequential two-stage procedures can result in significant bias.[10] In addition to modeling heteroscedasticity in the one-sided inefficiency error component (υ) the authors also, as noted above, model the symmetric noise error component (ε). Unmodeled heteroscedasticity in the symmetric noise component can cause biased measures of technical efficiency.[11] Unmodeled heteroscedasticity in the one-sided inefficiency error component can result in biased measures of the production frontier and biased measures of technical efficiency.[12]

All models are estimated with a single cross-section of data, due to panel data for California not being available. However, the advantage of panel data depends on the degree to which unobserved heterogeneity (relevant factors in the production function that are omitted due to data limitations) is present in the model. Models using panel data tend to attribute more of the unobserved heterogeneity component to the inefficiency component unless models are correctly specified. Thus, in the presence of model misspecification, cross-section models tend to yield more accurate measures of inefficiency as the proportion of the variance due to unobserved heterogeneity increases.[13]

All analysis was conducted using Stata 10 using the "frontier" command. Probability weights adjusted for nonresponse were used in the simultaneous estimation of equations 6 and 8. No probability weights were available for the simultaneous estimation of equations 7 and 9.

In order to determine if there is any technical inefficiency we use the following measure:

(10) $E[exp(-\upsilon)\,|\,-\varepsilon]$

which is predicted following the simultaneous estimations discussed above. The weighted mean (as applicable) is then calculated from these predictions to determine mean technical efficiency.

TABLE A1

Determining Nonresponse

Model	Main group (=1)	Comparison group (=0)	Adjustment variables
Contact (Pr_c)	ER, EN, IN	UN	CDA membership status, gender, county, years since graduation
Response (Pr_r)	ER	EN	CDA membership status, gender, county, years since graduation

Data — Sampling and Data Collection Procedures

Private Practice Dentists

The authors' data on private dental practices come from the 2003 California Dental Survey (CDS) which was originally commissioned from the University of California, Los Angeles' Center for Health Policy Research by the California Dental Association for the purpose of determining the possible existences of shortages among dental hygienists and dental assistants.[14] The CDS was designed to survey active licensed dentists in private practice (both those in general practice and in selected specialties). The following specialists were excluded: oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists. These exclusions were due to data limitations.

The 2003 CDS sample was selected as follows: a list of all licensed dentists in the state of California was obtained from the California Dental Association. This list is frequently updated and was supplemented with a list of nonmembers from the Dental Board of California. Only those with active licenses were included. In addition, the following were excluded from the sample: faculty members, those practicing out of state, those who had retired, students in postgraduate programs, those in the military, those in public health practice, those older than age 85, and those not practicing due to various reasons.

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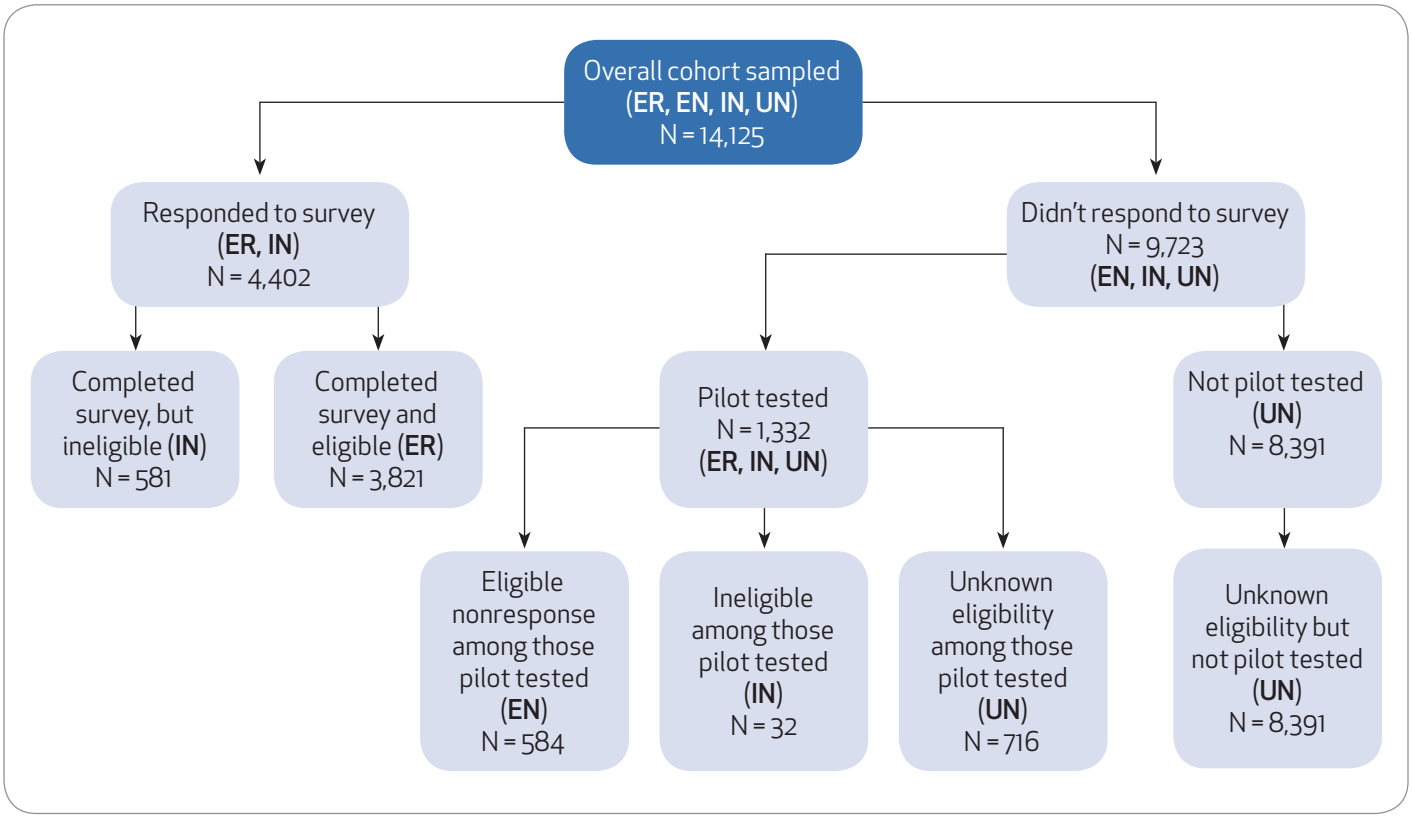

FIGURE A1. Determination of sample size.

Methodology for Calculating Survey Weights — Private Practice Dentists

The authors used the method described by Yang and Wang to adjust for nonresponse within the CDS dataset.[35] According to Yang and Wang there are two instances in a study where nonresponse occurs. The first occurs when an attempt to reach the potential subject is made, but no contact is ever established (contact model). The second occurs when contact has been established, but the subject never completes the survey instrument (response model). This method uses probabilities obtained from logistic regression models to assign a new value of the survey weight to each individual in the dataset. The two probabilities that result from these logistic regression calculations are a probability for contact (Pr_c) and a probability for response (Pr_r).

In the analysis, dentists were first categorized into whether they were 1) successfully contacted and 2) successfully completed the survey instrument, for the contact model and response model, respectively. In all, there were four categories: eligible respondent (ER), eligible nonrespondent (EN), ineligible (IN), and unknown eligibility (UN). The contact model compared those with whom contact was established (ER, EN, IN) to those with whom contact was not established (UN). The response model compared those who were eligible (ER) and responded to the survey relative those who were eligible and did not respond to the survey (EN). **TABLE A1** describes the two different logistic regression models.

After obtaining a probability for each individual for both the contact model and the response model, a final weight was calculated using the following formula:

$$(11) \quad Weight = \frac{1}{Pr_c} x \frac{1}{Pr_r} x (bw)$$

where *bw* equals base weight, or the sampling weight assigned to each individual to account for oversampling in certain counties. Individuals missing values for any of the adjustment variables (n=380) were dealt with by automatically assigning their base weight as the value for their final weight.

Additional adjustment for nonresponse was done to account for those who completed the survey but who did not answer all relevant questions used in this analysis using the following approach. All observations were identified that contained incomplete information on the variables used in the stochastic frontier models estimated below. A logistic regression including age, the square of age, gender, and race/ethnicity was used to determine the probability of observations missing information on the variables used in the stochastic frontier models estimated below. The inverse of the probability that an observation was missing values for any model variables was taken from this logistic regression and was multiplied by the weights developed above to obtain a final weight that was used in the analysis.

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TABLE A2

Descriptive Statistics: 2003 California Dental Survey

Variable	Generalists† Mean	Generalists† Standard Deviation	Specialists† Mean	Specialists† Standard Deviation
Practice Configuration				
Total dental visits per week	36.005	20.721	28.940	22.014
Total hours worked in dentistry per week	31.007	8.129	29.961	10.024
Other dentists (FTE)	0.618	1.108	0.580	0.976
Total dentists (FTE)	1.562	1.099	1.497	0.943
Hygienists (FTE)	0.678	0.993	0.503	0.958
Assistants (FTE)	2.245	1.906	2.509	1.967
Office staff (FTE)	1.643	1.038	1.846	1.124
Operatories	4.428	2.747	4.868	2.949
Operatories per FTE dentist*	3.251	2.017	3.870	2.780
Hygienists per FTE dentist*	0.500	0.692	0.340	0.589
Assistants per FTE dentist*	1.541	0.923	1.871	1.273
Office staff per sum of FTE dentists and FTE hygienists*	0.863	0.529	1.186	0.900
Procedure Mix (%)				
General	3.272	6.049	1.510	3.411
Esthetic	5.844	6.721	2.209	4.460
Diagnostic	13.611	9.410	12.782	13.351
Endodontics	6.030	6.054	15.177	30.805
Implants	1.140	2.660	3.067	8.950
Operative	30.456	15.322	10.340	15.662
Orthodontics	0.716	2.990	24.036	40.271
Other	0.211	1.506	0.752	7.818
Periodontics	5.019	6.297	13.048	27.043
Preventive	14.705	13.469	5.701	11.651
Prosthodontics	14.203	12.090	8.817	17.534
Surgery	3.821	4.622	1.935	4.447
Inefficiency Factors				
Dentist – English + 1 language	0.395	–	0.332	–
Dentist – English + 2 or more languages	0.185	–	0.154	–
Office staff – English + 1 language	0.451	–	0.436	–
Office staff – English + 2 or more languages	0.227	–	0.228	–
Private dental insurance (%)	66.182	21.738	64.680	22.940
Public dental insurance (%)	11.340	20.963	6.094	14.590
Able to treat all requesting appts.	0.736	–	0.736	–
Not busy enough	0.221	–	0.223	–
Observations	1,841		336	

FTE: Full-time equivalent. All data elements are probability weighted and adjusted for nonresponse. *Note that measures that are "per FTE dentist" or "per sum of FTE dentists and FTE hygienists" are calculated across dental practices and will not be equal to similarly defined measures using the overall sample means. †Generalists included generalist and pediatric dentists for purposes of this analysis. Specialists include endodontists, orthodontists, periodontists, prosthodontists, and other specialists, but excluded oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists for purposes of this analysis.

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TABLE A3

Descriptive Statistics: 2005 California Community Clinic Oral Health Capacity Study

Variable	Mean	Standard Deviation
Practice configuration		
Total patients per day	27.265	17.857
Dentists (FTE)	2.050	1.635
Operatories	5.593	3.251
Hygienists (FTE)	0.265	0.542
Assistants (FTE)	4.247	3.101
Other staff (FTE)	2.037	2.159
Inefficiency Factors		
Percent revenue from private insurance	7.106	9.540
Percent revenue from private pay	15.454	20.968
Percent revenue uncompensated care	30.672	31.841
Observations	81	

Sampling Design and Cohort Ascertainment — CDS

Approximately 26,000 dentists were practicing in the state of California in 2003. Of these, approximately 63 percent of those dentists are members of CDA. An enumerated list of dentists in California was obtained from both the CDA and the Dental Board of California. Dentists were excluded if they were older than 85, retired, faculty members, practicing out of state, students in postgraduate programs, in the military, in public health practice, oral/maxillofacial specialists, or not practicing due to various reasons. About 4.7 percent of the sample was eliminated because the authors had information from the CDA dataset that showed they were ineligible.

The remaining dentists were sampled based on stratified rural/urban classifications. Dentists practicing in counties where there are 250 or fewer dentists (classified as rural counties) available were all sampled. Those practicing in more urban counties where the number of dentists exceeds 250 were sampled so that a minimum of 250 dentists were selected, and an additional 40 percent of remaining dentists were also sampled. A sampling weight was calculated by dividing the total number of dentists in each county by the total number of dentists sampled in each county. So for rural counties, the sampling weight will be 1.0, or very close to 1.0, whereas heavily population counties (such as Los Angeles), the sampling weight could be above 2.0.

The number of dentists remaining after the sampling procedure was 14,125. Overall, only 4,402 responded to the survey, and of those, 3,821 were eligible to participate (after verification of working status, and specialty). A flow chart illustrating how this final sample was obtained is shown in **FIGURE A1**.

The authors were able to obtain additional information regarding individuals who did not complete the survey. A total of 1,332 individuals were contacted again to see if they completed the survey, and if not, to give a reason why. The responses that were possible during this follow-up were: no answer, retired, disconnected, ineligible, missing or no phone number, need follow-up, and refused. Individuals were classified into the four response categories based on information from this follow-up. All remaining individuals who were not contacted again and those for whom no age or specialty information in the CDA database were assumed to be unknown response (UN). Descriptive statistics of the variables used in the analyses of private dental practices are presented in **TABLE A2**.

Community Dental Clinics

The 2005 California Community Clinic Oral Health Capacity Study identified 728 agencies of which it was determined that 232 had dental facilities. Of the agencies surveyed, 129 responded. Of these responses, 81 agencies provided data complete enough to be subject to statistical analysis. Since the entire universe of agencies was used as the sampling frame, the sampling weight of each agency is 1.0. No nonresponse weights could be computed as there was insufficient information on nonresponders to compute reasonable nonresponse weights. It is thus assumed that nonresponse is unbiased. The following types of clinics were included in the universe: school-based clinics, free-standing dental clinics, mobile clinics, hospital-based clinics, public hospitals, rural health clinics, medical/dental clinics, county health facilities, and free clinics. The majority of clinics who responded to the survey were also federally qualified health centers. (See Glassman et al. article for more information.[16])

Because the survey did not always indicate that respondents who wanted to indicate zero for any given answer should enter a zero or leave the response blank, the authors assumed that blank answers indicated zero. This appeared to be reasonable for the questions involved. See **TABLE A3** for descriptive statistics from the final analytic sample.

Results

All of the authors' final equations specify v as half-normal due to convergence difficulties encountered when specifying v as exponential in the generalist and community dental clinic models. (Note that Stata 10, the statistical software package used in this study, does not permit the use of the gamma distribution when estimating sto-

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TABLE A4

Stochastic Frontier: Individual Production of Visits by Private Generalist Dentists (2003)*

	Parameter	Std. Err.	z-statistic	p-value	[95% Conf.	Interval]
Production Function						
Total hours worked per week	-0.031	0.010	-3.13	0.002	-0.051	-0.012
Ln(Total hours worked per week)	1.052	0.241	4.36	0.000	0.579	1.525
Operatories per dentist	-0.026	0.009	-3.01	0.003	-0.044	-0.009
Ln(Operatories per dentist)	0.086	0.067	1.28	0.199	-0.045	0.218
Hygienists per dentist	0.055	0.073	0.76	0.445	-0.087	0.198
(Hygienists per dentist)^2	0.012	0.019	0.62	0.533	-0.026	0.049
Assistants per dentist	-0.042	0.052	-0.81	0.420	-0.143	0.060
(Assistants per dentist)^2	-0.005	0.011	-0.50	0.614	-0.026	0.015
Office staff per dentist	0.051	0.113	0.46	0.647	-0.169	0.272
(Office staff per dentist)^2	-0.026	0.033	-0.79	0.427	-0.092	0.039
Procedure Mix (% time)						
Esthetic	-0.005	0.004	-1.28	0.201	-0.012	0.003
Diagnostic	-0.002	0.003	-0.61	0.543	-0.008	0.004
Endodontics	0.000	0.004	0.10	0.922	-0.008	0.009
Implants	0.019	0.006	2.87	0.004	0.006	0.031
Operative	0.003	0.002	1.23	0.217	-0.002	0.008
Orthodontics	-0.022	0.012	-1.91	0.056	-0.045	0.001
Other	0.006	0.012	0.52	0.600	-0.017	0.030
Periodontics	-0.002	0.004	-0.56	0.577	-0.010	0.006
Preventive	0.000	0.003	0.08	0.936	-0.005	0.006
Prosthodontics	0.002	0.003	0.63	0.531	-0.004	0.007
Surgery	0.000	0.005	-0.03	0.974	-0.009	0.009
Constant	0.764	0.587	1.30	0.193	-0.386	1.914
Lns$^2\upsilon$						
Ln(total FTE staff less main dentist)*	0.696	0.083	8.43	0.000	0.534	0.858
Constant	-1.633	0.134	-12.18	0.000	-1.896	-1.370
Lns$^2\varepsilon$						
Dentist – English + 1 language	-38.715	1.979	-19.56	0.000	-42.594	-34.836
Dentist – English + 2 or more languages	-39.984	1.429	-27.97	0.000	-42.785	-37.182
Office staff – English + 1 language	1.045	1.060	0.99	0.324	-1.033	3.122
Office staff – English + 2 or more languages	2.175	1.054	2.06	0.039	0.110	4.241
Private dental insurance (%)	-0.084	0.070	-1.21	0.228	-0.221	0.053
Public dental insurance (%)	0.023	0.024	0.94	0.345	-0.025	0.070
Able to treat all requesting appts.	-0.245	4.381	-0.06	0.955	-8.831	8.341
Not busy enough	-0.072	4.277	-0.02	0.987	-8.455	8.311
Constant	0.394	4.667	0.08	0.933	-8.753	9.542
Wald (χ^2)	138.42 ($p < 0.001$)					
Technical efficiency	0.965, 95% confidence interval: [0.962, 0.969]					
Observations	1,841					

*Note that "generalist dentists" includes pediatric dentists for purposes of this analysis.
*Total FTE staff includes hygienists, assistants, office staff, and other dentists.

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TABLE A5

Stochastic Frontier: Individual Production of Visits by Private Specialist Dentists (2003)*

	Parameter	Std. Err.	z-statistic	p-value	[95% Conf.	Interval]
Production Function						
Total hours worked per week	0.018	0.019	0.91	0.363	-0.020	0.056
Ln(Total hours worked per week)	-0.149	0.445	-0.33	0.738	-1.022	0.724
Operatories per dentist	0.063	0.030	2.07	0.039	0.003	0.122
Ln(Operatories per dentist)	-0.410	0.188	-2.18	0.029	-0.779	-0.041
Hygienists per dentist	0.312	0.303	1.03	0.303	-0.282	0.906
(Hygienists per dentist)^2	-0.071	0.130	-0.55	0.584	-0.325	0.183
Assistants per dentist	-0.371	0.151	-2.45	0.014	-0.668	-0.074
(Assistants per dentist)^2	0.078	0.021	3.64	0.000	0.036	0.120
Office staff per dentist	0.682	0.267	2.55	0.011	0.158	1.206
(Office staff per dentist)^2	-0.182	0.053	-3.44	0.001	-0.285	-0.078
Procedure Mix (% time)						
Esthetic	0.038	0.010	3.58	0.000	0.017	0.058
Diagnostic	0.015	0.009	1.66	0.097	-0.003	0.033
Endodontics	0.020	0.009	2.30	0.021	0.003	0.036
Implants	0.015	0.009	1.61	0.107	-0.003	0.034
Operative	0.019	0.009	2.14	0.033	0.002	0.036
Orthodontics	0.004	0.009	0.50	0.619	-0.013	0.021
Other	0.007	0.009	0.80	0.426	-0.010	0.024
Periodontics	0.019	0.008	2.26	0.024	0.002	0.035
Preventive	0.016	0.011	1.46	0.145	-0.005	0.037
Prosthodontics	0.015	0.009	1.60	0.109	-0.003	0.033
Surgery	0.013	0.017	0.78	0.435	-0.020	0.046
Constant	1.914	1.230	1.56	0.120	-0.498	4.325
Lns$^2\upsilon$						
Ln(Total FTE staff less main dentist)*	0.334	0.244	1.37	0.171	-0.144	0.812
Constant	-0.986	0.356	-2.77	0.006	-1.684	-0.288
Lns$^2\varepsilon$						
Dentist – English + 1 language	0.495	0.817	0.61	0.545	-1.107	2.097
Dentist – English + 2 or more languages	2.369	0.927	2.56	0.011	0.552	4.187
Office staff – English + 1 language	0.407	0.749	0.54	0.587	-1.061	1.875
Office staff – English + 2 or more languages	-0.493	0.932	-0.53	0.597	-2.320	1.334
Private dental insurance (%)	0.013	0.017	0.72	0.469	-0.021	0.046
Public dental insurance (%)	-9.475	9.930	-0.95	0.340	-28.936	9.987
Able to treat all requesting appts.	2.613	1.405	1.86	0.063	-0.142	5.368
Not busy enough	2.818	1.749	1.61	0.107	-0.610	6.246
Constant	0.495	0.817	0.61	0.545	-1.107	2.097
Wald (χ^2)	197.18 ($p < 0.001$)					
Technical efficiency	0.771, 95% confidence interval: [0.748, 0.794]					
Observations	336					

*Note that specialist dentists include endodontists, orthodontists, periodontists, prosthodontists, and other specialists, but exclude oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists. †Total FTE staff includes hygienists, assistants, office staff, and other dentists.

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TABLE A6

Stochastic Frontier: Safety Net Dental Practices (2005)

	Parameter	Std. Err	z-statistic	p-value	[95% Conf.	Interval]
Production Function						
FTE dentists	0.273	0.103	2.66	0.008	0.072	0.474
(FTE dentists)^2	-0.036	0.015	-2.40	0.016	-0.065	-0.007
Operatories	0.048	0.074	0.65	0.514	-0.097	0.193
Ln(operatories)	0.259	0.328	0.79	0.430	-0.384	0.901
FTE hygienists	0.613	0.275	2.23	0.026	0.075	1.151
(FTE hygienists)^2	-0.523	0.201	-2.60	0.009	-0.918	-0.128
FTE assistants	0.035	0.050	0.70	0.481	-0.063	0.133
(FTE assistants)^2	0.000	0.004	0.06	0.953	-0.008	0.008
FTE other staff	0.098	0.056	1.74	0.081	-0.012	0.208
(FTE other staff)^2	-0.008	0.008	-0.97	0.333	-0.024	0.008
Constant	2.082	0.190	10.98	0.000	1.711	2.454
Lns^2υ						
Operatories	0.207	0.068	3.04	0.002	0.073	0.340
Constant	-3.348	0.520	-6.43	0.000	-4.368	-2.328
Lns^2ε						
Percent revenue from private insurance	0.090	0.055	1.64	0.100	-0.017	0.198
Percent revenue from private pay	0.058	0.026	2.24	0.025	0.007	0.109
Percent revenue uncompensated care	0.047	0.024	1.93	0.053	-0.001	0.095
Constant	-6.251	2.481	-2.52	0.012	-11.114	-1.388
Wald (χ^2)	96.85 ($p < 0.001$)					
Technical efficiency	0.836, 95% confidence interval: [0.810, 0.862]					
Observations	81					

chastic frontier models. Stata also does not allow the truncated normal distribution to be used when heteroscedasticity is parameterized as is the case in all of our models.) The results of our analyses are shown in TABLE A4–A6. Generalist dentists (which includes pediatric dentists in this analysis) exhibit technical efficiency of 0.965 (TABLE A4), specialist dentists (including endodontists, orthodontists, periodontists, prosthodontists, and other specialists, but excluding oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists) exhibit technical efficiency of 0.771 (TABLE A5), and safety net providers exhibit technical efficiency of 0.836 (TABLE A6). See each table for confidence intervals.

Technical inefficiency is explained differently among each group. Technical inefficiency is reduced among generalist dentists when dentists are multilingual. Paradoxically, technical inefficiency is increased by the presence of staff members who speak more than two languages. This may simply reflect the situation where, compared to the language skills of staff members, the language skills of generalist dentists are better matched with the languages spoken by patients. Reasons for the technical inefficiency among specialist dentists include dentists who speak more than two languages. This may simply reflect a less-than-perfect match between the languages spoken by the specialist dentist and the languages spoken by patients. Finally, the technical inefficiency among community dental clinics appears to be due at least in part to the percentage of operational revenue that makes up "uncompensated care," and, surprisingly, the percentage of operational revenue that comes from private-pay patients. The reason for these latter findings may be that the types of individuals who have no insurance (not even Denti-Cal) may be systematically different from other patients, while private-pay patients may require more time to administratively process since community clinics are not generally set up to efficiently process private-pay transactions.

Limitations

The above analyses are subject to a number of limitations. First, the data used were not collected to determine technical efficiency and are thus missing a number of measures that would be useful in this type of analysis.

Second, response rates to the 2003 CDS were relatively low. While this need

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not bias the results if the nonrespondents are not significantly different from respondents or if nonrespondents that are significantly different from respondents are weighted to account for this difference (which was done in this analysis) such adjustments may not completely account for nonresponse bias. Similar issues arise with the 2005 California Community Clinic Oral Health Capacity Study, although no adjustment for potential nonresponse bias was possible in this case.

Finally, the model above was estimated with a single cross-section of data, due to panel data for California not being available. Panel data incorporating fixed effects may allow for more accurate results, but it must be noted that this approach also has many limitations and may not always yield more accurate results.[6] In addition, given the stability of the dental services sector in California, the lack of panel data is unlikely to result in significant bias. ■■■■

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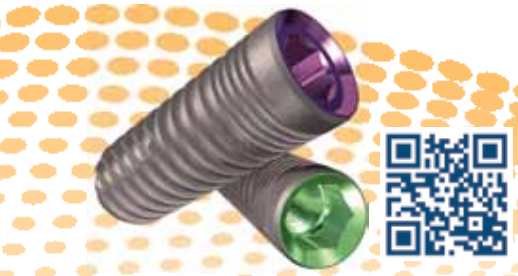

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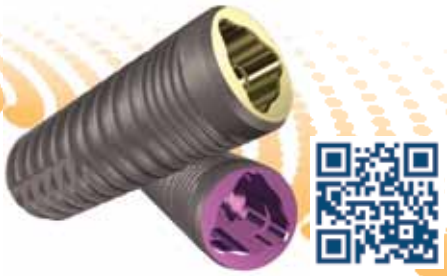

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The Capacity of the Dental Systems in California Study: a Review

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As part of research in developing its "Access Proposal: Phased Strategies for Reducing Barriers to Dental Care," the California Dental Association commissioned a study by the Nicholas C. Petris Center of the University of California, Berkeley, titled "Access to Dental Care and the Capacity of the California Dental Care System." Since the release of the access proposal draft, this particular research seems to be the most misunderstood and misquoted. The purpose of this review is threefold. First, it is to examine what the paper says and doesn't say. Next, it is to see what it means and doesn't mean. Lastly, it is to show how this study impacted the conclusions in the CDA Access Proposal. This is not a critical review of the statistics methodology or conclusions of the study. It is only to try and understand what it says and how it was used.

The Petris Center study is a retrospective statistical extrapolation using data from two older studies, "The 2003 California Dental Survey," and "The 2005 California Community Clinic Oral Health Capacity Study." Additionally, it uses U.S. census data from 2000-2007 to examine utilization and organizational size and distribution of dental practices. It is worth pointing out at the outset that the two background studies used were done in better economic times, although the authors feel, given the stability of practice seen during periods of recession and growth, that the statistics are still relevant today.[1]

The goal of the Petris paper is to help determine whether the existing dental system in California is capable of serving the 30 percent of Californians who currently are deemed not to have "access to care," or do we need to expand or change the system. Their conclusion is the latter.[1]

How did they reach this conclusion? They used a statistic called" technical efficiency," which is defined as maximum amount of output (e.g., dental visits per week, patients seen per day) that can be produced from a given set of inputs (e.g., dentists, operatories, hygienists, assistants, and office staff).[1] This is **NOT** a measure of busyness or empty chairtime. It measures how efficiently the dentist's operation is. For example, does the dentist have sufficient and appropriate staff or is the office overstaffed? Does it manage its accounts payable and receivable well? Is the facility able to fulfill the goals of the practice or not? Can the dentist communicate well with his or her patients?

A general dental practice may have room to accept new cash or third-party payer patients and still be extremely efficient. It may not, however, be equipped to bring in new Medicaid or government-supported patients, deal with different payer models and uncompensated patients, speak multiple languages, or even see pedodontic patients. That practice would still be efficient, but not able to accommodate the patient population that is currently lacking access because it wasn't designed to. In other words, despite having very efficient dental practices in California, we might still have to increase capacity in order to serve the 30 percent of the population currently lacking access.

According to the Petris report's statistical analysis of general dental practices in 2003, general practices were 96.5 percent efficient. According to their analysis of "safety-net" dental practices in 2005, they were 83.6 percent efficient. Given these numbers it would seem unlikely that the existing dental system in California could simply absorb the 30 percent of Californians who lack access without either expanding the system or changing the way most practitioners practice to a model that could better accommodate the underserved, an option certainly less tenable.

What does this mean? First, we should congratulate ourselves. Our profession provides excellent and efficient care to 70 percent of Californians. This includes both general dental and specialty care. It even includes excellent and relatively efficient treatment of needy groups (83.6 percent) given the lack of proper government support and various additional factors. It also means that we have not created the problem. If anything, our efforts to date have greatly minimized what would otherwise be a much larger issue. In fact, the medical profession would be thrilled to have efficiency and capacity statistics similar to ours. The study does not show that our system is broken nor that we are responsible to fix something. It may, however, give us an indication of how to effectively enhance access to dental care in ways that don't undermine the good things we do. It would behoove us to advocate for these types of solutions rather than watch others impose solutions we know won't work.

So, how did the Petris Center report inform the conclusions in the CDA access proposal? The findings of this research showed that expansion of the system to increase capacity is indicated. In the short term, this could involve taking steps to rebuild the dental public health infrastructure in the state, both in terms of leadership and advocacy, and creating incentives for dentists to establish practices in the public health sector. We could finish the job of fluoridating California and provide more training to general practitioners to treat younger children. Later, we could work on increasing preventative services to children through new programming and technology, as well as trying to enhance Medicaid rates for those participating in proven programs that control the caries process thus reducing the need for costly future restorative work. Eventually, we could advocate to restore the adult Denti-Cal program, properly fund it, and increase the use of hospital-based training programs to provide services. These are but a few of the evidence-based solutions in the access proposal.

DESPITE HAVING VERY efficient dental practices in California, we might still have to increase capacity in order to serve the 30 percent of the population currently lacking access.

It is important to note that not one of the above solutions stem directly from the Petris Center study. It only states that increasing the number of Californians with dental coverage alone or increasing the number of dental providers alone is probably not the answer.[1] The access problem is multifactorial and needs a broad-based solution. The solutions proposed in the access proposal are from numerous different sources. The Petris Study *does not* even mention midlevel providers or alternative practice models. While the access proposal speaks to study of the use of nontraditional dental providers so that evidence-based conclusions of their use as part of the dental team might be reached, that recommendation is not from the Petris Center work.

As stated at the outset, this article is not a critical review of the Petris Center study. It merely is an attempt to report what it says, means, and how it was used in the development of the CDA access proposal. While there is much that can be discussed about the assumptions, use of statistics and conclusions reached, (the paper itself mentions some of these limitations) that will be for another time.[1]

This research is the subject of another article and can be accessed in its entirety online.[2,3] ■■■■

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MURRIETA - Equip, some charts & Condo for sale. Well design off w/ 4 ops, in 1,350 sqft single story condo. Newer equip. ID#3221.
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How to Place a Classified Ad

The *Journal* has changed its classified advertising policy for CDA members to place free classified ads online and publish in the *Journal*. Only CDA members can place classified ads. Non-CDA members can place display ads.

All classified ads must be submitted through cda.org/classifieds. Fill out the blank fields provided, including whether the ad is to appear online only or online and in the *Journal*. Click "post" to submit your ad in its final form. The ad will be posted immediately on cda.org and will remain for 60 days.

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.

DENTAL EQUIPMENT FOR SALE

DENTAL EQUIPMENT FOR SALE — 2006 CEREC acquisition unit and milling chamber for sale. The machine is in great condition and currently in use. A Vivadent stain/glaze oven is included with the machine. Photos available upon request. $28,000. - aefdentalworks@yahoo.com - 818-361-8669.

OFFICES FOR RENT OR LEASE

OFFICE FOR RENT OR LEASE — Orange County Office for rent, (17400 Irvine, Blvd Suite G Tustin, CA 92780). Our office consists of two sections, which we plan to split. What we are offering is the rental of the 5 unit orthodontic section of our office. Monday through Friday at $5,000.00 per month. This cost includes utilities except for phone/internet. Included is the furniture and lab equipment, but no Phone system, computer system. All you pretty much need is your hand held instruments and disposables to get started. Any renovations you wish to make will be at your own expense. Our practice is set up in the back end of the building and has a separate entrance for his existing patients. We would still need to share the lab when our practice requires lab work. Please contact Sergio with any questions @714-544-7440 or karlnish@pacbell.net.

CONTINUES ON 266

CLASSIFIEDS, CONTINUED FROM 265

OFFICE FOR RENT OR LEASE — Santa Rosa dentist looking to rent office space 1 or 2 days per week. Three treatment rooms in 1000 sq. ft. established centrally located complex, remodeled 3 years ago with ADEC chairs and delivery system. For information please email drflosss@aol.com - 707-545-7811.

OFFICE FOR RENT OR LEASE — Dental office available to share. State of the art facility fully equipped. Digital X-rays (Dexis), digital panceph, Dentrix software, statim, autoclave, computers at each operatory. - skziprickdds@gmail.com - 909-793-6700.

OFFICE FOR RENT OR LEASE — Modern, digital only, perfect demographics in the best location of Oxnard in front of the Marina. Microscope, digital X-ray, 13 by 13 operatories. I have two to three operatories available for rent. Please call me on my cell for details. Perfect for a new graduate to start without spending any money. You have to see it. - ymagnis@gmail.com - 310-968-8575.

OFFICES FOR SALE

DENTAL OFFICE FOR SALE — This is a rare opportunity to own your own practice and real estate in one of the fastest growing areas of California. A 1650 sq. ft. dental suite with most build outs is available for long-term lease. The suite is located in a busy dental plaza with MORE THAN 14 GENERAL DENTISTS practicing within a 0.5-mile radius in and around the center! It is a great opportunity for an endodontist or periodontist who wants to build a successful practice quickly and own the real estate for less than renting a suite. Please email for more information and specific terms. - foothillsmiles@yahoo.com – 949-587-2800.

OPPORTUNITIES AVAILABLE

OPPORTUNITY AVAILABLE — Full time General Dentist position, with experience over 60% of the patients are pediatric pts. from 5 years and up. Most work is restorations, pulpotomies, & stainless-steel crowns. - dr.mg@bachour.org - 209-723-5005.

OPPORTUNITY AVAILABLE — $2+mil practice seeks full time associate/partner in hi tech- general/cosmetic/implant practice. When it comes to technology our office stands out: New Adec/Kavo operatories, Cerec, iTero, 3-D cone beam, digital X-rays, 5 different lasers, Zoom, Diagnodent, fully automated Control4 building, photographic studio, Identafi oral cancer detection, massage chair, multi-server network, sterilization center, K-7 neuromuscular computer, tensing unit, air abrasion, rotary endodontics, and Softdent, Consult-Pro, XCPT, Florida Probe, Venga, Cross-Code, & Dental Writer software. When it comes to cutting edge services our office stands out: Computer guided implant surgery, tissue engineering w/ PRF-PRGF, IV sedation, photographic smile analysis; an Invisalign, PerioProtect, Sesame and CAMBRA office. When it comes to research, publications and lectures we also shine: CAD/CAM implantology, porcelain veneers, cold laser therapy. We want the BEST-Are You As Passionate About Dentistry As We Are? - fstalley@rbdg.net - 310-542-6988.

OPPORTUNITY AVAILABLE — Yucaipa Office seeking Part Time Associate/ Superstar DDS to gradually start Fridays and take over Thursdays soon. Must be hard working, upbeat, and have personality to burn. Please email resume to yucaipadental@yahoo.com - 909-790-4537.

CONTINUES ON 270

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-Spacious, attractive, 2-story mixed Prof complex. 1,650 sq. ft. w/5 ops **$80k**

BG-043 ANTIOCH-DDS avgs 12-20 Pts w/ 8 Hyg Pts/ day. 2,594 sf & 4 ops. Plumbed 1 add'l op **$450k**

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

CG-021 SUISUN CITY-Quality, FFS Practice. 1,200 sf & 3 ops **$300k**

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 -Opportunity to purchase condo suite also! 1,158sf w/3 ops **$65k**

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***

DN-040 SAN JOSE- In most desirable, major retail shopping center. Intersection of 2 highly traveled thoroughfares. BELOW MARKET RENT! 2,000 sf w/5 ops **$495k**

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-042 FREMONT-Highly esteemed, well-loved, fee-for-service.4½ hyg days/wk. Spacious 1,000sf suite w/3 ops **$498k**

NORTHERN CALIFORNIA

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

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

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

EN-035 CITRUS HEIGHTS - Established practice in a desirable neighborhood. 1,700 sf w/4 ops **$125k**

EN-037 CARMICHAEL- Seller Retiring! 30+ yrs goodwill w/stable patient base. 1,498 sf 4 ops **$450k**

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. **$185k**

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

GN-039 CHICO - Family-oriented, FFS Practice, tucked in vibrant community! 1,040 sf w/3 ops **$95k**

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-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. **$465k and R.E. $249k**

IG-041 SIERRA FOOTHILLS -With reasonable rent (low overhead) & maximized office hours, the opportunity is limitless! 850 sf w/2 ops **ONLY $75k**

J-1001 LINDSEY— All American City! Conveniently located ~3,380sf w/5ops. **Now Only $264k**

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**

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**

EN-038 PERIO SACRAMENTO-Stunning, sleek, spectacular office in attractive, like-new, 2-story Prof Bldg. 3 ops w/ plumbing for 2 add'l ops **$680k**

Timothy G. Giroux, DDS

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- **EL DORADO HILLS:** *For Sale*-General dentistry practice. Gross Receipts of $834K with adjusted 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 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, 1-year old equipment, 8 days hygiene. Beautiful office, great location. Owner retiring. #14336
- **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 Facility. One of the best opportunities this year. This 3 op dental office comes equipped. It is in a great location and has about 200 active patients. Owner is in the process of completing his Orthodontic training and only works in the office 5 days a month. Complete pictures of the office and an inventory list of included furniture and fixtures are available. Everything included for only $85,000 You can't afford to pass this up. #14383
- **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 1,900 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 Gross was $501,000 with a $228K adjusted net income. Dental Vision software, Average age of equipment is 8 yrs. Approximately 1,200 active patients.
- **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., 4 equipped operatories, 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
- **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
- **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,

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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 5–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

- **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, 8 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. 6 ops, Intra-Oral camera, Eagle Soft Software. Office square feet 2,300 with 3 years remaining on lease. 2009 Gross Receipts $1,448,520, with an adjusted net income of $545K. Doctor would like to phase out then retire. #14331 SOLD

- **SAN FRANCISCO:** *For Sale*-A beautiful upscale office in the Financial District of San Francisco. This is a facility only sale of 2073 sq ft, 4 fully equipped modern treatment rooms, panoramic x-ray, intra-oral camera and laser. En-suite restroom, very unique to this building. Seller has second office in San Francisco and will move patients there. This gem will not last long! #14384

- **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 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

- **SANTA BARBARA:** *For Sale*-General Dentistry Practice. Wonderful opportunity to live and work in one of California's most desirable areas. 2010 Gross receipts were $974,000 with a $370,00 adjusted net income. Six days of hygiene. Dentrix software, Intra-Oral Camera and Panoramic X-Ray. Owner is retiring. #14382

- **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 units, 6 DCI rear delivery units, 3 Gendex x-ray units, 1 Soridexdigital x-ray processor, 1 Statim 5000, 1 Harvey autoclave. 2,800 Sq ft, 6 Ops. New lease available from landlord. #14335. SOLD

- **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

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CLASSIFIEDS, CONTINUED FROM 266

OPPORTUNITY AVAILABLE — Oral and Maxillo-Facial Surgeon San Francisco East Bay Area Half Time Position Board Certified/Board Eligible Oral Surgeon sought by UC Davis-affiliated public hospital system in Contra Costa County. Located 30 miles east of San Francisco, with excellent weather, and close to outstanding cultural, recreational and natural attractions. One hour to the Napa Valley wine country or beach. 2½ hours to skiing. Martinez sits on San Francisco Bay, at the gateway to the Sacramento River Delta, for superb boating and fishing. New hospital & surgical facilities serve needs of ethnically and culturally diverse population, who have a fascinating variety of clinical problems. Excellent compensation package includes health care, vacation & sick leave, disability insurance, paid CME, defined benefit pension and more. Malpractice insurance provided. Position available immediately. California License required. Contact Nick Cavallaro, DDS at 510-918-2159 or at nickcav@comcast.net.

OPPORTUNITY AVAILABLE — Looking for an experienced General Dentist or Prosthodontist who can work 3 to 4 days a week in an established practice. If interested, please send your resume to drahndentist@gmail.com - 408-241-2397.

OPPORTUNITY AVAILABLE — Assistant Office Manager / Case Planner JOB DESCRIPTION Looking for an experienced Assistant Office Manager/Treatment Plan Coordinator looking to take on a new and exciting opportunity in our Chino Hills, California location. This is a great opportunity for an experienced Assistant Office Manager to be part of a great team and growing company! Job Description including but not limited to: 1. Managing office staff and accountable for building a productive patient schedule. 2. Processing and file insurance claims for patients accurately and in a timely manner. 3. Explain treatment plans and financing options to patients. 4. Review and train on Accounts Receivables and collections. 5. Assist with daily deposits on time and accurately. 6. Demonstrate effective communication to ensure cooperation between the front office and the back office (including reading and responding to email, correspondence and appropriate data). 7. Assist with the oversight of supplies and inventory. – 909-635-7748.

OPPORTUNITY AVAILABLE — We are looking for a Dental Assistant with at least 2 years experience. Job Description includes but not limited to: multi tasking being GOAL oriented be knowledgeable in billing following instructions Scheduling patients Answering the phone courteously communicating with patients professionally Taking Impressions Creating an efficient work flow for doctors. If you feel that you fulfill each of these traits, Please contact me. – 909-635-7748.

OPPORTUNITY AVAILABLE — Well Established practice with excellent, supportive and friendly staff. We have our own in-house endodontist and Periodontist. We are looking for an experienced GP who has good communication skills and treatment planning. Excellent in crown and bridge, bondings and partials a must. Please email resume to: gilbertlim@msn.com - 916-838-1090.

OPPORTUNITY AVAILABLE — Our practice has been around for over 20 years. Excellent supporting staff and patients. We are looking for an Endodontist 1-2 days a week for our multi-specialty practice. Please email resume to gilbertlim@msn.com - 916-838-1090.

OPPORTUNITY AVAILABLE — SC Endodontics is looking for a part time DA or RDA who is bilingual (English and Spanish), has some experience in assisting endodontic procedures, and could work as both front desk personnel and chair side dental assistant. Knowledge of PBS Endo management program is preferred but not necessary at this time. Training will be done during employment period. - ktle.endo@gmail.com - 714-668-1620.

OPPORTUNITY AVAILABLE — Registered Dental Assistant- Napa, California Practice Job Description: Assist dentist in providing dental treatment, care and education to patients. Must possess knowledge and skill of clinical procedures, processes and dental administrative functions. Duties and Responsibilities: Welcome and escort patient in reception to and from the treatment areas. Schedule appointments and assist in appointment confirmation calls Take and record medical and dental histories and vital signs of patient. Recognize signs of a dental emergency, and insure proper and timely response and notification to patient, staff, and emergency medical personnel when necessary. Expose dental diagnostic x-rays. Make preliminary impressions for study casts and occlusal registrations for mounting study casts. Pour, trim, and polish study casts, fabricate custom impression trays from preliminary impressions, clean and polish removable appliances and fabricate temporary restorations - 813-288-1999.

OPPORTUNITY AVAILABLE — Registered Dental Assistant- Moreno Valley, California Practice Job Description: Assist dentist in providing dental treatment, care and education to patients. Must possess knowledge and skill of clinical procedures, processes and dental administrative functions. Duties and Responsibilities: Welcome and escort patient in reception to and from the treatment areas. Schedule appointments and assist in appointment confirmation calls Take and record medical and dental histories and vital signs of patient. Recognize signs of a dental emergency, and insure proper and timely response and notification to patient, staff, and emergency medical personnel when necessary. Expose dental diagnostic x-rays. Make preliminary impressions for study casts and occlusal registrations for mounting study casts. Pour, trim, and polish study casts, fabricate custom impression trays from preliminary impressions, clean and polish removable appliances and fabricate temporary res - 813-288-1999.

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Gorgeous modern, highly visible GP in 3,000 sq. ft. office w/7 fully equipped ops. Approx. 1,600 active pts. & avg. 16 new pts./month. 4 doctor-days/week. 3 years avg. GR $991K+. Asking $808K. SOLD

3055 SAN JOSE GP
Owner retiring from well-est. practice w/loyal staff and pt. base. 2011 GR $888K+ w/ just 3 doctor-days per week. 1,200 sq. ft. office w/4 ops. Located near well-travelled intersection in desirable commercial and residential mix neighborhood. Asking $515K. SOLD

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.). Ideal for an experienced dentist looking to merge an existing practice. Asking $195K.

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.

3065 FREMONT GP
Don't miss this opportunity. Spacious 1,150 sq. ft. office w/3 ops. 2010 GR 169K+ w/just 2-2.5 doctor days. Owner retiring. Asking $124K. SOLD

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. PENDING

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 willing to help in transition. Asking $220K.

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

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. SOLD

UPCOMING LISTINGS:

3068 MONTEREY COUNTY GP
2,000 sq. ft. state-of-the-art office w/6 modern, fully-equipped ops. & w/digital x-ray. Long term & loyal staff. Approx. 1,500 active patients all fee-for-service. 3 year avg. GR $1.7M, 2011 GR on schedule for $1.8M.

3071 MID-PENINSULA GP
Well-established 3 op GP in desirable neighborhood. 1,400 sq. ft. facility. Ownership in building available.

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CLASSIFIEDS, CONTINUED FROM 270

OPPORTUNITY AVAILABLE — Come join our growing multi-specialty dental office in Santa Clara. This is a great long-term career opportunity for the right candidate. Ideal candidate will have the following experience: - Five years of dental office manager experience needed. - One year of Dentrix Experience - Five years of Dental billing - Experience managing staff Competitive salary, benefits plus performance-based bonus available. - bayareadentist2009@gmail.com - 408-656-4567.

OPPORTUNITY AVAILABLE — Come join our growing multispecialty practice. We are looking for a part-time board eligible or certified Endodontist. Please email or fax your resume. Thanks for looking - bayareadentist2009@gmail.com - 408-656-4567.

OPPORTUNITY AVAILABLE — Looking for a sweet and energetic GP with experience working with children. Preferred having oral conscious sedation license. Full-time position. If interested contact Dr. Camila Borrero by email at: camilaborrerodds@yahoo.com - 209-832-5800.

OPPORTUNITY AVAILABLE — Successful dental practice in Atascadero, CA seeks experienced full time office manager. The position includes day-to-day office management as well as administrative duties. Must have excellent communication and time management skills. Familiarity with Dentrix a plus. A background in medical or dental office administration is preferred. Coding knowledge helpful. Must be able to optimize provider time as well as patient satisfaction and treatment room utilization by scheduling and coordinating appointments and staff. Specific dental office experience is a plus, but not required, as we will train a promising candidate. We welcome applications from candidates with office, retail or other backgrounds. Good communication skills and an ability to deal with the public are essential. The candidate must be a proactive 'self-starter, and be able to fulfill the responsibilities of the job with minimal oversight. Salary and benefits commensurate with ability and experience. - smuenterdds@yahoo.com - 805-461-3147.

OPPORTUNITY AVAILABLE — Looking for an experienced motivated dentist who can work part-time in a very nice friendly environment dental office. - Generalplus-dental@yahoo.com - 510-796-3333.

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OPPORTUNITIES WANTED

OPPORTUNITY WANTED — I am looking to fill a full/part time general dentist position starting in July in the Bay Area. Experience in all aspects of dentistry including implants placement, implant supported dentures, IV sedation, etc. Please contact me for CV. 510-710-9121.

OPPORTUNITY WANTED — GP looking for PT position in LA area. Great with kids. Please call 310-488-2044 or email miriamrazi@yahoo.com.

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OPPORTUNITY WANTED — Experienced G.P. available for temporary vacation coverage, health emergencies, practice transitions etc. Northern CA., S.F. Bay area, 925-757-1383, fax 925-757-2162, cell 925-783-2815.

OPPORTUNITY WANTED — State of the Art Dental Office Seeking for Part time/ Full time RDA front and back, and bilingual, Previous dental assisting required (2-5 years experience). Preferable has eaglesoft experience. A team player, with internal marketing skills.Excellent customer service and verbal communication skills. Ability to work in a fast pace, patient focused environment. - kingsly-dentistry@yahoo.com - 909-799-7777.

OPPORTUNITY WANTED — Looking for a part time opportunity. More then 5 yrs experience. Willing to do hygiene work. - udbdad-online@yahoo.com - 510-299-7956.

OPPORTUNITY WANTED — I am an experienced general dentist looking for a long term associate position in the greater Sacramento area, Roseville, Rocklin, Stockton, Davis, Vacaville or Placerville. In my private practice, I followed a patient centered approach to dental care with an emphasis on quality of care and evidence based dentistry. I work well with staff members, and appreciate the hard work that they do. My experience ranges from managing a multi-dentist office to 18 years private practice dentistry (owner). Contact: 916-439-7658 or pr520k@sbcglobal.net.

CONTINUES ON 274

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6008 - MENDOCINO COAST'S FORT BRAGG 2011 collected $725,000. 4-days of Hygiene. 4-ops (each with own computer), digital radiography. Great family community.

6012 - NEWARK - "SOLD" Tracking $900,000 in Production and collections. Strong profits. Owner works 3.5-day week with lots of vacation. 6+ Hygiene days per week.

6014 - SAN FRANCISCO'S INNER MISSION DISTRICT - "SOLD" On 3-day schedule 2011 is tracking collections of $420,000 with Profits of approximately $200,000.

6015 - SONOMA COUNTY'S HEALDSBURG - "SOLD" 4-day Hygiene schedule. Collections totaled $547,000 with Profits of $235,000 in 2011. Rare opportunity in unique community.

6017 - CAMPBELL - "SOLD" $389,000 invested here. Adec delivery systems, digital radiography, computer charting, Biolase Waterlase & Panorex. 2011's collections topped $600,000.

6018 - SAN JOSE'S CAMPBELL Successful practice in esteemed Group. Seller averages net production of $440,000 (excludes Hygiene), collections of $430,000 and Profits of $200,000. Group performs at $3.8 Million/year level.

6020 - PEDO PRACTICE Attractive family community. 2011 collected $455,000 on 26 hour week. $230,000 invested here. Beautiful office. Full price $240,000.

6021 - SANTA CRUZ Great location. Busy Hygiene Department booked 6+ months. 2011 collected $415,000. Lots of goodwill here.

6022 - SAN FRANCISCO'S NORTH BAY - SEBASTOPOL DENTAL OFFICE 8 miles west of Santa Rosa. Beautiful office in great family community. Total investment of $230,000. Asking $65,000.

6023 - LOS GATOS 2011 collected $240,000 on 3-days. 6-year office has $215,000 invested. Adec delivery systems, Adec cabinets, digital radiography, digital Pano and paperless charting

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3193 - PALM DESERT Grossing $400,000+. Great Location.

3237 - ANAHEIM HILLS Solo group member wanted-Hi-identity-HiTech share beautiful space.

3240 - REDLANDS GP Est - 5 Ops. Shopping ctr. Should do $300K to $400K first year with little marketing. Great lease. $1.00 sq. ft. FP $285K

3250 - ANAHEIM NW Disneyland. Part time Seller. 2 days wk. Hi identity corner. Grossing $370K in '09. 1,800 sq. ft. 5 Ops equipped. Low rent.

3283 - PALMDALE/LANCASTER Hi growth area. GP Gross $1.5 mil. 40% Net. Small town! 5 min from Bakersfield. RE available.

SMALL TOWN Minutes from Bakersfield. Modern RE. Practice Grosses $20-to-$40K per month. Bargain.

APPLE VALLEY/HESPERIA Gr $700 to $800 Free Std Bldg Avail Absentee.

3287 - SOUTHERN CALIFORNIA - "SOLD" $6 Million per year. Prestigious Hi identity location. 12,000 sq.ft. $1.00/sq.ft. $30K Cap/mo. Requires substantial net worth. Nets $1+ Million.

3297 - SOUTH BAY Location Only. Free standing Dental bldg on main street.

3298 - LONG BEACH AREA - "SOLD" Corner Location. Bread and Butter practice. Long established. Collects $500K per year.

LA HABRA -"SOLD" Great starter Shopping center with low rent, low overhead, 4 ops in over 2000 sq. ft. Rent only $2700. Grossing $15,000 to $30,000 per month. Full Price $185,000.

TEMECULA/HEMET HMO. Gr. $700,000 part time. 8 ops fantastic location Million Dollar corner. Full Price $565K.

3304 - GLENDORA Hi identity shopping corner. New Location. GP who likes Ortho also as no Ortho in area. Full Price new office $200K to $250,000.

LA HABRA - "SOLD" New life in 20 yr. Prtc corner near Whittier @ Beach. 290 new patients since May. Gr. 20K plus Grt Staff New Digital office. Must Sell below cost $185K super proved BARGAIN.

ORANGE Grosses $30K+/mth. 5 ops. Beautiful. Rent $2,000. FP $250K.

HEMET/TEMECULA HMO. Absentee owner. Grosses $700K. PPS says Buyer will do $1.5 Million within 18 months. Special Situation.

TORRANCE Special Diamond Location. Hi Identity. Will Gr $500K first year. $125K FP.

VICTORVILLE-APPLE VALLEY-HESPERIA AREA Estb 20 yrs. Gr $700K+. Net approx $300K. More vol avail. 8 op. Hi identity shop ctr. FP $650K. Serious Seller. Can do $1 Million.

SANTA ANA Super Hi identity intersection. 50,000 to 75,000 auto/day. 5 ops. Grossing $40-to-$60K/mth. Net $200,000 to $300,000. Great opportunity to build Million Dollar office here.

LANCASTER Estb 50 years - Hi identity central location, low overhead. Gross $480,000 by part time owner. Seller can work back per new owner. Five operatories.

ORANGE COUNTY Beautiful office. Right buyer will gross $2 million first year. Financing in place. Need Entrepreneur who has team of specialists in place or Dentist with multiple talents. HMO/PPO/Ins/Cash. Includes 9 days hygiene. 10,000 charts. As stated, right team will do $2 million first year.

BEVERLY HILLS Implant Center $1,450,000; 3 ops - 1,450 sq.ft. Beautiful facility access to neighbors CT Imaging Center. Full price $995,000 a bargain - BH most prestigious Dental building. Pride of ownership - Pros would work back for transition. Moving to Desert.

MALIBU Part time GP Grosses $240,000. 4ops. Full price $172K.

CLASSIFIEDS, CONTINUED FROM 272

DENTAL PRACTICES FOR SALE

PRACTICE FOR SALE — State of Art Practice for sale Pedo/ Ortho/ General combined practice. 3-D conebeam CT, digital PAN, 3-D TV, gameroom, kids and adult separate spacious waiting room, around 2,200 sq feet, 7 ops. located in beautiful big mall with Safeway and CVS. If you are interested, email me at jungdds@gmail.com - 310-709-1644.

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PRACTICE FOR SALE — I have over 15 years experience in general dentistry. I studied at USC school of dentistry and attended the post graduate prosthetic residency program. I am looking to buy a dental practice from Retired / relocating dentist in San Jose/Santa Clara area. Thank you - Hani_jamie@hotmail.com - 530-640-2324.

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7. What are the tax consequences for the Buyer when purchasing a practice?

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DR. BOB, CONTINUED FROM 278

Middle-aged persons have more raveled sleeves that cry out for knitting up than Macbeth could shake a stick at. Happily, naps (defined as a temporary lapse of consciousness that can be scheduled or involuntary), are, or should be, a part of a normal day for anyone over the age of 50. If you are a mother and the kids are still hanging around the house, it is an essential element to your sanity.

A scheduled nap is one wherein you retreat to a darkened bedroom, take off your shoes and lie down on the bed atop the covers if seasonably possible. Formerly known as "grabbing 40 winks," the definition has expanded to any length of time one pleases short of being actually deceased. Accessories currently available include eye shades, light-weight throws and a large-caliber pistol to be placed handily under your pillow. It is only fair to warn other occupants of the home, that should they disturb you for any reason other than the occurrence of a seismic episode exceeding 8.6, they will be taken out and shot. A jury of your peers, in my opinion, would get you off with a disturbance-of-the-peace rap and probation not to exceed 30 days.

A popular shortened version of the nap is the "doze." A doze may be voluntary wherein you try to grab the traditional 40 winks while pretending to be awake, leaving your eyes narrowed to slits and rolling your eyeballs back up in their sockets. This generally fools no one. If caught, it will be necessary to vigorously deny you were dozing, but that you were deeply pondering the Afghanistan problem and you resent having your train of thought interrupted by some smirking busybody. Again, nobody buys this.

The involuntary doze can be annoying to the dozer, if not downright hazardous. You are reading a book or magazine, say, and although the subject matter is riveting, after a few moments you become dimly aware you have not turned a page in 10 minutes. Worse yet, the material has fallen to the floor, leaving you with two empty hands poised in midair, your head cocked off to one side cutting off arterial flow to your brain. Snorting noises ordinarily associated with porcine truffle hunters have attracted a curious audience.

This is not funny. On more than one occasion I have suddenly snapped to, mouth open, chin dampened by a film of drool. Slowly emerging into focus is a coterie of small children from the neighborhood, gathered about in a semicircle to stare in fascination at "the funny man." Even the paramedics who arrived promptly in one instance, were skeptical, recording the event as "Run #321—hysteroid man claiming to be pondering the origin of something — Rx-one (1) No-Doz tablet." They sent me a bill for $800.

Obviously, Americans are not getting enough sleep. If further proof of this is required, watch any session of Congress where those public servants who had the misfortune to show up, slip off into quiet comas during impassioned speeches by colleagues. Now and again a member will arouse suddenly to clap vigorously as if fending off a mosquito, then lapse back into legislative quietude. Constituents take note: It is not what you think — this is heavy-duty thinking.

I could go on at length, but I am having difficulty staying awake. ■■■■

CDA JOURNAL, VOL 40, Nº3

Chasing 40 Winks

On more than one occasion I have suddenly snapped to, mouth open, chin dampened by a film of drool.

Robert E. Horseman, DDS

ILLUSTRATION BY DAN HUBIG

When I was a child, being put down for a nap was considered corporal punishment by my peer group. Right in the middle of an enjoyable morning in the sandbox banging a couple of pans together or digging small holes in the backyard in which to inter my sister's dolls, my mother would call from the back stoop, "Charlie, come in now for your nap!" I never answered because my name was Bobby.

Why she persisted in this fallacy, I never knew, but a therapist I was seeing years later suggested it was possible I spent the bulk of my free time down the street at Charlie's house where the cookies were more to my liking. Charlie, himself, was a noxious napaholic kid who did whatever his mother requested, dozing through high school and college eventually going into politics.

Nevertheless, my parental unit always got her way with the nap agenda in spite of my launching tempestuous heroics still verdant in the memory of the neighbors, many of whom sold their homes at a loss.

By the age of 5, I was planning to sever my familial ties. I would put myself up for adoption by compassionate foster parents who would see that I was entered into a free-form kindergarten where daily lie-downs under small blankies were not a requisite part of the curriculum. To a boy who fancied himself as a stellar soloist in the sand blocks, triangles and bird whistles section of the kindergarten band, naps were an unacceptable roadblock.

Fifty years later, having studied Shakespeare's words, most of which made no sense at all, that roadblock became not only acceptable, but an absolute passion.

"Sleep," wrote the Bard, *"that knits up the ravell'd sleeve of care."* Not exactly the way I would have put it. Incomplete sentences were outlawed in June of 1634, but still, as similes go, it's not bad.

CONTINUES ON 277

When you want your practice sales DONE RIGHT.

- **LOS ALAMITOS -** Established for over 35 year practice; private & PPO; USC grad seller; Asking $415,000 not including the accounts receivable.
- **IRVINE PERIO -** Asking $250,000; Great, very busy location! Great base of referrals and patients; Largely implant focused; 3 fully equipped ops; Digital X-rays.
- **PASADENA PEDO -** Asking $440k; Over 25 years of goodwill; On a major street with great visibility; All PPO and cash.
- **IRVINE -** Asking $350,000; Approx. 1,700 sq. ft.; 4 ops: 2 equipped; Across from The District, great location; Digital X-ray.
- **LAGUNA ENDO - SOLD!!!** Professional building, good starter practice with a solid referral base; Incredible location.
- **LAGUNA HILLS -** Price reduced to $150,000; 1400 sq. ft.; 4 ops: 3 fully equipped, 1 partially equipped; mostly PPO & cash; Very desirable location.
- **ANAHEIM HILLS -** Asking $360,000; Approx. 1900 sq. ft.; 5 ops: 4 fully equipped; Digital X-rays; Great visibility; Next door to Starbucks!
- **IRVINE - SOLD!!!** Asking $525,000; Located in professional building; 4 ops; Long-established; New equipment.
- **FULLERTON -** Asking $635,000; 1400 sq. ft.; 4 fully equipped ops; Digital X-ray; Storage unit; Professional building; Almost 40 years of goodwill!
- **WESTMINTER -** Established almost 40 years in the same location; 6 ops; Great visibility, main street; all PPO and cash; Confidentiality agreement required for info.
- **FULLERTON - SOLD!!!** Asking $610,000; 2,300 sq. ft.; 6 ops; Long established, tons of goodwill; Fantastic location, Close to Downtown; Seller is retiring.

Bette Robin, DDS, JD

DENTIST • ATTORNEY • BROKER

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