OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

AUGUST 2012

fluoridation

The CDA Foundation model to fluoridate communities

Getting all of your insurance through the most trusted source?

Good call.

Protect your business:

TDIC Optimum bundle

- Professional Liability
- Office Property
- Workers' Compensation

Protect your life:

- Life/Health/Disability
- Long-Term Care
- Business Overhead Expense
- Home and Auto

Protecting dentists. It's all we do.®

800.733.0633 tdicsolutions.com CA Insurance Lic. #0652783

Coverages specifically written by The Dentists Insurance Company include Professional Liability, Office Property and Workers' Compensation. Life, Health, Disability, Long-Term Care, Business Overhead Expense and Home and Auto products are underwritten by other insurance carriers and offered through TDIC Insurance Solutions.

tdic®

DEPARTMENTS

FEATURES

OF THE CALIFORNIA DENTAL ASSOCIATION

Journal

CDA Journal
Volume 40, Number 8
AUGUST 2012

Journal of the California Dental Association

published by the California Dental Association
1201 K St., 14th Floor
Sacramento, CA 95814
800.232.7645
cda.org

Reader Guide:

Upcoming Topics
SEPTEMBER: *General Topics*
OCTOBER: *General Topics*
NOVEMBER: *General Topics*

Classified Advertising
cda.org/classifieds

Display Advertising
Corey Gerhard
ADVERTISING MANAGER
Corey.Gerhard@cda.org
916-554-5304

Letters to the Editor
Kerry K. Carney, DDS
Kerry.Carney@cda.org

Permission and Reprints
Jeanne Marie Tokunaga
PUBLICATIONS MANAGER
JeanneMarie.Tokunaga@cda.org
916-554-5330

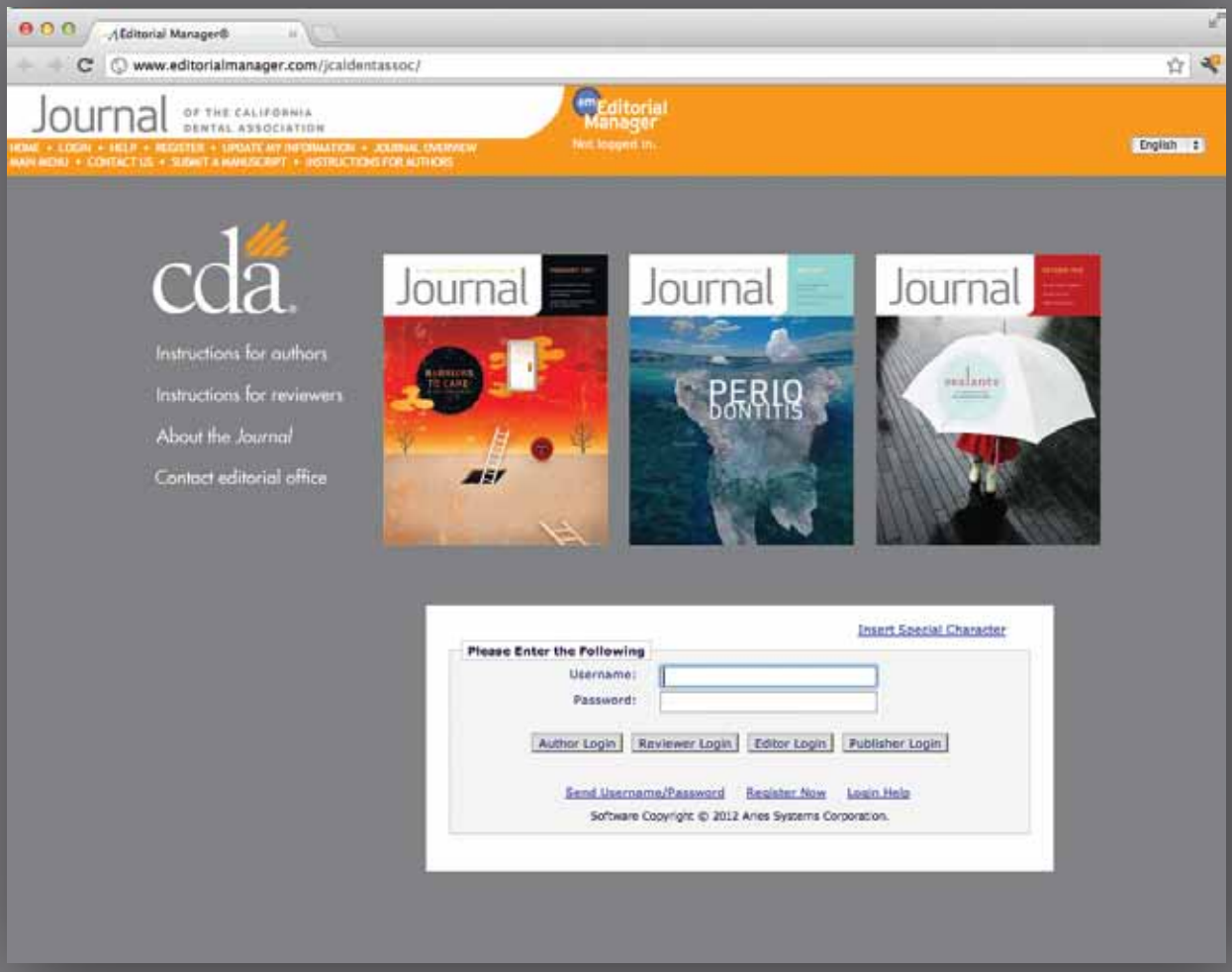
Manuscript Submissions
www.editorialmanager.com/jcaldentassoc

Subscriptions
The subscription rate is $18 for all active members of the association. The subscription rate for others is as follows:
Non-CDA members and institutional: $40
Non-ADA member dentists: $75
Foreign: $80
Single copies: $10
Subscriptions may commence at any time.
Please contact:
Crystan Ritter
ADMINISTRATIVE ASSISTANT
Crystan.Ritter@cda.org
916-554-5318

Journal of the California Dental Association (ISSN 1043-2256) is published monthly by the California Dental Association, 1201 K St., 16th Floor, Sacramento, CA 95814, 916-554-5330. Periodicals postage paid at Sacramento, Calif. Postmaster: Send address changes to *Journal of the California Dental Association*, P.O. Box 13749, Sacramento, CA 95853.

The Journal of the California Dental Association is published under the supervision of CDA's editorial staff. Neither the editorial staff, the editor, nor the association are responsible for any expression of opinion or statement of fact, all of which are published solely on the authority of the author whose name is indicated. The association reserves the right to illustrate, reduce, revise, or reject any manuscript submitted. Articles are considered for publication on condition that they are contributed solely to the *Journal*.

Submitting a manuscript to the Journal? There's a site for that.



In fact, from letters to the editor to reviews, the new site is now the only way to submit anything to the Journal of the California Dental Association. Upload your content, receive automatic status updates, even track progress anytime day or night. See for yourself at **www.editorialmanager.com/jcaldentassoc**

cda®

CDA JOURNAL, VOL 40, Nº8

We Need a Tooth Campaign

RUCHI K. SAHOTA, DDS, CDE

There are hundreds upon hundreds of them. They are marching through the city's streets, like lemmings walking toward a cliff — shuffling toward a cliff. Within seconds they reach their destination — a dark gray cement building. It houses a tobacco company. The camera pans out quickly. Blocks upon blocks are filled with people. All of a sudden, it happens. They drop to the ground. They're not breathing. They're dead. With helicopters and ambulances echoing in the background, a sign slowly emerges from the mass of body bags: "Tobacco kills 1,200 people a day."[1] The Truth Campaign's 2006 television commercial left quite an impact.

Television commercials dramatizing the notorious effects of tobacco started airing in 2000. These commercials personified the deadly statistics of people killed by smoking.

The commercials worked. An *American Journal of Public Health* article noted that the Truth Campaign's "hard-hitting ads … reached three-fourths of American youths" and resulted in a 22 percent decrease in the prevalence of youth smoking.[2]

Our profession needs to do the same. We need to wake up the state. California needs a tooth campaign. We have an extraordinary amount of dental disease. In 2000, the surgeon general highlighted the problem: tooth decay is the most common chronic disease among children, five times more common than asthma. Links between oral disease and sinus infections, heart disease, stroke, and lung problems were also emphasized.[3] And the statistics are endless. Two-thirds of our third-graders have tooth decay.[4] Almost 2 million Californians miss work or school each year due to dental problems.[5] More than 80,000 emergency room visits in California are due to dental disease.[6] Much of this disease is preventable. So, California needs a tooth campaign. Whether it is aimed at the soda companies or whether it is an all-encompassing anti-sugar crusade, the cavities of this state are in need of a movement.

More than 80,000 emergency room visits in California are due to dental disease. Much of this disease is preventable.

Most reports, whether conducted by a foundation or by a dental organization, prioritize increasing oral health literacy. Again, because tooth decay is largely preventable, oral health literacy plays a large role in the caries process. How do we bring tooth decay to the attention of the public? How do we continue to educate policy-holders of the link between the mouth and the rest of the body? What are the most effective methods to communicate these principles to our patients?

The U.S. Department of Human Health Services defines oral health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate oral health decisions."[7]

Where do we begin? The rise in the caries rate in preschoolers has been showcased in the national media recently. The *New York Times* reported that dentists have seen a remarkable increase in cavities amongst preschoolers in the last five years. The Centers for Disease Control and Prevention indicated that this increase is the first of its kind in 40 years.

Where is oral health in our state's schools' curricula? Many teachers I know improvise and design an "oral health" lesson plan themselves because most school systems do not have a formal oral health curriculum. There are plenty of resources on the Internet. The American Dental Association provides "Smile Smarts! An Oral Health Curriculum for Preschool – Grade 8." The California Childcare Health Program based in Oakland offers a set of printed materials: "Promoting Children's Oral Health: a Curriculum for Health Professionals and Child Care Providers." They are both easily accessible online and include lesson plans, workshop materials, and creative activities.

We talk about access. We want to increase dental benefits for those in need. We discuss opportunities to diversify our workforce. We want to find solutions. But what are the components of the access Venn diagram? Is it geography or socioeconomic status? Is it the quantity of our workforce? How does society's lack of understanding of oral health care affect California's access to care problem?

Increasing the oral health literacy level in our state is mentioned many times in CDA's "Access Report" passed by the House of Delegates in November 2011. The report points to low oral health literacy as a reason for the "poor utilization" of state-funded health programs. Not taking advantage of the benefits, no matter how scanty, leads to increased oral disease. Increased disease means untimely and perhaps more expensive dental care. The California Health

Interview Survey reports "25-30 percent of the population has difficulty accessing regular dental care — meaning nearly 10 million Californians are underserved in terms of oral health care needs."[8]

CDA's Access Report includes ensuring a stronger state oral health infrastructure with a new dental director who will promote projects increasing oral health literacy. Another objective in the report encourages initiatives that support community health workers as promoters of oral health literacy to ensure the information is well-integrated into the generations, segments, and cultures of our communities.

Our CDA is also working with the Ad Council to create a simple and hopefully memorable campaign to combat dental disease and pain. The campaign will empower parents and caregivers with information, but keep it simple. Concepts like brushing, flossing, good nutrition, and seeing a dentist regularly will be featured. "Healthy Mouths, Healthy Lives," will remind parents that children feel better and learn better when they have a clean bill of oral health.

How will these endeavors reach those who need it most? Public service announcements are on the radio and television, usually in English. Advertising principles differentiate between target and mass marketing. Focusing on a target market is often the first phase of a marketing strategy. California's highest caries rates are found in the state's minority populations whose primary caregivers may not list English as their first language. Mass marketing ignores various disparities. It sacrifices reaching those in crucial need to instead reach as wide an audience as possible. Thus, contributing insight to the Ad Council's oral health campaign is an important opportunity. Let's reach teachers. Let's reach moms who are unaware of the benefits of fluoride. Let's reach seniors. Let's reach those who do not have a dental home. Let's reach Californians with words in their language, with faces that are as diverse as them, and with a powerful sentiment that will make a difference. Let's start a tooth campaign. ■■■■

REFERENCES

1. TheTruth.com, The Truth – Body Bags TV Ad, July 4, 2006. youtube.com/watch?v=c4xmFcrJexk. Accessed June 5, 2012.
2. Farrelly M, Davis K, et al, Evidence of a dose — response relationship between "truth" antismoking ads and youth smoking prevalence. *Am J Pub Health*, volume 95:425-31, 2005.
3. U.S. Department of Health and Human Services, National Call to Action to Promote Oral Health, Rockville, Md., U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research. *NIH Publication* No. 03-5303, Spring 2003.
4. Dental Health Foundation, The California smile survey: an oral health assessment of california's kindergarten and third-grade children, February 2006.
5. UCLA Center for Health Policy Research, California Health Interview Survey, 2003.
6. California HealthCare Foundation, Snapshot: emergency department visits for preventable dental conditions in California, 2009.
7. Health Literacy in Dentistry Action Plan 2010-2015, American Dental Association.
8. California Dental Association, Phased strategies for reducing the barriers to dental care in California: California Dental Association Access Report, November 2011.

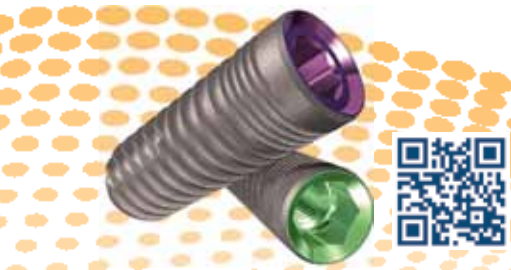
Tired of Price Increases on Over-Priced Implants?

Implant Direct
simply smarter.

It's Time for a Reality Check. Choose Implant Direct for...
Innovative Products. Great Value. Highest Customer Satisfaction[1]

Legacy™3 Implant
All-in-1 Packaging includes implant, abutment, transfer, cover screw & healing collar
$175 vs $621[2] from Zimmer Dental

✓ **Reality Check**
Zimmer Customers
Save $446 with Legacy3

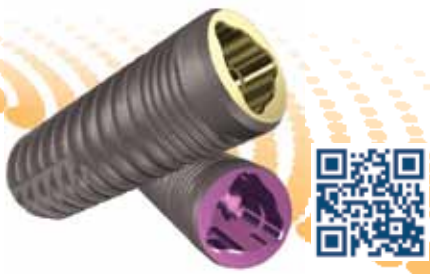


SwishPlant™ Implant
All-in-1 Packaging includes implant, straight abutment/transfer, cover screw & healing collar
$200 vs $705[3] from Straumann®

✓ **Reality Check**
Straumann Customers
Save $505 with SwishPlant

ReActive™ Implant
All-in-1 Packaging includes implant, abutment, transfer & cover screw
$200 vs $694[4] from Nobel Biocare™

✓ **Reality Check**
Nobel Customers
Save $494 with ReActive



Implant Direct's New Las Vegas Training Center

Implant Direct offers an extensive list of educational opportunities at its Las Vegas Training Center with computers at each desk for Image Guided Surgical Training, models/mannequins for hands-on training and a four chair dental office for live surgical demonstrations.

Debut Courses: September 13-15 | Nov 30-Dec 2

For information on courses and dates, both in Las Vegas and throughout the US, visit Implant Direct's website or use your smart phone to link directly to our Educational Section.

EARN 2 CE CREDITS FREE: View Online Lecture with 3D Graphic Videos & Answer 13 Test Questions

The Changing Reality of Implant Dentistry

Presented by Dr. Gerald Niznick

Technological advances and economic factors have shifted the implant industry toward affordable care.

www.implantdirect.com | 888-649-6425

Continuing education credits may not apply toward license renewal in all states.
It is the responsibility of each participant to verify the requirement of his/her states licensing board(s).
Price comparisons based upon US list prices as of February 2012. All trademarks are property of their respective companies.
[1]Satisfied among Current and Former Users, by Company US Q21 Millenium Research Group A Decision Research, Inc. Company
[2]US list price for Tapered Screw-Vent with micro grooves, healing collar & straight abutment
[3]US list price for SLActive Tapered Effect implant, closure screw, healing abutment, solid abutment, transfer and comfort cap.
[4]US list price for NobelActive with cover screw, impression coping & abutment
Live surgical demonstrations not available at all courses

CDA JOURNAL, VOL 40, Nº8

The Case for Zirconia Crowns

Dr. Annika Logart wrote a thoughtful letter to the editor ("Future Ramifications of Zirconia Crowns," *Journal of the California Dental Association* 40(6):463, June 2012) warning against the "love affair" with bonded zirconia and lithium disilicate restorations. I would like to respond from a statistical, technical, and philosophical standpoint.

Glidewell has widely publicized that demand for its Bruxzir zirconia crowns is skyrocketing, while demand for gold is dwindling to nothing. Glidewell's numbers suggest that zirconia is taking over the dental industry. I would suggest to many that the preponderance of full-contour zirconia that Glidewell is experiencing is because Glidewell was the first major laboratory to promote and produce them. This "first-to-market" advantage has given it strong name association. Additionally, it has heavily promoted the crowns in direct mail at a very attractive cost, even compared to its own fee-for-cast restorations or high-noble PFMs. This has undoubtedly attracted customers to Glidewell for Bruxzir, while not necessarily gaining it new business for other types of indirect restorations. Many dentists may be loading up Glidewell with zirconia work, and sending their PFM and gold work to the same old lab. To draw a general conclusion about the overall use of zirconia in the dental industry based on numbers from the most popular zirconia lab is like observing one hamburger chain and concluding that everyone is eating beef all the time.

On the technical front, today's full-zirconia crowns, as well as their Lava predecessors, contain no glass. Since they cannot be etched without silica, they cannot be silanated or bonded. (Bisco Z-Prime and Doxa Ceramir are both claiming to have achieved zirconia bonding; but much, much more research is required and neither product has achieved significant market share or mind share.) Conventional luting cement is recommended for Lava, and that continues to be the case with Bruxzir and its full-contour zirconia competitors. I have cemented many zirconia crowns and removed a few. Any dentist can remove a zirconia crown safely with a quality diamond bur, gentle hand pressure, copious irrigation, and a little more patience. Because zirconia crowns are cemented with luting agents just as PFMs and FGCs are, the same "section-and-split" technique works as well.

On the philosophical front, the marginal integrity and seal of a crown makes a bigger difference to its longevity than the material itself. That is why well-done PFMs are lasting just as long as full-gold crowns, and why lithium disilicate is, in fact, holding up well in long-term studies. A dentist who is "not so conscious" will make poorly fitting crowns regardless of the materials selected. A careful, detail-focused practitioner can achieve acceptable results with good preparations, accurate impressions, and a competent lab. The materials may change, but the fundamentals do not. I would argue that full-contour zirconia is the *only* alternative to a full-cast gold crown in situations where occlusal clearance is severely limited.

VU LE, DDS

Foothill Ranch, Calif.

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.*

You've built a practice as exceptional as you are. Now choose the optimum insurance to protect it.

TDIC Optimum

Anything but ordinary, Optimum is a professional bundle of products that combines TDIC's singular focus in dentistry, thirty years of experience and competitive multipolicy discounts. Creating the ultimate coverage to protect your practice, perfectly. And you wouldn't have it any other way.

TDIC Optimum Bundle
Professional Liability
Office Property
Workers' Compensation

Protecting dentists. It's all we do.®

800.733.0633
tdicsolutions.com
CA Insurance Lic. #0652783

tdic®

Be a Dental Practice 'Winner'

We live at such a frenzied pace that it's easy to forget the impact that actions, reactions, and behaviors can have on the perceptions others have of an office, according to a lecture by motivational speaker and author Dave Weber.

"What other people say about your practice is up to you," Weber said in his presentation at *CDA Presents* in Anaheim.

Attendees learned that in this economy, what separates one organization or practice from another often comes down to the professionalism and attitude of its people.

Expanding on the importance of a positive attitude, Weber compared traits of an office "winner" and "loser." According to the lighthearted speaker, the winner is always part of the answer; the loser is always part of the problem. The winner says, "Let me do it for you," the loser says, "That is not my job." The winner sees an answer for every problem; the loser sees a problem with ev-

CONTINUES ON 640

Bleaching Gels Leave Enamel Calcium and Phosphorus Concentrations Intact

Authors of a recent study have concluded that "home-use and in-office bleaching gels did not alter the concentrations of calcium and phosphorus concentrations on the enamel surface."

In an effort to clarify the effects of dental bleaching on enamel, authors of the study, published in the *Journal of the American Dental Association*, conducted their research to "determine calcium and phosphorus concentrations in enamel after the application of different bleaching treatments."

The in vivo study utilized 80 participants, separated into four groups of 20. The researchers studied the results of applying four home-use or in-office bleaching agents to the participants' enamel, according to the report.

After collecting enamel microbiopsy specimens from incisors before the bleaching treatment, the researchers applied 10 percent or 20 percent carbamide peroxide (both recommended for home use) and 38 percent or 35 percent hydrogen peroxide (both applied in the dental office). The authors collected enamel microbiopsy specimens again on days seven, 14, and 21 of treatment and again seven and 14 days after treatment.

Using a spectrophotometer, they analyzed calcium and phosphorus concentrations and found bleaching gels did not alter the concentrations of calcium and phosphorus concentrations on the enamel surface.

See the full report in the *Journal of the American Dental Association* 143(6):580-6, June 2012.

Characteristics of Professionals

- Enthusiastic
- Dependable
- Confident
- Open-minded
- Follow-through
- Professional
- Empathy
- Flexible
- Sincere
- Friendly
- Good listener
- Practical
- Team player
- Communicator

WINNER, CONTINUED FROM 639

ery answer. The winner says, "It may be difficult, but it is possible;" the loser says, "It may be possible, but it is too difficult."

With his lecture focusing on the critical issues needed to meet and exceed patient expectations, Weber discussed the importance of understanding the dental practice "customer" and explained characteristics of professionals and how to get everyone in the office on board.

Weber defined "the customer" as the most important person in any organization.

"The customer is not dependent on us — we are dependent on the customer. The customer should be considered part of the organization, not an outsider or a cold statistic — the customer is a human being with feelings and emotions like ours," said Weber. "Deserving of the most courteous and attentive treatment we can give, the customer does us a favor when they call, we are not doing them a favor by serving. The customer is not someone to argue or match wits with. The customer is the lifeblood of every organization — not an interruption of work, but rather the purpose of it."

From the moment a patient walks in, every position in a dental office impacts the patient's experience, so enthusiasm is important. "Every one of you is a giant toolbox. You have all these tools to use; the challenge is knowing when to use them," Weber said as he listed 14 traits of a professional (See box).

"Not everybody can do what you do," Weber said. "If you want your practice to run perfectly, you have to make excellence a habit."

Serrated Edges of *T. Rex* Teeth Varied Considerably

It is no surprise that the mouth of a *Tyrannosaurus rex* is filled with an array of flesh-ripping, bone-crushing teeth, and most researchers studying the carnivorous dinosaur — until recently — had only noted the varying sizes of its teeth.

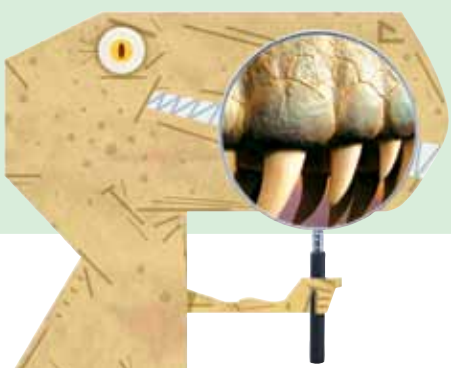
But University of Alberta paleontologist Miriam Reichel took a deeper look at the tyrannosaurid's teeth and found that "beyond the obvious size difference in each tooth family in *T. rex's* gaping jaw, there is considerable variation in the serrated edges of the teeth," according to a news release from the university.

"The varying edges, or keels, not only enabled *T. rex's* very strong teeth to cut through flesh and bone, the placement and angle of the teeth also directed food into its mouth," Reichel said in the news release.

Reichel analyzed the teeth of the entire tyrannosaurid family and found *T. rex* had the greatest variation in tooth structure, according to the report published in the *Canadian Journal of Earth Science*.

The findings revealed that "the angle between carinae contributes significantly to the variation in the tyrannosaurid tooth data set. Additionally, this variable showed a strong correlation to tooth function (and, consequently, to tooth families), rather than tooth size," the researchers wrote.

One surprising aspect of *T. rex* teeth, according to the university's statement, is that they weren't sharp and dagger-like.



"They were fairly dull and wide, almost like bananas," said Reichel. "If the teeth were flat, knife-like and sharp, they could have snapped if the prey struggled violently when *T. rex's* jaws first clamped down."

See full details of these findings in the *Canadian Journal of Earth Sciences*, 49(3), 2012.

FDA Reissues Warning About Teething Medication

The Food and Drug Administration (FDA) has reissued a warning about the use of benzocaine gels or liquids to relieve teething pain for children under age 2.

Benzocaine is a local anesthetic and can be found in such over-the-counter products as Anbesol, Hurricaine, Orajel, Baby Orajel, and Orabase.

FDA is warning parents and caregivers that the use of benzocaine gels and liquids for mouth and gum pain can lead to a rare but serious—and sometimes fatal—condition called methemoglobinemia, a disorder in which the amount of oxygen carried through the blood stream is greatly reduced. Adults with heart disease or breathing problems and smokers are also at greater risk for the disease.

According to the agency, since it first warned about potential dangers in 2006, FDA has received 29 reports of benzocaine gel-related cases of methemoglobinemia. Nineteen of those cases occurred in children, and 15 of the 19 cases occurred in children under 2 years of age, says FDA pharmacist Kellie Taylor, PharmD, MPH, in a news release.

FDA remains particularly concerned about the use of these OTC benzocaine products as parents may have difficulty recognizing the signs and symptoms of methemoglobinemia.

According to the FDA's warning, methemoglobinemia caused by benzocaine may require treatment with medications and admission to a hospital right away. If left untreated, or if treatment is delayed, FDA noted, methemoglobinemia may cause permanent injury to the brain and body tissues, and even death.For more information, visit fda.gov/ForConsumers/ConsumerUpdates/ucm306062.htm.

NYU Dental School Receives Grant for Periodontal Research

New York University College of Dentistry recently received a $1.8 million grant to research new ways to diagnose and fight periodontal disease. The school will use the grant, from the Forsyth Institute, to screen research subjects and collect biological samples for the project "Biomarkers of Periodontal Disease Progression," according to a statement from the university.

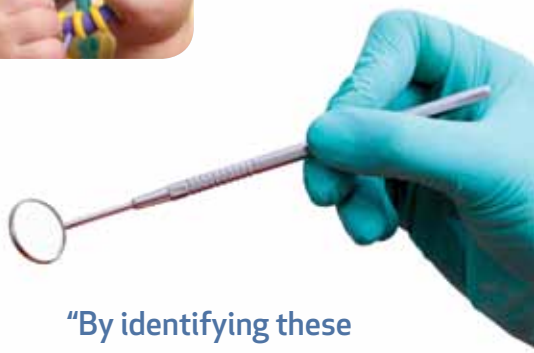
NYU College of Dentistry is one of five institutions selected to share a $20.7 million grant from the National Institute of Dental and Craniofacial Research (NIH) to the Forsyth Institute, an independent research organization that focuses on oral health.

The goals of the project are to increase the use of biomarkers to understand why people develop periodontal disease, what circumstances are most likely to progress the disease, and how treatment affects patient biomarkers.

"Biomarkers are factors in people's blood, dental plaque, saliva, or tissue that might indicate that they are more susceptible than others to developing periodontal disease," said Patricia Corby, DDS, MS, principal investigator on the NYU College of Dentistry grant, in a news release. "By identifying these factors, we will be able to design more specific treatments for this condition; thus we're changing the paradigm of how we diagnose and treat periodontal disease."

According to the news release, researchers will also be exploring a novel approach to treat periodontal disease.

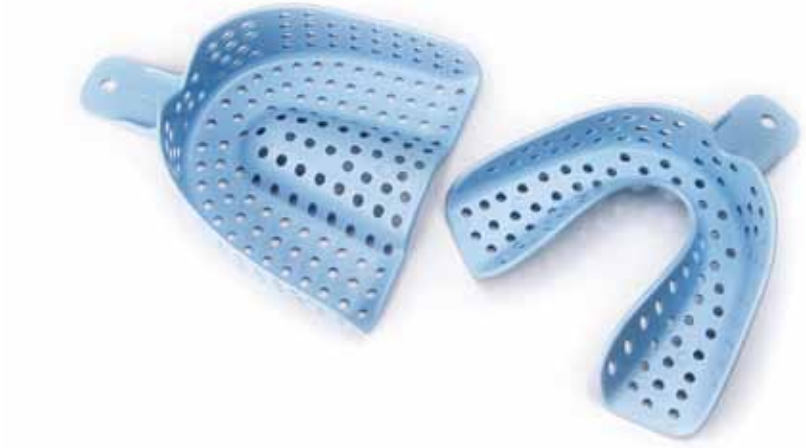
For more information on the grant and how it will be used, visit nyu.edu/dental/news/index.html?news=262.



"By identifying these factors, we will be able to design more specific treatments for this condition; thus we're changing the paradigm of how we diagnose and treat periodontal disease."

PATRICIA CORBY, DDS, MS

You're a genius at taking impressions.



Now, let's work on raising that patient communications IQ.

When it comes to talking to patients about financial or treatment options, it's important that everyone on your team is on the same page. Thankfully, there are sample scripts conveniently located on CDA's Compass. From new patient appointments to third-party financing, there are plenty of valuable resources that will have your office running smarter than ever.

cdacompass.com | where smart dentists get smarter.℠

cda® COMPASS

Tooth Scaling Associated With Decreased Cardiovascular Disease

Recent study results showed an association between regular tooth scaling and a decreased risk of future cardiovascular events.

"Poor oral hygiene has been associated with an increased risk for cardiovascular disease," authors of the study wrote. "However, the association between preventive dentistry and cardiovascular risk reduction has remained undetermined."

Using a nationwide, population-based study and a prospective cohort design, the research team aimed to "investigate the association between tooth scaling and the risk of cardiovascular events."

H-B. Leu, MD, of Taipei Veterans General Hospital, and colleagues selected participants aged at least 50 years from the nationally representative Taiwan National Health Insurance Research Database.

Authors of the study, published in the *American Journal of Medicine*, used 10,887 subjects who had received full-mouth or localized tooth scaling and compared them to 10,989 subjects who had not received any tooth scaling. The group of participants exposed to the scaling was then propensity-score matched to the nonexposed group.

After following the subjects for an average period of seven years, the authors reported finding that the group that had undergone tooth scaling had a lower incidence of acute myocardial infarction, stroke, and total cardiovascular events.

"Furthermore, when compared with the nonexposed group, increasing frequency of tooth scaling correlated with a higher risk reduction of acute myocardial infarction, stroke, and total cardiovascular events," authors wrote.

Oral Health Education Videos, Brochures Available for ADA-Member Websites

In response to member requests, the American Dental Association is creating electronic versions of its popular patient education videos and brochures. Through a new resource library called *PatientSmart,* the materials will be available for ADA-member dentists to display on their websites.

The new online library was developed with simplicity and ease of use in mind and contains concise patient education web content that can be accessed directly from a dentist's homepage by adding an "easy-to-install button," according to a news release from the ADA.

To help educate their patients about good oral health, dentists can use the *PatientSmart* videos and printable web pages that cover 26 oral health topics created by the ADA and include the following categories:

- Home care
- Kids and babies
- Periodontal (gum) disease
- Improving your smile
- Restoring and replacing teeth
- Other dental issues (e.g., emergencies, extraction, etc.)

PatientSmart users can choose the topics to display on their websites and have the ability to email content to their patients.

For more information, visit the *PatientSmart* website at ada.org/patientsmart.

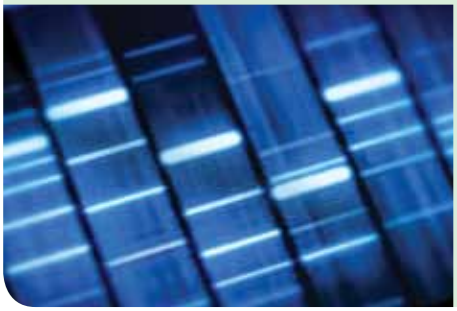
Gene Identified in Development of Facial Cleft Birth Defects

Birth defects such as facial clefts can be the result of both gene mutations and environmental insults. A recent study, published in *Experimental Biology and Medicine*, found that Prdm16, a transcription factor originally described as being aberrantly activated in specific types of leukemias, "may play a role in differentiation of mesenchymal cells in the embryonic secondary palate that contribute to the anterior, bony palate, and posterior, muscular palate," researchers reported.

The study, led by Dennis Warner, PhD, and his coinvestigators at the University of Louisville Birth Defects Center, utilized a chromatin immunoprecipitation-promoter microarray analysis to identify genes regulated by Prdm16 in cells isolated from the secondary palate of mouse embryos.

"Prdm16 regulates differentiation of brown adipocyte tissue in mice. Recently, however, it has been demonstrated that genetic knockout of Prdm16 in mice leads to a complete cleft of the secondary palate in offspring," the authors wrote.

The research team identified more than 100 genes whose promoters were bound by Prdm16. These genes were found to be linked to such diverse processes as chromatin remodeling and muscle and bone development, according to a news release. The study found that loss of Prdm16 expression led to a significant decrease in the expression of osteopontin, a marker for bone formation, and an increase in the expression of Myf-4, a marker for muscle development.



See the study published in *Experimental Biology and Medicine* 237(4):387-94, April 2012.

U.S. Knowledge of Oral Health Leaves Room for Improvement

In a recent online survey from the American Dental Association, nearly 1,500 U.S. consumers were surveyed about their knowledge of oral health and hygiene. According to the ADA, "No one aced the test."

Scores ranged from a high of 85 percent correct to a low of 29 percent with an average score of 60 percent correct — leaving much room for improvement when it comes to patient oral health education.

According to a news release from the ADA, included among select findings, the survey concluded that:

- Those consumers who are caregivers with children in the home scored slightly higher;
- Women scored higher than men by 4 percentage points;
- Higher formal education equated to a higher score. Those with a college degree scored 62 percent and those without a high school diploma scored 55 percent. The range of scores increased progressively with more education; and
- Higher incomes also scored higher, except among Hispanics where income made no difference.

When it came to the following topics, consumer knowledge was actually pretty good: what is gingivitis? (95 percent were correct); your mouth changes as you get older (93 percent correct); pregnant women should pay extra attention to their dental health (92 percent); and denture wearers still need to visit the dentist (92 percent).

On the other hand, consumer knowledge was not so good on when children should be able to brush their teeth (only 6 percent were correct); whether one should brush after every meal (10 percent correct); whether sugar causes cavities (19 percent); and at what age a child should have their first visit to a dentist (25 percent).

The survey also asked consumers for their opinion on a number of oral health topics, which yielded the following results:

According to the ADA, "No one aced the test."

- Eighty-three percent of households still participate in tooth fairy rewards;
- Eighty-five percent of respondents indicated that a good smile is extremely or very important for finding a job;
- One in five have shied away from a social event because of problems with their teeth;
- Regarding physical attractiveness, a nice smile outweighed skin, eyes, hair, and build or figure as the most important attribute; and
- Consumers will be able compare their scores with the national average by testing their "Dental IQ" with a condensed version of the survey on MouthHealthy.org.

See the news release from ADA at ada.org/news/7181.aspx.

Graphic Warning Labels More Likely Remembered

Adding graphic warning labels on cigarette packages can increase the likelihood that people will recall the warning and health risks associated with smoking, according to researchers from the Perelman School of Medicine at the University of Pennsylvania.

A first of its kind, the study was published online first in the *American Journal of Preventive Medicine*.

The research team used 200 randomly selected smokers who viewed either a text-only warning label such as those used in the United States since 1985, or a graphic warning label that included an image of a hospitalized patient on a ventilator and a written warning in larger text, according to a news release from the school. The graphic label was similar to what the U.S. Food and Drug Administration has proposed be adopted in the United States.

After viewing the ads, subjects were asked to rewrite the label's text from memory to show how well they remembered the information. Fifty percent of participants correctly recalled the text-only ad while 83 percent remembered for the graphic-label group, researchers reported.

"In addition to showing the value of adding a graphic warning label, this research also provides valuable insight into how the warning labels may be effective, which may serve to create more effective warning labels in the future," said lead author Andrew Strasser, PhD, in the news release.

In addition, researchers found that the quicker a smoker looked at the large text in the graphic ad, and the longer they viewed the graphic image, the more likely they were to recall the information correctly, the news release stated.

Authors of the study said the results of the study suggest that "drawing attention to the warning label can improve recall of health relevant information, which may extend to improving risk perception of smoking."

Strasser and colleagues noted in the news release that the current study was designed to measure only short-term recall of the graphic warning information and that further research to evaluate long-term recall and behavior changes are currently underway at Penn.

For more information or to read the full news release, visit uphs.upenn.edu/news.

UPCOMING MEETINGS

2012	
Sept. 30–Oct. 3	National Primary Oral Health Conference, La Jolla, Calif., nnoha.org/conference/npohc.html
Oct. 18–23	ADA 153rd Annual Session, San Francisco, ada.org
Oct. 26–28	California State Association of Endodontists biennial meeting, Newport Beach, Calif., 415-577-2760
Nov. 4–10	U.S. Dental Tennis Association, Tuscon, Ariz., 800-445-2524 or dentaltennis.org
2013	
Feb. 7–9	20th anniversary Conference and Exhibition, Academy of Laser Dentistry, Palm Springs laserdentistry.org
April 7–13	U.S. Dental Tennis Association, TOPS'L Resort, Destin, Fla., 800-445-2524 or dentaltennis.org
April 11–13	*CDA Presents the Art and Science of Dentistry, Anaheim*, 800-CDA-SMILE (232-7645), cdapresents.com
Aug. 15–17	*CDA Presents the Art and Science of Dentistry*, San Francisco, 800-CDA-SMILE (232-7645), cdapresents.com
Oct. 31–Nov. 5	154th Annual Session, New Orleans, ada.org/session
Nov. 3–9	U.S. Dental Tennis Association, Big Island, Hawaii, 800-445-2524 or dentaltennis.org

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

cda® PRESENTS

The Art and Science of Dentistry

Save the dates

CDA Presents. The nation's premier dental convention.

- Nearly 600 exhibiting companies
- More than 100 new product introductions
- Dynamic speakers
- Exciting attractions in Anaheim and San Francisco

▶ **cdapresents.com**

Like us
facebook.com/cdafan

#cdaSF
#cdaOC

Download the new show app!

San Francisco, California
No meeting in 2012
due to ADA Meeting
August 15-17, 2013
September 4-6, 2014

Anaheim, California
April 11-13, 2013
May 15-17, 2014

CDA JOURNAL, VOL 40, Nº8

The CDA Foundation Model to Fluoridate Communities

MARJORIE STOCKS, MPH, AND HOWARD POLLICK, BDS, MPH

ABSTRACT California's population receiving the benefits of fluoridated public water supplies has increased from 15.7 percent to 62.1 percent in the past 20 years.[1,2] This growth has been achieved through a broad-based coalition of organizations and individuals, starting with the creation of the California Fluoridation Task Force in 1994 and supported by the California Fluoridation Act of 1995. This paper describes the process whereby the most recent gains have been made in San Diego and are ongoing in San Jose.

AUTHORS

Marjorie Stocks, MPH, is the fluoridation consultant for the California Dental Association Foundation and serves as a member of the National Strategy Workgroup, PEW Center on the States, Campaign for Dental Health. *Conflict of Interest Disclosure: None reported.*

Howard Pollick, BDS, MPH , is a health sciences clinical professor, University of California, San Francisco, School of Dentistry, and chair of the Fluoridation Advisory Council, California Dental Association Foundation. *Conflict of Interest Disclosure: None reported.*

It is no accident that California has the greatest increase of all the 50 states in the number of residents receiving fluoridated water.[3] This phenomena is largely the result of succesful broad-based coalitions involving both the California Dental Association and the California Dental Association Foundation. Previous articles in the *Journal of the California Dental Association* have highlighted the long and strong support by the CDA for fluoridation in California, including sponsoring the two bills that lay out the requirement, AB 733 and SB 96.[4] Additionally, CDA has expended significant resources on legal challenges that support fluoridation and have clearly established the precedent that local ordinances do not supercede state law.

Years of experimentation and hard work have shown that a three-phase approach of strategy, advocacy, and policy-making often spells success. San Diego, formerly the largest city in the nation without fluoridation, implemented it in February 2011. San Jose is now the largest community in the country without fluoridation. The CDA Foundation is currently working with The Health Trust in San Jose to fluoridate its water supply. The methods employed in San Diego and San Jose exemplify the CDA Foundation's model to achieve fluoridation.

This article describes the gains made in fluoridation in California within the last decade, outlines the methods used by community advocates who receive grass roots training from the CDA Foundation to achieve fluoridation, and illustrates those methods with specific examples from San Diego and San Jose. Fluoridation has been mandated in California since 1995 in water systems with 10,000 connections or more when funds are provided from a source other than the ratepayers or taxpayers.[5]

In 1999, the California Endow-

CDA JOURNAL, VOL 40, Nº8

BOX

The concept for fluoridation of California cities was developed and refined over many years and involved a broad-based coalition of agencies and individuals. That coalition included the Fluoridation Task Force, the State Office of Oral Health, the Dental Health Foundation (now the Center for Oral Health), Delta Dental, the CDA, and various representatives from academia. The model described in this paper was based on a decade of hard work by all of the above.

ment awarded $15 million to a consortium led by the state to fund capital infrastructure for fluoridation. The CDA Foundation served as the fiscal intermediary for the project. With that funding, several cities and water systems were funded totally or in part, including Los Angeles, the Metropolitan Water District of Southern California, Mountain View, Sacramento, the San Francisco Public Utilities Commission at Sunol Valley, and Santa Monica.[6]

The collective experiences of advocates realized in these gains led to the development of a model by the CDA Foundation to fluoridate community water supplies (**BOX**). That model consists of three phases: strategy, advocacy, and policy-making. The creation of a proposed strategy draws on knowledge gained from prior experience. Local advocates are called upon to form a leadership team that "fine tunes" this strategy to reflect the community's unique conditions. Broad-based support is garnered by the team, and advocacy methods known to be effective in that community are employed. The team adjusts this cyclical process of strategy and advocacy until a policy is created.

Phase 1: Strategy

Developing strategy begins with a regional assessment to review the physical structure of the water systems, their governance, and the geopolitical boundaries involved. Prior media coverage is evaluated to determine pro and con elements that may influence a governing body's decision to fluoridate. Investigating the interrelationships and distribution of the water systems serves to contain costs since both wholesale and retail water systems are frequently involved in the delivery of treated water to a metropolitan area. Often, engineers and decision-makers prefer a regional over local solution to fluoridation. This was true with the fluoridation of the Metropolitan Water District in Southern California. The fluoridation of that major wholesale water system saved downstream retail systems more than $40 million in the installation of capital equipment.[7] For the city of San Diego alone, at least $5 million was saved.[8]

An executive team or steering committee is required to develop a strategic plan and to spearhead and monitor the defined activity. The path from interest in fluoridation to implementation of a system often takes years. This requires a committed team willing to manage the week-to-week developments with significant oversight. Also, if capital funds are not identified for fluoridation, the challenge of raising funds can fall to the executive team.

A local needs statement is developed early in the process to illustrate the status of oral health in the selected community. Fluoridation is proposed as one remedy to address the problem of dental decay. Often, elected officials and key influential individuals are not aware of the extent of the oral health problem in their community, particularly among young children. A needs statement that rests on local data informs them about the tooth decay epidemic while addressing the cost savings that can be achieved with fluoridation.

In addition to concrete information, effective strategy requires development of a broad base of support. Often the endeavor begins with the dental community. However, dentists understand the need to collaborate with other health care providers, business elements, and organizations that serve children, families, and seniors. Proponents have become well-acquainted with the scientific evidence by the time they make the case for fluoridation. Data demonstrating the safety and efficacy of fluoridation provide the scientific foundation on which individuals and local agencies base the decision to fluoridate their community water supply.[9]

A communication strategy is crafted that may include educating reporters and editorial boards. Local proponents are encouraged to stay on message by focusing on the oral health problem that exists in the community. Fluoridation is described as the single most important community-based approach to help prevent tooth decay.[10] The science of fluoridation is sound and local advocates are provided with information and data to address the arguments of anti-fluoridation misinformation.

Phase 2: Advocacy

Advocacy is variously applied to many public health issues, but some elements are essential to the CDA Foundation model. Fluoridation advocacy will involve a core group of individuals and agencies working toward a common goal — in this instance, local health policy. Many advocates are volunteers, so maintaining motivation is essential. The strategic plan will provide clarity to local proponents about direction and timing, minimizing frustration, and keeping everyone on track.

Once the initial strategic plan is agreed upon, which includes anticipating who will support and who will oppose fluoridation, active advocacy can begin. The first step is often educating local leaders and decision-makers. The dialogue typically centers on the need for fluoridation, as documented by local data, the safety and benefits of fluoridation, and initial cost projections for installing and operating the system. Education of residents is often low-key in the beginning, conducted principally by dentists, dental hygienists, and pediatricians.

Consumers need to be able to approach their health care providers with questions. A one-on-one conversation with a trusted health provider can be the most informative way for consumers to learn about fluoridation. It is important to note that many residents believe their water supply is already fluoridated, as was revealed, for example, in a recent survey in Santa Clara County conducted by the County Health Department.[11] The survey revealed the extent of misinformation on fluoridation status, with 76 percent of adults on public water systems believing their water was fluoridated, while in reality only 21 percent have access to fluoridated water.

When it comes to fluoridation, sound science provides the foundation of advocacy. Therefore, the advocacy team should always include at least one scientific expert, preferably a dentist, physician, or professor of dentistry, medicine, or public health. These experts will play a vital role in communicating the science of fluoridation and responding to questions from members of a city council or a board of directors of a water system. Responding promptly and effectively to misinformation is essential in the dialogue with decision-makers and the media.

Phase 3: Policy-Making

Local policy to fluoridate is the purview of the governing body of the water system, usually a board of directors or a city council. Public hearings are preferred and are often required prior to policy development. At the hearings, presentations in support of fluoridation by scientific experts and community groups are aired along with local opposition.

When policy-makers decide to proceed with fluoridation, design and construction can begin—if funding is available. If funds are not available, then the advocates of fluoridation must initiate fundraising efforts (see the section on "Capital Funding").

WHEN IT COMES to fluoridation, sound science provides the foundation of advocacy.

Recent Examples of the CDA Foundation Model

San Diego

Significant gains in fluoridation were realized in Southern California from 1999 to 2009, with San Diego being the only major exception. As noted above, however, fluoridation was finally implemented in San Diego in February 2011.[12]

The strategy for San Diego hinged on creating a steering committee, led by retired state Sens. Dede Alpert and Lucy Killea, which included health care, business, and academic leaders. While funds had been earmarked for San Diego in the initial California Endowment award, they were diverted to fluoridate the Metropolitan Water District. So, the initial task of the steering committee was to raise the capital funds needed to install equipment at the city's treatment plants. A potential sponsor was determined to be the First 5 Commission of San Diego County, which receives its funds from tobacco tax revenues collected by the statewide commission, First 5 California.[13] These funds are earmarked for children between the ages of newborn and 5, a good fit for fluoridation.

Through the leadership of Sens. Alpert and Killea, and with support from San Diego Supervisor Ron Roberts, approximately $4 million in funding was obtained from First 5 San Diego to cover the capital and initial operating costs of the city's three treatment plants.[14] Dating from 1954, the city of San Diego had an ordinance opposing fluoridation, but the award of funds required the city to move forward with fluoridation, since state law supersedes a local ordinance.[15]

It is important to note that previous attempts to fluoridate San Diego had failed, since, in addition to legal complications, complex engineering requirements had stalled the negotiations. These engineering requirements were simplified when the Metropolitan Water District of Southern California (MWD) began to provide treated fluoridated water to San Diego through the San Diego County Water Authority. Although this fluoridated water was diluted when it was mixed with water from the city's three treatment plants, this suboptimal fluoridation was the first step in the regional solution to optimally fluoridate the city of San Diego. Fluoridation of the city's three treatment plants was then all that was required to bring the city's treated water to an optimal level for caries prevention. The fluoridation of MWD

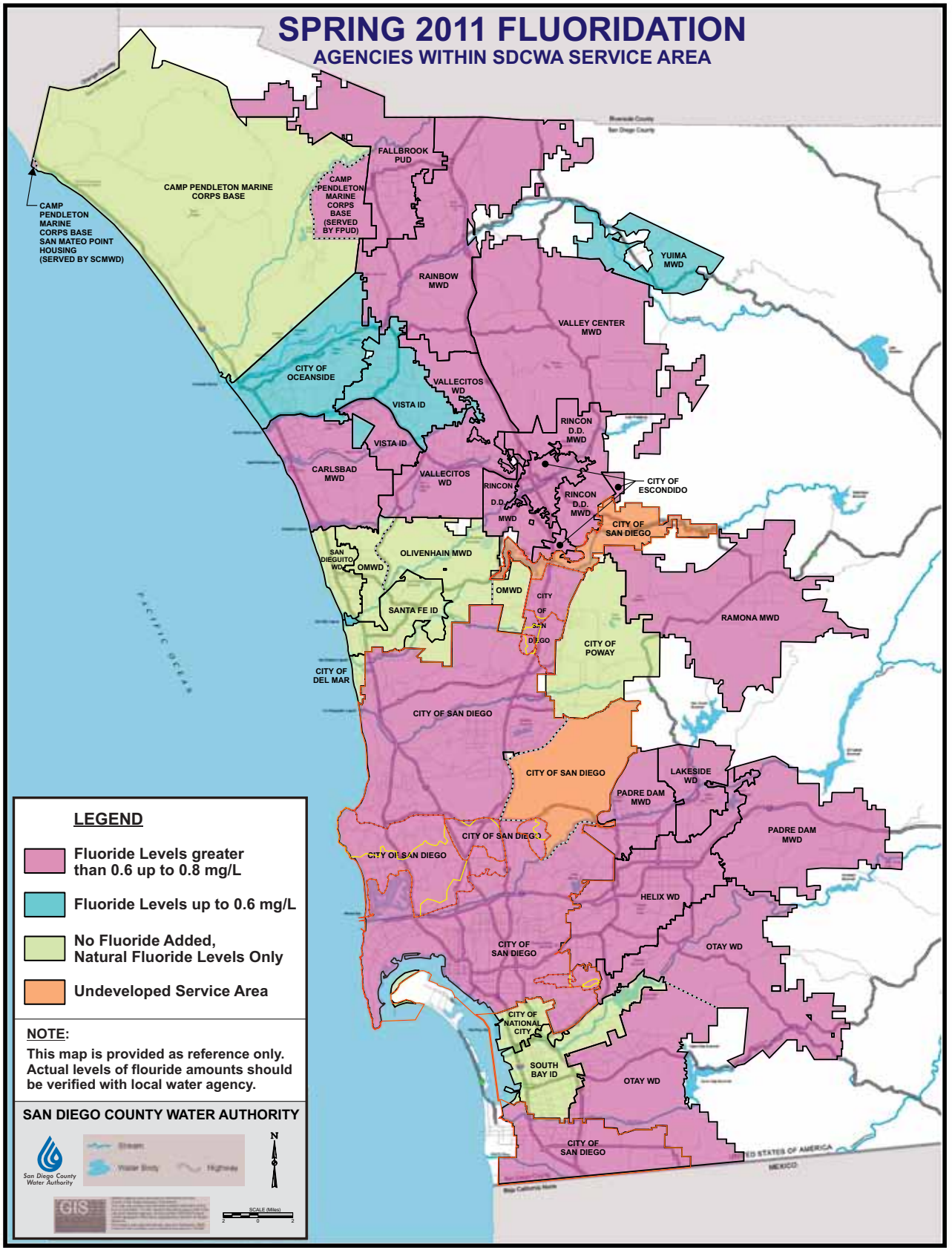


FIGURE 1. Spring 2011 fluoridation agencies within SDCWA service area.

significantly reduced the capital costs to fluoridate San Diego. With the capital costs reduced, the First 5 Commission of San Diego County was able to award the required funding to the city (**FIGURE 1**).[16]

San Jose

With fluoridation now delivered to San Diego's 1.3 million residents, San Jose is the largest city in the nation without the benefits of fluoridated water. Following is a status report on the progress of the advocacy in Santa Clara County.

In 2006, The Health Trust (THT) commissioned the CDA Foundation to conduct a regional assessment of the possibility of fluoridating the water systems serving the city of San Jose. That assessment, which analyzed the political pros and cons of the issue, revealed that two major water systems serve the city: the Santa Clara Valley Water District, which is the wholesale system that serves Santa Clara County; and the San Jose Water Company, a publicly traded retail system governed by the California Public Utilities Commission (CPUC).

In 2008, Frederick Ferrer, the CEO of THT, requested the CDA Foundation develop a strategy for implementing its recommendations to fluoridate the systems. Ferrer then joined with Marty Fenstersheib, MD, MPH, the county health officer, to form an executive team to guide the project. The team then garnered significant community support from People Acting in Community Together (PACT), an interfaith-based advocacy group, as well as the Silicon Valley Leadership Group, which represents more than 300 businesses in Silicon Valley. In addition, the Pew Center on the States provided public relations and social marketing expertise, as well as financial assistance, to

THT as part of its national initiative on oral health. THT has developed a useful website to promote fluoridation.[17]

Rough capital estimates were obtained for the two water systems: $6 million-$10 million for the Santa Clara Valley Water District; and $14 million-$23 million for the San Jose Water Company. This latter cost estimate includes the more than 100 wells that provide 40 percent of the SJWC water supply.[18] The Santa Clara Valley Water District has held two workshops on fluoridation for its Board of Directors and the public. Just before the second workshop, which was held March 22, 2011, a supportive opinion piece appeared in the *San Jose Mercury News*, coauthored by Emily Lam, a senior director at the Silicon Valley Leadership Group, and Jolene Smith, the executive director of the First 5 Santa Clara County.[19] At a later hearing on Nov. 15, 2011, the Valley Board voted unanimously to "provide fluoridated drinking water at the district's three water treatment plants and the Campbell well field."[20]

Epilogue

Capital Funding

One primary challenge in Santa Clara County is the need for capital funding for installing fluoridation equipment. The funding requirements for major water systems in California are usually in the millions of dollars, so identifying potential funding sources can be part of the local strategy. The $15 million that The California Endowment awarded to develop capital infrastructure for fluoridation equipment has already been appropriated.

The First 5 Commissions in San Diego, Sacramento, Los Angeles, and Santa Clara Counties awarded considerable funds to water systems for capital infrastructure for fluoridation equipment. However, Assembly Bill 99, which required all county First 5 Commissions to remit approximately half of their funds to the state by June 2012, threatened available capital funding for fluoridation.[21] But legal challenges by First 5 Commissions to the bill were successful and the funds were restored to local services.[22]

The Role of Organized Dentistry

The CDA, the CDA Foundation, and the component dental societies are often the first to voice the need for fluoridation in a community. For example, dialogue persisted for years at the component societies in San Diego and Santa Clara counties before resources were developed to sustain the advocacy effort. The task is daunting, since any local team typically has the dual requirements of raising the funds needed to assist with capital costs and of creating support through education.

The CDA Foundation houses the California Fluoridation Advisory Council, which provides technical expertise to local advocates. Engineers and other scientific and technical experts meet regularly to share progress and consider challenges. In addition, the CDA has been proactive in providing the legal resources necessary to address opposition to fluoridation in the courts.

The continued gains in California in the number of people receiving fluoridation reflect the resources allocated to the venture. Highly skilled local teams work in conjunction with the California Fluoridation Advisory Council to create a technical infrastructure. This layered strategy, always attuned to local, state, and national trends, grounds the process of advocacy. In metropolitan communities in California, a multiyear effort is required to fluoridate any major water system. Sustained application of human and financial resources over several years is key to success. ■■■■

REFERENCES

1. U.S. DHHS. Fluoridation Census 1993.
2. CDC 2010 Water Fluoridation Statistics. cdc.gov/fluoridation/statistics/2010stats.htm. Accessed June 22, 2012.
3. California Recognized for Fluoridation Efforts, prweb.com/releases/CDA_Foundation/fluoridation/prweb4562514.htm. Accessed June 4, 2012.
4. AB 733 (1995), leginfo.ca.gov/pub/95-96/bill/asm/ab_0701-0750/ab_733_bill_951010_chaptered.html; SB 96 (Alpert 2004), http://www.leginfo.ca.gov/pub/03-04/bill/sen/sb_0051-0100/sb_96_bill_20040924_chaptered.pdf; Boyd J, Fluoridation: anatomy of a campaign. *J Calif Dent Assoc* 25(1):28-36, January 1997; Conley LF, Sound science times three. *J Calif Dent Assoc* 27(6):431-3, June 1999; Jones DG , 1999 year in review. *J Calif Dent Assoc* 28(1):36-40, January 2000; Conley JF, It's all about smiles. *J Calif Dent Assoc* 32(2):105-6, January 2004; Nelson DF, Fluoridation and public health. *J Calif Dent Assoc* 33(10):767, October 2005; CDA, Community fluoridation: policy statement. cda.org/page/Community_Fluoridation; CDA Foundation, Fluoridation. cdafoundation.org/Learn/Advocacy/Fluoridation.aspx. Accessed June 22, 2012.
5. cdph.ca.gov/programs/Pages/CommunityWaterFluoridationProgram.aspx. Accessed June 4, 2012; AB 733 (1995) leginfo.ca.gov/pub/95-96/bill/asm/ab_0701-0750/ab_733_bill_951010_chaptered.html. Accessed June 22, 2012.
6. The other cities and water systems include Daly City, Escondido, the Helix Water District in San Diego County, and Santa Maria.
7. Metropolitan Water District of Southern California. Fluoridation fact sheet. mwdh2o.com/fluoridation/FluoridationFactSheet.pdf; *Los Angeles Times* Water agency OKs fluoride, Feb. 12, 2003. articles.latimes.com/2003/feb/12/local/me-fluoride12. Accessed June 22, 2012.
8. Fluoridation is coming to San Diego County. *San Diego Union-Tribune*, Sept. 16, 2007. signonsandiego.com/uniontrib/20070916/news_1n16fluoride.html. Accessed June 4, 2012.
9. American Dental Association. Fluoridation facts, 2005. ada.org/sections/newsAndEvents/pdfs/fluoridation_facts.pdf; see especially Questions 17-19. Accessed June 4, 2012.
10. Santa Clara County Public Health Department, Water fluoridation and public health powerpoint. healthtrust.org/services/dental/WaterFluoridationPublicHealth-KipDuchon.pdf (slide 14). Accessed June 4, 2012.
11. Santa Clara County Health Profile 2010, page 47. http://www.sccgov.org/SCC/docs/Public%20Health%20Department%20(DEP)/news/attachments/SCC_Health_Profile_Report_7.20.10.pdf. Accessed June 4, 2012.

12. San Diego Dental Society, Fluoridation: brief history of fluoridation in California and San Diego. sdcds.org/Articles/21/brief-history-of-fluoridation-in-california-san-diego/34.
13. First 5 San Diego. Community water fluoridation. http://www.first5sandiego.org/community-water-fluoridation. Accessed June 22, 2012.
14. At the time of the request, Ron Roberts was the chair of the San Diego County Board of Supervisors and concurrently the chair of the First 5 Commission of San Diego County.
15. City of Watsonville versus State Department of Health Services (35 Cal.Rptr.3d 216 [2005] 133 Cal.App.4th 875). scholar.google.com/scholar_case?case=10237484356007094509&q=City+of+Watsonville+v.+State+Department+of+Health+Services.&hl=en&as_sdt=2,5&as_vis=1. Accessed June 4, 2012.
16. Credit for the fluoridation of the city of San Diego belongs to many organizations and individuals. Principal among the former are the San Diego County Dental Society; the San Diego Dental Health Foundation; and the San Diego Fluoridation Coalition. Individuals who must be mentioned include Richard Hancock, DDS; Lester Machado, DDS, MD; and Eleanor Nadler, RDH, MPH.
17. Health Trust, Water fluoridation in Silicon Valley. healthtrust.org/services/dental/oralhealth.php. Accessed June 4, 2012.
18. San Jose Water Company. Water supply. http://www.sjwater.com/for_your_information/education_safety/water_supply/. Accessed June 22, 2012.
19. Lam E, Smith J, Fluoridation in San Jose will save kids' misery, taxpayers' costs, *San Jose Mercury News*, March 18, 2011.
20. Santa Clara Valley Water District, 2011 Board Meeting Minutes. valleywater.org/About/2011_Board_Meeting_Minutes.aspx. Accessed June 14, 2012.
21. Assembly Bill No. 99. leginfo.ca.gov/pub/11-12/bill/asm/ab_0051-0100/ab_99_bill_20110324_chaptered.pdf. Accessed June 4, 2012.
22. First 5 Association of California, Prop 10 briefings, April 2012. f5ac.org/files/April%202012%20Prop%2010%20Briefings.pdf. Accessed June 14, 2012

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT mstocks@cda.org.

ASK THE BROKER

Yes, that's actually me doing dentistry for the first time in 12 years! (It's really like riding a bike!) I recently had the honor and privilege to go on a medical/dental mission trip to Kenya. We traveled with 5 doctors, 3 dentists including Mona Chang, my wife, and Greg Vixie of Grass Valley. We also had 20 high school/college kids who pitched in on the medical/dental services and helped build a structure that will eventually include a dental and medical surgical suite when electricity reaches the area later this year.

We traveled to different villages everyday for 4 days to do extractions in very primitive surroundings. When word got out that we actually numbed the patient before doing the extractions, we were inundated: I think I extracted 75 -100 teeth on my last day alone! Most of these were very tough extractions as the local bone density and root length seemed to be greater than I remembered!!! Usually the teeth came out in pieces as they only seek care when they have an obviously bombed out tooth. We had a generator and delivery unit at one location which was used primarily for sectioning and troughing out the mandible to get out roots/tips. Fortunately, fluorosis is common in the area and sweets are scarce (except those given by tourists), so the patients have a fairly low decay rate; we normally extracted only 2-3 teeth per patient.

Thank you to Patterson Dental for supplying $5000 of dental supplies. The septocaine worked well. Besides the safaris we enjoyed, immersing ourselves in the Maasai culture as hands-on caregivers was extremely gratifying. The smiles that followed were heartwarming. Reviewing oral hygiene instructions (translated into Swahili by my daughter's UCLA professor) with patients and playing a scrimmage soccer game at a local school rounded out our experience.

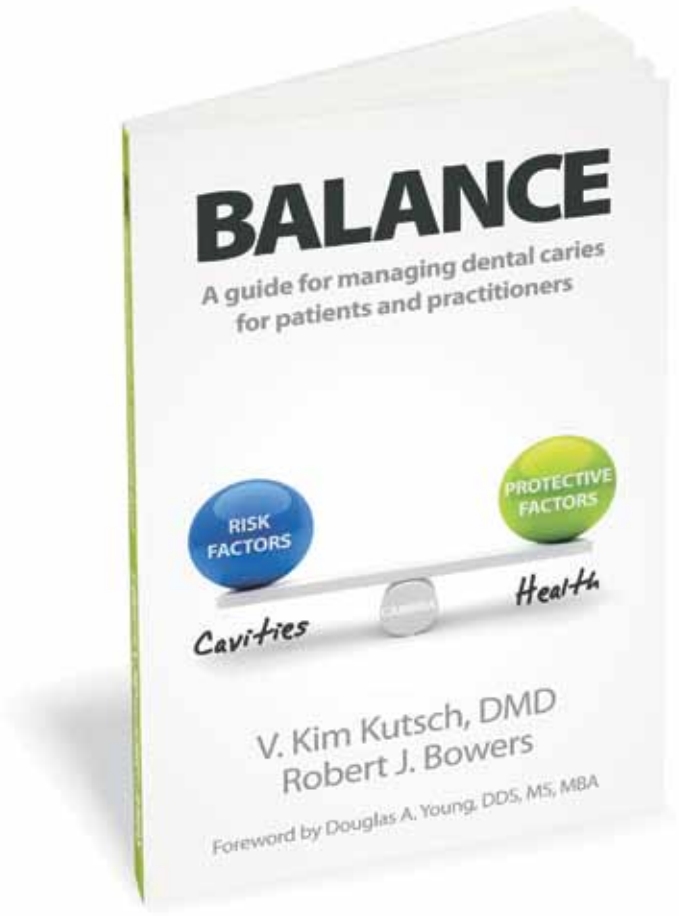
There's nothing more rewarding than giving back and helping others. When you get a chance, just DO IT! You'll never regret it!

PS. The walls of the mud huts are really made from cow dung!!

Timothy G. Giroux, DDS is the owner of **Western Practice Sales.**
You may contact ***Dr Giroux at*: wps@succeed.net or 800.641.4179**

A simple guide for a complex problem.

GET IT FREE FOR A LIMITED TIME.



> "***Balance*** *is an excellent guide for managing dental caries that belongs in each and every dental practice.*"
>
> **Douglas A. Young, DDS, MS, MBA**

Visit **balance.carifree.com** or call 866.928.4445 to get your free copy.

DISCOUNT CODE: CDA8

PRICE ~~$24.95~~ **FREE**

- Limit one free book per person
- Shipping and handling charges of $5.95 per copy apply
- Discount code limited to 1000 copies

V. Kim Kutsch, DMD received his undergraduate degree from Westminster College in Utah and then completed his DMD at the University of Oregon School of Dentistry in 1979. He is an inventor, holding numerous patents in dentistry, product consultant, internationally recognized speaker, past president of the Academy of Laser Dentistry and the WCMID. He has also served on the board of directors for the WCLI and the AACD. As an author, Dr. Kutsch has published dozens of articles and abstracts on minimally invasive dentistry, caries risk assessment, digital radiography, and other technologies in both dental and medical journals and has also contributed to several textbooks. He acts as a reviewer for several journals including JADA. Dr. Kutsch serves as CEO of Oral BioTech. As a clinician, he is a graduate and mentor in the prestigious Kois Center and maintains a private practice in Albany, Oregon.

CDA JOURNAL, VOL 40, Nº8

Idiopathic Synchronous Central Giant Cell Granulomas Involving Both the Maxilla and Mandible: A Case Report

NECDET DOGAN, DDS, PHD; AYDIN GULSES, DDS, PHD; METIN SENCIMEN, DDS, PHD; BARISEREN ORAL, DDS, PHD; AND OMER GUNHAN, DDS, PHD

ABSTRACT The central giant cell granuloma is a well-defined lesion of the jaws and reports of multiple lesions are very uncommon. The authors report the case of a patient with idiopathic synchronous multiple central giant cell granulomas involving both the maxilla and the mandible. Surgical curettage of the lesions was performed. At the end of the 24 months follow-up, no recurrence was detected.

AUTHORS

Necdet Dogan, DDS, PHD, a professor in Gülhane Military Medical Academy, Department of Oral and Maxillofacial Surgery, Etlik Ankara, Turkey. *Conflict of Interest Disclosure: None reported.*

Aydin Gulses, DDS, PHD, is a consultant in Canakkale Military Hospital, Gokceada Surgical Infirmary, Gokceada Canakkale, Turkey. *Conflict of Interest Disclosure: None reported.*

Metin Sencimen, DDS, PHD, is an associate professor in Gülhane Military Medical Academy, Department of Oral and Maxillofacial Surgery, Etlik Ankara, Turkey. *Conflict of Interest Disclosure: None reported.*

Bariseren Oral, DDS, PHD, is a consultant in Van Military Hospital Dental Service, Van, Turkey. *Conflict of Interest Disclosure: None reported.*

Omer Gunhan, DDS, PHD, is a professor in Gülhane Military Medical Academy, Department of Pathology, Etlik Ankara, Turkey. *Conflict of Interest Disclosure: None reported.*

The central giant cell granuloma (CGCG), which was first described by Jaffe in 1953, is an uncommon, benign lesion of the jaws.[1,2] According to the World Health Organization classification of tumors, CGCG is a localized benign but sometimes aggressive osteolytic proliferation consisting of fibrovascular tissue with hemorrhage and hemosiderin deposits, a presence of osteoclast-like giant cells, and reactive bone formation.[3] CGCG arises at any age but it is most commonly seen before the fourth decade of life.[4,5] They are more frequent in females than in males and are more commonly located in the mandible than in the maxilla.[5]

The most common feature of CGCG is an asymptomatic, smooth swelling of the face or oral cavity.[4] However, destruction of the bone, loss of symmetry of the face, impaired nasal breathing, loosening or displacement of teeth, cortical perforation and pathologic fracture associated with CGCG have also been reported.[2,6]

The etiology of the condition still remains uncertain. Jaffe's originally proposed CGCG is a local reparative process in response to a trauma-induced intraosseous hemorrhage.[1] Infectious and developmental etiologies have also been suggested for the etiopathogenesis of these lesions.[7] Whitaker and Bouquot have investigated peripheral GCGs and focused on the correlation between hormonal influence and female predominance.[8] According to their results, factors other than ovarian hormones, estrogen, and progesterone are responsible for the development of these lesions.

The occurrence of multiple CGCG of the jaws is reported to be extremely rare.[9,10] Most

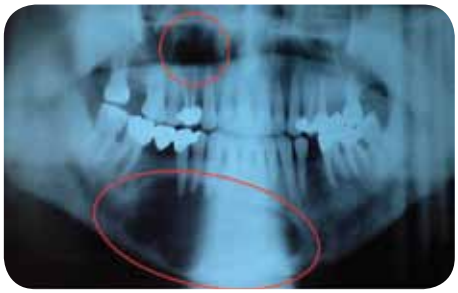


FIGURE 1. A panoramic X-ray showing two well-defined radiolucencies of the right anterior mandible and the maxilla.

of the multiple giant cell lesions are associated with inherited or systemic diseases such as hyperparathyroidism, fibrous dysplasia, Paget disease, cherubism, Noonan syndrome neurofibromatosis type-1, and Ramon syndrome.[9-14] In multiple presentation of CGCGs, the majority of the cases present on both sides of the mandible or maxilla.[11]

The multiple synchronous CGCGs involving both the mandible and maxilla are extremely rare. To the best of our knowledge, only eight cases of multiple CGCGs without any concomitant systemic disease have currently been reported. This report presents a case of a 46-year-old male who presented with synchronous multiple CGCGs involving mandible and maxilla.

Case Report

A 46-year-old male was referred for evaluation after routine panoramic radiographic evaluation revealed two well-defined radiolucencies of the right anterior mandible and the maxilla (**FIGURE 1**). The lesions were measured more than 6.5 cm in greatest dimension in the mandible and 2.5 cm in the maxilla. His past medical history was unremarkable. There was no history of trauma or dental problem. No asymmetry or bony expansion was found. On computed tomographic examination, cortical perforations were evident on both jaws (**FIGURE 2**). Blood chemistry, including calcium, alkaline phosphatase and inorganic phosphorus, and parathyroid hormone was normal (**TABLE 1**) (calcium: 9.61 mg/ dL, alkaline phosphatase: 83 IU/L, inorganic phosphorus:

3.1 mg/dL, parathyroid hormone (PTH): 28.8 pg/mL).

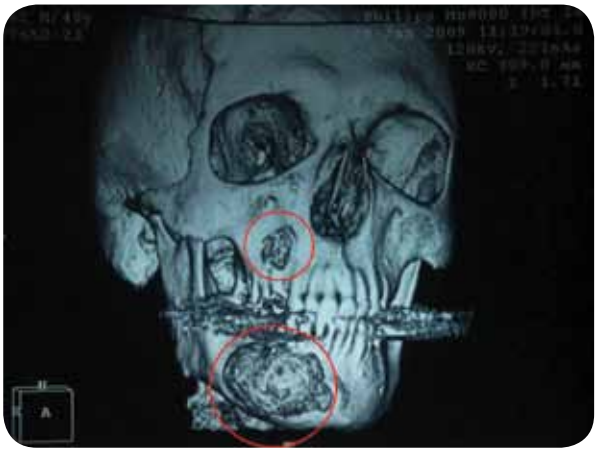


FIGURE 2. The 3-D computed tomography scans revealed the cortical perforation on both jaws.

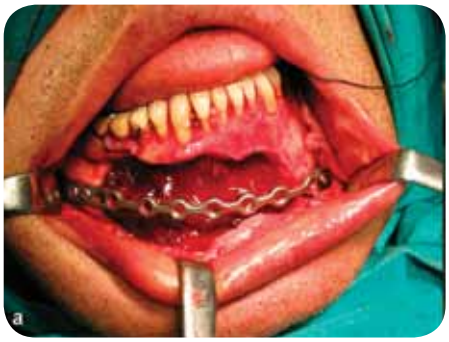


FIGURE 3A.

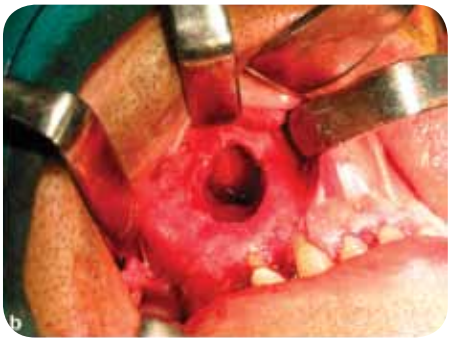


FIGURE 3B.

FIGURE 3. Intraoperative view following the surgical curettage of the lesion (a) in the mandible and (b) in the maxilla.

TABLE 1

Results of the Preoperative Workup

Blood chemistry	Result	Normal range
Calcium	9.61 mg/ dL	8.5 to 10.3 mg/ dL
Alkaline phosphatase	83 IU/L	30 to 140 IU/L
Inorganic phosphorus	3.1 mg/dL	2.0 to 4.6 mg/dL
Parathyroid hormone	28.8 pg/mL	10 to 65 pg/mL

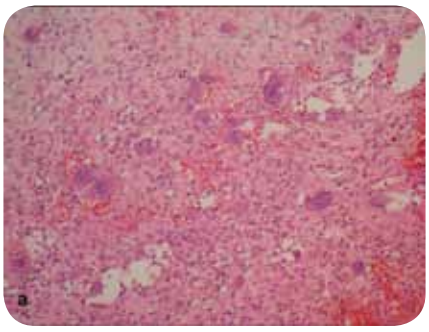


FIGURE 4A.

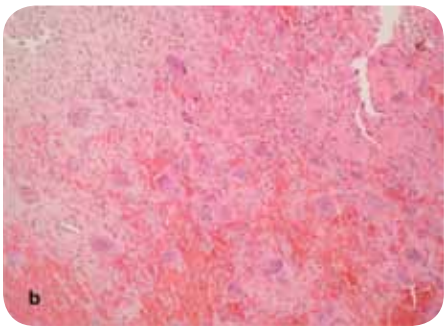


FIGURE 4B.

FIGURE 4. The histopathological examination revealed that the lesion (a) in the mandible and (b) in the maxilla, consists of numerous giant cells in a background of spindle-shaped fibroblasts

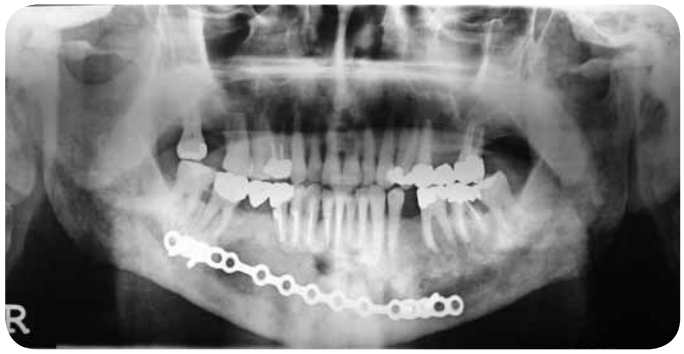


FIGURE 5. Postoperative radiograph 18 months after surgery showed that the bony healing was almost completed.

TABLE 2

Reports of the Idiopathic Synchronous Multiple Central Giant Cell Granulomas of the Jaws and their Locations

Author	Publication year	Age/gender	Localization
Davis and Tideman[21]	1977	31/F	Maxilla and mandible
Cassatly et al.[19]	1988	27/F	Mandible
Smith et al.[18]	1990	41/F	Maxilla and mandible
Wise and Bridbord[24]	1993	23/M	Maxilla and mandible
de Lange and van den Akker[22]	2005	20/F	Mandible
Wilson et al.[23]	2007	35/F	Maxilla and mandible
Orhan et al.[11]	2010	12/F	Mandible
Kang and Kim[23]	2010	17/M	Maxilla and mandible
Dogan et al.	2012	46/M	Maxilla and mandible

After excluding the possibility that this might represent a vascular process via needle aspiration, incisional biopsies of the radiolucent lesions were performed. Histopathologic examination of both lesions revealed a proliferation of giant cells in a fibrovascular connective tissue background, consistent with a giant cell granuloma.

The patient then underwent surgical curettage of the lesions through an intraoral approach under general anesthesia. In both of the jaws, mucoperiostal flaps were raised and the reddish, friable, and granulomatous tissues were curetted and excised (**FIGURES 3A–B**). The bone edges of the tumor cavity were drilled with a diamond bur until obtaining a clear surgical margin. The cavity was not packed with bone replacement materials. The stabilization of the mandible was good but there was a wide cortical defect. A reconstruction plate was placed to avoid a possible pathologic fracture. The wounds were closed with 3/0 silk sutures. The postoperative course was uneventful and the patient was discharged on postoperative Day 3.

The histopathologic examination revealed cellular vascular connective tissue with osteoclast-type giant cells having multiple nuclei and granulation tissue rich in mononuclear inflammatory cells for both lesions (**FIGURES 4A–B**). The lesions were reported as "giant cell reparative granuloma." No evidence of clinical and radiological recurrence was observed during follow-up for 24 months and the bony healing was completed (**FIGURE 5**).

Discussion

Multiple giant cell lesions of the jaws are associated with hyperparathyroidism in the majority of cases.[9,15] Additionally, a number of syndromes have been also reported including Paget's disease, cherubism, Noonan syndrome, neurofibromatosis type 1, and Ramon syndrome.[11-14]

Cherubism is usually inherited as an autosomal condition and the gene has been mapped recently to chromosome 4p16:34.[16] The authors' patient had no identifiable features of cherubism. There were also no clinical or radiographic signs of Paget's disease in the jaws, facial bones, skull, or extragnathic skeleton. The patient lacked any of the features of suspected inherited diseases and syndromes, and had a normal alkaline phosphatase.

The hallmarks of primary hyperparathyroidism are hypercalcemia, hypophosphatemia, and an increased serum concentration of parathyroid hormone. Hyperparathyroidism can result either primarily from hyperplasia or neoplasia of the parathyroid glands, or secondary to a renal osteodystrophy.[17] In patients with chronic renal disease, chronic low levels of serum calcium can result in increase of parathyroid hormone production. In the authors' patient, an up-to-date endocrine workup was unremarkable.

Only a few cases of multiple giant cell lesions of the jaws in the absence of a concomitant systemic disease have been reported.[18-24] Hjorting-Hansen and Worsoe-Petersen have presented cases of multiple giant cell lesions involving the jaws and long bones.[20] However, according to Orhan et al., these cases were probably recurrent giant cell tumors or low-grade osteosarcomas and are histologically dissimilar to giant cell granuloma.[11] Similar to the present case, Davis and Tideman, Smith et al., Wise and Bridbord, Wilson et al., Kang and Kim, and Orhan et al. have reported idiopathic synchronous cases of CGCG in the mandible and the maxilla.[11,18,21,23,24] Additionally, Curtis and Walker described a

patient with multiple metachronous CGCGs involving maxilla and mandible.[16] They suggested the patient may have had a previously undescribed variant with a genetic component.[16] According to the literature survey of Kang and Kim, only five cases of synchronous multifocal central giant cell granulomas without concomitant systemic disease have been reported in the English-language medical literature.[18,19,21,23,24]

Reports of the synchronous idiopathic multiple central giant cell granulomas of the jaws and their locations were listed in **TABLE 2**. To the best of our knowledge, the present report adds the ninth case of the idiopathic synchronous CGCG of the jaws to the literature. Among these individuals, six were female and three were male. Three of the patients were in the third, two in the second, two in the fourth, and two in the fifth decade of their life. Considering that the CGCG of the jaws are most commonly diagnosed in the third decade of life and females are twice as likely to be affected as males, the idiopathic synchronous multiple presentation does not differ from the general characteristics of CGCGs.

The most common therapy for the CGCG is surgical curettage. According to de Lange, there was no significant difference in recurrence rates between the mandible and the maxilla.[27] The high recurrence rate led to a search for other treatment options including the application of intralesional steroids, subcutaneous or nasal calcitonin, and subcutaneous injections of alpha interferon.[7,25] The use of laser or cryoprobe for the sterilization of the surgical margins has also been recommended.[2] In the presented case, there was no sign or symptom of a recurrence in both jaws.

In a population-based retrospective study carried out by Lange and van den Akker, 3.6 percent (n:3) of the CGCG patients present with multiple lesions.[22] One of the three patients presented with synchronous lesions, while in the other two patients, the multiple lesions occurred metachronously. In the authors' opinion, the high recurrence rate of CGCGs are likely responsible for scientific reports of multiple metachronous presentations.

Conclusion

CGCGs are well-defined lesions of the jaws. Multiple presentations of these lesions are unusual. In multiple presentations of CGCGs, synchronous involvement of both the mandible and maxilla are extremely rare. There is a need for data regarding the etiology of the multiple presentations of central giant cell granulomas. Therefore, the authors think that every additional report of this rarity is valuable as it helps to improve this situation. ■■■■

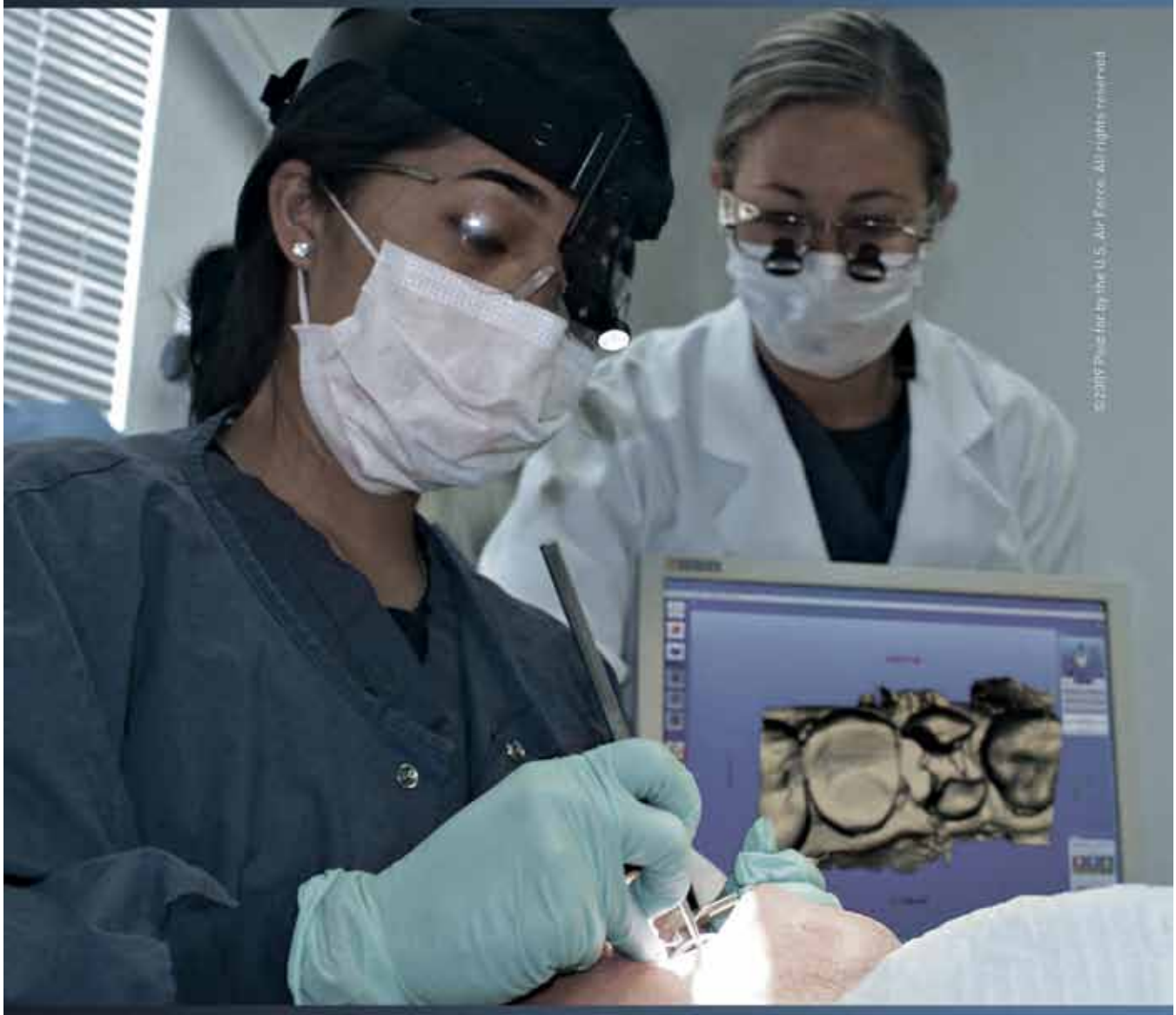
REFERENCES

1. Jaffe HL, Giant-cell reparative granuloma, traumatic bone cyst, and fibrous (fibroosseous) dysplasia of the jawbones. *Oral Surg Oral Med Oral Pathol* 6:159-75, 1953.
2. Ustundag E, Iseri M, et al, Central giant cell granuloma. *Int J Pediatr Otorhinolaryngol* 65:143-6, 2002.
3. Barnes L, Eveson JW, Reichart P, Pathology and genetics of head and neck tumor, in: Kleihues P, Sobin LH, editors: World Health Organization Classification of Tumours, *Lyon, IARC Press*, 324, 2005.
4. Eisenbud L, Stern M, et al, Central giant cell granuloma of the jaws: experiences in the management of 37 cases. *J Oral Maxillofac Surg* 46:376-84, 1988.
5. Whitaker SB, Waldron CA, Central giant cell lesions of the jaws. A clinical, radiologic, and histopathologic study. *Oral Surg Oral Med Oral Pathol* 75:199-208, 1993.
6. Suárez-Roa Mde L, Reveiz L, et al, Interventions for central giant cell granuloma (CGCG) of the jaws. *Cochrane Database Syst Rev* 7:CD007404, 2009.
7. Katz A, Hirschl S, Giant cell reparative granuloma in the temporal bone. *Arch Otolaryngol* 100:380-2, 1974.
8. Whitaker SB, Bouquot JE, Identification and semi-quantification of estrogen and progesterone receptors in peripheral giant cell lesions of the jaws. *J Periodontol* 65:280-3, 1994.
9. Ardekian L, Manor R, et al, Bilateral central giant cell granulomas in a patient with neurofibromatosis: report of a case and review of the literature. *J Oral Maxillofac Surg* 57:869-72, 1999.
10. Cohen D, Granda-Ricart MC, Giant cell reparative granuloma of the base of the skull in a 4-month-old infant-CT findings. *Pediatr Radiol* 23:319-20, 1993.
11. Orhan E, Erol S, et al, Idiopathic bilateral central giant cell reparative granuloma of jaws: a case report and literature review. *Int J Pediatr Otorhinolaryngol* 74:547-52, 2010.
12. Edwards PC, Fox J, et al, Bilateral central giant cell granulomas of the mandible in an 8-year-old girl with Noonan syndrome (Noonan-like/multiple giant cell lesion syndrome). *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 99:334-40, 2005.
13. Ruggieri M, Pavone V, et al, Unusual form of recurrent giant cell granuloma of the mandible and lower extremities in a patient with neurofibromatosis type 1. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 87:67-72, 1999.
14. Pina-Neto JM, Moreno AF, et al, Cherubism, gingival fibromatosis, epilepsy, and mental deficiency (Ramon syndrome) with juvenile rheumatoid arthritis. *Am J Med Genet* 25:433-41, 1986.
15. Cohen MA, Hertzanu Y, Radiologic features, including those seen with computed tomography, of central giant cell granuloma of the jaws. *Oral Surg Oral Med Oral Pathol* 65:255-61, 1988.
16. Curtis NJ, Walker DM, A case of aggressive multiple metachronous central giant cell granulomas of the jaws: differential diagnosis and management options. *Int J Oral Maxillofac Surg* 34:806-8, 2005.
17. Neville BW, Damm DD, Allen CM, Oral manifestations of systemic disease, in: Neville BW, Damm DD, et al, editors: Oral Maxillofaci Pathol, second ed., W.B. Saunders, Philadelphia, pages 705-40, 2002.
18. Smith PG, Marrogi AJ, Delfino JJ, Multifocal giant cell lesions of the maxillofacial skeleton: a case report. *J Oral Maxillofac Surg* 48: 300-5, 1990.
19. Cassatly MG, Greenberg AM, Kopp WK, Bilateral giant cell granulomata of the mandible: report of case. *J Am Dent Assoc* 117: 731-3, 1988.
20. Hjorting-Hansen E, Worsoe -Petersen J, Recurrent benign giant-cell lesions of the jaws with metastasis? *J Laryngol Otol* 81(9):1033-44, 1967.
21. Davis GB, Tideman H, Multiple recurrent central giant cell granulomas of the jaws: case report. *J Oral Maxillofac Surg* 5:127-9, 1977.
22. De Lange J, Van den Akker HP, Clinical and radiological features of central giant-cell lesions of the jaw. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 99:464-70, 2005.
23. Kang Ms, Kim HJ, Multiple synchronous central giant cell granulomas of the maxillofacial region: a case report. *J Korean Soc Radiol* 62:11-15, 2010.
24. Wise AJ, Bridbord JW, Giant cell granuloma of the facial bones. *Ann Plast Surg* 30:564-8, 1993.
25. Sezer B, Koyuncu B, et al, Intralesional corticosteroid injection for central giant cell granuloma: a case report and review of the literature. *Turk J Pediatr* 47:75-81, 2005.
26. de Lange J, van den Akker HP, et al, Calcitonin therapy in central giant cell granuloma of the jaw: a randomized double-blind placebo-controlled study. *Int J Oral Maxillofac Surg* 35:791-5, 2006.
27. de Lange J, van den Akker HP, van den Berg H, Central giant cell granuloma of the jaw: a review of the literature with emphasis on therapy options. *Oral Surg Oral Med Oral Pathol* 104:603-15, 2007.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Aydin Gulses at aydingulses@gmail.com.

TO CONSULT WITH TOP DENTISTS FROM AROUND THE WORLD,
TURN TO YOUR LEFT.

U.S. AIR FORCE



As a U.S. Air Force resident, you'll train with top specialists, have access to the latest technology and work with colleagues you admire, all while earning full pay and benefits. Let the end of dental school be just the beginning.

AIRFORCE.COM

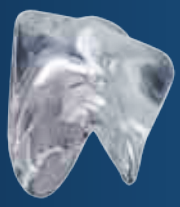
1-800-423-USAF

PROTECT YOUR DENTISTRY
WITH KELLER'S BRUXISM SOLUTIONS

Comfort H/S Bite Splint™

Hard exterior & soft interior provide protection and comfort at an economical price.

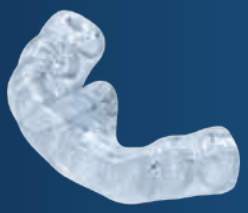
Only **$59**



NTI tss plus™

Protects teeth, muscles, and joints by reducing muscle contraction intensity nearly 70%.

$119



NTI tss plus™ soft

Reduce chairtime and increase patient comfort.

- Indicated for patients with veneers or crowded teeth
- Extends to bicuspids for retention

$129

crystal clear®

Clinically unbreakable, injection molded full coverage guard for precise fit and exceptional strength. Won't absorb stains or odors.

$114

thermo FIT®

An adaptive, flexible bite guard that reduces chairtime and increases patient comfort.

$129

keller®

Call Today For Your Case Pick-Up!

800-325-3056

160 Larkin Williams Industrial Court • Fenton, MO 63026 • www.kellerlab.com

MADE IN USA

CDA JOURNAL, VOL 40, Nº8

Medication Nonadherence: A Role for the Dental Professional

SATISH K.S. KUMAR, DDS, MDSC

ABSTRACT Medication nonadherence is a multifactorial and complex problem that poses an enormous health and economic burden. Medication nonadherence related to medication side effects, referred to as rational nonadherence is increasingly seen in patients. This article discusses rational nonadherence with an exemplar of osteoporosis patients discontinuing their medication, mainly bisphosphonates, for fear of complications such as osteonecrosis of jaw. Also, the possible role of dental professionals in overcoming medication nonadherence in general is outlined.

AUTHORS

Satish K.S. Kumar, DDS, MDSC, was formerly an assistant professor of clinical dentistry, Orofacial Pain and Oral Medicine Center, Division of Periodontology, Diagnostic Sciences and Dental Hygiene, University of Southern California, Herman Ostrow School of Dentistry. He presently is a resident in the USC Advanced Periodontology Residency Program and is pursuing his PhD in craniofacial biology at USC. *Conflict of Interest Disclosure: None reported.*

ACKNOWLEDGMENT

The author would like to thank Cesar A. Migliorati, DDS, MS, PhD, professor and interim chair, Department of Biologic and Diagnostic Sciences, Director of Oral Medicine, University of Tennessee Health Science Center, College of Dentistry, and Douglas R. Wall, DDS, clinical associate professor, University of Southern California, Herman Ostrow School of Dentistry, for reviewing this manuscript and providing useful comments.

Health care providers licensed to prescribe medications typically perform benefits versus risk assessment before prescribing a medication to a patient. They make these assessments based on available evidence on the medication to be prescribed, keeping in mind patient-related factors such as age, comorbid conditions, other medications, allergies, tolerability, and adverse effects amongst others.[1] Simply prescribing the medication may not translate to patient health benefits for several reasons including poor medication adherence. Adherence is defined by the World Health organization (WHO) as "the extent to which a person's behavior — taking medication, following a diet, and/or executing lifestyle changes — corresponds with agreed recommendations from a health care provider."[2] Medication adherence is "the extent to which patients take medications as prescribed by their health care providers."[3] The problem of medication nonadherence by patients to take a prescribed medication due to cost, lack of health insurance, and other reasons is well-recognized, multifactorial, and complex.[3-5] New England Healthcare Institute has estimated a loss of about $290 billion in the U.S. health care system every year as a result of medication-related morbidity including medication nonadherence.[6] Health care providers should attempt to address some reasons for nonadherence by patient education and improving the communication between clinicians and patients besides other ways.[3,6]

Adverse Drug Reactions

Despite being approved for a specific medical condition, some medications are reported to have postmarketing adverse drug reactions that may be life-threatening. If the adverse drug reaction is potentially life-threatening, occurs frequently, and the risks clearly outweigh the benefits, it is usually pulled off the market by the Food and Drug Administration or the pharmaceutical company.[7] However, if the adverse drug reaction is rare, and the benefits outweigh the risks, it remains in the market and continues to be prescribed by the health care provider. Health care providers and patients accept usage of such medications understanding the potential risks and switch to an alternate medication or therapy as they evolve. Reports on adverse drug reactions typically lead to updated medication prescribing guidelines, novel research in clinical and basic sciences, and discovery of better medications.

Rational Nonadherence

One of the reasons for medication nonadherence by patients could be attributed to the adverse drug reactions.[3] This is referred to as "rational nonadherence" by Garner and is defined as "the cessation of a prescribed therapy because of concern for, or the presence of, medication side effects."[8] The other two categories of medication nonadherence are defaulting (failure to start a prescribed therapy entirely) and nonpersistence (failure to take >80 percent of prescribed doses).[8]

Exemplar of Rational Nonadherence: Osteoporosis, Bisphosphonates, and Osteonecrosis of the Jaw

An example of rational nonadherence is seen in patients with osteoporosis with prescribed therapy of anti-resorptive medications such as bisphosphonates (BP).[9,10] Consider this typical clinical scenario that dental professionals may come across these days: An elderly female patient with severe osteoporosis carrying a high risk of skeletal fractures on bisphosphonate (BP) therapy opts to discontinue the medication without consulting her physician for the fear of adverse effects including osteonecrosis of the jaw (ONJ). A recent study demonstrated this fact that patients discontinue or reject BP treatment due to fear of adverse events including ONJ. A representative quote used in the article was "the jaw thing frightens me."[11] However, there is no evidence to show that rational nonadherence to osteoporosis medications due to fear of ONJ neither leads to increase in adverse outcome of skeletal fractures due to untreated osteoporosis nor reduces the incidence of ONJ. Nevertheless, this is used as an exemplar for dental professionals in understanding the issue of rational nonadherence and the role dental professionals can play to overcome the medication nonadherence problem in osteoporosis and in general with other global health problems such as cardiovascular disease and diabetes.[12,13]

OSTEOPOROSIS AND fractures related to untreated osteoporosis are more common than coronary artery disease, stroke, and breast cancer combined.

About 40 million Americans either have osteoporosis or are at risk of developing osteoporosis with low bone mass.[14] Osteoporosis and fractures related to untreated osteoporosis are more common than coronary artery disease, stroke, and breast cancer combined. The impact on quality of life, health care costs, and overall economy is enormous.[15] According to the 2004 Surgeon General's Report, an estimated 1.5 million fractures occurring every year are attributed to osteoporosis.[16] BP has been shown in long-term studies and systematic reviews to help in osteoporosis and also in reducing skeletal-related events, prevention of metastasis, and reduction of bone pain.[17,18] BP has several adverse effects such as gastrointestinal effects, severe musculoskeletal pain, and ONJ.[19,20] A case series of osteonecrosis of the jaw associated with bisphosphonates published about eight years ago has led to the recognition of a new clinical adverse drug reaction across the globe, hundreds of reports including original research in clinical and basic sciences and updated medication prescribing guidelines being published and new medications being discovered to treat the medical conditions where bisphosphonates are indicated, mainly osteoporosis.[21-23]

While the adverse reaction of ONJ associated with bisphosphonate is serious, incomplete understanding of recent, evidence based information available in peer-reviewed scientific journals about this complication combined with lack of knowledge about recent advances made in terms of diagnosis, treatment, and medication discovery for treatment of osteoporosis may lead to poor treatment choices both by patients and clinicians alike. The estimated incidence of ONJ for patients taking intravenous (IV) bisphosphonates for malignancies is high and ranges from 0.8 percent to 12 percent. However, for oral bisphosphonates, the estimated incidence is relatively low and ranges from 0.009 percent to 0.034 percent.[24,25] Medication dosing, duration, route of administration to achieve the

same clinical or better clinical benefit and alternate medications are recently being reported, which may eventually replace current regimens and hence decrease or eliminate the risk of ONJ in future.[26] Meanwhile, prevention by removing dental source of infection before initiation of BP treatment seems to reduce the incidence of ONJ.[27] Early reports on possible treatment of ONJ with agents such as teriparatide and ozone are on the horizon.[28,29] Hence, ONJ is preventable to an extent, even possibly treatable.

This issue however gets complex. Novel therapeutics introduced for treatment of osteoporosis such as denosumab and treatment of metastatic cancers such as bevacizumab are also reported to lead to ONJ.[30,31] This has, in turn, led to proposals of novel terminology to address ONJ associated with anti-resorptive agents besides bisphosphonates as anti-resorptive-associated osteonecrosis of the jaw (ARONJ).[23] In addition, subtrochanteric or femoral shaft fractures are being reported in patients on long-term BP therapy.[32,33] These may become additional reasons that are quite understandable from a patient's perspective for rational nonadherence. Hence, benefits versus risk assessment by the prescribing physician in consultation with the dentist become critical with these novel therapeutics implicated with ONJ, as well as clinician-patient education and communication.

How Can Dental Professionals Help?

Rational nonadherence by osteoporosis patients may lead to an increase in complications of fractures and may become a growing epidemic by itself. A recent systematic review and meta-analysis concluded that postmenopausal women's persistence and compliance while undergoing bisphosphonate therapy are suboptimal for osteoporosis. Increased risk of fractures is a consequence of this nonadherence.[9] This rational nonadherence and medication nonadherence in general are issues where dental professionals may play a crucial role along with other health care providers mainly by patient interview, patient education, and, if deemed necessary, as a liaison between patients and other health care providers. Dental professionals should become well-informed, educate concerned patients, and evaluate the actual risk of ONJ in patients. Patients should be guided by the dental professionals to find the most current and evidence-based health care advice with complications such as ONJ.[34,35] Guidelines from professional organizations should be carefully followed and applied on a case-by-case basis using the best clinical judgment.

RATIONAL NONADHERENCE by osteoporosis patients may lead to an increase in complications of fractures and may become a growing epidemic by itself.

Working together as a team with the patients' physician, oncologist, endocrinologist, and other specialists becomes vital to provide the best care our patients deserve. We should encourage patients with concerns about BP, denosumab, bevacizumab, or any other medications implicated with ONJ to discuss their concerns to their physician. Ultimately, physicians would be responsible for educating the patients with osteoporosis that good evidence supports that medication adherence improves reduction of fractures in majority of patients.[36,37] Finally, while this perspective uses the exemplar of rational nonadherence in osteoporosis due to fear of ONJ, the message is applicable to the complex global issue of medication nonadherence for all medical conditions such as diabetes, hypertension, and hypercholesterolemia.

Dental professionals can help improve poor medication adherence in general by:[13]
1) Obtaining complete medication history.
- This has been a challenge for dentists as patients do not give a complete medication history. This can be overcome by informing patients to bring this complete medication information (drug, dosage, frequency, duration, side effects experienced, etc.) prior to the appointment or obtaining this information directly from the prescribing physicians after patients' consent.[38]
- Dental professionals typically spend more chairtime during dental procedures and are likely to see patients more often in a given year than their physician. This frequency of patient-clinician interaction and time can be used to query about medication adherence. Patients may likely share candidly their medication adherence with the dental professional than their prescribing physician as there is no "patient being blamed" scenario involved in it.[5]

A starting point of conversation as suggested by Osterberg and Blaschke can be: "I know it must be difficult to take all your medications regularly. How often do you miss taking them?"[3]

Other exemplar questions as suggested by Brown and Bussell are:[5]
- "Of the medications you listed, which ones are you taking?"[5]
- "Have you had to stop any medications for any reason?"[5]
- "Have you noticed any adverse effects from your medications?"[5]

TABLE

Objective Assessment of Medication Adherence

Adherent/compliant to medications	Yes	No
Failed to start a prescribed medication entirely (defaulting)	Yes	No
Drug Name(s):		
Failed to take >80% of prescribed doses (nonpersistence)	Yes	No
Drug Name(s):		
Stopped taking a prescribed medication because of concern for, or the presence of, medication side effects (rational nonadherence)	Yes	No
Drug Name(s):		

2) Identifying patients with possible medication adherence problem and possible underlying causes.

- An example is of patients who listed anti-hypertensive medications in the medication history and who show consistent high blood pressure readings after repeated measurements during dental appointments.

3) Educating patients about the side effects of medications that will interfere with dental care; increase the risk of oral diseases or affect oral health in general.

4) Encouraging patients that maintaining general health will help in maintaining good oral health and vice versa.

- An example is the relationship between diabetes and periodontal disease. There is evidence to show that well-controlled diabetes controls periodontal disease and vice versa.[39] Dental professionals should encourage diabetes control especially in patients having trouble taking their medications appropriately and educate them about the fact that well-controlled diabetes does not only reduce all the associated systemic complications of diabetes but also helps in controlling the periodontal disease. Also, maintaining good periodontal health and eliminating other dental infections such as periapical infections keeps diabetes in check.

5) Motivating the patients to consult with their prescribing physician to discuss their concerns about the medications. Patients can also be directed to various reliable sources of information available in the Internet about medication adherence.[5]

6) Incorporating a simple objective assessment of patients' medication adherence in the electronic medical records by dental professionals both in private practices and in academic institutions might open doors to research in risk assessment and interventions on a large scale. Subjective questionnaire entry by patients may not reflect the true nature of medication adherence.[5] An objective assessment can be incorporated as suggested in the Table.

7) Informing physicians/pharmacists about the patient's poor medication adherence for further management.

Conclusion

Medication nonadherence is a serious and multifactorial problem that can be improved by several ways.[40-42] Patient education and patient-clinician communication (physician, pharmacist, dental professionals, nurses, and other health care professionals) are critical for medication adherence.[3] While dental professionals are reviewing medical and medication history, patients should be queried about the adherence to all the prescribed medications in a friendly and nonjudgmental fashion. It is hoped this article raises the awareness of medication nonadherence amongst the dental professionals and will ultimately aid in reducing the magnitude of medication nonadherence to some extent. ■■■■

REFERENCES

1. Fried TR, Tinetti ME, Iannone L, Primary care clinicians' experiences with treatment decision making for older persons with multiple conditions. *Arch Intern Med* 171(1):75-80, Jan. 20, 2011; epub Sept. 13, 2011.

2. Sabate E, ed. Adherence to long-term therapies: Evidence for action. Geneva, Switzerland, World Health Organization, 2003. whqlibdoc.who.int/publications/2003/9241545992.pdf. Accessed Jan. 5, 2012.

3. Osterberg L, Blaschke T, Adherence to medication. *N Engl J Med* 353(5):487-97, Aug. 4, 2005.

4. Dunlay SM, Eveleth JM, et al, Medication adherence among community-dwelling patients with heart failure. *Mayo Clin Proc* 86(4):273-81, April 2011; epub March 2011.

5. Brown MT, Bussell JK, Medication adherence: WHO cares? *Mayo Clin Proc* 86(4):304-14, April 2011; epub March 2011.

6. New England Healthcare Institute, Thinking outside the pillbox: a system-wide approach to improving patient medication adherence for chronic disease, Aug. 12, 2009. nehi.net/publications/44/thinking_outside_the_pillbox_a_systemwide_approach_to_improving_patient_medication_adherence_for_chronic_disease. Accessed Jan. 5, 2012.

7. U.S. Food and Drug Administration, Recalls, market withdrawals, & safety alerts: background and definitions. www.fda.gov/Safety/Recalls/ucm165546.htm. Accessed Jan. 5, 2012.

8. Garner JB, Problems of nonadherence in cardiology and proposals to improve outcomes. *Am J Cardiol* 105(10):1495-501, May 2010.

9. Imaz I, Zegarra P, et al, Poor bisphosphonate adherence for treatment of osteoporosis increases fracture risk: systematic review and meta-analysis. *Osteoporos Int* 21(11):1943-51, November 2010; epub December 2009.

10. Silverman SL, Schousboe JT, Gold DT, Oral bisphosphonate compliance and persistence: a matter of choice? *Osteoporos Int* 22(1):21-6, January 2011; epub May 2010.

11. Scoville EA, Ponce de Leon Lovaton P, et al, Why do women reject bisphosphonates for osteoporosis? A videographic study. *PLoS One* 6(4):e18468, April 2011.

12. Migliorati CA, Mattos K, Palazzolo MJ, How patients' lack of knowledge about oral bisphosphonates can interfere with medical and dental care. *J Am Dent Assoc* 141(5):562-6, May 2010.

13. Glick M, Did you take your medications? The dentist's role in helping patients adhere to their medication regimen. *J Am Dent Assoc* 137(12):1636-7, December 2006.

14. NIH Osteoporosis and Related Bone Diseases National Resource Center. niams.nih.gov/Health_Info/Bone/Osteoporosis/. Accessed Jan. 5, 2012.

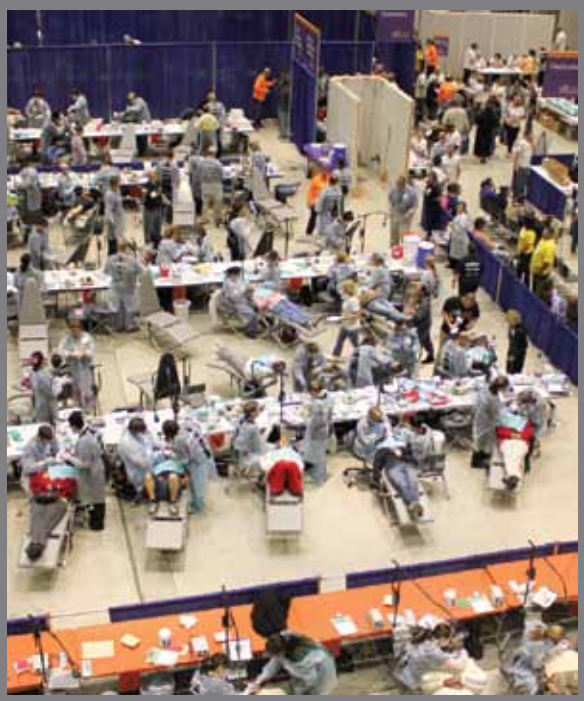
15. Edwards BJ, Migliorati CA, Osteoporosis and its implications for dental patients. *J Am Dent Assoc* 139(5):545-52; quiz 625-6, May 2008.

16. The 2004 Surgeon General's report on bone health and osteoporosis. www.surgeongeneral.gov/library/bonehealth/docs/OsteoBrochure1mar05.pdf

17. Wells GA, Cranney A, et al, Alendronate for the primary and secondary prevention of osteoporotic fractures in postmenopausal women. *Cochrane Database Syst Rev* (1):CD001155, January 2008.

18. Wells G, Cranney A, et al, Risedronate for the primary and secondary prevention of osteoporotic fractures in

Even if you can't be there, you can make a difference.



An estimated 10 million Californians experience barriers to dental care, and while those numbers are alarming, CDA and the CDA Foundation are working to change that with CDA Cares free dental clinics.

cda cares
California Dental Association Foundation
in partnership with America's Dentists Care Foundation

The Modesto CDA Cares event provided $1.2 million in dental services to 1,650 of those in need. In August, we're holding another event in Sacramento and the demand is sure to be extreme, which is why we need your help.

Join your fellow dentists and become a chair sponsor for $500 and provide a place for thousands of patients to receive essential care. It's a gift sure to have a huge impact.

To donate and to learn more, visit
cdafoundation.org/cdacares
or call 916.554.5942

cda FOUNDATION

postmenopausal women. *Cochrane Database Syst Rev* (1):CD004523, January 2008.
19. Fellows JL, Rindal DB, et al, DPBRN Collaborative Group. ONJ in two dental practice-based research network regions. *J Dent Res* 90(4):433-8, April 2011.
20. Grbic JT, Black DM, et al, The incidence of osteonecrosis of the jaw in patients receiving 5 milligrams of zoledronic acid: data from the health outcomes and reduced incidence with zoledronic acid once yearly clinical trials program. *J Am Dent Assoc* 141(11):1365-70, November 2010.
21. Marx RE, Pamidronate (Aredia) and zoledronate (Zometa) induced avascular necrosis of the jaws: a growing epidemic. *J Oral Maxillofac Surg* 61(9):1115-7, September 2003.
22. Migliorati CA, Epstein JB, Abt E, et al, Osteonecrosis of the jaw and bisphosphonates in cancer: a narrative review. *Nat Rev Endocrinol* 7(1):34-42, January 2011; epub November 2010.
23. Kumar SK, Gorur A, et al, The role of microbial biofilms in osteonecrosis of the jaw associated with bisphosphonate therapy. *Curr Osteoporos Rep* 8(1):40-8, September 2010.
24. Ruggiero SL, Mehrotra B, Bisphosphonate-related osteonecrosis of the jaw: diagnosis, prevention, and management. *Annu Rev Med* 60:18.1-18.12, 2009.
25. Berenson JR, Hillner BE, et al, American Society of Clinical Oncology clinical practice guidelines: the role of bisphosphonates in multiple myeloma. *J Clin Oncol* 20:3719 -36, 2002.
26. Rachner TD, Khosla S, Hofbauer LC, Osteoporosis: now and the future. *Lancet* 377(9773):1276-87, April 2011; epub March 2011.
27. Ripamonti CI, Maniezzo M, et al, Decreased occurrence of osteonecrosis of the jaw after implementation of dental preventive measures in solid tumor patients with bone metastases treated with bisphosphonates. The experience of the National Cancer Institute of Milan. *Ann Oncol* 20(1):137-45, January 2009.
28. Cheung A, Seeman E, Teriparatide therapy for alendronate-associated osteonecrosis of the jaw. *N Engl J Med* 363(25):2473-4, December 2010; epub October 2010.
29. Ripamonti CI, Cislaghi E, et al, Efficacy and safety of medical ozone (O(3)) delivered in oil suspension applications for the treatment of osteonecrosis of the jaw in patients with bone metastases treated with bisphosphonates: Preliminary results of a phase I-II study. *Oral Oncol* 47(3):185-90, March 2011.
30. Fizazi K, Carducci M, et al, Denosumab versus zoledronic acid for treatment of bone metastases in men with castration-resistant prostate cancer: a randomized, double-blind study. *Lancet* 377(9768):813-22, March 2011; epub February 2011.
31. Estilo CL, Fornier M, et al, Osteonecrosis of the jaw related to bevacizumab. *J Clin Oncol* 26(24):4037-8, August 2008.
32. Park-Wyllie LY, Mamdani MM, et al, Bisphosphonate use and the risk of subtrochanteric or femoral shaft fractures in older women. *JAMA* 23;305(8):783-9, February 2011.
33. Audran M, Cortet B, Thomas T, On behalf of the bone division of the French Society for Rheumatology. What do we know about atypical femoral fractures? Insights and enigmas. *Joint Bone Spine* 78(6):568-71; December 2011; epub May 2011.
34. Hellstein JW, Adler RA, et al, Managing the care of patients receiving antiresorptive therapy for prevention and treatment of osteoporosis: Executive summary of recommendations from the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc* 142:1243-51, November 2011.
35. American Dental Association Division of Science, For the dental patient. Osteoporosis medications and your dental health. *J Am Dent Assoc* 142(11):1320, November 2011.
36. Siris ES, Harris ST, et al, Adherence to bisphosphonate therapy and fracture rates in osteoporotic women: relationship to vertebral and nonvertebral fractures from two U.S. claims databases. *Mayo Clin Proc* 81(8):1013-22, August 2006.
37. Patrick AR, Brookhart MA, et al, The complex relation between bisphosphonate adherence and fracture reduction. *J Clin Endocrinol Metab* 95(7):3251-9, July 2010.
38. Schleyer T, Dentists, patients and medications. *J Am Dent Assoc*138(2):148-9, February 2007.
39. Taylor GW, Borgnakke WS, Periodontal disease: associations with diabetes, glycemic control and complications. *Oral Dis* 14(3):191-203, April 2008.
40. Haynes RB, Ackloo E, et al, Interventions for enhancing medication adherence. *Cochrane Database Syst Rev* (2):CD000011, April 2008.
41. Conn VS, Hafdahl AR, et al, Interventions to improve medication adherence among older adults: meta-analysis of adherence outcomes among randomized controlled trials. *Gerontologist* 49(4):447-62, August 2009; epub May 2009.
42. Baio G, Barbagallo M, et al, Improving adherence in osteoporosis: a new management algorithm for the patient with osteoporosis. *Expert Opin Pharmacother* 12(2):257-68, February 2011.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT
Satish K.S. Kumar, DDS, MDSc, University of Southern California, Herman Ostrow School of Dentistry, 925 W. 34th St., Room 130, Los Angeles, Calif., 90089.

DENTIST LAWYER BROKER

SPECIALIZING IN DENTAL PRACTICE SALES, TRANSITIONS & VALUATIONS

A. LEE MADDOX, DDS, ESQ.

MPG MADDOX PRACTICE GROUP

KERRI MCCULLOUGH

Now with California offices in La Jolla, Los Angeles, Newport Beach and Walnut Creek

We have been involved with more than **1000 dental practice transactions**.

Here are some of our current listings:

NEW LISTING - $650,000 - General Dentistry Practice in Santa Ana, Orange County, Southern California with four (4) operatories, fully equipped, x-ray room, dark room, reception area. Practice in the same location for 24 years.

NEW LISTING - $709,000 - General Dentistry Practice in Coastal Orange County, Southern California, with four (4) operatories, fully equipped. Great location near shopping center. Modern, beautifully appointed office with high end finishes. Must see! Call our office for more information.

NEW LISTING - $1,100,000 - This office does it all! General Dentistry / Specialty Practice in Sacramento, Sacramento County, Northern California, with two (2) suites, one consists of general dentistry, the other does Specialty work. Nine (9) total operatories, six (6) equipped, three (3) plumbed, not equipped, with sterilization room, adjustment lab, x-ray room, dark room, reception area, staff lounge, private office, and storage room. Digital xrays, paperless office. Member of most PPO/HMO plans, large monthly cap checks.

NEW LISTING - $450,000 - General Dentistry Practice in N. San Diego County, Southern California with five (5) operatories, sterilization room, adjustment lab, dark room, reception area, staff lounge, and business office. Located in a professional building. Established over 37 years, this practice refers out all specialty work. Room to grow!

$1,160,000 - General Dentistry Practice in North Orange County, Southern California with five (5) operatories, fully equipped, sterilization room, adjustment lab, dark room, staff lounge, business office, private office. Practice has been established for 47 years. **In Escrow.**

PRICE REDUCTION - $4,500,000 - Implant Practice in Orange County, Southern California. This is a large, state-of-the-art practice with an in-house, full-service lab, private office, call center, and much more all located in a beautiful professional building.

$430,000 - Prosthodontic Practice in Walnut Creek, Contra Costa County, Northern California with three (3) operatories, fully equipped, two-desk laboratory, administrative office, and private office near a retirement community. Doctor retiring, 28 years in the same location.

$120,000 - General Dentistry Practice in Rancho Cucamonga, San Bernardino County, Southern California, with three (3) operatories, sterilization/lab combo, reception room and much more in a busy retail center. Practice has been in business over 20 years. Call our office for more information.

$120,000 - Dental Leasehold Improvements and Equipment in Lake Forest, Orange County, Southern California with four (4) operatories, sterilization room, reception room, staff lounge, and private office in a retail center with plenty of foot traffic.

$300,000 - General Dentistry Practice in Brea, Orange County, Southern California, with four (4) operatories, includes equipment, sterilization room, private office in a shopping center near mall and freeway. **In Escrow.** SOLD

$500,000 - General Dentistry Practice in South Orange County, Southern California with four (4) operatories, fully equipped, sterilization-lab combo, adjustment lab, staff lounge, private office, over 31 years of goodwill, doctor retiring. SOLD

NEW LISTING - $650,000 – General Dentistry practice in Cypress, Orange County, Southern California with six (6) operatories, $13k cap checks/union per month, 20 years in same location. Call our office for more information.

PRICE REDUCTION - $300,000 - General Dentistry Practice in Los Alamitos, Orange County, Southern California with seven (7) operatories, sterilization room, wet lab, business office, private office, staff lounge. Located on a busy street with plenty of frontage.

$175,000 - Leasehold Improvements in Pasadena, Los Angeles County, Southern California with six (6) Adec Chairs/Lights in a great part of town. Contact our office for more information.

$545,000 - Amalgam-free General Dentistry Practice in Westwood, Los Angeles County, Southern California with five (5) operatories, includes equipment, wet lab, consultation/seminar room, sterilization room. Doctor retiring. Great location across from UCLA campus in a professional building.

PRICE REDUCTION - $55,000 - Dental Leasehold Improvements/ Equipment in Diamond Bar, Southern California, with four (4) equipped operatories, sterilization room, lab, located in a strip center, beautiful view of mountains. Great start-up opportunity for the right price.

A. LEE MADDOX, DDS, ESQ. BROKER NUMBER - 01801165

888-685-8100 | INFO@MADDOXPRACTICEGROUP.COM | WWW.MADDOXPRACTICEGROUP.COM

LAW OFFICES OF A. LEE MADDOX, DDS

COMPREHENSIVE & PROFESSIONAL LEGAL SERVICES EXCLUSIVLY FOR DENTISTS

- Lease Reviews
- Partnership Agreements
- Practice Purchase Agreements
- Corporation Formation / Dissolutions
- Space Sharing Group / Solo Agreements
- Associate / Independent Contractor Agreements
- MSO /BSO Agents
- LLC Formation and Agreements

EMAIL: LMADDOX@CADENTALLAW.COM | WWW.CADENTALLAW.COM

EXPERIENCE PROFESSIONALISM INTEGRITY EXPERTISE

CDA JOURNAL, VOL 40, Nº8

Sleep Bruxism, an Autonomic Self-Regulating Response by Triggering the Trigeminal Cardiac Reflex

SCOTT E. SCHAMES; JOSEPH SCHAMES, DMD; MAYER SCHAMES, DDS; AND SUSAN S. CHAGALL-GUNGUR, JD, MBA

ABSTRACT Sleep bruxism, an intensified manifestation of rhythmic masticatory muscle activity, characterized by tooth grinding or clenching during sleep, lacks a definitive physiological purpose. This paper posits that physiologically, sleep bruxism is an autonomic self-regulatory response to nighttime occurrences of tachycardia stemming from the brain experiencing microarousals during sleep. Sleep bruxism by triggering the trigeminal cardiac reflex leads to bradycardia. Rhythmic masticatory muscle activity-sleep bruxism, thereby, serves to slow the heart rate when brain microarousals cause tachycardia.

AUTHORS

Scott E. Schames is a medical researcher at the Craniofacial Pain/ TMJ Clinic at White Memorial Medical Center in Los Angeles.
Conflict of Interest Disclosure: None reported.

Joseph Schames, DMD, is the director of the Craniofacial Pain/TMJ Clinic at White Memorial Medical Center in Los Angeles.
Conflict of Interest Disclosure: None reported.

Mayer Schames, DDS, is a director of the Craniofacial Pain/TMJ Clinic at White Memorial Medical Center in Los Angeles.
Conflict of Interest Disclosure: None reported.

Susan S. Chagall-Gungur, JD, MBA, is on faculty at Loma Linda University's School of Allied Health Professions in Loma Linda.
Conflict of Interest Disclosure: None reported.

One of the most powerful autonomic reflexes in the body, the trigeminal cardiac reflex (TCR), is a physiological response by the nervous system to lower the heart rate under challenging situations.[1] The TCR is initiated upon stimulation of the trigeminal nerve.

The trigeminal cranial nerve is the fifth cranial nerve that has three branches that innervate the mandible, maxilla, teeth, cheeks, eyes, face, tongue, throat, and a portion of the neck. The TCR is a complex physiological response, utilizing both the parasympathetic and sympathetic nervous systems. Upon stimulation anywhere along the trigeminal pathway, there is a sudden onset of parasympathetic activity with concurrent sympathetic hypostimulation by stimulation of the vagus nerve.[2-4] According to Arasho et al., the proposed mechanism for the development of the TCR occurs when the "sensory nerve endings of the trigeminal nerve send signals via the Gasserian ganglion to the sensory nucleus of the trigeminal nerve, forming the afferent pathway of the reflex arc."[5] The afferent stimuli move through the vagus nerve output, proceeding through the vagus nerve via efferents to the cardiovascular system.[5] This vagal nerve

response caused by the TCR is responsible for a sudden bradycardia, slowing of the heartbeat, combined with a reduction in blood pressure, where syncope and even a resultant asystole of the heartbeat (cardiac arrest) can occur.[1,6-10]

The trigeminal nerve can be stimulated anywhere along its three branches, and thereby the TCR can be caused during dental procedures including tooth extraction and surgeries in and around the oral cavity.[3,4] Therefore, knowledge of the TCR is extremely important for dentists, dental specialists, and all dental health personnel to be aware of, to allow for quick response of the dental team in resuscitation procedures.

The effects of trigeminal nerve stimulation have been exemplified in the literature in regard to the dive response. Bradycardia occurs when cold water hits a diver's face, which contains temperature-sensitive nerve receptors, producing the trigeminal cardiac reflex with a resultant decrease in heart rate.[1,11] A prime example of this reflex is in the deaths suffered by passengers of the Titanic. Though many deaths were attributed to drowning or hypothermia, some likely died of instant cardiac arrest from having their faces submerged in the near-freezing water, where the shock of cold water immersion can result in death due to the TCR long before general hypothermia develops.[12]

Bradycardia induced by the TCR has been observed in various research studies involving stimulation anywhere along the trigeminal nerve pathway. Baxandall et al. observed bradycardia due to the naso-trigemial cardiac reflex by stimulation of trigeminal afferents in the nasal mucosa, as a result of a nasal speculum introduced by a surgeon into the nares under anesthesia.[13,14] Additionally, the naso-TCR in 80 healthy volunteers was investigated by Betlejewski et al. by stimulation of the nasal mucosa by means of 25 percent ammonia.[13,15] A significant decrease in heart rate was observed in nearly all the subjects. The TCR along the V1 pathway of trigeminal nerve has also been documented to be triggered by conditions or procedures that increase intraocular pressure.[16]

Because fainting and cardiac arrest can result, awareness of the TCR among dental professionals is of paramount importance. Anytime that a dental procedure is being performed, some form of TCR can occur. Approximately 2 percent of dental hospital procedures performed under local anesthesia result in vasovagal reactions.[17] Pedodontists should exercise additional caution because children have more pronounced TCR effects due to their increased vagal tone.[16]

APPROXIMATELY
2 percent of dental hospital procedures performed under local anesthesia result in vasovagal reactions.

Rhythmic Masticatory Muscle Activity — Sleep Bruxism

According to the second edition of the International Classification of Sleep Disorders, sleep bruxism (SB) is classified as a sleep-related movement disorder characterized by the grinding or clenching of teeth (teeth contact) during sleep that is associated with intense sleep arousal activity.[18] Rhythmic masticatory muscle activity (RMMA) is defined as repetitive jaw muscle contractions, regardless of the presence of teeth contact.[19,20] RMMA is observed during sleep in approximately 60 percent of the normal population.[21] Generally, 80 percent of these RMMA events occur during light, nonrapid eye movement (NREM) sleep, though RMMA also occasionally occurs in deep NREM sleep and REM sleep.[19,22-24] SB is a more intense manifestation of RMMA.

Studies have shown that in patients with SB, approximately one-third of RMMA episodes experienced lead to teeth contact.[20,25,26] In the 60 percent of the normal population experiencing RMMA, the frequency of the RMMA episodes is approximately one episode per hour of sleep, while SB patients have been observed to experience RMMA episodes up to 15 times per hour.[20,21,25,27-33] Most people are unaware they experience nighttime bruxism. In a large population-based telephone survey of more than 13,000 respondents, only 8.2 percent of the respondents were aware of teeth contact during sleep occurring on a weekly basis.[34]

During normal sleep, when breathing is not labored, the heart rate remains relatively stable. However, obstruction of the airway triggers the body to work harder to obtain oxygen. When the body puts forth additional effort to obtain oxygen during sleep, microarousals (MA) occur in which the brain wakes up while the person remains asleep. This is referred to in the literature as a "Respiratory Effort-related Arousal."[29,35]

MA have been shown to be associated with an increase in heart rate (tachycardia), as well as increased muscle tone and increased brain activity during sleep.[19,36] MA have been described as "part of a natural process that acts as a sensor for maintaining body homeostasis and as a protective sentinel during sleep."[28,37] MA are indicative of sleep fragmentation and are associated with the development of daytime fatigue and sleepiness.[29]

SB, a more intense and more frequent RMMA with teeth contact occurring, was first associated with RMMA in 1968 by Reding and colleagues.[20,30] Later research by Kato and colleagues in 2002 showed that RMMA-SB could be induced with experimentally produced microarousals.[18] Kato and colleagues stated in 2011 that RMMA-SB


James Forester, DDS

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

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

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

Join. Share.
cda.org/member

Progress.
It's what happens when
25,000 dentists work together.

cda®

can be considered "an oromotor activation secondary to mircoarousal."[31]

RMMA episodes are far more frequent in SB patients than healthy subjects. In Kato's experimental microarousal study in 2008, SB patients experienced RMMA episodes seven times more frequently than did normal subjects.[18] Experimentally induced MA was followed by teeth contact in more than 80 percent of trials in SB patients, although not all RMMA episodes in SB patients result in teeth contact.[29]

Sleep position also affects the occurrence of SB episodes; more SB episodes occur in patients sleeping in the supine position (sleeping on the back). This could be due to reduction in airway passage, which leads to obstructed breathing.[26,29,38-41] Research has shown that reducing obstructed breathing during sleep results in a reduction of RMMA. Landry, Rompre, and Manzini et al. reported that RMMA frequency could be reduced by 60 percent with the use of a mandibular advancement appliance to open the airway during sleep.[42,43]

Sleep Bruxism as a Result of Tachycardia

SB is a consequence of microarousal and its resulting tachycardia. In 2001, Kato et al. reported that SB may be a secondary activity of "microarousal represented by ... autonomic cardiac fluctuations."[24,31,44] Lavigne and colleagues demonstrated in 2007 that SB is related to MA through a series of physiological activations whose sequence begins approximately four minutes prior to RMMA when a rise in sympathetic cardiac activity is observed.[19,28,31,42,45-47] The amplitude and frequency of respiration increase, and are associated with the increase of autonomic sympathetic activity.[19,42] Next, a rise in EEG activity is seen four seconds prior to the RMMA. Tachycardia is then observed one heartbeat prior to the RMMA. One heartbeat later, an RMMA episode is observed, with or without teeth contact.[28]

Sleep Bruxism Stimulates the Vagal Response

Though evidence has shown that RMMA-SB is an oromotor activity secondary to sleep microarousal, a definitive physiological explanation of the purpose of SB has not been confirmed in the literature.[19,24,31,48,49] However, physiologically, SB can be seen to be a form of autoregulation reaction to protect the body from nighttime occurrences of tachycardia. The brain microarousals and resultant tachycardia trigger a goal-oriented RMMA-SB episode, which in turn may initiate a trigemino-cardiac reflex, ultimately causing immediate bradycardia. As discussed earlier, stimulation of the trigeminal nerve by stimulation of the facial masticatory muscles initiates a TCR, causing a vagal reaction responsible for sudden slowing of the heartbeat.

TEETH CONTACT caused by SB may produce an even stronger cardiac autoregulation of bradycardia than through RMMA alone.

Rhythmic activity of the masticatory muscles by RMMA is not the only way to stimulate the trigeminal nerve pathway and thereby trigger the TCR. Through the study of pressor response from biting, Okada et al., in 2009, observed that mechanoreceptors in the periodontal tissues also stimulate the TCR.[50] Teeth contact caused by SB may produce an even stronger cardiac autoregulation of bradycardia than through RMMA alone by not only increasing the intensity and frequency of the muscular contractions, but the increased pressure of the teeth contact also causes the periodontal mechanoreceptors to further trigger the TCR and resultant bradycardia.

Research reported by Lavigne et al. in 2008 showed that the use of clonidine "significantly reduced the RMMA-SB index by 60 percent in comparison to placebo."[29] The fact that clonidine, a drug that lowers the heart rate, reduced SB episodes suggests that a reduction in nighttime heart rate leads to a decreased need for TCR-induced bradycardia, and therefore, less SB is required to occur. When the subject is not experiencing tachycardia, the need for autoregulation by bruxism diminishes.

Lavigne and colleagues hypothesized in 2008 that RMMA could be triggered by a decrease in salivary flow, and RMMA "could be associated with the need for an increase in salivary flow during sleep to lubricate the oro-esophageal tissues."[25,29,38,51] Generally, salivary flow in humans is lower during sleep.[29,51-53] Swallowing frequency during sleep is approximately two to nine times per hour, compared with 25-60 times per hour while awake.[29,54] Lavigne et al. suggested that RMMA-SB patients may have lower oral salivary volume as they rarely swallow during sleep. In the minutes prior to observed RMMA-SB episodes, no swallowing was observed in SB patients where approximately half the teeth contact episodes ended in large swallowing movements.[29,54]

While SB patients may indeed have low salivary flow, the extra saliva production and subsequent swallowing move-

ments may be a byproduct of increased vagal activity resulting from RMMA-SB, and not the main purpose of RMMA-SB. Physiologically, RMMA-SB accelerates the promotion of saliva secretion by "enhanced vagus nerve activity."[55,56]

Sleep Bruxism as a Result of Upper Airway Instability

There are observations that SB is a manifestation of decreased oxygenation, which is a result of increased work of breathing due to upper airway instability during sleep.[43] The decreased oxygen and inadequate respiration occurs through decreased muscle tone of the upper airway. It was hypothesized that upper airway instability acts as the primary trigger leading to SB whereby the SB serves to open the airway.[43]

Conclusion

RMMA-SB mechanism may indeed function to counter an unstable upper airway, in addition to the physiologic evidence that supports the conclusion that RMMA-SB is an autoregulatory mechanism to protect the body from nighttime occurrences of tachycardia through stimulation of the trigeminal nerve, which thereby triggers the TCR that results in a bradycardia effect.■■■■

REFERENCES

1. Sandu N, Spiriev T, et al, Trigemino-cardiac-reflex-examination-group (TCREG). New molecular knowledge towards the trigeminocardiac reflex as a cerebral oxygen-conserving reflex. *Scientific World J* 10:811-7, May 4, 2010.
2. Schaller B, Cornelius JF, et al, Trigemino-cardiac reflex examination group (TCREG). The trigemino-cardiac reflex: an update of the current knowledge. *J Neurosurg Anesthesiol* 21(3):187-95, July 2009.
3. Prabhakar H, Anand N, et al, Sudden asystole during surgery in the cerebellopontine angle. *Acta Neurochir (Wien)* 148(6):699-700, June 2006.
4. Prabhakar H, Rath GP, Arora R, Sudden cardiac standstill during skin flap elevation in a patient undergoing craniotomy. *J Neurosurg Anesthesiol* 19(3):203-4, July 2007.
5. Arasho B, Sandu N, et al, Management of the trigeminocardiac reflex: facts and own experience. *Neurol India* 57(4):375-80, July-August 2009.
6. Gorini C, Philbin K, et al, Endogenous inhibition of the trigeminally evoked neurotransmission to cardiac vagal neurons by muscarinic acetylcholine receptors. *J Neurophysiol* 104(4):1841-8, October 2010.
7. Kumada M, Dampney RA, Reis DJ, The trigeminal depressor response: a novel vasodepressor response originating from the trigeminal system. *Brain Res* 119:305-26, 1977.
8. Kumada M, Dampney RA, et al, Hemodynamic similarities between the trigeminal and aortic vasodepressor responses. *Am J Physiol* 234:H67-73, 1978.
9. Schaller B, Trigemino-cardiac reflex during microvascular trigeminal decompression in cases of trigeminal neuralgia. *J Neurosurg Anesthesiol* 17:45-8, 2005a.
10. Schaller B, Trigemino-cardiac reflex during transsphenoidal surgery for pituitary adenomas. *Clin Neurol Neurosurg* 107(6):468-74, October 2005b.
11. Wolf S, Bradycardia of the dive reflex - a possible mechanism of sudden death. *Trans Am Clin Climatol Assoc* 76:192–200, 1965.
12. Tipton MJ, The initial responses to cold-water immersion in man. *Clin Sci* (Lond) 77(6):581-8, December 1989.
13. Acar B, Yavuz B, et al, Parasympathetic overactivity in patients with nasal septum deformities. *Eur Arch Otorhinolaryngol* 267(1):73-6, January 2010.
14. Baxandall ML, Thorn JL, The nasocardiac reflex. *Anaesthesia* 43:480-1, 1988.
15. Betlejewski S, Betlejewski A, et al, Nasal-cardiac reflex. *Otolaryngol Pol* 57(5):613-8, 2003.
16. Bohluli B, Ashtiani KA, et al, Trigeminocardiac reflex: a maxfax literature review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 108:184-8, 2009.
17. Edmondson HD, Gordon PH, et al, Vasovagal episodes in the dental surgery. *J Dent* 6(3):189-95, Sept. 1978.
18. Kato T, Montplaisir JY, et al, Evidence that experimentally induced sleep bruxism is a consequence of transient arousal. *J Dent Res* 82(4):284-8, 2003.
19. Huynh N, Kato T, et al, Sleep bruxism is associated to microarousals and an increase in cardiac sympathetic activity. *J Sleep Res* 15:339-46, 2006.
20. Dutra KMC, Pereira JR FJ, et al, Orofacial activities in sleep bruxism patients and in normal subjects: a controlled polygraphic and audio-video study. *J Oral Rehabil* 36:86-92, 2009.
21. Lavigne GJ, Rompré PH, et al, Rhythmic masticatory muscle activity during sleep in humans. *J Dent Res* 80:443-8, 2001.
22. Bader G, Lavigne GJ, Sleep bruxism; an overview of an oromandibular sleep movement disorder: review article. *Sleep Med Rev* 4:27-43, 2000.
23. Lavigne GJ, Rompré PH, Montplaisir JY, Sleep bruxism: validity of clinical research diagnostic criteria in a controlled polysomnographic study. *J Dent Res* 75:546-52, 1996.
24. Macaluso GM, Guerra P, et al, Sleep bruxism is a disorder related to periodic arousals during sleep. *J Dent Res* 77(4):565-73, April 1998.
25. Lavigne GJ, Manzini C, Kato T, Sleep bruxism, in: Kryger MH, Roth T, Dement WC, eds. Principles and practice of sleep medicine. Philadelphia, WB Saunders, 946-59, 2005.
26. Miyawaki S, Lavigne GJ, et al, Association between sleep bruxism, swallowing-related laryngeal movement, and sleep positions. *Sleep* 26:461-5, 2003.
27. Rompré PH, Daigle-Landry D, et al, Identification of a sleep bruxism subgroup with a higher risk of pain. *J Dent Res* 86:837-42, 2007.
28. Lavigne GJ, Huynh N, et al, Genesis of sleep bruxism: motor and autonomic-cardiac interactions. *Archives Oral Biol* 52:381-4, 2007.
29. Lavigne GJ, Khoury S, et al, Bruxism physiology and pathology: an overview for clinicians. *J Oral Rehabil* 35:476-94, 2008.
30. Reding GR, Zepelin H, et al, Nocturnal teeth-grinding: all-night psychophysiologic studies. *J Dent Res* 47:786-97, 1968.
31. Kato T, Rompré PH, et al, Sleep bruxism: an oromotor activity secondary to microarousal. *J Dent Res* 80(10):1940-4, 2001.
32. Saper CB, Scammel TE, Lu J, Hypothalamic regulation of sleep and circadian rhythms. *Nature* 437:1257-63, 2005.
33. McCarley RW, Chokroverty S, Introduction to special issue of sleep medicine. *Sleep Med* 8:289-90, 2007.
34. Ohayon MM, Li KK, Guilleminault C, Risk factors for sleep bruxism in the general population. *Chest* 119(1):53-61, January 2001.
35. AASM, International classification of sleep disorders, second ed., Westchester: American Academy of Sleep Medicine, 2005.
36. Bonnet MH, Arand DL, Impact of activity and arousal upon spectral EEG parameters. *Physiol Behav* 74:291-8, 2001.
37. Terzano MG, Parrino L, Origin and significance of the cyclic alternating pattern (CAP): review article. *Sleep Med* 4(1):101-23, 2000.
38. Lavigne GJ, Kato T, et al, Neurobiological mechanisms involved in sleep bruxism. *Crit Rev Oral Biol Med* 14:30-6, 2003.
39. Miyamoto K, Ozbek MM, et al, Mandibular posture during sleep in healthy adults. *Arch Oral Biol* 43(4):269-75, April 1998.
40. Shea SA, Edwards JK, White DP, Effect of wake-sleep transitions and rapid eye movement sleep on pharyngeal muscle response to negative pressure in humans. *J Physiol* 520:897-908, 1999.
41. Trudo FJ, Gefter WB, et al, State-related changes in upper airway caliber and surrounding soft-tissue structures in normal subjects. *Am J Respir Crit Care Med* 158:1259-70, 1998.
42. Khoury S, Rouleau G, et al, A significant increase in breathing amplitude precedes sleep bruxism. *Chest* 134(2):332-7, August 2008.
43. Landry M, Rompré PH, et al, Reduction of sleep bruxism using a mandibular advancement device: an experimental controlled study. *Int J Prosthodont* 19:549-56, 2006.
44. Montagna P, Lugaresi E, Plazzi G, Motor disorders in sleep. *Eur Neurol* 38:190-7, 1997.
45. Bonnet MH, Arand DL, Heart rate variability: sleep stage, time of night, and arousal influences. *Electroencephal Clin Neurophysiol* 102:390-6, 1997.
46. Brandenberger G, Ehrhart J, et al, Inverse coupling between ultraradianoscillations in delta wave activity and heart rate variability during sleep. *Clin Neurophysiol* 112:992-6, 2001.
47. Otzenberger H, Simon C, et al, Temporal relationship between dynamic heart rate variability and electroencephalographic activity during sleep in man. *Neurosci Lett* 229:173-6, 1997.
48. Carra MC, Rompré PH, et al, Sleep bruxism and sleep arousal: an experimental challenge to assess the role of cyclic alternating pattern. *J Oral Rehabil* 38(9):635-42, September 2011.

49. Sato T, Harada Y, Tooth-grinding during sleep as an arousal reaction. *Experientia* 27:785-6, 1971.
50. Okada Y, Kamijo Y, et al, Pressor responses to isometric biting are evoked by somatosensory receptors in periodontal tissue in humans. *J Appl Physiol* 107(2):531-9, August 2009.
51. Thie NM, Kato T, et al, The significance of saliva during sleep and the relevance of oromotor movements. *Sleep Med Rev* 6(3):213-27, June 2002.
52. Schneyer LH, Pigman W, et al, Rate of flow of human parotid, sublingual, and submaxillary secretions during sleep. *J Dent Res* 35(1):109-14, February 1956.
53. Gemba H, Teranaka A, Takemura K, Influences of emotion upon parotid secretion in human. *Neurosci Lett* 211(3):159-62, June 28, 1996.
54. Lichter I, Muir RC, The pattern of swallowing during sleep. *Electroencephal Clin Neurophysiol* 38:427-32, 1975.
55. Hasegawa Y, Sakagami J, et al, Circulatory response and autonomic nervous activity during gum chewing. *Eur J Oral Sci* 117:470-3, 2009.
56. Jensen JC, Brodin P, et al, Parotid salivary flow in response to mechanical and gustatory stimulation in man. *Acta Physiol Scand* 131:169-75, 1987.

TO REQUEST A PRINTED COPY OF THIS ARTICLE, PLEASE CONTACT Joseph Schames, DMD, 12243 S. Hawthorne Blvd., Hawthorne, Calif., 90250.

A site to behold.

The CDA Foundation website has a whole new look. It's been redesigned to reflect our focus, to care for California's most vulnerable citizens.

Check it out.

cdafoundation.org

cda® FOUNDATION

Specializing in the Selling and Appraising of Dental Practices

CALIFORNIA PRACTICE SALES INC.

Serving California Since 1974

"Your local Southern California Broker"

Phone: (714) 639-2775
(800) 697-5656
Fax: (714) 771-1346
Email: jknipf@aol.com
rpalumbo@calpracticesales.com
WWW.CALPRACTICESALES.COM

John Knipf & Robert Palumbo

LOS ANGELES COUNTY

ARCADIA - (GP) Modern designed fee for service off. w/ 50 yrs of gdwll. 3 ops & 2 chairs in open bay. ID #4137.
LOMITA - Established in 2007 in a single retail building w/ heavy traffic flow. Seller works 3 dys/wk. Grossed ~$222K in 2011. ID#4087.
LOS ANGELES - General Practice w/ 18 yrs gdwll in free standing bldg with 5 spacious ops. Monthly revenues of $30K/mo. ID# 4113.
LOS ANGELES (GP) - State-of-the art off w/ 34 yrs gdwll on one of the busiest blvds. Has 4 eq. ops w/. Dentrix software. ID#4147
SAN GABRIEL (Spec./GP) - 2 practices bundled here that can be sold together or separately. Corner location w/ great signage. ID#4139.
SANTA CLARITA - GP nestled up against the mountains with a beautiful view. Consists of 4 eq. ops & 2 plmbd in 1 story bldg. ID#4133.
TARZANA - Located in 3 story Med bldg. 5 eq ops. Seller works 2.5 days/wk. Grossed $447,681 in 2011. NET OF $163K ID #4157.

TORRANCE - Leasehold & Equip Only! Modern designed office established ~10.5 yrs ago w/ 3 eq ops. ID #4125**SOLD**
SOUTH GATE - Equip & Charts! Fee for service office on busy shopping center w/ 2 eq ops & 2 ops to expand.ID # 4199.
W. HOLLYWOOD - Located in Prestigious bldg w/ mountain views. 3 ops. 48 yrs of gdwll. Grossed approx.$1,031,093 in 2011. ID#4153.
WESTLAKE VILLAGE - Equip & Charts! Beautiful office set up for Paperless / Digital. Located on 2nd floor of Med bldg. ID #3211.
WESTWOOD (GP) - With over 30 years of goodwill this modern designed office is in a 12 story med/dent bldg. 2 eq ops. ID # 4181.

ORANGE COUNTY

ANAHEIM (GP) - Turn-key practice located in busy shopping center. Established in 1999. State-of-the-art facility w/ 4 eq. ops. ID #4171.

HUNTINGTON BEACH - Long established practice in 1 story shopping center w/ 4 eq. ops. Grossed $430K in 2011. ID #4145 **SOLD** .
IRVINE - Located in busy shopping cntr w/ lots of foot traffic. Modern designed w/ 4 eq. ops. Over 10 years of goodwill. ID #4053.
IRVINE - Great opportunity for GP or Specialist!! Leasehold & Equip Only! 5 eq. ops. located in busy large shopping center. ID #3401.
LAGUNA HILLS - General practice located in 2 story busy shopping center. 19 yrs gdwll. 4 eq. ops. NET OF $230K . ID # 4155.
LAGUNA NIGUEL - Turn key office located in busy shopping center w/ 3 eq ops in 1,119 sq. ft. suite. Digital office. ID#4163
ORANGE - Fee for service practice open 4 days/wk located in a single story med center w/ 4 eq. ops., on a 1,040 sq. ft. suite.ID #3531.
SANTA ANA (GP) - Turn-Key Location. Absentee owner. Long established practice w/ 4 eq ops. Seller owns Bldg. ID #4071.

RIVERSIDE / SAN BERNARDINO COUNTIES

CATHEDRAL CITY - Leasehold & Equip Only! Bank owned location. Consists of 7 spacious eq. ops. Corner location. ID # 4173.
CHINO HILLS - Equip & Charts! Excellent starter opportunity. Has 4 ops in a busy shopping center. Off freeway. ID # 4135.
LA QUINTA - Price Reduced. Leasehold & Equip Only! Located in strip shopping center W/ 3 eq. ops, 1,000 sq. ft. ste.ID#4063
LAKE ELSINORE (GP) -This modern design office established in 2007. Has great visibility and signage. Some Cap. ID #4189.
LOMA LINDA - Office is 1,100 sq. ft. w/ 4 eq. ops. Has Easy Dental, Pano & Ceph. 12 yrs gdwll. Grossed ~$900K in 2011. ID#4131.
RANCHO CUCAMONGA - Leasehold & Equip Only! Consists of 4 eq. ops in a 1,275 sq. ft. suite in busy shopping center. ID # 4161.
TEMECULA (GP) - Fee for service practice w/ over 20 yrs of gdwll. Consists of 1,999 sq. ft. suite w/ 6 fully eq. ops. ID #4143.
TEMECULA - Leasehold & Equip Only! Bank owned office with 2 eq. ops, 2 plumbed not eq. in a 3 story prestigious building. ID #4159.

VENTURA & KERN COUNTY

BAKERSFIELD (GP) - Located in free standing bldg owned by Seller. 3 eq ops. Ins/Cash/Medi-cal/Some Cap. NET OF $354K. ID #4165
PORT HUENEME (GP) - Absentee Owner Practice. Established in 1980. Consists of 3 eq. ops, in a 920 sq. ft. suite. ID #4167
VENTURA COUNTY - Modern designed state-of-the-art practice in single story building. Grossed ~761,436 in 2011. ID #4151 **SOLD**

Need CE Credits View Upcoming Continuing Education Opportunities
http://www.calpracticesales.com/blog

Call us about Debt Consolidation & Retirement Planning
VISIT OUR WEBSITE WWW.CALPRACTICESALES.COM
CA DRE#00491323

John Knipf
President

Also serving you: Robert Palumbo, Executive V. P. /Partner, Alice C. King, V.P., Greg Beamer, V.P., Tina Ochoa, V.P., & Maria Silva, V.P.

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.

OFFICES FOR RENT OR LEASE

OFFICE FOR RENT OR LEASE — Dentists and Dental Specialists Complete Dental Operatory available for rent on a daily, weekly or monthly basis. Fees are negotiable. Our Professional Dental practice is located in Beverly Hills, CA. 90212, in the desirable 'Medical triangle' business section on Wilshire Blvd. Contact us via email and include the following: 1) "Operatory rental" in the email subject line 2) Date and times you would like to rent the space. 3) Up to date resume and references. 4) Personal statement regarding your goals, both long and short term. Contact drtt@mac.com.

OFFICE FOR RENT OR LEASE — Best for established, reputable dentist to sublease/share a beautiful, ample parking and modern 1,500 sq. ft. office with a general dentist in South Gate, for those who have an existing patient pool. The office was established and very accessible to all public area. Has 5 ops with 4 plumbed, front office, consultation room, lab room, sterilization/dispensary area, and beautiful waiting room. Save on overhead and be your own boss. Working days are negotiable. Must bring own patients. Email info@iwinsmiles.com to visit our office. Specialists welcome. Days and terms flexible.

CONTINUES ON 680

CLASSIFIEDS, CONTINUED FROM 679

OFFICE FOR RENT OR LEASE — Brand new state of the art dental office (1,400 sq. ft., 5 ops) is available for lease. Panorex available. Contact vunvhuy@yahoo.com or 408-489-3177.

OFFICE FOR RENT OR LEASE — Two dedicated ops 7 days a week. Beautiful, peaceful, spacious, state-of-the-art office on Chapman Ave, in downtown Orange. Trained staff on hand. Shared consultation and break room. Ground floor in a new building. Ample free parking. Possible future purchase opportunity. Owner practices 3 days. Negotiable terms on staff, use of equipment and instruments. Contact Dr. Lori Bagai at 714-604-6453, or email loriabagai@sbcglobal.net.

OFFICE FOR RENT OR LEASE — Space available for Specialist (Endo/Perio/OS) to lease on the 1st floor next to a GP in a 2-story building facing the street. Good visibility on Indiana Ave. $32K tenant improvement allowance for the 1,600 sq. ft. space. Rent is only $1.25/sq ft. Call for more info at 714-454-7119.

OFFICE FOR RENT OR LEASE — Orthodontic Space for rent/lease in the city of Tustin, CA. Contact: Sergio at 714-544-7440.

OFFICE FOR RENT OR LEASE — Dental specialist wanted to share a beautiful, modern, high-tech 2,254 sq. ft. office with a general dentist in Downtown San Diego, next to Petco Park. Great opportunity for those who have an existing patient pool, or starting to build their patient pool. The office was built in 2007 with state-of-the-art equipment. Office has 2.5 ops, 2 restrooms, office, consultation room, kitchen, lab, sterilization rooms, and reception area. 2 fully plumbed ops, with room for 6. Willing to plumb and equip more ops if needed. Save on overhead. Rent/percentage of production is negotiable. Working days are negotiable as well. Must bring own patients. Email d2thfixr@yahoo.com or call 619-237-0409.

OFFICES FOR SALE

OFFICE FOR SALE — Orthodontic office available in Encino. Orthodontist retiring after 32 years in same location. Recently remodeled. Four chairs in open bay and one private operatory. All leaseholds included in sale. Great opportunity for recent graduate to build a practice or for established orthodontist to relocate. Email drewstaxi@aol.com.

OPPORTUNITIES AVAILABLE

OPPORTUNITY AVAILABLE — We have a great opportunity for an experienced dentist in our world-class growing dental facility in Santa Clara. Come be a part of our multi-specialty dental practice where the patients always come first. If you have at least 5 years of hands-on experience and have the following qualifications we would love to hear from you: Experience in all phases of general dentistry; Experience in performing simple Root Canals and Extractions; Implant and Invisalign experience preferred but not required; Mind set to meet and exceed production goals without compromising quality dentistry. Highly competitive compensation. Email your resume to bayareadentist2009@gmail.com.

OPPORTUNITY AVAILABLE — Upscale dental office in Beverly Hills looking for an experienced front desk/receptionist. Minimum 2 years experience in the dental field is required. Treatment coordination and/or retail experience is advantageous. If you have exceptional personal communication skills, this is the job for you! Must be presentable, organized, motivated, work well with team and very devoted to your work. Salary and benefits are based on experience and long-term commitment. Only applications including the following will be reviewed: 1. Put "Dental Office Manager" in the email subject line. 2. Cover letter stating why you would be the best candidate for this job and your short and long term plans. 3. Resume and three references. Email drtt@mac.com.

CONTINUES ON 685

WESTERN PRACTICE SALES

John M. Cahill Associates

BAY AREA

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

AG-053 SAN FRANCISCO - Incredible visibility, signage, unique city views! 9ops +1 add'l **$750K**

AC-085 SAN FRANCISCO- Long established. 2nd floor. 1,433 sf overlooking Park Presidio. 4 large ops. Skylights/large windows **$189k**

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

BC-082 OAKLAND-On top of the Oakland Hills, in vibrant Montclair District. 900 sf w/3 ops and room for 4th **$475k**

BG-076 DUBLIN- Real Estate: 4,500 sf building includes 2,500 sf built out dental office. Add'l 2,000 sf rental property next door leased & providing you rental income & foot traffic **$1.35m**

BN-068 ORINDA - Attractive 2-story Professional building. Office is ~800sf w/3 ops. **$850k**

BN-051 HAYWARD— Well-established, family-oriented practice has ~1,000sf w/3 ops **$150k**

BN-052 PLEASANTON *Facility Only*— Spectacular 8-op office. Med Prof Bldg, 1950sf. **$195k**

CC-056 Marin County- With beautiful garden setting, this well maintained, attractive office is centrally located near popular shopping center. Easy access to Hwy 101. 1200sf w/ 3 ops. Room for 2 add'l ops **$350k**

CC-077 BENICIA- Highly visible. Within walking distance of downtown. 820 sf w/2 ops **$125k**

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

D-960 *Facility only* SAN JOSE -Opportunity to purchase condo suite also! 1,158sf w/3 ops **$65k**

DN-046 SANTA CRUZ AREA - Excellent location and visibility! Spacious 1,405sf w/3 ops **$675k**

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

DN-055 Facility MILPITAS - Located in bustling heart of town. Spacious, fully networked 4-op office (2 fully equipped ops). 1450 sf! **$125k**

DN-062 LOS ALTOS— ~1222 sf w/3 ops. **$250k**

DN-063 SAN JOSE - Long-established, Popular Retail Shopping Center. 780 sf w/ 2 ops **$95k**

DG-060 WATSONVILLE- Practice & Real Estate Available! Spectacular 2,245 sf w/ 4 ops. Call for Details!! **Practice: $250k / Real Estate: TBD**

DG-080 SUNNYVALE/FACILITY-Seller relocating! Offering all equipment & improvements for successful, highly visible dental practice! **ONLY $35k**

BAY AREA CONTINUED

DN-083 REDWOOD CITY- Modern, attractive, state-of-the-art practice! 2,315sf, 7ops **$395k**

DN-084 PALO ALTO - Location, location, location! Drawing from an educated, upper middle class community, this facility is "move-in" ready! 700 sf w/3 fully equipped ops **$125k**

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**

EC-045 SACRAMENTO - FFS, Established 20+ years. 1500 sf w/4 ops. Plumbed for 1 add'l op! **$320k**

EG-065 SACRAMENTO-Practice AND Property only $145k. Collections $350k+ '07. Huge growth potential!! 1,200 sf w/4 ops.

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. **Now $240k**

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

HC-054 SIERRA FOOTHILLS- Seller Retiring. 1,800 sf w/ 5 ops **$600k**

G-1019 WILLOWS AREA—Small Community practice! ~1,600sf w/ 2 ops. **$152k**

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

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

GN-058 YUBA CITY— Emphasis on quality dental care / patient comfort, 1,704sf w/ 4 ops **$450K**

GN-075 YUBA CITY—Well established practice w/ loyal patient base! ~3000 sf w/ 8 ops**. $350K**

HN-059 LASSEN CO-Quality, well-established, family-oriented practice. 1600sf w/3 ops **$120k**

SOUTHERN CALIFORNIA

KF-070 BREA-Affluent, loyal, stable, well-educated patient base. Highly-esteemed practice. 2,400 sf w/2 ops. Plumbed for 3 add'l **$350k**

CENTRAL VALLEY

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

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

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**

IC-066 TRACY - Modern, paperless, FFS practice. Excellent visibility! 1,600 sf w/ 4 spacious, fully-equipped ops; plumbed for 2more **$525k**

IG-067 STOCKTON- Fully computerized, paperless, digitalized. 5,000 sf w/10ops **$475k**

IN-071 MODESTO– FFS/Large/stable patient base. Real Estate available! Recently remodeled/ digitalized. 2,600 sf w/7ops ***$900k RE: $580k***

J-1000 TULARE– Highly visible location! ~1650sf w/ 4ops **Practice: $465k /Real Estate: $249k**

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

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

IN-072 STOCKTON-Fully computerized/ digitalized/ paperless. 3,290 sf w/10 ops. **$700k**

JN-074 CENTRAL VALLEY - This Seller is Extremely motivated! ~2,600 sf w/ + 1 add'l **$85k**

JG-079 FRESNO-Large, Stable Patient Base. Spacious 5,000 sf w/9 fully equipped ops. Plumbed for add'l ops **$250k**

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**

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**

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

GN-050 NORTHERN CA PERIO - An opportunity like this comes only once in a lifetime! Remodeled office is ~3,500 sf w/ 5 ops. **$1m**

800.641.4179

westernpracticesales.com

HENRY SCHEIN®
PROFESSIONAL PRACTICE TRANSITIONS

"DENTAL PRACTICE BROKERAGE"

Making your transition a reality.

ADA BOOTH # 1042

More information is available on our website regarding practices listed in other states, articles, upcoming seminars and more.

For more information regarding the listings below:

VISIT OUR WEBSITE AT:
WWW.PPTSALES.COM
(Practice Opportunities)

Practice Sales • Mergers
Partnerships • Appraisals
Patient Record Sales

- **ANAHEIM:** *For Sale*-General Dentistry Practice. This 3 op had $253,000 in collections in 2011. There are 3 ops in this 864 sq. ft. office with 1.5 days of hygiene. Owner works 3 days per week. No welfare or HMO's. Laser, Dentrix Software and Intra-Oral Camera.

- **BISHOP:** *For Sale*-General Dentistry Practice and Building. After 29 years in the same location this retiring dentist is selling both his practice and building. Collections were $1,000,243 in 2011 with $387,000 Adjusted net income. There are 6 days of hygiene in this 5 op 1,800 sq. ft. building. 100% financing is available for both building and practice.

- **CHICO:** *For Sale*-General Dental Practice. The collections in 2011 were $1,209,207. There are 7 days of hygiene in this 5 operatory, 2,400 sq. ft. office. Equipment includes Laser, Intra-Oral camera, new Cone Beam X-ray and Dentrix software. This excellent practice has 1,824 active patients with 12 new patients a month.

- **CHULA VISTA:** *For Sale*-General Dentistry Practice and Building. **DECEASED DENTIST** as of March 25th, 2012. This beautiful 11 op. office located in a highly visible prime area in Chula Vista, had collections of $1,684,000 in 2011 and $1,730,000 in 2010. There are 5 days of hygiene with approx. 30 new patients per month. Lasers, Intra-Oral Camera, Pan-Ceph, etc. Practice has been in this location since 1998. 100% financing available for practice and building. Staff will stay. #14394 SOLD

- **EAST BAY:** For Sale-ENDODONTIC PRACTICE. The adjusted net income was $186,000 in 2011 in this 3 operatory, 1000 sq. ft. office. Includes Microscope, X-ray Scanner and PBS software. Transfer of referral base should be excellent. Ideal office for new endodontist or as a satellite practice for established practitioner. Dr. is retiring.

- **FRESNO:** *For Sale*-General Dentistry Practice: $935K in collections in 2011, w/adjusted net income of $337K, 15% of practice is HMO. Office is 2,300 sq. ft. and is located in north Fresno in a highly visible professional office complex on a main thoroughfare. There are 6 equipped operatories, owner reports average age of equipment is 4 years. Practice has been operating in present location for over 20 years. Eaglesoft software, owner is retiring. #CA502

- **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 SOLD

- **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. SOLD

- **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. Owner retiring. Well-designed 1,550 sq. ft. office with 4 ops plumbed, 3 ops furnished. Gross Receipts for 2011 were $309K on easy 3 days/wk with low (47+%) overhead. Practice refers out Endo, Perio, Surgery & Ortho. Pano, PBS software. May be able to merge with another existing practice that will also be for sale in the near future, This merger would result in $800,000 gross annually. #CA503

- **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 SACRAMENTO:** *For Sale*-Periodontal Practice: Retiring owner is the only Periodontist in a comunity of 50+K with a draw area of 100K. Implant experience a must. Great opportunity to work closley with a Prosthodontist and an Endodontist. Nicely appointed 1,500 sq. ft. office with 5 operatories, Digital X-rays and Dentrix software. 2011 gross receipts of $719K. #CA500.

- **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 1,680 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. SOLD

- **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.

- **MILLBRAE:** *For Sale*-General Dentistry Practice. This beautiful, well-established office is located on the main thoroughfare of the North Penninsula, offering great exposure that generates 25-30 new patients per month. 5 treatment rooms (6th plumbed) in approx. 1,500 sq. ft. equipped with Digital Pan, Digital Imaging and Intra-Oral Camera. 2011 gross receipts of $651,000 with $230,000 adjusted net income. Owner is retiring. Don't delay, this won't last long! #14395

- **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.

- **MOUNTAIN VIEW:** *For Sale*-General Dentistry Practice: This 2 day per week satellite office is located the heart of Silicon Valley, surrounded by most of Mountain View's largest employers. 2 fully equipped treatment rooms (expandable to 4), Pano, Digital Processor and Dentrix Software in approx.. 1500 sq. ft. With household names as your neighbors, few opportunities are this good! #14398

- **MORGAN HILL:** *For Sale*-General Dentistry Practice & Building. DECEASED DENTIST AS OF JUNE 6TH, 2012. The office and equipment are only 5 years old. The office is beautifully decorated and efficiently laid out with 5 operatories. The condominium space is located in highly visible, upscale, professional office building. 2011 gross SALE PENDING

CALIFORNIA / NEVADA REGIONAL OFFICE

HENRY SCHEIN PPT INC.
California Regional Coporate Office
DR. DENNIS HOOVER, Broker
Office:(800) 519-3458 Office (209) 545-2491
Fax (209) 545-0824 Email: dennis.hoover@henryschein.com
5831 Stoddard Road, Ste. 804 Modesto, CA 95356

Henry Schein PPT Inc., Real Estate Agents
and Transitions Consultants
Dr. Tom Wagner (916) 812-3255 N. Calif.
Jim Engel (925) 330-2207 S.F./Bay Area
Mario Molina (323) 974-4592 S. Calif.
Thinh Tran (949) 533-8308 S. Calif.

HENRY SCHEIN®
PROFESSIONAL PRACTICE TRANSITIONS

Dr. Dennis Hoover
Western Regional Manager
& Corporate Broker
CA R.E. Lic. #01233804
NV R.E. Lic. #0053890 • NV B.O. Lic. #0000301

Dr. Thomas Wagner
Transitions Consultant
CA R.E. Lic. #01418359

Jim Engel
Transitions Consultant
CA R.E. Lic. #01898522

Thinh Tran
Transitions Consultant
CA R.E. Lic. #01863784

Mario Molina
Transitions Consultant
CA R.E. Lic. #01423762

receipts were $846,000. Intra-oral Camera, Panoramic X-Ray and Digial X-Ray. Staff and hygiene are working daily with out-of-the-area doctor covering. Approximately 1,700 active patients. #14399

- **NEWPORT BEACH:** *For Sale*-General Dentistry Practice. This 4 operatory practice is located in beautiful Newport Beach and is part of a large office complex. Gross receipts were $490K in 2011, with an average of 20 new patients per month. The office is 920 sq. ft. with Dentrix software, Dental laser, and up-to-date equipment. #14397 SOLD

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

- **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

- **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. SOLD

- **NORTH OF SAN FRANCISCO:** *For Sale*-PERIODONTAL PRACTICE. Owner retiring: Great opportunity for a Periodondist with experience in dental implant placement. This well-appointed practice is located in a 1,300 sq. ft. office with 4 operatories along the busy 101 corridor north of San Francisco. 2011 gross receipts of $558,000. DSN software. Buyer will be the only full-time periodontist in an area with the population of approximately 60,000. #14396

- **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

- **ROSEVILLE:** *For Sale*-General Dentistry Practice. Great Location. 2009 GR $700K with adjusted net income of $300K. 1575 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:** Must be sold immediately. Well-established General Dentistry practice is desirable N. Sacramento location. Office is 1950 sq. ft. with 4 ops. plus fully functional dental lab. (porcelain oven, casting, splints) which can be converted into 2 additional ops., Digital x-rays and digital Pan, Practice Works software, 2010 Net receipts $1,967,047. Don't assume anything about the purchase price. Inquire immediately. Purchase price is totally negotiable.

- **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 SOLD

- **SAN DIEGO:** *For Sale*-General Dentistry Practice. 6 ops, Intra-Oral camera, Eagle Soft Software. Office square feet 2,300 with 5 yrs 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*-General Dentistry Practice. This 1000 sq. ft. office is located in the heart of the financial district. It is a corner office with each of the 4 operatories looking out at the incredible views on Golden Gate side of the bay. The 2011 collections were $1,200,000 with a low overhead. The practice averages approximately 15 new patients a month.

- **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. 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 SOLD

- **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. 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 SOLD

- **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

- **VICTORVILLE:** *For Sale* - General Dentistry Practice. This practice is worked just on a three day a week schedule. There are 3 operatories with 10 off-street parking spaces. Practice has high visibility. The practice was acquired from previous owner in 2002. #14393

CALIFORNIA / NEVADA REGIONAL OFFICE

THE SNYDER GROUP
A DIVISION OF HENRY SCHEIN®

HENRY SCHEIN®
PROFESSIONAL PRACTICE TRANSITIONS

CLASSIFIEDS, CONTINUED FROM 680

OPPORTUNITY AVAILABLE — Elite, prosthodontic, fee-for-service Beverly Hills dental practice is in need of Dental Hygienist. Initial employment will consist of part time. The opportunity for full time employment will present itself in the near future. Ideal candidate will have a Bachelor's degree, personable, hard working, team player and understands how to support the practice philosophy. Only emails with the following will be reviewed: 1. Put "Dental Hygienist Position" in email subject. 2. Days and time available. 3. Statement describing your experiences and short and long term goals. 4. Statement describing why would you be the best candidate for the job. 5. Resume. Email drtt@mac.com.

OPPORTUNITY AVAILABLE — Dental assistant wanted for leading cosmetic Beverly Hills dental practice. Looking for an experienced DA with a valid CA X-ray license. Applicants should be capable and comfortable assisting with front office duties when needed. A current CV or resume should accompany your application and be attached to your email. A personal statement that illustrates your previous experience as well as your short and long-term goals should also be included and attached via email. Applications should be made via email and include completed answers to the aforementioned questions as well as those below: 1. "Dental Assistant" should be the subject line in the email. 2. Expected pay rate. 3. Are you looking for full or part-time work? 4. A brief statement describing why you would be the best candidate for the job and those assets you feel you would bring to the dental practice. Email drtt@msc.com.

OPPORTUNITY AVAILABLE — Sierra Family Medical Clinic and Dental Services, a very busy, progressive and dynamic medium-sized community health center is ready to hire a P/T or F/T licensed Dentist primarily for our Mobile Dental Program serving the Nevada County area. We are a leader in the integrated medical/dental/behavioral health model for rural health care. Experience, desire and comfort in working with a widely varied patient population including the underserved. We take care of and welcome anyone needing care, regardless of ability to pay including children, the homeless, people in recovery, as well as low-income adults/Kids. In our ideal scenario, the mobile unit would be servicing the surrounding areas 3-4 days per week with some time spent in our on-site clinic, which is located in the gorgeous Sierra Nevada foothills. Call Wendy at 530-292-3478 x 207 or email WBarnhart@sierraclinic.org.

OPPORTUNITY AVAILABLE — We are looking for a General Dentist for a growing office in Watsonville. If you have at least 3 years of hands-on experience and have the following qualifications we would love to hear from you: Experience in all phases of general dentistry; Experience in performing Root Canals and extractions; Complex root canals and extractions can be referred out to in-house specialists; Implant experience preferred but not required; Invisalign experience highly desired; Mind set to meet and exceed production goals without compromising quality dentistry. Email your resume to bayareadentist2009@gmail.com.

OPPORTUNITY AVAILABLE — Dental hygienist in quality PPO/FFS practice. Outstanding patient care practice looking for an established, experienced hygienist. The ideal candidate must have 2+ years of experience with great social skills, able to multi-task and be a team player. We are looking for a candidate who enjoys being a hygienist with a positive attitude and delivering excellent care. Valid and current RDH license and current CPR required. Hygienist is responsible for evaluating overall oral health, examining oral cavity for signs of periodontal disease or possible cancers, including sores, recessed & bleeding gums, and oral lesions. Perform tasks such as prophylaxis, periodontal scaling, root planning, debridement, application of fluoride treatments, and application of protective sealants. Come and join a well-organized dental practice with a lot of growth potential. Submit your resume to smileexpressiondds@gmail.com.

OPPORTUNITY AVAILABLE — Dental assistant in quality PPO/FFS practice. Outstanding patient care practice looking for an exceptional dental assistant. The ideal candidate must have 2+ years of experience with great social skills, able to multi-task and be a team player. Responsibilities include prepping patient for dental examinations, performing chair- side duties, setting up procedure trays, take & mount digital X-rays and documenting patient medical history. Dental Assistant must have excellent communication skills, understand and deliver high level patient care and self-motivated. Our practice will offer education and training for a flexible professional who is willing to learn various aspects of the dental practice. Dentrix, Dexis and EZDental software knowledge is a plus. Come and join a well-organized dental practice with a lot of growth potential. Submit your resume to smileexpressiondds@gmail.com.

OPPORTUNITY AVAILABLE — Outstanding patient care practice looking for associate dentist to join our team. We focus on practicing high-quality dentistry and providing treatment counseling to patients in a comprehensive manner. Our practice offers competitive wages, benefits and a great work environment. Job requirements: General Dentists with 2-3 years experience; DDS or DMD with state license or regional boards to practice in California; Associate must be able to do restorative, cosmetic and family dentistry. Implant and Invisalign experiences preferred; Must have a current DEA certificate; Commitment to

CONTINUES ON 686

CLASSIFIEDS, CONTINUED FROM 685

quality patient care, excellent customer service, and to educating patients on dental health. Come and join a well-organized dental practice with a lot of growth potential. Submit your resume to smileexpressiondds@gmail.com.

OPPORTUNITY AVAILABLE — A growing practice in Turlock is in need of an experienced general dentist. We are a well-established practice with a team that is focused on providing the best quality service and customer care for our patients. Need a dentist who has not only great technical skills, but also one who is adept at treatment planning and communication. Financial and practice opportunity is limitless to the right individual. Email your CV to turlockolive@hotmail.com.

OPPORTUNITY AVAILABLE — Corona office seeking manager who is pleasant, organized, motivated, and friendly team player. Must have experience with HMO. Email shikhabanerjee@hotmail.com or call 951-733-8512.

OPPORTUNITY AVAILABLE — Dental assistant. Annual salary: up to $37,336 DOE, includes health benefits, retirement, and more. Works directly with the dentist and the dental healthcare team to provide quality oral healthcare for United Indian Health Service (UIHS) clients. Must have a California State Board RDA/CDA and 6 months to 2 years experience. In addition, have CA x-ray and coronal polish certificates. To apply visit www.uihs.org for an application. Please include a resume.

OPPORTUNITY AVAILABLE — Dentist wanted. Provides comprehensive dental care, diagnosis and treats, injuries, malformations of teeth and gums and related oral structures. Educational degrees must be from a US Department of Education accredited school. Graduation from a United States accredited dental school. Certificates, licenses and registration: Shall possess a current license to practice dentistry in the State of California. Must have a current California Dental X-ray certificate. Shall possess a valid Controlled Substances Registration Certificate. Shall be able to be enrolled as a Medi-Cal or other insurance provider. Must have or be able to obtain CPR certification within six months of hire and maintain such. Shall possess a valid driver's license. Must be able to be covered

CONTINUES ON 688

CARROLL & COMPANY

"MATCHING THE RIGHT DENTIST TO THE RIGHT PRACTICE"

Complete Evaluation of Dental Practices & All Aspects of Buying and Selling Transactions

Serving you: Mike Carroll & Pamela Gardiner

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

3073 LOS GATOS FACILITY
Great location with Beautiful State-of-the-Art Dental Office with 6 fully-equipped ops in approximately 2,000 sq. ft. of a magnificent designed setting. There is one additional private op plumed and ready to go. Equipment includes the 4 chairs, 4 stools, new Vacuum & Compressor, Ultra Sonic, Trash Compactor, large TV in reception area, Spectacular Water Fall in Hall Way and 2 swing through X-Rays. Owner willing to provide long term lease and or options to renew. Asking $195K.

3072 SOUTH BAY GP
Owner retiring from well est. 4 op GP in desirable commercial/residential mix neighborhood. Highly visible location near well travelled intersection. ~1,300 sq. ft. facility with dedicated parking lot, across from shopping plaza. Experienced & well trained, long term staff. 1,400 active patients (all fee-for-service) and 7 full days of hygiene. Ave. GR $840K+. Owner willing to help Buyer for a smooth transition. Asking only $503K.

3062 SAN JOSE OMFS
Established and well-respected OMFS available. Located in desirable professional & residential mix neighborhood 2 blocks from large mall. 1,080 sq. ft. office w/3 fully-equipped ops. Seller preparing to retire. 2010 GR $377K+. Asking $240K.

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). Asking $195K.

3075 DOWNTOWN SF GP
Owner retiring from exceptionally successful GP in downtown, SF. Gorgeous state-of-the-art office. w/ stunning views of San Francisco and the Bay. 4 year avg. GR $831,819. Approx. 1,200 active pts. Dedicated long term staff. Asking $660K.

3059 SANTA CRUZ COUNTY GP & BDG
Charming practice tucked among soaring redwoods in Santa Cruz County. 2011 GR $626K+ 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.

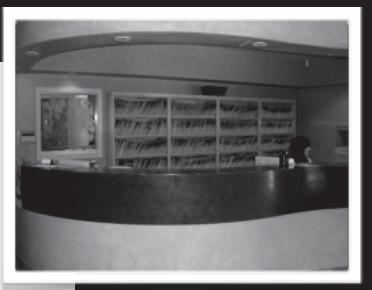
3064 SAN JOSE GP
Now available. Great turnkey opportunity. Beautiful 1,500 sq. ft. facility with 4 fully equipped ops. State-of-the-art fully networked office, Dentrix software, digital x-ray & recently purchased dental & office equipment. Avg. GR $328K+ with 4 doctor-days. Owner willing to help in transition.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

3074 SOUTH-PENINSULA GP
Successful neighborhood practice in single level medical and dental building on a highly visible corner on a well travelled intersection. ~1,500 sq. ft. office w/4 fully-equipped ops and space for 5. 2011 GR $720K+. Asking $523K.

3061 SAN JOSE DENTAL FACILITY
Dental facility ideal for Pediatric or easily converted to GP. Gross lease with utilities included expires July 2013 with 5 year option to renew. Modern, tastefully designed, approximately 1,321 square feet. Asking $95K.

3067 MID-PENINSULA GP
Gorgeous modern, highly visible GP in 3,000 sq. ft. office w/7 fully equipped ops. 5 years avg. GR $991K+. Asking $808K.

UPCOMING:
San Jose GP
Santa Rosa GP
Hollister GP



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

Phone:
650.403.1010

Email:
dental@carrollandco.info

Website:
www.carrollandco.info

CA DRE #00777682

CLASSIFIEDS, CONTINUED FROM 686

by agency's vehicle insurance and provide proof of valid private vehicle coverage. Apply at www.uihs.org and include CV.

OPPORTUNITY AVAILABLE — RDA wanted to assist in progressive orthodontic office. Dentrix and computer skills a plus. Mon-Thurs. 8:30 a.m. - 5:30 p.m. and Fridays 8:30 a.m. -12:30 p.m. Please Contact: Sergio 714-544-7440, fax 714-544-8653 or email karlnish@pacbell.net.

OPPORTUNITY AVAILABLE — Endodontist position part-time, 50% production-compensation, paperless office. Visit our website at www.gallerysmilesdentalcare.com. Email gallerysmilesdds@gmail.com or call 951-302-1937.

OPPORTUNITY AVAILABLE — Glidewell laboratories, the world's largest dental laboratory (leading in dental technology and dental manufacturing) is seeking a dentist with surgical and restorative implant experience. This is a full-time, exempt position, with benefits effective first day of hire (medical, dental, vision). 401k is effective after 90 days in position. Responsibilities: Perform implant and related surgeries at our training facility in Irvine, CA. Perform implant and conventional restorative procedures. Develop and implement content in various formats for training, education and marketing purposes. Train dentists on Glidewell products and techniques at educational programs and dental conferences. Assist in research and development projects. Develop digital implant treatment plans and consult with clinicians in guided surgery cases. Requirements: At least 5 years of extensive clinical experience with implant surgery and prosthetics. California licensed dentist in good standing. Email patty.kuo@glidewell-dental.com or call 949-440-3870.

OPPORTUNITY AVAILABLE — Office staff position part-time, 50% production-compensation, paperless office. Visit our website at www.gallerysmilesdentalcare.com. Email gallerysmilesdds@gmail.com or call 951-302-1937.

OPPORTUNITY AVAILABLE — Are you interested in an associateship, leading to a partnership? This successful, well-established general practice in the Central Valley offers a tremendous opportunity for a doctor proficient in all phases of general dentistry. Your ability to communicate effectively with patients and team through a professional demeanor will be highly valued. You will be supported by an experienced, dedicated staff who are devoted to the practice. The office has 5 operatories, Dentrix software and a long-term presence on a main street. There is no HMO or Medi-Cal. Email your resume to successdentalcv@aol.com.

OPPORTUNITY AVAILABLE — We are looking to establish an ortho department in our busy group practice. Currently refer out approximately 10-15 patients a month. Email resume to toothdoc8@hotmail.com.

OPPORTUNITIES WANTED

OPPORTUNITY WANTED — General dentist seeking an associate permanent position 2-3 days per week. Experience spans 20+ years private practice (owner) in the following areas: crown and bridge, composite resins, dentures, implant restoration, oral surgery and Invisalign. Work well with staff and patients. The greater Sacramento area, including outlying communities are of interest to me. Please call for more information at 916-439-7658.

OPPORTUNITY WANTED — After 20 years successful years, I sold my upscale, private practice and I am looking to relocate to Southern CA. Let me email you my list of advanced CE courses I have attended, as well as testimonials and photos from my previous patients. This will let you get to know a little bit about me, as well as the high quality of restorative and cosmetic dentistry I can provide. I have an excellent chair side manner; my patients and staff really know I care. I have my CA license, and can quickly be wherever needed when the right opportunity arises. I am looking for a long-term relationship in a high quality, patient centered office. Email tamjag@aol.com or call 949-922-5987.

OPPORTUNITY WANTED — Enthusiastic and highly motivated general dentist seeking FT/PT associate position. Experience with all aspects of dentistry including cosmetics, molar endo, etc. Great communication skills with a passion for patient care. Fluent in English, Mandarin and Cantonese. Email catlaudds@gmail.com for CV.

OPPORTUNITY WANTED — USC graduate and OKU inductee Member of Medi-Cal and good with kids. Fluent in English, Korean, and Japanese. This will bring a diverse of populations to your practice. Contact 213-321-2053.

DENTAL EQUIPMENT FOR SALE

DENTAL EQUIPMENT FOR SALE — Brand new Biolase Waterlase MD Turbo all tissue laser. Retails for $40K asking $29,500 obo. Email stateperio@gmail.com or call 415-378-7715.

CONTINUES ON 690

Professional Practice Sales

Specialists in the Sale and Appraisal of Dental Practices

Serving California Dentists since 1966

How much is your practice worth??

Selling or Buying, Call PPS today!

Practices Wanted

NORTHERN CALIFORNIA

(415) 899-8580 – (800) 422-2818
Raymond and Edna Irving
Ray@PPSsellsDDS.com
www.PPSsellsDDS.com
California DRE License 1422122

6008 MENDOCINO COAST - FORT BRAGG Cultural haven offers attractive lifestyle. 2011 collected $725,000 on Owner 3-day week. 4-days of Hygiene. Digital radiography. Computers in ops.

6020 PEDO PRACTICE - ATTRACTIVE FAMILY COMMUNITY 2012 trending $550,000+ in collections with Available Profits of $280,000+. Remarkable office with investment here topping $345,000. Computerized charting with digital Pano and Ceph. Full price $240,000.

6023 LOS GATOS - "SOLD" Part-time practice collected $240,000 with profits of $90,000. Computerized charting, digital radiography and digital Panorex.

6024 PERIO PRACTICE – SAN FRANCISCO'S SOUTH BAY On part time schedule of 19-hour week with 7-weeks off, collected $600,000 in 2011. 2012 trending Profits of $270,000. Attractive office, nice location. Full price $150,000.

6025 CENTRAL MARIN COUNTY - SAN ANSELMO Well established practice collected $490,000 in 2011 on 3-day week. 2+ days of Hygiene.

6026 SACRAMENTO 2011 collected $825,000 on 3-day week. Practice coupled with facility and location can do much more. Bring in specialists. Strong foundation can be developed into busier practice.

6027 PLEASANTON Collected $500,000 with Profits of $260,000 in 2011. Office remodeled 3-years ago at cost of $60,000. Nice "Town & Country" feel. Adec delivery systems.

6028 BERKELEY'S ALTA BATES MEDICAL VILLAGE 2011 collected $525,000. Collections for first 6-months of 2012 have practice tracking $600,000. Busy Hygiene schedule.

6029 NORTHEAST CALIFORNIA - ALTURAS Trade in smog and congestion for soaring mountains and close-knit communities. 2012 tracking $600,000 on 3-day week. 3+ days of Hygiene. Strong Recall. Great staff. Beautiful office. 3-ops with Adec delivery systems. Be busy, be happy and take vacations. No worries here. Full price $185,000.

Detailed Prospectuses on NorCal Practices can be viewed at www.PPSsellsDDS.com

SELL YOUR ORANGE COUNTY OR LA PRACTICE GROSSING $500K AND ASK PPS FOR A PRACTICE NETTING $500K OR MORE.

FOUNDERS OF PRACTICE SALES

115+ years of combined expertise and experience!

3,000+ Sales - - 10,000+ Appraisals

CONFIDENTIAL

PPS Representatives do not give our business name when returning your calls.

BUYERS AND SELLERS SAY

"We have dealt with other firms - we like YOUR professional expertise. We will recommend YOU to all our colleagues. Thank you."

SOUTHERN CALIFORNIA

(714) 832-0230 – (800) 695-2732
Thomas Fitterer and Dean George
PPSincnet@aol.com
www.PPSDental.com
California DRE License 324962

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

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

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.

3290 SANTA PAULA, NEAR FILLMORE Hi identity location. Gross $400,000+. Established 2006. 5-ops, 3 equipped. Beautiful office. Steady growth.

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

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

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.

HAWAIIAN GARDENS Hispanic practice. Grossing near $500,000. Beautiful 5 ops in shopping center.

TEMECULA - HEMET Grosses $700,000 part time. 8-ops. Million dollar location.

CORONA HMO Gross $70-to-$80K month absentee. Low overhead.

MARINO VALLEY Gross $600K. Beautiful office. Low Overhead. Absentee Owner.

SAN FERNANDO VALLEY $1,000,000 opportunity to do $2,000,000. Very valuable R.E. Hi identity. Rent or purchase R.E.

APPLE VALLEY CLASSIC $600,000+. Low overhead.

CLASSIFIEDS, CONTINUED FROM 688

DENTAL PRACTICES FOR SALE

DENTAL PRACTICE FOR SALE — Incredible opportunity in a new professional building adjacent to new hospital complex. 2 fully equipped operatories, with 2 plumbed. Dexis digital X-rays, Gendex digital pan, interoral camera, Dentrix paperless charts, cash/ins/PPO. 1,800 sq. ft., gross $500K in 2011. Please contact 951-533-0205 or 909-815-8446.

DENTAL PRACTICE FOR SALE — Located in beautiful outdoor recreation area. 5-year-old equipment, newly remodeled office, PANO, Nobel Biocare implant system, 3 days/week hygiene. Collected $527K in 2011 on 3 day/week, $764K in 2010 on 5 day/week. Great staff, reasonable rent. Asking $175K. Email ddspractice4sale@yahoo.com.

DENTAL PRACTICE FOR SALE — This is a wonderful opportunity for an associate who is interested in committing to a partial or full purchase later this year. Looking for someone who is proficient in all phases of general dentistry, including molar endo, with at least 5 years of practice experience. You should be professional in demeanor, empathetic, and able to communicate well with patients and staff. This is a well-established successful practice in Simi Valley, Ventura County, emphasizing quality dentistry and patient education. Office has 6 operatories, Dexis X-ray, digital Pano, computers and TVs in each op, and Eaglesoft practice software. There are no HMO's or Medi-Cal. Email your resume to simidentalpractice@gmail.com.

DENTAL PRACTICE FOR SALE — Two beautiful practices for sale. Located in Riverside County and L.A. County. Can be sold together or separately. Call 909-844-6866.

DENTAL PRACTICE FOR SALE — Orthodontic practice for sale and or space for rent/lease. Contact: Sergio 714-544-7440 or email karlnish@pacbell.net.

EXPERIENCE
THE DIFFERENCE

- Lee Skarin and Associates have over 30 years *experience* in dental sales.
- Within the last 12 months we have sold more practices than any broker in the state.
- Our *experienced* practice appraisals are backed with credentials unequaled among dental practice brokers.
- We provide in-house legal counsel to advise you in all aspects of the sale and purchase, including the tax consequences of the sale.
- Excellent financing is available, in most cases for 100% of the purchase price.
- With a reputation for *experienced*, concientious, and ethical performance, we give our clients personal attention in all aspects of the purchase.

With scores of buyers, profiles of their practice interests and financial ability, Lee Skarin and Associates is able to find the right buyer for your practice.

Practices for sale in the following areas:

Anaheim	Palm Springs	Santa Ana
Chatsworth	Panorama City	Santa Barbara
Granada Hills	Pasadena	Thousand Oaks
Irvine	Reseda	Ventura
Oxnard	Riverside	

LS LEE SKARIN AND ASSOCIATES

DENTAL PRACTICE BROKERS
CA DRE #00863149

Experience the difference. Call Lee Skarin and Associates, NOW, for responses to all of your questions - *No obligation*!

(805) 777-7707 (818) 991-6552 1-800-752-7461

ADVERTISER INDEX

FOR ADVERTISING INFORMATION, PLEASE CONTACT COREY GERHARD AT 916-554-5304.

DR. BOB, CONTINUED FROM 694

disease, but the emperor himself.

Oops! Cancel the march. It's good to be the king, although the serfs are clearly disappointed in not being able to storm something as momentary relief from the tedium of hog slopping.

His Imperial Eminence has invented the toothbrush, a device requiring an unlimited supply of hog bristles that are to be imbedded into bone handles. He has already assembled 50,000 handles salvaged from a local rib joint in attractive shades of off-white and oyster clearly labeled "Made in China." The problem is trying to work out the attachment of the bristles to the bone. The Open Door Policy is approaching and the emperor wants to be ready to unload his production of brushes on eager Occidentals.

Unfortunately, the problem of bonding bristles was never solved, although the hogs never complained. It did mark the beginning of planned obsolescence, however, a concept that has served the industry well ever since.

Nevertheless, the hog bristle toothbrush became immensely popular in Europe where economic conditions were so favorable that many families who were not already edentulous and had formerly used twigs for tooth cleaning, could now afford a family toothbrush.

In America it was not uncommon for pilgrims to join with cowboys, Rotarians and 49ers around the campfire in that rousing refrain to the tune of "The Old Oaken Bucket":

The old family toothbrush
The old family toothbrush
The old family toothbrush that hangs
by the sink.

At first it was mother's
And then it was brother's
And then it was sister's
'Tis now mine, I think.

At the risk of aggrieving tree-hugging environmentalists, we are thinking of introducing artificially flavored twigs in hazelnut, French vanilla and apple cinnamon.

By the 1920s, only a scant four centuries later, many American dentists, ancestors of the later innovators of the 30-minute tooth-whitening phenomenon, were recommending that each family member have their own brush. From that moment on, it has been a bull market for the toothbrush industry.

In 1938, industry giant DuPont introduced nylon as a replacement for hog bristles much to the relief of millions of the nation's hogs. They were becoming despondent because of being tweezed every two weeks to harvest their bristles after it was discovered that the previous use of Nair left an unpleasant aftertaste on the finished product.

Now we are well into the 21st century and are faced with an embarrassment of riches for tooth/gum maintenance. Electric brushes no longer vie with manual bushes for acceptance. The foot-dragging individual insisting on a manual brush still uses a landline, writes letters with a pen and hasn't seen a movie with a recognizable cast since 1978. Even so, one can have a handle bent at a 17-degree angle for easier access to the uvula and engraved with a personal message from Mickey Mouse or an American hero of one's preference. Red, white and blue bristles proliferate — our cusps runneth over.

Still, we can't help but reflect on those bygone years when twigs were the state-of-the-art for oral hygiene. Properly frayed on one end, a twig was simplicity in itself. Perhaps it is time in this age of expensive high-tech complexity to re-evaluate the twig. At the risk of aggrieving tree-hugging environmentalists, we are thinking of introducing artificially flavored twigs in hazelnut, French vanilla and apple cinnamon.

The twigs could be marketed as "all-natural, biodegradable, no MSG, low sodium plaque-removing instruments." At a projected price of $6.99 a bundle, every family should have a selection to titillate the most jaded of palates. Look for these on your grocer's shelves early next year after environmental impact studies are completed and the FDA has concluded that no twig-borne pathogens have been detected. ■■■■

CDA JOURNAL, VOL 40, Nº8

An Emperor's Brush With Ingenuity

His Imperial Eminence has invented the toothbrush, a device requiring an unlimited supply of hog bristles that are to be imbedded into bone handles.

Robert E. Horseman, DDS

ILLUSTRATION BY VAL B. MINA

Cambridge, Mass. — The findings of a survey released Wednesday by the Massachusetts Institute of Technology asked which of five inventions Americans could not live without. The toothbrush emerged the undisputed champ, beating out the car, the personal computer, the iPhone and the microwave.

"It makes a lot of sense, your teeth are always with you," Dr. Richard Price, ADA spokesman, is quoted as saying. Although it would not be prudent for us as dentists to dispute Dr. Price, the thought occurs that our gastrointestinal systems are always with us as well and that MIT's survey has conveniently overlooked the contribution of Sir Thomas Crapper (1836-1910) to society with his flush toilet.

An invention that Americans cannot live without begs for an in-depth look at the toothbrush's humble beginnings. For that we journey to Hung Chow Province, China. The year is 1498 and an emergency meeting of hog farmers outside the village of Teng-ptui has been called. It seems there has been an outbreak of what appears to be swine alopecia, an epidemic that threatens the entire moo shu pork industry. Hog futures are dropping, representatives of the bacon, pork rinds and sausage industries are in a state of near panic. Just as the peasants are getting themselves organized into torchbearers, scythe and axe platoons to march on the capitol, it is revealed that the culprit is not

CONTINUES ON 693

Attend One of Our Upcoming Seminars!

Profitable Communication
Newport Beach, Radisson Hotel: July 26, 2012
Diamond Bar, Ayres Hotel: August 5, 2012
Sacramento, Double Tree Hotel: August 12, 2012
2 c.e. units; FREE seminar for licensed dentists

Schedule Your Way to Success
Newport Beach, Radisson Hotel: August 16, 2012
Diamond Bar, Ayres Hotel: August 26, 2012
2 c.e. units; FREE seminar for licensed dentists

California Dental Practice Act
Rancho Cucamonga: June 21, 2012
Loma Linda University: December 2, 2012
2 c.e. units; cost dependent on venue

Practice Transitions: Strategies for Success
Tustin, Our Office: November, 2012
Loma Linda University: February, 2013
Not eligible for c.e. units; call for details

Call Us to Schedule!

Bette Robin, DDS, JD

DENTIST • ATTORNEY • BROKER

Loma Linda Dental 83 Southwestern Law 95

Select Practice Services, Inc.
Dental Practice Sales and Transitions
877.377.6246 • www.BetteRobin.com
17482 Irvine Blvd., Ste. E • Tustin, CA 92780