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BOLD SAVINGS

DEPARTMENTS

- 741 Guest Editorial/Are We Doctors or Not?
- 744 Letter to the Editor
- 747 Thank You to 2018 *Journal* Reviewers
- 749 Impressions
- 779 RM Matters/Posttreatment Care Crucial in Foreign Object Aspiration Incidents
- 783 Regulatory Compliance/Mandated Reporting
- 786 Tech Trends
- 788 Index to 2018 Articles



FEATURES

- 755 Antibiotic Prescribing and Stewardship in Dentistry: A Public Health Perspective
Antibiotic resistance is one of the most serious public health threats of modern times.
Jane D. Siegel, MD, and Erin Epsom, MD
- 757 The Core Elements of Antibiotic Stewardship in Dentistry
This article offers suggestions for applying the four core elements of antibiotic stewardship in dentistry and dental practices.
Peter L. Jacobsen, PhD, DDS
- 767 Coronectomy of Mandibular Third Molars: Our Experience With 250 Consecutive Patients
Coronectomy of mandibular third molars has become an accepted alternative to extraction in cases where there is a close proximity of nerve and roots.
Emily Ehsan; Paul Hauser, PhD; and David Ehsan MD, DDS
- 773 Recognition of Non-Hodgkin Lymphoma of the Maxilla
This article discusses the importance of early recognition of the symptoms of this aggressive disease that can lead to earlier treatment and improved outcomes.
Joel B. Epstein, DMD, MSD; Alexa Martin, DMD; Ali M.M. Sadeghi, DMD, MD; and Dimitrios Tzachanis, MD, PhD

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Are We Doctors or Not?

Robert S. Roda, DDS, MS

Am I a doctor? I think I am, but there have been times when I have not been so sure. When I was in dental school, the med students reveled in their status as “RDs” (real doctors) and tended to throw it in our faces regularly. Back then, dentists were considered “tooth doctors,” with the implication that the mouth was somehow disconnected from the rest of the body. As time has gone on, the realities of medicine and dentistry have forced us together, and there are few in the medical profession who think of me as less of a doctor than they are.

There is no doubt that I know my profession and my specialty inside and out. I work very hard to keep up with the rapid changes in both medicine and dentistry and the allied health fields by reading extensively, by attending courses and through the many personal contacts that I have made over the years. My review of medical histories is thorough and every day I have to adapt my clinical procedures to the medical needs of my patients. I contact physicians routinely to discuss the medical status of mutual patients, and I have enjoyed seeing many of these physicians enter my practice as patients.

Yet, there are still times that I struggle with my role in the field of health care. I had an incident occur about 20 years ago when I had to section and remove part of an old fixed bridge in preparation for a root canal procedure. The bridge was made of mystery metal (a combination of chrome cobalt alloy mixed with depleted uranium and forged in the fires of hell) and I had already used (and destroyed) five very expensive burs that were made to cut hard metal.

I was using the sixth bur and started cutting, but the bur suddenly flew out of the handpiece and disappeared. Using a



Yes, the status of someone’s oral preventive skills is personal, but it’s not the same as discussing sexual behaviors that can result in picking up this STI.

rubber dam was precluded at that stage due to the configuration of the section of bridge to be removed, and I feared that despite all precautions the bur had been lost down the patient’s throat.

I sat the patient up and she said nothing went down her throat and nothing had been swallowed or aspirated. A check of our operatory and suction traps showed no bur, so out of an abundance of caution, I advised my patient that she would need to get a chest X-ray and that I would pay for it. She wanted to finish the appointment first so that was done uneventfully and she went to get the radiograph. I was called by the radiologist at the imaging center that afternoon and he said it was a good-news, bad-news situation: There was no foreign object in her thorax or abdomen, but she had a “spot” on her left lung and he was afraid it was lung cancer.

I was very concerned and told him the name of her physician so he could contact her, but the radiologist stopped me in my tracks. “You ordered the radiograph, doctor; you have to tell the patient,” he said. I was floored! He did not care that I was a dentist; he said I had to tell her. Now I had to be a doctor, a real doctor.

I called her up and relayed the news. I told her that the radiologist was concerned that it may be lung cancer and that I was going to call her physician to have her manage the appropriate referral. I tried to say some short words of

comfort, but I knew that once any doctor used the word “cancer,” anything said after that was not heard by the shocked patient. This was, by far, the most difficult interaction I had ever had with a patient. Among all of the other emotions I was dealing with, I was also heartbroken because she was such a great person.

I finished the root canal procedure within a week or two and the patient had entered the medical system by then. Tests were going to be performed the next week and she was certain that no matter what it was, she was going to be cured. What an optimist, I thought. She returned for a six-month re-evaluation and was cancer-free. The tumor had been found at a very early stage, was surgically removed, and with some radiation and chemotherapy, the oncologists were as optimistic as she was. I followed her root canal healing for two more years and to that date, there had been no recurrence of the cancer.

She thanked me for saving her life.

I think about how hard it was for me to make that call to tell her about the radiographic findings. I was already feeling bad that I had lost the bur. I was worried she had swallowed or aspirated it already, and my brief relief that it was not inside of her was crushed by the report of the radiologist. Elation turned to concern and turned to shock and then to anxiety about having to make that call.

There have been other times where I had to don the medical coat of our dental

profession. The “infection” referred to me that turned out to be a lymphoma in a patient’s jaw. My best friend’s father (a retired physician) who had a golf ball-sized lesion under his tongue that was another lymphoma. The squamous cell carcinomas, central giant cell granulomas, three patient emergency transports to hospital (one who went into a dangerous arrhythmia after I told him he did not need a root canal ... go figure), the house calls, and on and on. I guess I am a doctor.

Well, something new has come up that will cause us all to put on our medical coats once again: the human papillomavirus (HPV). The link between HPV and cervical cancer has been known for many years, and young females have been encouraged by pediatricians and gynecologists to get the vaccine against strains 16 and 18 of the HPV for a long time. More recent news is the link between HPV and oropharyngeal cancer.

HPV is the most common sexually transmitted infection (STI) in the United States. There are 100 strains of the virus with some creating a high risk for cancer. During 2011–2014, prevalence of all oral HPV among adults aged 18 to 69 was 7.3 percent and prevalence of high-risk oral HPV was 4.0 percent. Genital infection with HPV is much more common at 42 percent.¹ Most of the people who are exposed to it will clear the virus. Some will have the virus persist, however, and those people have a risk of developing oropharyngeal cancer. The persistent virus can remain in the throat or tongue for decades before becoming cancerous. This is the same pattern that exists in HPV-related cervical cancer in women.² If the rise in incidence continues at its present pace, the incidence of oropharyngeal cancers among males will overtake that of cervical cancers by the year 2020.³

Oropharyngeal cancers are mainly squamous cell carcinomas in the

oropharynx. That is, the posterior one-third of the tongue, around the tonsillar pillars and further down the throat. This is to be distinguished from oral cancers in the more anterior part of the mouth⁴ that are mainly considered to be related to tobacco and alcohol use. In addition to those etiologies, infection with HPV has been recognized as an independent risk factor for oropharyngeal cancer. In a recent study, among 557 invasive oropharyngeal squamous cell carcinomas, 72 percent were positive for HPV and 62 percent for vaccine types HPV 16 or 18.⁵

There is an HPV vaccine that is effective against the HPV 16 and 18 strains and the ADA says that, despite lacking solid scientific evidence to date, it may help to prevent oropharyngeal cancers related to HPV. Data suggest that oral HPV infection prevalence is lower in women who have received an HPV vaccine than those who have not. Clinical trials designed to answer these questions are currently underway.⁶

The Centers for Disease Control (CDC) does recommend that 11- and 12-year-old boys and girls get two doses of an HPV vaccine to prevent cervical and other less common genital cancers.⁷ If there is a chance that this vaccine could prevent approximately 11,000 cases of oropharyngeal cancer per year,⁶ then shouldn’t dentists help spread the word to our patients about the vaccine?

Well, of course we should, but it may not be so easy for some dentists. It’s not about informing oneself about the ins and outs of the disease and its prevention, since that is what we do. And it’s not about the uncertainty of promoting the vaccine for preventing oropharyngeal cancer when its only CDC-designated use is for preventing cervical cancer (although that is a real concern). The biggest problem for me is discomfort at discussing STIs in detail with patients. I can get over that, since my

discomfort is secondary to the health of the people. My problem is that I don’t have the experience of my physician colleagues in discussing these deeply personal issues with my patients. Yes, the status of someone’s oral preventive skills is personal, but it’s not the same as discussing sexual behaviors that can result in picking up this STI. I don’t want to make my patients or their parents feel uncomfortable with this unprecedented insertion of medical issues into my dental conversations. And in today’s social climate, does a middle-aged male dentist run the risk of being misunderstood when discussing the risks of a patient’s sexual behavior?

Then I think, Am I being selfish? Am I worrying about myself and not my patients? Does my personal belief system or personal discomfort at discussing STIs prevent me from helping to address a real and expanding public health crisis? And what if, as some public health proponents argue, dentists should actually administer the vaccine? How deep does the discussion have to go then?

As dentists, we need help with these issues. Gynecologists and infectious disease doctors have been discussing these topics for years with their patients, and it is not unexpected by the general public. Is the public ready for dentists to join the conversation? Are dentists ready? There is a study published in the January 2018 edition of the *Journal of the American Dental Association*⁸ looking at dentists’ health literacy regarding HPV infection and prevention and the attitudes of dentists toward discussing these issues with their patients. Not surprisingly, they found that many of the study participants were uncomfortable having these discussions with their patients. The authors noted that “not being comfortable talking with adolescents and parents about HPV and the HPV vaccine will continue to hinder efforts to increase HPV vaccine uptake in the United States.”⁸

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This finding should motivate the ADA and other public health entities to help alleviate this discomfort among dentists by educating them about HPV and its clinical manifestations and prevention. These educational efforts should include training on how to have these discussions with patients and their parents, what to say and how to say it. In addition, public education efforts by federal, state and local public health groups could inform our patients before they come in to see us so that the inevitable discussions would not be unexpected.

In the end, what matters is what it means to be a doctor. You must put your personal fears and biases behind you and determine what is best for the patient and then do that. Yes, you may need help with overcoming your discomfort and you may need some more education about HPV, but if you save a life through your efforts, you can truly call yourself “Doctor.” ■

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We reserve the right to edit all communications. Letters should discuss an item published in the Journal within the last 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 should be submitted at editorialmanager.com/jcaldentassoc. By sending the letter, 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 with regard to the letter become the property of CDA.

The Loyal Opposition

I want to commend Murray Levine, DDS, for his letter “Et tu, CDA.” It is not that I agree or disagree with its contents but it represents something more important.

Disagreeing with CDA policy and the majority can achieve enough to justify one’s position by arousing pro and con discussions. Members should never hesitate being part of the “loyal opposition.” My “et tu, Brucia” resolution for the unification of our two associations, which I opposed, reflects that concept.

So keep it up, Murray. Whether you prevail or not, you will be contributing to CDA policies.

FRANK A. BRUCIA, DDS
San Francisco

The Editor-in-Chief Responds

Dr. Brucia makes an important point, which I regret I failed to make in my response to Dr. Levine. The *Journal* is a forum for ideas. I apologize that my rebuttal did not begin with my personal thanks to Dr. Levine for taking the time to send his thoughts to us at the *Journal*. I want to make clear that whether or not a reader agrees with the ideas expressed and the facts documented within these pages, we appreciate the interest in organized dentistry and respect the intent of the reader to provide another perspective.

Sincerely,
Kerry K. Carney, DDS, CDE



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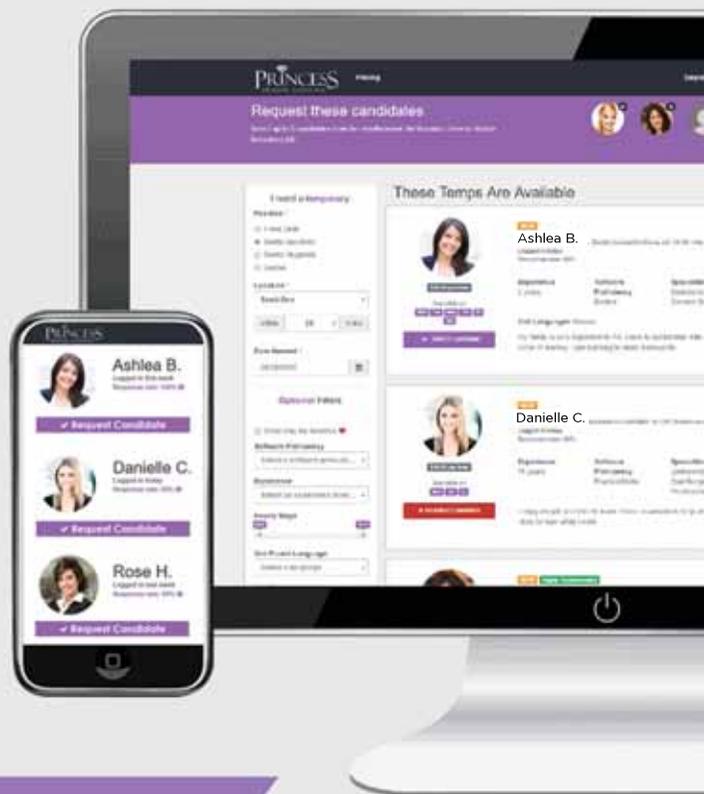
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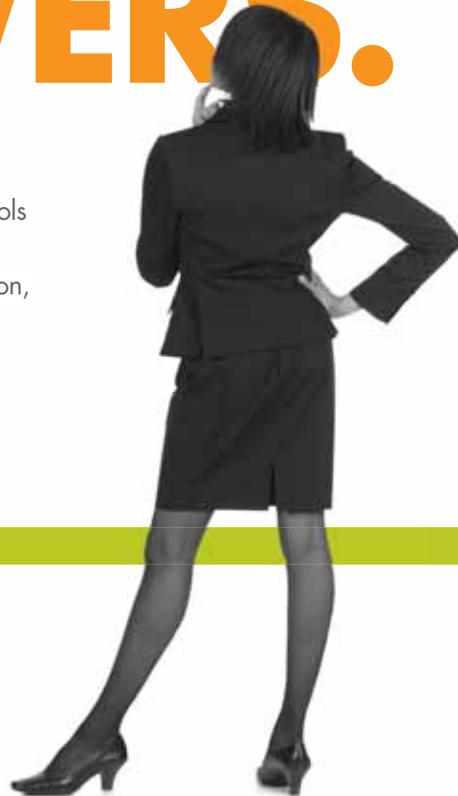
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Fibbing

David W. Chambers, EdM, MBA, PhD

Some wag said that the first casualty in war is truth. But fibbers will tell you dentistry is not war, so bending the truth is acceptable if it serves a purpose. That is flat-out false logic, but it is certainly not uncommon to hear people reason this way.

Why do any dentists sell treatment that is patently or even arguably not needed without disclosing alternatives? Why do they fail to mention a big overhang or incomplete endo they left in hopes that it might not cause a problem or, if it does cause a problem, they expect to negotiate proportional responsibility with the patient? Why are more and more dentists offering standardized treatment plans to mass markets? Why does the most recent Gallup poll of trust in the professions show dentists at the bottom of health care providers and neck and neck with police officers, with a 5 percent drop in public trust in the profession during the past six years?

We have had quite enough editorializing about why it is wrong to fib (with certain qualifications). We are getting tired of this “moralizing.” We are now numb to fibbing and in danger of ceasing to care about it. Perhaps we have overlooked the opportunities opened by allowing multiple truths.

Telling the truth means saying only what one knows to be the case. Lying is saying things one knows not to be so. Fibbing means enhancing one’s prospects by saying what it is hoped others will accept as being fact. This is a creative blending of misfocused facts and motivation.

Fibbing turns on believability not veracity. The fabulous fibber cares less about what is the case and more about whether others will accept a claim (or strategic silence) from which the fibber benefits. We all create worlds we prefer to believe in. Fibbers offer others believable alternatives that depend to some extent on perceived expertise and largely on fear and fantasy. Mendacity can be smoked out by fact-checking. Not so for fibbing. There the test is who benefits and who is harmed by accepting an offered version of reality.

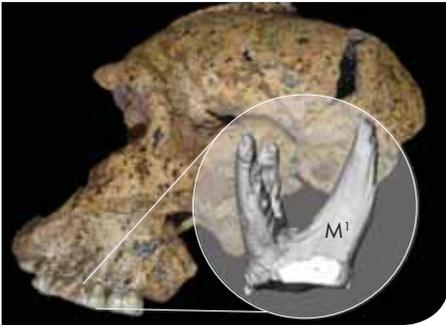
Overtreatment is a fib because there will always be “evidence” or an “expert for hire” who confirms the need for the care while at the same time the patient loses and the dentist benefits from the motivated misstatement. It is just business and some justification can be found if needed.

Patients want to trust dentists, so they usually avoid looking too deeply into anything other than cost. As one patient said recently in a focus group, “If I think the dentist is overselling, overcharging or has even committed malpractice, I will simply walk away. They can always prove that they are right, even when it hurts the rest of us.” ■

The nub:

1. Fibbing is about who benefits from twisted truth, not whether truth is twisted.
2. It is always possible to concoct a backstory to justify a claim about what one needs to believe.
3. Fibbing is good for business but corrodes relationships.

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



Paranthropus robustus fossil from South Africa SK 46 and the virtually reconstructed first upper molar used in the analyses. (Credit: Kornelius Kupczik, Max Planck Institute for Evolutionary Anthropology)

Research Gets to the Roots of Ancient Diets

Food needs to be broken down in the mouth before it can be swallowed and digested further. The mechanical properties of the foods and the morphology of the masticatory apparatus play a large role in the process.

Paleoanthropologists reconstruct the diets of our ancestors in order to help understand our evolutionary history. Research published recently in *The Royal Society Publishing* explored the diet of South African hominins by using noninvasive high-resolution computed tomography technology and shape analysis to deduce the main direction of masticatory forces from the orientation of the tooth roots within the jaw. By comparing the virtual reconstructions of 30 hominin first molars from South and East Africa, researchers found that *Australopithecus africanus* had much wider splayed roots than both *Paranthropus robustus* and the East African *Paranthropus boisei*.

Paranthropus robustus, unlike any of the other species analyzed in this study, exhibited an unusual orientation, or “twist,” of the tooth roots, which might suggest a slight rotational and back-and-forth movement of the mandible during chewing. Other morphological traits of the *P. robustus* skull support this interpretation. For example, the

Stem Cells From Baby Teeth Stimulate Regrowth

Nearly half of children suffer some injury to a tooth during childhood. When that trauma affects an immature permanent tooth, it can hinder blood supply and root development, resulting in what is essentially a “dead” tooth.

Until now, the standard treatment has entailed apexification to encourage further root development, but it does not replace the lost tissue from the injury and may result in abnormal root development. New results of a clinical trial jointly led by researchers from the University of Pennsylvania and the Fourth Military Medicine University in Xi’an, China, suggest a more promising treatment for children with these types of injuries: Using stem cells extracted from the patient’s baby teeth.

According to the study published in the journal *Science Translational Medicine*, the treatment gives patients sensation back in their teeth. “If they are given a warm or cold stimulation, they can feel it; they have living teeth again,” researchers said.

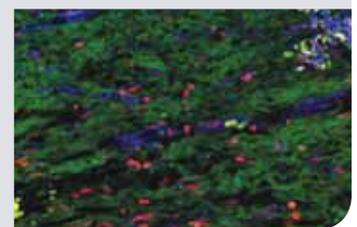
The Phase I trial, conducted in China, enrolled 40 children who had each injured one of their permanent incisors and still had baby teeth. Thirty were assigned to human deciduous pulp stem cells (hDPSC) treatment and 10 to the control treatment, apexification. Those who received hDPSC treatment had tissue extracted from a healthy baby tooth. The stem cells from this pulp were allowed to reproduce in a laboratory culture and the resulting cells were implanted into the injured tooth.

Upon follow-up, the researchers found that patients who received hDPSCs had more signs than the control group of healthy root development characterized by thicker dentin and an increase in blood flow.

At the time the patients were initially seen, all had little sensation in the tissue of their injured teeth. After one year, only those who received hDPSCs had regained some sensation.

Learn more about this study in *Science Translational Medicine* (2018); doi:10.1126/scitranslmed.aaf3227.

Stem cells extracted from baby teeth were able to regenerate dental pulp (shown, with fluorescent labeling). (Credit: University of Pennsylvania)



structure of the enamel also points toward a complex, multidirectional loading, while their unusual microwear pattern might conceivably also be reconciled with a different jaw movement rather than by mastication of novel food sources. According to the researchers, it is not only

what hominins ate and how hard they bit that determined skull morphology, but also the way in which the jaws were being brought together during chewing.

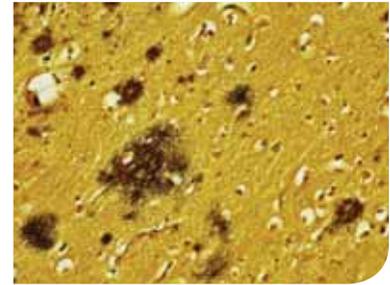
Read more about this study in *The Royal Society Publishing* (2018); doi:10.1098/rsos.180825.

Periodontal Disease Bacteria May Kick-Start Alzheimer's

A study led by researchers at the University of Illinois at Chicago suggests that periodontal disease could play a factor in the development of Alzheimer's disease. The findings, which are published in the journal *PLOS ONE*, claim that long-term exposure to periodontal disease bacteria causes inflammation and degeneration of brain

neurons in mice that is similar to the effects of Alzheimer's in humans.

Over the course of 22 weeks, researchers used two groups of mice to conduct the study, exposing only one of the groups to chronic periodontitis bacteria. They found that mice who were repeatedly exposed to the bacteria had significantly higher amounts of



Micrograph of brain tissue with Alzheimer's disease.

accumulated amyloid beta — a senile plaque found in the brain tissue of Alzheimer's patients. The effected mice also had more brain inflammation and fewer intact neurons due to degeneration.

“Other studies have demonstrated a close association between periodontitis and cognitive impairment, but this is the first study to show that exposure to the periodontal bacteria results in the formation of senile plaques that accelerate the development of neuropathology found in Alzheimer's patients,” said Keiko Watanabe, DDS, MS, PhD, professor of periodontics at the UIC College of Dentistry and corresponding author on the study.

Not only does this data demonstrate the movement of the bacteria from the mouth to the brain, but according to researchers, it also indicates that chronic infection leads to neural effects similar to Alzheimer's.

“Oral hygiene is an important predictor of disease, including diseases that happen outside of the mouth,” said Dr. Watanabe. “People can do so much for their personal health by taking oral health seriously.”

Researchers believe that understanding potential factors that could cause Alzheimer's is important to the development of treatments, specifically sporadic or late-onset disease, which makes up more than 95 percent of cases and has largely unknown causes.

Learn more about this study in *PLOS ONE* (2018); doi.org/10.1371/journal.pone.0204941.

Antibiotics Destroy 'Good' Bacteria, Worsen Infection

New research shows that the body's own microbes are effective in maintaining immune cells and killing certain oral infections, according to a study published in the journal *Frontiers in Microbiology*.

A team of Case Western Reserve University School of Dental Medicine researchers found that antibiotics actually kill the “good” bacteria keeping infection and inflammation at bay.

Scientists have long known that overuse of antibiotics can do more harm than good. For example, overuse can cause antibiotic resistance. But research into this phenomenon in oral health was uncharted territory.

Pushpa Pandiyan, PhD, an assistant professor of biological sciences, led the team of researchers to examine “resident” bacteria, their fatty acids and their effect on certain types of white blood cells that combat infections in the mouth. Specifically, researchers looked at the “short-term maintenance” of Tregs and Th-17 cells in fighting fungal infections, such as candida, in a laboratory setting.

The study found that those natural defenses were very effective in reducing infection and unwanted inflammation and antibiotics can prevent such natural defenses.

“We set out to find out what happens when you don't have bacteria to fight a fungal infection,” Dr. Pandiyan said. “What we found was that antibiotics can kill short-chain fatty acids produced by the body's own good bacteria. We have good bacteria doing good work every day, why kill them? As is the case with many infections, if you leave them alone, they will leave on their own.”

Dr. Pandiyan said the study could have broader implications on protective effects of “resident microbiota” in other types of infections.

Learn more about this study in *Frontiers in Microbiology* (2018); doi.org/10.3389/fmicb.2018.01995.

Gut bacteria. (Credit: Fawcett/Wikimedia Commons)





Connection of 'Chalky Teeth' and Bisphenol A Unlikely

An evaluation conducted recently by the German Federal Institute for Risk Assessment of a 2013 study that reported a possible connection between molar-incisor hypomineralization (MIH), also known as “chalky teeth,” and exposure to Bisphenol A (BPA) found that there is currently no scientific reason to assume a connection between the uptake of BPA and the occurrence of MIH in children. Among a wide range of various products, BPA can also occur in food contact materials.

The 2013 study by Jedeon et al. examined the connection between BPA exposure and mineralization defects of tooth enamel in rats. In subsequent publications, the authors reported that the mineralization disturbances occurred mainly in male rats (up to 71 percent) and less frequently in female rats (only up to 31 percent) and identified selected hormone-controlled signaling pathways as potential molecular targets. A direct connection between BPA and MIH therefore appears unlikely in humans under conditions of expectable real-life exposure, according to the evaluation.

The condition of MIH occurs in Europe with a frequency of 3 to 22

Study: Water More Popular Than Soda for U.S. Children

More children are choosing water over soda, according to a new study released by the U.S. Centers for Disease Control and Prevention and conducted by a research team from the National Center for Health Statistics.

Researchers led by Kirsten Herrick, PhD, studied data from the National Health and Nutrition Examination Surveys from 2013 to 2016. The surveys are organized by the CDC's National Center for Health Statistics and designed to provide nationally representative data about the health status of children and adults in the U.S. The survey asked NHANES participants, U.S. children aged 2 to 19, what they had to drink within the past 24 hours.

The research team studied the total drink consumption habits of the survey participants and found that 43 percent chose water first. Milk came in second with 21 percent and soft drinks, which include a wide variety of beverages such as regular soda, diet soda and fruit drinks with added sugar, accounted for 20 percent of total beverages consumed by youths.

Researchers not only looked at what the children drank, but also investigated how their beverage consumption habits varied by age and sex. According to the study, older children were more likely to drink water and soda than were younger children, while younger children were more likely to drink milk. Boys were also more likely to drink soda, while girls were more likely to drink water.

Race and ethnicity also had a significant impact on the results. Non-Hispanic Asian youths were significantly more likely to drink water than children of any other race, and non-Hispanic black youths were more likely to consume soft drinks. Soft drinks accounted for almost one-third of total beverage intake for non-Hispanic black youths, significantly more than all other race and Hispanic-origin groups, according to the study.

Learn more about this study at cdc.gov.



percent, with a worldwide occurrence of 2 to 40 percent. Various reasons are assumed to contribute to this occurrence. Epidemiological studies point, for example, to maternal diseases during the last quarter of pregnancy, complications during birth or frequent illness in the first year of the child

(possibly also connected to high fever). Altogether, it appears that MIH is caused by a variety of factors and thus has to be considered a multifactorial condition, according to the study.

Learn more about the German Federal Institute for Risk Assessment at bfr.bund.de.

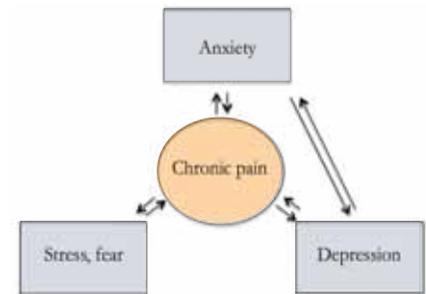
Burning Mouth Syndrome Associated With Skin Diseases

A recent study conducted by the Sahlgrenska Academy at the University of Gothenburg in Sweden found that patients with burning mouth syndrome (BMS) suffer more from skin diseases and skin problems than those who are not affected by the chronic oral pain condition. The study was published on the university's website in August 2018.

BMS in the oral cavity affects approximately 4 percent of the Swedish

population and mainly middle-aged and elderly women, according to the study. The pain is experienced as burning or stinging, with the tongue most often afflicted followed by the palate, lips and gums. Other common symptoms include dry mouth and altered taste sensation, such as a bitter or metallic taste in the mouth.

The study followed 56 women with BMS and compared their results with a



A generic schematic of the interrelationship between chronic pain, anxiety, depression and other emotions in patients with BMS. (Credit: University of Gothenburg)

gender- and age-matched control group. Shikha Acharya, PhD, lead author of the study, also connected clinical findings and self-reported findings from questionnaires from patients with BMS about their symptoms and background along with saliva-related factors.

The researchers found that in addition to skin diseases, a higher incidence of other types of diseases was also reported. BMS patients also used more medications, were more prone to grinding their teeth and reported more allergies than the control group. Also, 45 percent of the BMS patients reported to have altered taste sensations.

Health experts on the quest to find a better diagnosis and treatment for BMS believe this new discovery could be a breakthrough. "Our hope is that the new findings will contribute to the development of objective diagnostic criteria and effective individualized treatment both that are currently lacking," said Dr. Acharya, who has a doctorate in oral microbiology and immunology at the Institute of Odontology that the University of Gothenburg.

Researchers are optimistic that these new pieces of information will help characterize BMS and the persistent mouth pain associated with it. The study is a part of a bigger effort aimed at finding a model for BMS that can facilitate diagnosis and treatment in the future.

Learn more about this study at the University of Gothenburg website (2018); hdl.handle.net/2077/55387.

Smoking Weakens Immune Systems

Researchers at the Case Western Reserve University School of Dental Medicine found that in addition to lung cancer, emphysema and heart disease, smoking also weakens the ability for pulp in teeth to fight illness and disease. The results of the study were published in the *Journal of Endodontics*.

"That might explain why smokers have poorer endodontic outcomes and delayed healing than nonsmokers," said Anita Aminoshariae, DDS, MS, associate professor of endodontics and director of predoctoral endodontics. "Imagine TNF- α and hBD-2 are among the soldiers in a last line of defense fortifying a castle. Smoking kills these soldiers before they even have a chance at mounting a solid defense."

Prior to this study, little research was done that explored the endodontic effects of smoking, Dr. Aminoshariae said. Scientists have known that smokers had worse outcomes than nonsmokers with greater chances of developing gum disease and nearly two times more likely to require a root canal, so the Case Western research set out to explain the possible contributing factors.

Thirty-two smokers and 37 nonsmokers diagnosed with endodontic pulpitis were included in the cross-sectional study.

"We began with a look at the dental pulp of smokers compared with nonsmokers," Dr. Aminoshariae said. "We hypothesized that the natural defenses would be reduced in smokers; we didn't expect them to have them completely depleted."

One interesting find Dr. Aminoshariae noted was that for two patients who quit smoking, those natural defenses returned.

Read more of this study in the *Journal of Endodontics* (2018); doi.org/10.1016/j.joen.2017.08.017.







Antibiotic Prescribing and Stewardship in Dentistry: A Public Health Perspective

Jane D. Siegel, MD, and Erin Epton, MD

AUTHORS

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Conflict of Interest

Disclosure: None reported.

Erin Epton, MD, is the medical director and assistant chief of the California Department of Public Health Healthcare-Associated Infections Program. She is clinically trained and board certified in internal medicine and infectious diseases and completed medical epidemiology training as an epidemic intelligence service officer with the Centers for Disease Control and Prevention. Dr. Epton also provides consultation and epidemiologic assistance to local public health agencies regarding health care-associated infections (HAI) and antibiotic-resistant (AR) outbreaks and breaches in infection control.

Conflict of Interest

Disclosure: None reported.

Antibiotic resistance is one of the most serious public health threats of modern times. More than 2 million illnesses and 23,000 deaths due to antibiotic-resistant infections occur in the United States each year; this translates to an estimated 260,000 illnesses and nearly 3,000 deaths in California. Antibiotic-resistant infections are more difficult to treat and are associated with increased morbidity and mortality. There are few antibiotics left to treat resistant infections and even fewer new drugs in the development pipeline. Antibiotic use is the primary driver of antibiotic resistance and is associated with *Clostridioides difficile* infections (CDI) and emergency department visits for adverse drug events in adults and children.^{1,2}

Antibiotic Prescribing in Dentistry

Most antibiotic prescribing occurs in outpatient settings. An estimated 30 percent of outpatient antibiotic prescribing is inappropriate, such as, for example, antibiotics not prescribed according to guidelines for indication, drug and duration.³ Publications from many countries demonstrate substantial inappropriate antibiotic prescribing among dentists with broad variability

by provider and geographic location.⁴ Dentists are the third highest group of prescribers of antibiotics by volume in the U.S.⁵ U.S. data from 2011 and 2014 show that dentists prescribe 10 percent and 9 percent, respectively, of all antibiotics in outpatient settings. The total number of prescriptions written by U.S. dentists was unchanged from 2014 to 2016.⁶

Challenges Dentists Face

Dentists have little opportunity to observe first-hand the adverse events associated with antibiotic prescribing, such as adverse reactions and CDI.⁷⁻¹⁰ In a Minnesota study of CDI from 2009 to 2015, 15 percent of people with community-associated CDI had taken antibiotics, most commonly clindamycin, for a dental procedure.⁹ A study of university-affiliated dental clinics in Utah from 2014 to 2016 reported that 6.1 percent of dental encounters were associated with antibiotic prescribing, but only 10 percent of prescriptions were consistent with preprocedure prophylaxis guidelines. The average duration of nonprophylactic antibiotics was 8.3 days. CDI occurred more frequently after antibiotic-associated encounters.¹⁰ Although published guidelines limit the number of cardiac conditions requiring

antibiotic prophylaxis for prevention of infective endocarditis and recommend against routine antibiotic prophylaxis to prevent prosthetic joint infections, there are no national guidelines for treatment of specific dental infections. Providers may overestimate patient demand for antibiotic prescriptions and underestimate the effectiveness of informed communication.¹¹ Patients visiting hospital emergency departments for dental-related conditions are often treated with antibiotics and opioids,^{12,13} reflecting a lack of access and decreased utilization of preventive dental care.

Actions Dentists Can Take

In addition to the recommendations in this issue's articles, we suggest the following:

- Prioritize antibiotic resistance and prescribing when planning continuing education programs and developing criteria for recertification of dentists. Include updates on antibiotic prophylaxis for preventing bacterial endocarditis and infection of prosthetic joints following dental procedures, new data on preventing infection of adjacent tissue and diagnosis and treatment of established oral infection and behavioral science-based strategies for improving communication with patients.
- Continue to work with local, state and national professional organizations to develop evidence-based guidelines for treatment of specific dental conditions based on rigorously performed studies.
- Determine which physicians other than dentists are prescribing antibiotics as prophylaxis or treatment of dental conditions. Engage and promote consistency of practice among antibiotic-prescribing stakeholders within

the community, such as infectious-disease physicians, cardiologists and orthopedic surgeons. Work to increase access to preventive oral health services.

- Collect data to track trends in antibiotic prescribing within individual dental practices. Evaluate the use of electronic billing to facilitate data collection. Audit prescribing data and provide feedback to dental providers to improve appropriateness of antibiotic prescribing.^{14,15}

The California Department of Public Health is pleased to partner with the California Dental Association to promote measures to improve and track the appropriateness of antibiotic prescribing, also known as antibiotic stewardship. We encourage all dentists and dentistry stakeholders to plan a targeted action for the next annual U.S. Antibiotic Awareness Week in November 2019. ■

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The Core Elements of Antibiotic Stewardship in Dentistry

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Peter L. Jacobsen, PhD, DDS, lectures extensively on dental pharmacology as well as over-the-counter dental drugs and products. He directed the Oral Medicine Clinic at the University of the Pacific, Arthur A. Dugoni School of Dentistry for more than 25 years. Dr. Jacobsen is a diplomate of the American Board of Oral Medicine and past chairperson of the Council on Dental Therapeutics of the ADA. He is the author of *The Little Dental Drug Booklet*, a succinct handout and reference on commonly prescribed dental medications.
Conflict of Interest
Disclosure: None reported.

The *Core Elements of Outpatient Antibiotic Stewardship*¹ was developed as a framework for the judicious and appropriate use of antibiotics in the various outpatient settings in which antibiotics are prescribed for patient use. In 2015 alone, approximately 269 million antibiotic prescriptions were dispensed from outpatient pharmacies in the United States, enough for five out of every six people to receive one antibiotic prescription each year. At least 30 percent of these antibiotic prescriptions were unnecessary.²

The four core elements of antibiotic stewardship are:

- Commitment.
- Action for policy and practice.
- Tracking and reporting.
- Education and expertise.

These elements are crucial in any setting to support and improve prescribing habits and actions intended to:

- Measure antibiotic prescribing.
- Improve clinician prescribing and patient use so that antibiotics are only prescribed and used when needed.
- Minimize misdiagnoses or delayed diagnoses leading to the underuse of antibiotics.
- Ensure that the right drug, dose and duration are selected when an antibiotic is needed.¹

When antibiotic prescribing practices are evaluated based on the four core elements, the principles of antibiotic stewardship become a practice and practical reality.

Following are suggestions for the application of these four core elements within dentistry and dental practices:

Commitment: This is the foundation for achieving change. It requires a clear vision of the desired change and proactive behavior. In dental offices, commitment may take the form of a written office policy on antibiotic prescribing that is shared with patients when antibiotics are being considered or are requested. It is essential that the entire dental team understand the dentist's prescribing policies and their rationale as patients often consult with or ask questions of dental team members because they feel comfortable doing so and often do not want to "bother" the dentist with their questions. Team members who understand the reasons behind the management of oral infections can be very helpful in allaying patients' concerns and supporting and reinforcing proper compliance.

Action for policy and practice: For individual clinicians, this is where staying current with clinical knowledge and adherence to best practices come into play. While antibiotic use in dentistry is not complex, recommendations change over time as new drugs become available and traditional approaches to care are evaluated for effectiveness. Dentists' prescribing practices should follow national or state practice guidelines and should be responsive to relevant local data, including disease incidence and pathogen susceptibilities.

Tracking and reporting: Tracking and reporting functions are often considered the purview of large organizations and care systems where data can be collected in amounts sufficient for analysis. However, solo or small group dental practices may be able to fine-tune prescribing practices by closely monitoring prescribing behavior and outcomes. Thorough documentation is of particular importance to this element, as accurate assessment requires complete information, including the diagnosis, rationale for antibiotic treatment, specifics of the prescription and eventual outcomes.

Education and expertise: Adhering to best practices for antibiotic prescribing are often not enough to achieve antibiotic stewardship goals. External pressures too often intervene in clinician decision-making, from patients who express strong preferences for antibiotic “protection” or medical colleagues with differing prescribing philosophies. Dentists must educate not only themselves, but also their staff and patients on responsible antibiotic use: when antibiotics are needed and when they are not needed, including the reasons for these differences as well as the risks associated with antibiotic use without medical necessity.

Further, all clinicians managing a patient’s care should use similar protocols for antibiotic use. Sharing disease management and treatment ideas among clinicians reduces confusion for the patients and is an important source of continuing professional education. ■

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Considerations for Optimal Antibiotic Prescribing in Dentistry¹

Pretreatment

Correctly diagnose an oral bacterial infection.

- Oral bacterial infections may present as:
 - Pain, swelling and/or redness in the tissue around the tooth or along the bone supporting the teeth.
 - Pain and swelling below the jaw in the upper neck region or in the facial structures under the eyes and nose.
 - Purulent exudate coming from some part of the swollen area or from the space around the infected teeth or gums.
- The signs and symptoms of an oral bacterial infection differ in key ways from oral infections resulting from viral, fungal or traumatic causes (discussed in more detail below).

Consider therapeutic management interventions, which may be sufficient to control a localized oral bacterial infection.

- Focus on eliminating the pathology that led to the infection.
 - Use radiography to identify the correct tooth or gingival area.
 - Clean the area if it is a periodontal infection.
 - Provide endodontic treatment or tooth extraction if an odontogenic infection.
- Incise and drain abscess if an abscess has formed.
 - Consider limited incise and drain if the swelling is very swollen and taut and may be transitioning from a cellulitis into an abscess to ensure that there is no abscess and to provide a focus for abscess formation and drainage (the incision point) if the cellulitis evolves into an abscess.

- Consider antibiotics if there are signs of a systemic spread of the infection, such as fever and/or malaise, or if the patient is immunosuppressed or otherwise medically compromised.

Weigh potential benefits and risks (i.e., toxicity, allergy, adverse effects, *Clostridium difficile* infection) of antibiotics before prescribing.

- All drugs have risks. Be aware of the risks of the primary antibiotics used to treat dental infections: penicillins, azithromycin and especially clindamycin.
- *Clostridium difficile* infection (pseudomembranous colitis) associated with clindamycin and other broad-spectrum antibiotic use is the most common serious side effect of antibiotic use. This can occur with a single oral dose.
- Penicillin allergy is also a serious risk, though true allergic reactions are less than 0.01 percent.
- Closely monitor patients with extensive medical problems and those taking multiple medications.
- Antibiotic use when not needed puts patients at risk for adverse reactions without any benefit. In almost all situations where an oral infection shows signs of systemic spread, however, proper local management and initiating antibiotic use is of benefit and likely outweighs the risk.

Prescribe antibiotics only for patients of record and only for bacterial infections you have been trained to treat.

- Clinicians must know and understand the patient’s medical history and be familiar with their dental history for safe and effective patient care.

- Familiarity and experience with managing bacterial dental infections in the oral cavity and adjacent tissues are also essential for the best perspective and decision-making.
 - Consultation with or referral to a specialist is appropriate when an infection shows signs that it is outside the clinician's area of training and experience. For example, altered eye movement, suggesting it has entered into the cranial space, or difficulty swallowing, suggesting it is spreading into deep neck tissues.

Do not prescribe antibiotics for oral viral infections, fungal infections or ulcerations related to trauma or aphthae.

- Oral bacterial infections have a predictable presentation in the oral cavity – usually redness, pain and swelling in the tissues around a tooth; advanced infections will often be associated with an exudate (pus).
- Viral and fungal infections and ulcerations associated with trauma or an immunologic response also have unique characteristics.
 - Viral infections (usually herpes simplex virus) manifest as blisters and constant pain at the site of the blister/ulcer. Inside the mouth, blisters usually overlay hard tissue like the roof of the mouth or attached gums.
 - Fungal infections usually present with redness and some white areas that can be rubbed off and are scattered around the mouth, in the vestibule and on the dorsal tongue.
 - Patients experiencing a fungal infection typically

describe the discomfort as a “burning” sensation, which is an uncommon word relative to describing oral pain from any other oral infection.

- Ulcerations related to aphthous ulcers or autoimmune diseases, such as lichen planus, pemphigoid and pemphigus, usually hurt when exposed to acid like orange or tomato juice and salty foods.
- Traumatic ulcers are generally recalled by the patient, are not an infection and do not commonly become infected unless the patient is immunosuppressed or has a medical problem that compromises their ability to heal.

Implement national antibiotic prophylaxis recommendations for the medical concerns for which guidelines exist (e.g., cardiac defects).

- Proper use of antibiotics to prevent oral organisms from infecting body sites other than the oral cavity is sometimes appropriate and clinicians should be familiar with national guidelines for these situations.
- The American Heart Association² and the ADA³ have developed guidelines for the prophylactic use of antibiotics to prevent infective endocarditis in patients with specific cardiac conditions that put them at a higher risk of such infections.⁴
 - Cardiac conditions warranting antibiotic prophylaxis include but are not limited to prosthetic cardiac valves, prosthetic material used for cardiac valve repair, history of endocarditis and specific heart transplant and congenital heart defect patients.

- In 2012, the American Academy of Orthopaedic Surgeons⁵ and the ADA issued a joint report relative to the need for prophylactic antibiotics for patients with prosthetic joints undergoing dental procedures, followed in 2017 by the ADA's release of a chairside guide for dentists titled Management of Patients with Prosthetic Joints Undergoing Dental Procedures.⁶
 - The American Academy of Orthopaedic Surgeons offers an online support tool (Appropriate Use Criteria⁷) to assist when making prophylactic antibiotic decisions relative to any specific patient.
 - In most cases, prophylactic antibiotics are NOT recommended for patients with prosthetic joints.
- Severely immunosuppressed patients, such as those undergoing chemotherapy, are at an increased risk of systemic infection from an oral source. Clinicians may elect to be more aggressive in initiating antibiotic use in such patients and may elect to use antibiotics prophylactically to prevent an infection if the intended dental procedure may cause a bacteremia.

Assess the patient's medical history and conditions, pregnancy status, drug allergies and potential for drug-drug interactions and adverse events, any of which may impact antibiotic selection.

- All medications have risk; the antibiotics commonly used in dentistry — penicillins, clindamycin and azithromycin — are no exception.
- A thorough health history should reveal any allergies or adverse responses to antibiotics.

- Evaluate the patient for true penicillin allergy (IgE-mediated) by obtaining details of the nature and timing of the reaction.
- The health history should also reveal any medications that may risk drug-drug interactions, though the primary drugs used to treat dental bacterial infections are not commonly associated with such adverse drug responses.
- Drugs that inhibit liver cytochrome P450 enzymes are most commonly associated with drug-drug interactions. In dentistry, these are metronidazol and erythromycin, both antibiotics, and ketoconazole, an antifungal.
 - Avoid using these drugs in patients taking specific medications metabolized in the liver and those taking multiple medications because many are metabolized in the liver.
- The clinician should consult an authoritative reference, the patient's physician or pharmacist, before prescribing an antibiotic when there is *any* concern of drug-drug interaction.

Prescribing

Ensure evidence-based antibiotic references are readily available during patient visits.

- While most clinicians are well-versed in the antibiotic choices for oral bacterial infections, it is prudent for the clinician to have at least one of several recognized prescribing reference resources readily available.

Avoid prescribing based on non-evidence-based historical practices, patient demand, convenience or pressure from colleagues.

- Social or other non-evidence-based pressures may try to influence the clinician's decision-making in situations where antibiotic use is not indicated. It is important to avoid such pressure, as it may lead to inappropriate antibiotic use and result in a poor clinical outcome for the patient.
- Patient and staff education on antibiotic prescribing protocols, the signs and symptoms of an oral bacterial infection, the proper sequence of care and the rationale for initiating antibiotic therapy and its duration are all important steps in minimizing the risk of poor antibiotic decision-making related to external pressure.
- Periodic discussion of antibiotic prescribing protocols between referring clinicians will ensure use of the most up-to-date protocols and reduce conflicts or confusion associated with antibiotic use when sharing a patient's care.

Make and document the diagnosis, treatment steps and rationale for antibiotic use (if prescribed) in the patient chart.

- Thorough documentation is essential.
 - Clearly and completely document the diagnosis of an oral bacterial infection, the treatment steps and the rationale for treatment decisions, including the decision to initiate antibiotic therapy.
 - Documentation shortcuts, understandably common among busy practitioners, may be a source of confusion or concern when records are later reviewed for treatment decisions and rationale.

Prescribe only when clinical signs and symptoms of a bacterial infection suggest systemic immune response, such as fever or malaise along with local oral swelling.

- A local oral bacterial infection is best and effectively handled with mechanical interventions to eliminate the irritant or foreign body causing the infection.
 - Common treatments include extraction, endodontic therapy and cleaning/irrigation of the infected site.
- Once effective cleaning and removal of the irritation is accomplished, the body's immune system should clear up any remaining infection. Antibiotics are seldom necessary.
- Antibiotic therapy is appropriate, however, if there are signs and symptoms, such as fever and malaise, that the body's immune system is not containing the infection and the patient is starting to experience a systemic response.⁸
 - Antibiotic therapy in these situations is used to control the infection while the local infection-control measures used to remove the cause of the infection (extraction, drainage, irrigation and/or endodontic treatment) can be carried out and be given time to work.

Use the most targeted (narrow-spectrum) antibiotic for the shortest duration possible (two to three days after the clinical signs and symptoms subside) for otherwise healthy patients.

- Most bacterial organisms associated with oral infections are sensitive to penicillins, making it the first drug of choice, as follows:
 - Penicillin VK, 500 mg given 4Xday or amoxicillin, 500 mg given 3Xday.

- If there is no response in 48 to 72 hours, then amoxicillin protected from beta-lactamase with clavulanic acid (Augmentin) can be tried or switch to clindamycin 300 mg given 4Xday. If the patient has a true (IgE mediated) allergy to penicillins, then the drug of choice is clindamycin, 300 mg given 4Xday.⁹
- Patients unable to take clindamycin may be prescribed azithromycin, 500 mg given 1Xday.

- The number of pills prescribed should be enough for 10 days and the patient should be instructed to take the antibiotic as prescribed for two to three days after all clinical signs and symptoms are gone.
- Clinicians should urge disposal of unused drugs immediately upon completion of treatment and counsel patients on drug disposal options (see the following Patient Education segment for more detail).

Revise empiric antibiotic regimens on the basis of patient progress and, if needed, culture results.

- All patients taking an antibiotic for a bacterial infection should be followed closely to make sure the infection is resolving and that there are no adverse effects occurring.
- A patient taking an antibiotic as prescribed following a proper incise and drain should start to see a positive response in 48 to 72 hours. Patients not improving in that time frame or who are experiencing adverse responses to the antibiotic should be re-evaluated and their antibiotic changed to the next drug of choice.
- For poorly responding patients, a consultation with a specialist may

be appropriate as well as a culture and sensitivity test to ensure the correct antibiotic has been chosen.

Discuss antibiotic use and prescribing protocols with referring specialists.

- All clinicians managing a patient's care should utilize similar evidence-based resources and protocols, including the first, second and third drugs of choice, at the proper dosage for the proper duration.
- The use of similar protocols improves the care of shared patients and decreases the risk of conflict for the clinicians and the risk of confusion for the patient.
- Sharing disease management and treatment ideas among clinicians is an important source of continuing education.

Patient Education

Educate your patients to take antibiotics exactly as prescribed, to take antibiotics prescribed only for them and to not save antibiotics for future illness.

- Antibiotics are complex drugs with different absorption rates, half-lives and elimination mechanisms, all of which influence the dose prescribed, the dosing frequency and the duration of its use.
- Antibiotics *must* be taken as prescribed to be effective; many antibiotic failures can be traced back to the fact that the patient did not comply with the clinician's recommended dosage and, most important, dosing frequency.
- Clinicians should clearly and unequivocally inform patients of the need to take their medication as directed for two to three days after the clinical signs (fever, swelling, redness) and symptoms (pain) have resolved.

- Clinicians should instruct patients to dispose of unused drugs immediately upon completion of treatment and provide guidance on drug disposal options.
 - The Food and Drug Administration provides guidance on drug disposal,¹⁰ which indicates that antibiotics may be harmful to others if flushed down the toilet. Guidance for household trash disposal, which is appropriate, is as follows:
 - ◆ Remove the drugs from their original containers and mix them with something undesirable, such as used coffee grounds, dirt or cat litter. This makes the medicine less appealing to children and pets and unrecognizable to someone who might intentionally go through the trash looking for drugs.
 - ◆ Put the mixture in something you can close (a resealable zippered storage bag, empty can or other container) to prevent the drug from leaking or spilling out.
 - ◆ Throw the container in the garbage.
 - ◆ Scratch out all your personal information on the empty medicine packaging to protect your identity and privacy and throw the packaging away.
- Patients who refuse to take a prescribed antibiotic as directed, for any reason, must be instructed to immediately inform the prescribing clinician so an alternative treatment approach can be identified.

Staff Education

- All members of the dental team should be educated about oral bacterial infections, the office treatment protocols, the rationale for the steps in the infection protocol and the criteria used to initiate antibiotic therapy.
- Staff training improves the probability of patient adherence to antibiotic prescriptions.
 - Patients often consult with or ask questions of dental team members because they feel comfortable doing so and often do not want to “bother” the dentist with their questions. Team members who understand the reasons behind the management of oral infections can be very helpful in allaying patients’ concerns and supporting and reinforcing proper compliance. ■

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Antibiotic Use in Dentistry

Antibiotic stewardship assists health care providers with the judicious and appropriate use of antibiotics for patient use. Appropriate clinical decision-making with regard to antibiotic use requires the clinician to evaluate the needs of the individual patient and provide the best treatment for that patient. At the same time, the clinician should consider what is best for the long-term sustainability of antibiotics as an effective means of patient care. This dual responsibility is at the core of “antibiotic stewardship.” The TABLE is intended as guidance for dental professionals prescribing antibiotics in outpatient settings for certain common conditions. It is not the result of a systematic review of evidence nor the consensus of an expert panel, but rather utilizes professionally developed resources and best-available practices and as such should be considered in conjunction with other available resources. Dental professionals should consult emerging science and practice guidelines as these become available.

TABLE

Antibiotic Use in Dentistry**Managing active infections**

Condition/Concern	Epidemiology	Diagnosis
Acute oral bacterial infection (cellulitis or abscess)	Many patients at some time in their life, depending on their level of dental care, will get an oral bacterial infection within the bone or under the gingival and periodontal tissue surrounding their teeth.	Oral bacterial infections usually present as pain, swelling and/or redness around the tooth or along the bone supporting the teeth. They may also present as pain, swelling below the jaw in the upper neck region or in the facial structures under the eyes and nose. As an infection progresses, there may be a purulent exudate coming from some part of the swollen area or from the space around the infected teeth or gums.

Management

Management should focus on eliminating the pathology that leads to the infection and should include a radiograph to identify the correct tooth or gingival area, cleaning of the area if it is a periodontal infection or the extraction or endodontic treatment of the tooth if it is an odontogenic infection.

Management may also require the incision and drainage of the abscess if an abscess has formed. Limited incision and drainage may be considered if the swelling is hard, even if it might still be a cellulitis, to ensure that there is no abscess and to provide a focus for abscess formation and drainage (the incision point) if the cellulitis evolves into an abscess.

Depending on the extent of the infection and any signs of a systemic spread of the infection, such as fever and/or malaise or if the patient is immunosuppressed or otherwise medically compromised, antibiotics should be considered. (Primary treatment is the surgical resolution of the dental problem. Antibiotics are considered secondary to that process.)

The types of bacterial organisms associated with oral infections are relatively limited and most are sensitive to penicillins. Based on that, the drugs of choice are:

- Penicillin VK and amoxicillin. If there is no response in 48 to 72 hours, then amoxicillin protected from beta-lactamase with clavulanic acid (Augmentin) can be tried or switch to clindamycin. If the patient is allergic to penicillins, the drug of choice is clindamycin.
- If the patient is unable to take clindamycin, the drug of choice is azithromycin.

Depending on the severity of the infection and its response to therapy, if the above sequence is not effective the dentist may want to consider consultation with or referral to a specialist or antibiotic sensitivity testing to identify an effective antibiotic.

Condition/Concern	Epidemiology	Diagnosis
Chronic periodontal disease	Periodontal disease is common in the U.S. adult population, with estimates suggesting that nearly 50 percent or 65 million American adults have mild, moderate or severe periodontitis. In adults 65 and older, prevalence rates increase to more than 70 percent.	Periodontal disease, especially the early stages, can be difficult for the patient to detect because there may be no pain and few outward signs that the subgingival inflammation and subsequent bone loss are occurring. Periodontal disease is usually initially detected by a dentist or dental hygienist and is characterized by bleeding on probing, periodontal pockets of 5 mm or more and, at more advanced stages, bone loss and gingival recession. Radiographs are useful to evaluate for bone loss.

Management

Chronic periodontal disease is not amenable to antibiotic management. Though it has a bacterial component to it and short-term management may include antibiotic use, long-term management is focused on altering the oral environment by appropriate mechanical cleaning of the tooth and root surfaces to eliminate the pathogenic organisms.

Treatment approaches, beyond effective mechanical cleaning, may include using disinfectants such as chlorhexidine or essential oil-based mouthwashes to assist in eliminating the pathogenic organism associated with the disease. Locally delivered antibiotics can also be used, adjunctively to mechanical methods, to support or improve periodontal health.

Maintaining a long-term healthy oral environment is essential to managing chronic periodontal disease.

Chronic periodontal disease may manifest into an acute abscess. In that situation, antibiotics may be needed to control the infection, though they should only be instituted after meticulous professional cleaning and irrigation of the teeth in the infected area and re-evaluation. Proper mechanical cleaning of infected areas is usually adequate to alter the local environment and eliminate the infection without the need for an antibiotic and is the only way to prevent the infection from continuing or returning.

CONTINUES ON 764

TABLE (CONT)

Condition/Concern	Epidemiology	Diagnosis
Sinus infection that presents with dental symptoms	<p>Acute sinusitis is the second most common infectious disease seen by general practice physicians. Most acute sinusitis is caused by the same viruses that cause the common cold.</p> <p>Though there is evidence that acute bacterial sinusitis does occur in the adult population, it is a small percentage of total sinusitis cases.</p> <p>Antibiotic trials find that 75 percent or more of patients with sinusitis in the placebo groups get better spontaneously within seven to 10 days.</p>	<p>Acute or chronic sinusitis usually manifests as pressure and pain in the maxillary sinus area under the eyes and beside and behind the nose.</p> <p>Infrequently, it can also manifest as diffuse dental pain and sensitivity in the posterior maxillary teeth with cold sensitivity, throbbing and a general sense of discomfort.</p> <p>Patients may reflexively clench their teeth to counteract the pain that can lead to more maxillary tooth pain and sensitivity and start to cause the lower teeth to become sensitive as well.</p> <p>Due to the proximity of the sinuses to the dentition and the shared innervation of that area, the dentist must rule out dental pathology as a cause of or coincidental to a sinus infection.</p>
Management		
<p>A detailed dental examination of the maxillary teeth in the affected area should be conducted to look for dental decay, external or internal root resorption, periodontal infection or any other dental pathology that could explain the dental pain. Appropriate periapical radiograph(s) should be used to look for periapical pathology and for root proximity to the maxillary sinus. If there is no evidence of dental pathology, then it is unlikely the sinus pain is coming from a dental source.</p> <p>Potentially confounding this process is that the normal tests for tooth pathology, such as cold or hot sensitivity and pain on biting, are not good discriminators of dental versus sinus infection pain because sinus infections can cause teeth to respond in the same way.</p> <p>Treating sinus pain with antibiotics as a means of ruling out a dental etiology is not appropriate. Sinus infections are complex and using antibiotics is not effective in discriminating between a dental versus a nondental source. If the dentist determines that dental pathology is an unlikely source of the sinus/pain problem, the patient should be directed to their physician for further evaluation and treatment.</p>		
Prophylaxis to prevent local infections or distant site infections		
Prophylaxis to prevent local or proximal/adjacent surgical-site infection (primary prophylaxis)	<p>All surgical procedures carry a risk of infection either from pathogens existing in the surgical site or by the introduction of bacteria during the surgical procedure. That risk may be increased if the patient's immune system is compromised, such as in those taking immunosuppressing drugs, patients with leukemia or those undergoing chemotherapy. The risk of infection is also increased if the patient has a compromised ability to heal, such as those with severe or uncontrolled diabetes.</p>	<p>A thorough medical history is required to determine the presence of a medical condition or medication that may compromise the patient's immune system or ability to respond to infection.</p> <p>Depending on the situation, consultation with the patient's physician may be warranted.</p>
Management		
<p>In general, the literature does not support the use of antibiotics prophylactically to prevent local infections in tissues adjacent to a surgical or dental procedural site, such as a dental extraction, endodontic procedure or an implant placement. An exception may be the surgical extraction of third molars, especially in situations where there is pericoronitis. The clinician is encouraged to use their clinical judgement to evaluate the patient's health and the extent of the procedure relative to antibiotic use in such situations.</p> <p>The prophylactic effect of antibiotics occurs within the first one or two doses and antibiotic use may be of detriment if continued for the next three to seven days, especially if there are no signs of infection at the surgical site.</p> <p>Best practices and responsible antibiotic stewardship suggest antibiotics should be reserved to manage an infection were it to occur, rather than used in hopes of preventing the infrequent infections that may be associated with such procedures in healthy immunocompetent patients.</p>		

RESOURCES

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TABLE (CONT)

Condition/Concern	Epidemiology	Diagnosis
<p>Prophylaxis to prevent distant site infection (secondary prophylaxis)</p>	<p>Patients with certain cardiac conditions, such as prosthetic valves, a history of endocarditis and specified congenital heart defects, are at higher risk of infection from a bacteremia and the outcome of such an infection can be life-threatening.</p> <p>Patients with large prosthetic joints may also be candidates for prophylactic antibiotics under certain circumstances, such as previous joint infection, immunosuppression or uncontrolled diabetes.</p>	<p>Pathogens in the oral cavity are a potential source of bacteremia whenever the oral tissues are compromised. While this may occur during daily brushing and flossing, it most certainly occurs during dental procedures that elicit bleeding.</p> <p>The spread of the infecting organisms is through the blood (hematogenous spread) to a site or sites in the body that are vulnerable to bacterial infection.</p> <p>The American Heart Association (AHA) and the American Dental Association (ADA) have published guidelines for identifying the cardiac conditions for which prophylactic antibiotics are indicated.</p> <p>ADA developed a chairside clinical recommendation guide for the management of patients with prosthetic joints undergoing dental procedures and the American Academy of Orthopaedic Surgeons offers online access to Appropriate Use Criteria for assistance determining at-risk dental patients who may benefit from prophylaxis.</p>

Management

There has been an evolution over the last 50 years in dentistry regarding the efficacious and appropriate use of antibiotics to prevent infections at a distant site from bacteremia as a result of dental treatment. Over that time, antibiotic use has been reduced from multiple days before and after the dental procedure of concern to a single dose of an antibiotic 30 to 60 minutes before the dental procedure with no follow-up dosage.

Current evidence indicates that generally, for healthy patients, prophylactic antibiotics are not recommended prior to dental procedures except for the AHA-defined higher-risk patients.

Antibiotics are appropriately used prophylactically in dentistry to prevent the spread of infection to a distant site in the body from organisms in the oral cavity under situations where the patient is identified as vulnerable to infection.

Medical conditions for prophylactic antibiotic consideration are:

- Specific cardiac conditions (see AHA guidelines).
- Prosthetic joints in specific patients (see ADA chairside guide or the American Association of Orthopedic Surgeons' Appropriate Use Criteria online decision support tool).
- Patients taking chemotherapeutic or immunosuppressing drugs or who have a medical condition that creates a compromised immune response, such as leukemia.

Drug recommendations:

- Amoxicillin, 2,000 mg.
- If amoxicillin or other penicillin is not an option, clindamycin, 600 mg, is the drug of choice for cardiac patients and cephalexin, 2,000 mg, is the drug of choice for prosthetic-joint patients.
- If the patient is unable to take clindamycin, then azithromycin, 500 mg, is the drug of choice.

Dose timing:

- If prophylactic antibiotics are needed, give 30 to 60 minutes before the dental procedure begins.
- At the high doses recommended, this time interval is considered adequate for enough drug to be absorbed so that bactericidal blood levels are reached. Where published guidelines exist, no subsequent dose of antibiotics is recommended. In situations where specific guidelines do not exist, such as severely immunosuppressed patients, the patient's physician should be consulted relative to subsequent doses of antibiotics past the initial dose.

Antibiotic prophylaxis to prevent infections at distant sites, even in medically complex patients, has evolved over time and still remains controversial, as there is lack of a solid evidence base for the efficacy of such a practice.

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Coronectomy of Mandibular Third Molars: Our Experience With 250 Consecutive Patients

Emily Ehsan; Paul Hauser, PhD; and David Ehsan MD, DDS

ABSTRACT Extraction of third molars is a common and safe surgical procedure in the United States. However, injury to the inferior alveolar nerve (IAN) during the extraction of impacted mandibular third molars in close proximity to the mandibular neurovascular canal is a complication frequently encountered by the oral and maxillofacial surgeon. We report our experience with 369 consecutive coronectomy procedures in 250 patients performed by one surgeon in a private-practice setting at a metropolitan locale.

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Conflict of Interest

Disclosure: None reported.

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Conflict of Interest

Disclosure: None reported.

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Conflict of Interest

Disclosure: None reported.

Extraction of third molars is a common and safe surgical procedure in the United States. However, injury to the inferior alveolar nerve (IAN) during the extraction of impacted mandibular third molars in close proximity to the mandibular neurovascular canal is a complication frequently encountered by the oral and maxillofacial surgeon. The published incidence of injury to the IAN is 0.5 to 8 percent¹⁻³ where 1 percent of the injury is permanent.^{3,4} The incidence may reach up to 20 percent in high-risk cases.⁵ To minimize the risk for nerve injury, coronectomy has become an alternative surgical procedure. The technique was first reported by Ecuyer and Debieu in 1984⁶ and continues to be studied.⁷⁻¹⁶

Once a controversial procedure, coronectomy of mandibular wisdom teeth has become an accepted alternative to extraction in cases where there is a close proximity of nerve and roots. In 2011, the American Dental Association approved a procedure code (D7251) for coronectomy and since 2012 it has been listed by the American Association of Oral and Maxillofacial Surgeons ParCare 2012 as a standard treatment option for surgical management of third molars.¹⁷ Most articles in peer-reviewed literature are either case reports or small case series.

We report our experience with 369 consecutive coronectomy procedures performed by one surgeon in a private-practice setting at a metropolitan locale.



FIGURE 1A. Preoperative panoramic radiograph of a 32-year-old patient with impacted third molars. Mandibular third molar roots appear to be in close proximity to the inferior alveolar canal.



FIGURE 1B. Three-dimensional cone beam computed tomography (CBCT) scan image.



FIGURE 1C. Axial slice of CBCT showing the intimate contact of the third molar roots with the inferior alveolar canal.



FIGURE 1D. Immediate postoperative panoramic radiograph after extraction of maxillary third molars and coronectomy of mandibular third molars.



FIGURE 1E. Six-months postoperative panoramic radiograph showing slight superior movement of coronectomy roots but with excellent overlying bone.



FIGURE 1F. Seven-years postoperative panoramic radiograph showing no further movement of coronectomy roots with excellent bony healing overlying the roots and distal to the second molars.

Methods

We conducted a retrospective review of 250 consecutive patients who underwent a coronectomy procedure at the San Francisco Implant Institute from 2010 to 2016 performed by the same surgeon (D.E.). Patient clinical records and follow-up data were reviewed. The inclusion criteria were:

- Patient needed coronectomy of at least one mandibular third molar.
- Patient underwent preoperative clinical examination including panoramic radiograph and cone beam computed tomography scan (CBCT).
- CBCT showed intimate contact of the inferior alveolar nerve (IAN) and roots defined by absence of the cortical wall of the mandibular canal.
- Patient cooperated with follow-up care that consisted of at least three postoperative visits — one-week, six-

week and six-months postoperative evaluation with panoramic radiograph. The exclusion criteria were patients whose panoramic radiograph or CBCT scan did not show close proximity of wisdom teeth roots to IAN, patients with active fascial space infection where the source was the mandibular third molar and caries of the mandibular third molar to very near or within the pulp of the tooth.



FIGURE 2A. Preoperative panoramic radiograph of a 34-year-old patient with impacted third molars. Mandibular third molar roots appear to be piercing the inferior alveolar canal.



FIGURE 2B. Axial CBCT showing the right inferior alveolar canal crossing between the roots of tooth No. 32 and in direct contact with the roots of tooth No. 17.



FIGURE 2C. Immediate postoperative panoramic radiograph after extraction of maxillary left third molar and coronectomy of mandibular third molars.



FIGURE 2D. Three-years postoperative panoramic radiograph showing coronectomy roots with excellent bony healing overlying the roots and distal to the second molars.

Results

The sample was composed of 250 patients with the coronectomy procedure. Mean patient age was 28.7 years with 45 patients younger than 25, 158 patients aged 25 to 35 years and 23 patients aged 35 and older. The male to female ratio was 1:1.48 (101 male patients and 149 female patients). The study pool was healthy in general, with 226 patients meeting the criteria for the American Society of Anesthesiology (ASA) I and 24 patients meeting the criteria for ASA II. Of the ASA II patients, 13 were tobacco users and two had diabetes.

A total of 369 coronectomy procedures were performed on 250 patients by the same surgeon; 131 patients underwent a unilateral coronectomy (78 left mandibular third molar and 53 right) and 119 patients underwent bilateral coronectomy.

The procedure consists of a vestibular triangular flap with a

distobuccal releasing component. The flap is elevated buccally with no manipulation of lingual soft tissues. Osteotomy is performed with a fissure bur on a surgical handpiece with copious sterile irrigation to expose the tooth crown when necessary. The fissure bur is used to transect the tooth at the cemento-enamel junction in a buccolingual direction just short of the lingual cortical plate to avoid injury to the lingual nerve. The crown is transected again in order to obtain two small segments. The crown segments are gently removed with tissue forceps. Great care is taken to avoid mobilization of the roots. The residual roots are reduced with a round bur to 3 mm below the buccal bony crest. After thorough irrigation, the flap is reapproximated to obtain primary closure of the wound.

All patients were seen for three postoperative visits at one week, six weeks and six months. The six-months

follow-up visit included clinical and radiographic (panoramic) examinations. Fourteen patients were seen at one- to five-years postoperatively, usually for an unrelated oral surgical issue. Two patients are represented in **FIGURES 1** and **FIGURES 2**.

There were four minor complications. Three patients developed postoperative localized infections. Two patients were treated with oral antibiotics and antimicrobial oral rinse and one required surgical incision and drainage. One patient developed an exposed lingual bony spicule; using topical anesthesia, it was removed with cotton forceps.

In nine coronectomy procedures, the residual roots were noted to be mobile during the surgery and intentionally extracted at the same time, as mobilization of a root can lead to infection because of a disruption of blood supply to the roots. These patients were all younger (< 25 years) and had

conical or incomplete root formation. There was no neurological injury in these nine patients with root mobilization and extraction. One patient was sent back five-years postoperatively by the referring dentist to obtain a dental release for overseas humanitarian work. The patient had undergone a bilateral coronectomy procedure where the left amputated root was visible intraorally. The patient was completely asymptomatic but both residual roots had migrated superiorly out of the IAN canal. Both retained roots were extracted uneventfully.

There was no incidence of neurologic injury to the IAN in any of the 369 coronectomy procedures.

Root migration after coronectomy procedure was evaluated using preoperative and postoperative panoramic radiographs. There was an average of 1.3 mm of superior migration of residual roots. Younger patients had more superior root migration compared to older patients (<25 years — 1.55 mm; 26–35years — 1.3 mm; >35years — 0.95 mm). Of the 12 patients evaluated greater than one year after coronectomy, 11 had no additional root migration and one had 2 mm further root migration.

Conclusion

Coronectomy was first proposed in 1984 by Ecuyer and Debieu to avoid the risk of neurological injury to the IAN in patients who had close proximity of the mandibular canal and roots of third molars. Case reports and small randomized clinical trials have shown positive response and low incidence of nerve injury compared to extraction.

This review of 369 consecutive coronectomy procedures in 250 patients who were at higher risk for neurological injury to the IAN based on CBCT demonstration of close proximity of

mandibular bony canal and third molar roots shows that coronectomy is an extremely safe and effective surgical procedure. In our review, there was no incidence of temporary or permanent injury to the IAN. After surgical coronectomy, superior root migration is common but slow and asymptomatic with mean superior migration of 1.3 mm. Roots migrate more in younger patients compared to older patients. The rate of root migration decreases after six months, likely due to bone apposition coronal to the root fragment.

During the coronectomy procedure, the remaining roots were noted to be mobile in nine patients (2.4 percent). In these patients, the entire root was extracted without neurological compromise.

There were three cases of minor infection in 369 coronectomy procedures (0.81 percent).

Patients who underwent extraction on one side and coronectomy on the other uniformly reported less postoperative pain on the coronectomy side. We attribute less pain with coronectomy because there is less surgery and invasiveness.

Coronectomy is a safe and effective procedure that should be considered as the standard treatment if CBCT shows a direct relationship between the mandibular canal and third molar roots. ■

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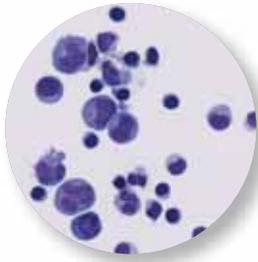
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Recognition of Non-Hodgkin Lymphoma of the Maxilla

Joel B. Epstein, DMD, MSD; Alexa Martin, DMD; Ali M.M. Sadeghi, DMD, MD; and Dimitrios Tzachanis, MD, PhD

ABSTRACT Primary (extranodal) non-Hodgkin lymphoma (NHL) in the oral cavity is rare, but causes local morbidity and leads to mortality. Head, neck and oral involvement can be the first site of presentation or it may occur in previously diagnosed cases. A thorough history, clinical evaluation, imaging, interdisciplinary consultation, biopsy and laboratory testing are all necessary to lead to diagnosis. Dentists must be aware that early recognition of this aggressive disease can lead to improved outcomes.

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Lymphoma is a cancer of the blood that affects the infection-fighting cells of the immune system, the B and T lymphocyte cells. The two main types of lymphoma, which involve abnormal and uncontrolled growth of the lymphocytes, are Hodgkin's lymphoma that arises from abnormal B cells and non-Hodgkin lymphoma (NHL) that may develop from either abnormal B or T cells. Primary (extranodal) NHL in the oral cavity is relatively rare, but can be locally destructive and lead to mortality. Early detection is critical. Head, neck and oral involvement can be the first site of presentation of NHL or it may occur in previously diagnosed cases.¹⁻⁶ A thorough history, clinical evaluation, imaging, interdisciplinary consultation, biopsy and laboratory testing are all necessary to achieve diagnosis. Dentists must be aware that early recognition of this aggressive disease can lead to earlier treatment and improved outcomes.

Case Report

A 51-year-old female presented to her general dentist with a nine-month history of worsening pain and swelling over the upper left lateral incisor (tooth No. 10) and with awareness of a "sharp pointy ridge" above the upper left second molar (tooth No. 15). Tooth No. 10 was root canal treated more than 20 years earlier. Due to the presenting symptoms and a diffuse radiolucency adjacent to the tooth, endodontic retreatment was completed by her dentist and a second canal was found and treated. Due to a penicillin allergy, the patient was put on azithromycin and clarithromycin on separate occasions to treat the presumed dental infection. Two weeks after endodontic retreatment, the patient reported that severe pressure sensitivity had returned in the area of tooth No. 10. She was then referred to an endodontist for evaluation and treatment.

Image above: CSF cytology of a diffuse large B-cell non-Hodgkin lymphoma. (Credit: Jensflorian/Wikimedia Commons)



FIGURE 1. Diffuse radiolucency after endodontic retreatment and apicoectomy on tooth No. 10.

During consultation with the endodontist, the patient related a history of an intermittent palatal swelling adjacent to tooth No. 10 along with a bump in the posterior hard palate. An incision and drainage and apicoectomy were performed and the patient was placed on clarithromycin and metronidazole (**FIGURE 1**). During the surgery, the endodontist noted that the periosteum seemed to be stuck to the cortical bone. The bone was described as noncohesive in the area of teeth Nos. 9–12 compared to normal bone over tooth No. 8. The clinician noted that the lesion seemed abnormal. Suspicious of a malignancy, the endodontist submitted a sample for biopsy. The initial report indicated malignancy, but an addendum report issued a final diagnosis of “chronic apical periodontitis” without evidence of malignancy.

On follow-up one week later with the endodontist, the soft tissue appeared to be healing and the swelling behind tooth No. 10 was reported as indurated. Tooth No. 9 tested nonvital, which had previously tested vital, and it was recommended the patient have a root canal on tooth No. 9. The endodontist recommended a referral to an oral and maxillofacial surgeon (OMS) for an examination and biopsy of the persistent palatal swelling, which measured 1 cm in diameter. The endodontist suspected the swelling was unrelated to the dentition.

Over the next few months, the patient saw multiple specialists for



FIGURE 2. Intraoperative photo of excision of necrotic segment of maxillary bone, including the area of labial and palatal bony plate, as well as extraction of teeth Nos. 9 and 11.



recurrent swelling of her left nasolabial region and palate and eventually had tooth No. 10 extracted by her general dentist who noted pus expressed from the socket. She was treated intermittently with oral clindamycin, azithromycin and moxifloxacin by various dentists and specialists with no resolution of her symptoms. A diagnosis of advanced osteomyelitis in the anterior maxilla was made after a cone beam computed tomography (CT) was performed, which demonstrated extensive osteolysis of the anterior maxilla and a periapical lesion on tooth No. 9. She was then seen by an OMS who identified mild facial asymmetry, a firm, tender swelling in the left nasolabial region including the left anterior mucobuccal fold and labial and palatal cortical expansion with crepitus suggesting altered cortical bone.

The OMS ordered a CT with contrast, medical and laboratory testing and consultation with an infectious disease specialist. The new CT showed extensive osteolysis reported consistent with osteomyelitis. Laboratory results showed a normal hematologic panel. The infectious disease specialist planned daily intravenous antibiotics (vancomycin and ertapenem). Soon after antibiotics were initiated, the patient underwent a maxillary sequestrectomy.

Intraoperatively, extensive lysis of bone with gelatinous material completely replacing the interseptal bone between the maxillary teeth was noted (**FIGURE 2**). Excision of a

necrotic segment including the area of labial and palatal bony plate as well as extraction of teeth Nos. 9 and 11 were completed. Her pathology report described findings consistent with osteomyelitis, however due to a comment in the previous biopsy report indicating the inability to assess the inflammatory cells due to crush artifact, further evaluation and differential staining of original sections were requested by the OMS.

The specimen was then re-examined with immunohistochemistry staining that showed strong positivity for CD20, less intense CD3 and reverse expression of Ig Kappa and Ig Lambda consistent with B-cell lymphoma. However, due to the extensive crush artifact, it was difficult to specify the lymphoma type.

Upon further work up, an underlying low-grade lymphoma was identified in the bone marrow in addition to the apparent intermediate-grade lymphoma not otherwise specified in the head and neck causing bony destruction of the left maxillary bone and palate. The final diagnosis was stage IVA transformed non-Hodgkin B cell lymphoma. The ertapenem therapy was continued to address the potential infectious component of the process and the vancomycin was discontinued.

The patient was then referred to an oncologist and she underwent six cycles of R-CHOP chemotherapy. A PET/CT at the end of treatment showed resolution of all previously

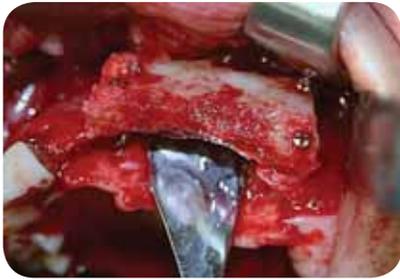


FIGURE 3. Reconstruction of anterior maxilla with iliac crest bone graft.



FIGURE 4. Panoramic radiograph showing CT-guided dental implants with fixed implant-retained prosthesis after maxillary resection and reconstruction.

identified lymphoma lesions. She reported no symptoms of recurrent disease or infection and was placed on maintenance rituximab (375 mg/m² q3mo for 8 cycles). Upon confirmation of full remission of her lymphoma, the patient had reconstructive surgery of her maxillary defect using an autogenous iliac crest bone graft (**FIGURE 3**). After a six-month consolidation of the graft, multiple dental implants were placed using CT-guided technology and a fixed implant-retained prosthesis in the maxilla (**FIGURE 4**).

Discussion

Non-Hodgkin lymphoma is the second most common neoplasm of the head and neck, even though overall it accounts for only 3.5 percent of oral malignancies.¹ The oral cavity might be the first and/or only site of presentation even with disseminated involvement. Most lymphomas are of B-cell origin followed by T-cell and the NK/T cell. The most common subtype is diffuse large B-cell lymphoma. It has an aggressive, fast-growing course but is curable, therefore early recognition and treatment is of paramount importance. Oral care providers must be aware that head, neck and oral involvement is common. The most prevalent site is the tonsils (32.7 percent) followed by the parotid gland (16.1 percent).¹ Clinical presentation of NHL often begins as an asymptomatic, slowly growing mass and this is usually the first complaint

of most patients.²⁻⁴ A review of 40 cases of NHL involving the oral cavity revealed 28 percent involved the maxilla or palatal bone.⁵ As the disease progresses, intraoral signs suggestive of NHL include unexplained dental pain, numbness, tooth mobility, swelling or ill-defined lytic osseous changes.⁶

The lymphoma in this case initially presented as a tender swelling of the labial tissue in the area of tooth No. 10. Radiographic evaluation showed a diffuse periapical radiolucency and the incisional biopsy revealed erosive osseous changes.

The 20-year-old root canal in tooth No. 10 appeared intact radiographically, despite diffuse bone loss seen in the anterior maxilla. The patient did not respond to multiple antibiotic courses directed toward a possible dental infection, yet multiple endodontic procedures were completed before lymphoma was considered in the differential diagnosis. The history, diffuse bone destruction and the palatal swelling, despite the radiographic appearance of the prior endodontic treatment, suggest a potential cause other than dental pathology. Differential diagnosis is critical at this stage of care. Further, this case highlights the challenges in histologic diagnosis and that definitive diagnosis requires laboratory and clinical evaluation.

Dental abscess, periodontal infection and benign reactive hyperplasia should all be considered in the differential

diagnosis. Differentiating between lymphoma and infectious disease may be difficult, but if a patient is not responding as expected to treatment it is essential to review the working diagnosis, repeat or complete new testing and refer to the appropriate specialists to determine diagnosis and appropriate treatment.⁶ Delayed diagnosis may have led to a more advanced stage of disease, as was seen in this case.

Testing for primary NHL requires immunohistochemistry and in situ hybridization staining. Routine hematoxylin and eosin is not sufficient for lymphoma diagnosis, and as seen with this case, hematologic and biochemical profiles of the patients are usually normal.^{7,8} Histological evaluation, including B and T cell markers, is important in differentiating the types of cells involved and differential diagnosis, and additional markers can help discern subtypes.⁵

In this case, A2 staining, CD20, CD3 and Ig Kappa and Ig Lambda were used to establish a diagnosis of B-cell lymphoma. Unfortunately, the initial biopsy sample was not ideal in that there were many crushed cells due to the tissue obtained by curettage and the type of B-cell lymphoma could not be identified. Clinical, laboratory studies, imaging to evaluate bony destruction and positron emission tomography (PET) scan with 18F-fluorodeoxyglucose (FDG) may be used for staging and evaluation of therapeutic response.⁸

Treatment for oral NHL involves primarily chemo-immunotherapy and may include radiation therapy with bone marrow/hematopoietic stem cell transplant reserved mainly for relapsed and refractory cases. The overall three-year survival rate is still only around 65 percent, and after salvage therapy, two-year survival is only about 55.3 percent.^{9,10} Our patient achieved a complete remission with six cycles of R-CHOP chemotherapy, which is a 21-day course of rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone per cycle

and eight cycles of maintenance therapy of rituximab, a monoclonal antibody directed to the CD20 antigen.⁸ Reconstructive maxillary surgery was completed three months after negative PET scan.

Extranodal NHL should be included as a rare differential diagnosis when a patient presents with gingival swelling that cannot be explained by more common causes. It is important for dentists to be aware of this due to the aggressive nature of the malignancy so that diagnosis can be achieved and treatment initiated as early as possible. ■

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The accidental aspiration or ingestion of foreign objects during dental procedures can occur on occasion. After all, introducing dental instruments, restorative materials and other small dental components into the oral cavity while a patient is in a reclined position naturally creates an element of risk. While preventive measures may reduce the number of incidents, communication about proper posttreatment care can prevent them from developing into a critical event.

The Dentist Insurance Company's Risk Management Advice Line reports a case in which a 75-year-old patient presented to his periodontist's office for a routine cleaning. While the hygienist was scaling his teeth, a gold crown dislodged and disappeared. The hygienist informed the periodontist, who assessed the patient and determined that because the patient wasn't coughing after the incident, he most likely swallowed the crown. She reassured the patient and advised that she didn't anticipate any untoward complications, but recommended that he obtain an X-ray in the event the crown did not pass within a few days.

Three months later, the patient's daughter informed the office that her father had been transported to the hospital due to shortness of breath, coughing and chest congestion. She said a radiograph revealed the presence of the crown in the lower lobe of one his lungs. She stated that her father underwent a bronchoscopy procedure to retrieve the crown. Unfortunately, the patient developed complications following the procedure and was intubated due to acute respiratory failure. Six months later, the office received word of her intent to sue on behalf of her father.

In another case, a 45-year-old patient presented for crown lengthening on a tooth that had been temporarily restored. During the procedure, the provisional crown dislodged and the patient swallowed it. The patient did not exhibit any signs of distress or compromise of his airway during the incident, so the dentist did not believe an X-ray was needed. He advised the patient to call the office if he developed any symptoms.

A few months later, the patient failed to show up for a recall appointment. The office was able to reach his wife, who said that the patient had developed complications following his last visit and was hospitalized twice due to respiratory failure. It was during the second hospitalization that a foreign object, which turned out to be the temporary crown, was removed from his lungs. A few months later, the patient filed a lawsuit.




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TDIC Senior Risk Management Analyst Taiba Solaiman said although the outcomes of the above cases are pending, the common denominator is that each of the providers failed to properly follow up with their patients. Taking a proactive stance rather than a “wait-and-see” approach is essential when it comes to patient injuries.

“An incident can happen even if the dentist is very careful,” Solaiman said. “But often, it is how the incident is managed after the event that determines the severity and outcome of the case.”

TDIC recommends dentists take the following actions to help mitigate risks associated with suspected foreign object aspiration or ingestion:

- Stop treatment and assess the situation, even if the incident appears insignificant.
- Stabilize the patient and calmly explain what happened.
- Check the immediate area in an attempt to locate the object.
- Refer the patient to their physician for follow up and referral for X-rays.
- Document the incident and note any witnesses with their contact information.
- Follow up with the patient to check on their recovery.
- Contact your insurance carrier to file an incident report.

“An incident may seem minor to a dentist, but proper follow-up care is essential,” Solaiman said. “Any delay in the proper management and timely intervention of such accidents may cause severe and even life-threatening complications.”

TDIC emphasizes the importance of communication and compassion in handling patient injuries. Showing compassion is not admitting guilt. Failing to recognize how the patient is feeling or minimizing the situation can often lead to patients becoming more upset. Often what a patient wants is for the dentist to simply express concern and acknowledge the injury.

“A calm, caring attitude and clear communication is key when handling these incidents,” Solaiman said.

A patient may simply expect that the dentist will offer to cover their copay or other minor expenses as a gesture of good will. However, dentists should contact the Risk Management Advice Line prior to offering any payments or reimbursements.

Analysts can also help dentists navigate patient demands. However, if the analyst believes the situation could develop into more than a small monetary payment, he or she may recommend the dentist speak with a claims representative. TDIC’s professional liability policy provides coverage up to \$10,000 under the medical payments provision for medical expenses related to dental treatment.

Despite the utmost care and precautionary measures, accidents during routine clinical procedures can happen. When they do, it is better for dentists to be armed with the right information and tools that will lead to the most desirable outcome for patient health. ■

TDIC’s Risk Management Advice Line is a benefit of CDA membership. To schedule a confidential consultation with an experienced risk management analyst, visit tdicinsurance.com/RMconsult or call 800.733.0633.

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4261 CAPITOLA GP Retiring doctor offering an established practice in professional office complex built around a garden setting. Beautiful and modern 1,465 square foot facility with 4 fully-equipped operatories. Average gross \$743K+ with 3 doctor days and 6 hygiene days per week. Approximately 1,800 active patients. Asking \$562K.

4172 NAPA GP Amazing opportunity to own the practice of your dreams in one of the world's premier wine destinations! Situated in a prime neighborhood close to many amenities. 1,200 square foot office with 4 fully-equipped and updated operatories. Over 1,000 active patients. Average annual gross receipts over \$700K. Asking price for practice \$484K. Building available for purchase.

4316 SARATOGA GP Vibrant and active practice located in beautiful 4 op, fully-equipped, facility at upscale residential, professional, and commercial neighborhood. 10 new pts./month. 4 doctor days & 4 hygiene days per week. \$464 avg. Gross Receipts. Asking \$357K.

4233 SF GP Seller offering 26+ year general practice in SF Financial district. Ground floor office with high volume foot traffic. Approx. 1,200 sq. ft. facility with 4 fully-equipped ops. \$930K+ avg. annual GR. Seller willing to help for a smooth transition. Asking \$640K.

4210 UNION CITY GP Retiring GP offering 40+ years of goodwill. 5 ops in 1,100 sq. ft. 350 active patients, all fee-for-service. Asking \$85K.

4326 SANTA CLARA GP Practice with an emphasis on Restorative dentistry with over 1,000 active patients located in sought-after neighborhood close to major roads, shopping centers and hospitals. Approximately 850 sq. ft. facility with 3 fully-equipped ops. plus a seasoned and loyal staff. Avg. Gross Receipts \$617K.

4225 EUREKA GP & BUILDING Established since 1981 in charming Northern California port city. Retiring doctor is offering practice and building. Practice has approximately 1,200 active patients with new patients accepted on a selective basis. Average Gross Receipts of \$765K+ with 61% average overhead. Beautiful 1,400 square foot office with four (4) fully-equipped operatories. Asking price for practice \$468K.

4178 SONOMA COUNTY PERIO Seller retiring from 21 year practice with trained, seasoned staff and great location. Exceptional 2,100 sq. ft. ample office with 6 fully equipped ops. Majority of equipment purchased in 2002. 4 doctor-days & 3 hygiene days per week. Average gross receipts \$1M+. Asking \$677K.

4198 PETALUMA DENTAL BUILDING Condominiumized dental office. Approximately 1,600+ square feet with five (5) fully-equipped operatories set up for right hand delivery. There is a reception area, business office, consult room, staff lounge, lab, sterilization area, private office and separate storage area. Asking \$495K.

4344 SF GP Prime & convenient location in Laurel Heights neighborhood. 9 year practice averageing \$500K+ with approx. 50% overhead in fully-equipped 2 op. modern facility. Motivated seller relocating out-of area.

4214 FREMONT GP Retiring Seller is offering an established practice in ample 2,000 s.f. facility that includes 9 operatories, 2 bathrooms, a reception area, private office, staff lounge, lab area, sterilization area and storage area. Average Gross Receipts \$681K+ Asking \$275K.

4216 SIERRA NEVADA FOOTHILLS 23 year practice located in the heart of the Sierra Nevada foothills in modern building close to downtown area. 1,024 square foot office with 4 fully- equipped ops., upgraded major equipment and digital radiography. Average Gross Receipts \$890K+ with 56% average overhead. Asking price for practice \$604K. Seller is offering real estate for sale to the buyer of his practice.

4324 SF GP Seller offering 33 years of goodwill in busy financial district bldg. Gorgeous 890 sq. ft. office with 3 fully equipped ops (plumbed for 4). Incredible panoramic views with amazing natural light pouring into each window. 500+ active patients. 2 days of hygiene/wk. Current average GR approx. \$410K with adj net of \$115K. Asking \$199K.

4331 SF GP Downtown SF practice in gorgeous, remodeled 1,300 office with panoramic views. Suite includes 4 fully equipped ops, reception area, business office, private office, staff lounge, lab area, and sterilization area. Beautiful, modern cabinetry and equipment. 1,600 active patients with 15-20 new patients/mo. Owner/doctor works 3 days/wk with 5 hygiene days/wk. Average gross receipts \$738K with average adj. net of \$305K. Asking \$495K.

4340 WEST SONOMA COUNTY GP Charming and growing community practice with over 40 years goodwill in seller owned building. Busy corner location adjacent to several retailers. Well appointed, 4 op office with several Recent leasehold improvements and upgrades. Approximately 1,000 active patients. Average Gross Receipts \$788K with consistent growth. 2018 on schedule for \$822K with 65% overhead and 3.5 doctor days per week. Primarily Restorative dentistry with no implant placement. Average 4 days of hygiene per week. Owner willing to help for smooth transition. Asking \$538K.

4338 PENINSUNSULA PROSTHO Preeminent 45 year Prosthodontic practice located in peninsula neighborhood, now available. State-of-the-art 1,242 square foot facility with 5 operatories. Seller willing to help in the transition. Outstanding referral sources. Average Gross Receipts \$1.3M with 4 doctor-days per week. Asking \$884K.

4336 SAN BRUNO GP Legacy practice centrally located in a combined commercial & residential neighborhood, convenient to highways 101, 280, and 380 and close to the BART station. Elegant, remodeled 1,463 sq. ft. office with 5 fully-equipped ops. & digital radiography. 5 year average Gross Receipts \$922K+. 1,000 active patients with an average of 10 new patients per month. Asking \$661K.

4343 SANTA CRUZ COUNTY GP Ample 3,000 sq.ft. facility w/5 fully-equipped operatories,. Terrific opportunity to own the facility and well-established community practice with quality and seasoned staff. Average Gross Receipts \$870K+. Asking \$643K.

COMING SOON: Fairfield GP, Santa Cruz GP



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NORTHERN CALIFORNIA

CAMPBELL: 3 Ops+ room to expand, Dextrix, Dexis, Cone Beam, Laser. Established 25 yrs. 2017 GR \$864K. #CA528

CASTRO VALLEY: 1,800 sq. ft., 5 treatment rooms, Digital Pan, Dexis Digital Sensor, Dextrix PMS. 2017 GR \$354K on 2 day/wk. #CA534

CONTRA COSTA COUNTY: Advanced Restorative General Practice. 3 yr. avg. GR nearly \$1.2M. 50% of sales mapped in 2,400 sq. ft., SoftDent PMS, Dexis Digital Sensor, Digital Pan, soft tissue laser. #CA530

EL DORADO COUNTY: 1,200 sq. ft., 3 Ops, with Pano, EZ 2000 software, Dexis, I/O cameras. 2017 GR \$414K on 3 day/wk., 2018 Q1 Collections of \$152K! Owner retiring. #CA390

FREMONT: New Listing! 4 equipped Ops in approx. 1,800 sq. ft. suite. Dextrix PMS, Digital X-ray, Diode Laser, and I/O Camera. 2017 GR \$446K on 3 day/wk. #CA547

GREATER MODESTO: New Listing! 4 Ops in approx. 1,400 sq. ft. 2017 GR \$366K on a 3 Dr. days/wk. Dental building must be purchased with practice. #CA546

GREATER PLACERVILLE: Selling for less than 50% of 2017 collections of \$699K. 25 min. from El Dorado Hills. Owner wants to retire, price reduced for quick sale. 1,500+ sq. ft. office w/ 4 Ops, Dextrix software, 2 Schick sensors, new server & CPUs. #CA407

GREATER SACRAMENTO: 3 Op, PPO practice in approx. 1399 sq. ft. High-end TT's and neighborhood, SoftDent, Carestream sensors, and I/O camera. 2017 GR \$506K on 4.25 day/wk. #CA543

HAYWARD: 1,900 sq. ft. office, 4 treatment rooms, Digital Pan, Dexis Digital Sensor, Dextrix PMS. 2017 GR \$306K on 2-3 day/wk. #CA535

MADERA: New Listing! Modern 4 Ops (room for 5th) PPO and Denti-Cal practice w/ newer equipment, approx. 1800 sq. ft., 2017 GR \$233K on 2 Dr. days/wk. Building facility also available for purchase. #CA542

MARIN COUNTY FACILITY: Built in 2013, in new condition, w/ 3 Ops, bright and airy layout, Planmex, EagleSoft Pano, Digital sensor, I/O Camera, PMS w/ bonus of patients. Opportunity to merge or work in an est. facility to make a practice of your dreams! #CA502

NORTH FRESNO/MADERA: New Listing! 7 Ops. 2017 & 2016 avg. GR \$809K w/ a 52% overhead. Same location for 30 yrs. Dexis and Dextrix software. 10 days hyg/wk. #CA541

REDDING: 2,600 sq. ft. office w/ 6 Ops, I/O camera, Digital X-ray, Pano, Dextrix software. Long history of GR over \$1M. #CA515

SACRAMENTO: 3 Ops PPO practice in approx. 1,050 sq. ft. suite. Schick sensors, and I/O camera. 2017 GR \$668K on 4 1/2 day/wk. #CA519

SACRAMENTO: 3 Ops, shopping center location, Digital X-ray, move in ready. 2017 Collections of \$572K (From 2017 Corp. Tax Return), 30 hrs./wk., 29 yrs. goodwill. #CA527

SACRAMENTO: Very efficiently run practice with 4 fully equipped Ops, Practice Web software, I/O Camera, Digital X-ray. 2017 GR of \$1M w/ low overhead. #CA510

SAN FRANCISCO: Restorative Multi-Specialty Prosthodontist Practice in Downtown San Fran. 2,463 sq. ft., in-house lab. 4 Ops, 2 lab rooms. Dextrix & Carestream. 2017 GR \$613K on 3 day/wk. #CA529

SAN JOSE: 3 yr. avg. revenue \$1.25M, over \$500K avg. Adj. Net on 4 day/wk. 100% FFS w/ 3 Ops, 1,100 sq. ft., Cone Beam Imaging, Schick Sensors, Lasers and more. #CA506

SAN RAMON: ENDODONTIC Practice in 3 Ops and 1,300 sq. ft. office with TDO Imaging Software, Digital X-ray, and Global Microscope. 2017 revenues of \$341K w/ Adj. Net above 38% on reduced schedule. Owner retiring. #CA526

SONOMA COUNTY: New Listing! Lg. General Practice with 2017 GR above \$2.6M. Stand Alone 3,000 sq. ft. Prime Real Estate, 72 NP per/Mnth & 10 days hyg/wk. 6 Ops Pano X-ray, Dexis, Cameras, Laser, Dextrix. Both Business & Real Estate for sale or Lease. Doctor Retiring. #CA544

VALLEJO: Real Estate Available. 1,250 sq. ft. practice w/ 3 equip. Ops, EagleSoft PMS, Digital X-ray, and CAD/CAM. 2017 GR \$736K on 3 1/2 day/wk. Owner can assist with Real Estate financing, is retiring. #CA521

WOODLAND: 8 Op office in a 2,100 sq. ft. suite w/ 22 yrs. goodwill. Shopping center location with 2017 GR of \$760K. Owner is retiring, great location with potential for increased collections. #CA497

CENTRAL CALIFORNIA

CENTRAL COAST ENDO PRACTICE: 3 Ops, Digital X-rays, Paperless, Cone Beam CT, and PBS Endo Software. 2016 GR \$925K w/ \$561K Adj. Net. #CA489

FRESNO PERIO/IMPLANT PRACTICE: 6 Ops, large conference room for teaching/meetings, 20 yrs. goodwill, 2017 GR \$649K, works 2 day/wk., cash only office. #CA518

VISALIA: New Listing! 2,700 sq. ft., Bldg + Practice for sale, located near hospital. 4 yr. old equipment, Dextrix, Digital X-ray and Pano. PPO/ Cash (no HMO or Denti-Cal). 2017 GR \$585K. Great opportunity to own bldg. and practice. Illness forces sale - make offer! #CA536

VISALIA: Very efficiently run practice with 4 fully equipped Ops, Practice Web software, I/O Camera, Digital X-ray. 2017 GR \$1M w/ very low overhead. #CA512

SOUTHERN CALIFORNIA

ARCADIA/PASADENA AREA: Sierra Madre practice with 3 Ops, with 50+ yrs. goodwill, 20 yrs. w/ our retiring seller. Strong Hyg. program 2017 GR \$351K w/ room to grow. #CA481

BAKERSFIELD: PRICE REDUCED! 6 Ops, 5 Equipped, located in duplex building with signage. 2017 GR \$544K w/ \$147K Adj. Net. Most specialty work is referred out. PPO/Denti-Cal. #CA459

BREA: New Listing! 5 Ops, 4 Equipped, paperless with Dextrix and Dexis Digital X-rays. 40+ yr. history in Brea with a strong hyg. program and most specialty referred out. 2017 GR \$724K w/ \$253K Adj. Net. #CA548

COVINA: 5 Ops, SoftDent, Digital, I/O camera, Microscope, and Digital Pano. Great location. Strong Hyg. program, most specialty work referred out. 2017 GR \$960K w/ \$406K Adj. Net. #CA533

GLENDALE: 4 Ops, Dextrix, Dexis, I/O Camera, and a Laser. Practice has 3 days of hyg./wk. 3 1/2 doctor days/wk. 2017 GR \$872K w/ \$393K Adj. Net. #CA492

GREATER LOS ANGELES PERIO PRACTICE: Price Reduced! 5 Ops, 34 yrs. goodwill, Dextrix, Digital, Laser, great referral base, 2017 GR \$694K Adj. Net \$276K. #CA173

HIGHLAND: 3 Ops, shopping center location, Dextrix, Dexis, 2 days of hyg./wk. 2-3 doctor days/wk. GR \$359K, \$113K Adj. Net. #CA522

LAGUNA BEACH: 4 Ops, 3 Equipped, beautiful location. Dextrix G4, Dexis Digital X-rays, paperless. 2017 GR \$442K w/ \$211K Adj. Net. #CA443

LAKE ARROWHEAD/SAN BERNARDINO MOUNTAINS: New Listing! PPO/ FFS practice. 6 Ops w/ SoftDent, Dexis Digital X-rays, I/O camera, Pano, and laser. Strong Hyg. program. 7 days of hyg./wk. 2017 GR \$1.14M. \$368K Adj. Net. Bldg. also for sale. #CA517

LONG BEACH: 1,700 sq. ft. practice + Real Estate, paperless, Dextrix, Dexis Digital X-rays, Pano, and laser. 4 days hyg./wk. 2017 GR \$492K. #CA499

LOS ANGELES, BRENTWOOD PROS PRACTICE: New Listing! 6 Ops in professional bldg., EagleSoft, CEREC, in-house lab with experienced techs and Pano. Priced aggressively for quick sale. 2017 GR \$680K. #CA539

LOS ANGELES, WEST SIDE: 4 Ops, Est. 54 yrs., SoftDent, Laser, Strong Hyg. Program, refers out most Specialty work. 2017 GR \$600K w/ \$171K Adj. Net. #CA531

LOS ANGELES ENDO PRACTICE: 4 Ops, 3 Equipped with Scopes and Digital X-rays, 27+ yrs. goodwill. 2017 GR \$692K w/ \$433K Adj. Net. #CA485

ORANGE: 4 Ops, Dextrix, Dexis, near hospitals, 30+ yrs. goodwill. 2017 GR \$304K w/ \$138K Adj. Net. #CA487

ORANGE COUNTY ENDO PRACTICE: 5 Ops, 3 equipped, in professional bldg. 42 yrs. goodwill. 2 microscopes, Digital X-rays, I/O camera. 2017 GR \$670K w/ very low overhead. #CA532

ORANGE COUNTY PERIO PRACTICE: 5 Ops, 9+ days hyg./wk. The retiring seller has approx. 18 NP/mo w/ strong referral base. Long history of collecting \$1M+/yr., 2017 Adj. Net \$498K on a 4 day/wk. #CA520

PASADENA: 5 Op General Practice + RE. Paperless with SoftDent, Digital X-rays, I/O Camera. 2017 GR \$75K w/ \$115K Adj. Net. on 3 day doctor/wk. + 3 days hyg./wk. #CA505

RANCHO CUCAMONGA: 7 Ops, free-standing bldg. on busy corner, Dextrix, Dexis, Digital Pano, separate 4 chair Ortho bay. 2017 GR \$838K w/ \$158K Adj. Net. #CA514

RIVERSIDE COUNTY: Turn-key 4 Op practice in single story Prof. Bldg. w/ signage. Dextrix, Digital, Paperless. 2017 GR \$816K w/ \$330K Adj. Net. #CA471

SAN FERNANDO VALLEY MULTI-SPECIALTY PRACTICE: 13 Ops, open bay Pedit room w/ 2017 GR \$410K w/ \$192K Adj. Net. #CA460

SAN GABRIEL VALLEY: New Listing! 6 Ops, 3 equipped, Open Dental, digital X-rays, I/O camera. Practice opened 3 days/wk. w/ good NP flow. In-network with most PPO plans, no HMO. 2017 GR \$585K, w/ \$189K. Adj. Net. #CA540

SANTA ANA: 4 Ops, shopping center on busy corner w/ signage, multi-Cal practice. 2017 GR \$410K w/ \$192K Adj. Net. #CA460

SANTA BARBARA COUNTY: 10 ops in a 3,400 sq. ft. suite, 18 yrs. goodwill, in-house specialists. FFS, PPO and has a HMO CAP check of 6-8K/mo. EZ Dental, Digital X-rays, I/O Camera, and Pano. 2017 GR \$1.3M w/ \$462K Adj. Net. #CA503

SANTA MONICA: 2 Ops in centralized location with great visibility w/ CareStream and Digital X-rays. 2017 GR \$644K w/ \$382K Adj. Net. #CA525

SANTA MONICA: Turn-key, 4 Ops, 3 Equip. only DDS in Prof. bldg., Open Dental, Digital, Paperless. GR \$660K w/ \$284K Adj. Net. #CA511

SOUTH BAY, LOS ANGELES AREA-IMPLANT/ORAL SURGERY: 3 Ops, 1,700 sq. ft., in a retail/profess. center. Paperless and computerized with WinDent OMS Software, Dexis Digital X-rays, Digital Pano, and CBCT. 2017 GR \$475K. #CA498

SOUTH ORANGE COUNTY: 4 Ops, 3 Equip., utilizes an I/O Camera, Digital X-rays, Laser, and CariVu. Practice has 18 yrs. goodwill w/ retiring seller. 2017 GR \$331K working 20-24 hrs./wk. w/ the seller referring out most specialty work. #CA509

TUSTIN: 6 Ops, Pano, 5 yr. new equipment, PracticeWorks, 60+ yrs. goodwill. GR \$525K #CA486

VAN NUYS: New Listing! 4 Ops, SoftDent, Kodak sensors and Digital Pano. Easy access and is convenient to all of Van Nuys. PPO/ HMO/Cash w/ 10% of patients having Denti-Cal. 2017 GR \$366K w/ \$95K Adj. Net. #CA538

VENTURA COUNTY: 4 Ops, 1,350 sq. ft. in a busy retail center on a main thoroughfare. Dextrix, Digital X-rays, I/O Camera, and Pano. 4 days hyg./wk. 2017 GR \$641K w/ \$257K Adj. Net. #CA504

WESTERN SAN FERNANDO VALLEY PEDO PRACTICE: Very motivated seller! Great opportunity to purchase a Pedit practice in the SF Valley. In an upscale location, 4 Ops, EagleSoft, I/O Camera. 10+ yrs. Goodwill. 2017 GR \$266K on 3 day schedule. #CA399

SAN DIEGO

NORTH COUNTY INLAND PROS PRACTICE: 4 Ops, Dextrix & Digital X-Rays in a beautiful facility. Curbside visibility and loyal referral sources nearby. Seller is relocating. 2017 GR \$737K w/ \$182K Adj. Net. #CA524

SAN DIEGO: 3 Ops, EZ 2000, Digital, PPO/ FFS, Sm. amount of MediCal, Seller Retiring. Excellent Opportunity for a new doctor or a 2nd office location. GR \$253K w/ \$129K Adj. Net. #CA523

SAN DIEGO: 6 Ops. Cutting-edge practice, 8 days hyg./wk. EagleSoft, Schick Digital, Cone Beam, CEREC, EagleSoft Cameras. Most specialty work referred out. 2017 GR \$2.2M+ w/ \$675K Adj. Net. #CA483

OUT OF CALIFORNIA

CENTRAL OAHU, HAWAII: Convenient, family-oriented practice, 3 Ops, 2 Eq., PPO/FFS, Seller retiring, Digital, Innova. 2017 GR \$357K w/ \$153K Adj. Net. #H1110

CENTRAL OAHU, HAWAII: Family-oriented rural Practice, 3 Ops, Digital X-rays, Pano, and Innova. Retiring Seller. PPO, Medicaid. 2016 GR \$923K w/ \$322K Adj. Net. #H1109

HONOLULU, HAWAII: New Listing! Well-designed, 3 Ops, Innova, All specialty procedures sent out, PPO/FFS, Seller retiring, motivated. #H1111

EASTERN WASHINGTON: Well-established practice in 1,400 sq. ft. office, 4 Ops, EasyDental software, Intra-Oral Camera, & Orthopantomograph. 2017 GR \$429,000 on 3 day/week. #WA100

S. PUGET SOUND, WASHINGTON: New Listing! 2,506 sq. ft. with 5 fully equipped Ops, Dexis Digital X-ray, Atlas software w/paperless charting, Intra-Oral cameras, and lasers. 2017 GR of \$778,000. #WA101

Mandated Reporting

CDA Practice Support

Each person licensed by the Dental Board of California is a “mandated reporter.” State law requires a mandated reporter who has knowledge of or observes a child or dependent adult whom the mandated reporter knows or reasonably suspects has been the victim of abuse or neglect to make a report to local law enforcement or a local social services agency. Each dental professional can meet his or her professional obligation by taking the following steps.

Routinely screen for and recognize signs and symptoms of abuse or neglect

Signs of physical abuse may include:

- Bruises, welts or other injuries that cannot be explained or do not match with the patient’s explanation.
- Burn marks that cannot be explained.
- Injury marks that have a pattern, like from a hand, belt or other objects.
- Injuries that are at different stages of healing.

Individuals who have been physically abused may:

- Avoid any kind of touch or physical contact.
- Be afraid to go home.
- Seem to always be on high alert.
- Wear clothing that doesn’t match the weather — such as long sleeves on hot days — to cover up bruises.

Note that the pregnancy of a minor is not, on its own, a basis for a reasonable suspicion of sexual abuse.

Ask direct, nonjudgmental questions with compassion

- “Please tell me about _____ (injury).”
- “Have you been hit, kicked, punched or otherwise hurt by someone within the past year? If so, by whom?”
- “Do you feel safe in your current relationship?”
- “Does a partner from a previous relationship make you feel unsafe now?”

Document findings

Document findings in the patient chart.

Assess patient safety

Is the patient in immediate danger?

Review, refer, report

A mandated reporter who has a reasonable suspicion of a patient’s abuse or neglect must report his or her findings. “Reasonable suspicion” means that it is objectively reasonable for a person to entertain a suspicion, based upon facts that could cause a reasonable person in a like position, drawing, when appropriate, on his or her training and experience, to suspect abuse or neglect. “Reasonable suspicion” does not require certainty that abuse or neglect has occurred nor does

it require a specific medical indication of abuse or neglect. Any “reasonable suspicion” is sufficient to make a report.

Report by telephone known or suspected cases to the county department for child protective services or adult protective services or to local law enforcement. A written report must be submitted as soon as practicably possible, but no later than 36 hours after making the initial verbal report. Neither HIPAA nor state privacy laws prevent a dental professional from fulfilling this obligation.

All mandated reporters must sign a statement acknowledging their responsibility as mandated reporters. The statement and a copy of Penal Code



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sections 11165.7, 11166 and 11167 are to be provided by employers. Employers are encouraged, but not required, to provide employees with training associated with the responsibility of being a mandated reporter. Whether or not employers provide employees with training, the lack of training does not excuse a mandated reporter from his or her responsibility to report. No supervisor or administrator may impede or inhibit an individual's reporting duties or subject the mandated reporter to any sanction for making the report. The law, however, allows for establishment of internal procedures to facilitate reporting.

A mandated reporter who makes a report in accordance with the law has protection from liability. A mandated reporter may seek reimbursement from the state crime victims fund for legal expenses under certain circumstances. A mandated reporter who fails to make a report may be prosecuted for a misdemeanor.

"California State Mandated Reporting" is a CDA Practice Support resource that includes a form that employers can provide to licensed staff for signed acknowledgement of the reporting obligation. The resource also includes a

copy of Penal Code sections 11165.7, 11166 and 11167. The state Department of Social Services has an online directory of county offices for adult protective services and a form for reporting abuse or neglect of a dependent adult or elder, cdss.ca.gov/Adult-Protective-Services. The agency also maintains an online directory of county agencies to which to report child abuse or neglect, cdss.ca.gov/reporting/report-abuse/child-protective-services/report-child-abuse. ■

RESOURCE

Possible Signs of Child Abuse. WebMD. webmd.com/children/child-abuse-signs#1. Accessed Oct. 3, 2018.

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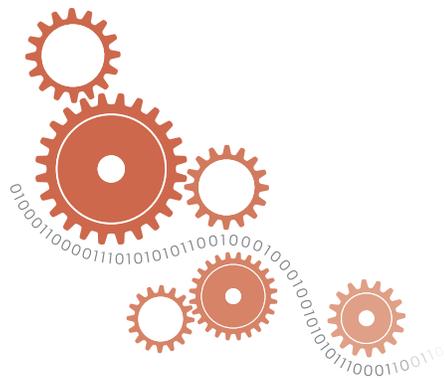
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A look into the latest dental and general technology on the market

TrackR bravo (\$29.99 per unit or \$89.99 for five pack, TrackR)

Working at multiple practice locations is a reality for many in the dental profession. When transporting personal effects, items inevitably get misplaced. Surely I cannot be the only person who has made *that* call from office to office asking the staff if they have seen my loupes. Tracking these “tools of the trade”—whether endodontic equipment, digital cameras with macro lenses and ring flashes or a backpack with a laptop—is a prudent idea for the traveling practitioner, if only for peace of mind. Enter the TrackR bravo, a small, lightweight, Bluetooth-based tracking device that integrates with smartphones. This review is based on the iOS version of the TrackR app on an iPhone X.

Founded in 2009, the Santa Barbara-based TrackR company produces the TrackR bravo, a device coupled with the TrackR mobile app for iOS and Android. Weighing in at 7 grams and having the diameter of about a quarter, the battery-powered TrackR bravo works by reporting its location (and emitting a high-pitched sound if requested) to the TrackR app when prompted by the user. The TrackR app is easy to set up, but contains a handful of nonintuitive, frustrating navigation quirks. Under frequent use (location is asked for once a day), the nonrechargeable battery lasts about three months.

As one would imagine with Bluetooth, range is limited: The device specifications indicated a 100-foot range, but when tested in a building behind multiple closed doors, the range approximately halved. Fortunately, when a TrackR bravo moves out of the range of the mobile device it is reporting to, the last known location is automatically recorded and saved in the TrackR app. To further address this lack of range, TrackR users can voluntarily participate in the “Crowd Locate” program, wherein any TrackR user who walks within the range of a TrackR bravo device reports the location to an anonymized cloud network. The logic is that TrackR users will be able to help each other locate their lost TrackR bravos; however, there appears to be limited TrackR users even in highly populated areas, reducing the usefulness of this functionality. Its limited range, lack of users in the “Crowd Locate” function and battery life prevent the TrackR bravo from being an anti-theft device as those with malicious intent can easily and unwittingly defeat the system. For the traveling practitioner, however, the TrackR bravo is a low-cost, subscription-free, minimal-effort solution to finding misplaced items.

— Alexander Lee, DMD

Spend (Free, Microsoft)

Tracking expenses on the go can be a colossal task for business professionals and consumers alike. The usual process involves saving receipts from purchases throughout the day, collecting them at home or in the office and categorizing them later to create an expense report for reimbursement or tracking finances. Spend for iOS, a new Microsoft Garage app, aims to automate this entire process to save time and help people simplify their expense management.

Spend requires users to sign up for a free account with their email address or use an existing MileIQ account. Additionally, users must link at least one bank or credit card account to take advantage of the features of the app. After the initial setup process is complete, recent transactions from linked bank or credit card accounts will appear on the screen. Users can first organize their individual purchases by grouping them into expense categories and assigning tags through drop-down menus and custom fields, respectively. Next, users can tap the camera icon on individual transactions to attach pictures of their receipts. Lastly, users can then swipe individual transactions to the left for personal purchases and to the right for business expenses. Users also have the ability to add descriptions and split purchases for each transaction. A custom report spreadsheet or PDF can be generated and sent to the account email address by tapping on the report icon at the upper right of the screen. The reports are formatted to be easily read by major accounting and expense management software. The app has a simple user interface with intuitive gestures that make it extremely powerful and easy to use for anyone needing to track expenses on the go.

Spend simplifies daily expense tracking for anyone who struggles with organizing receipts and purchases. The ability to track expenses easily on a mobile device makes this a wonderful companion tool for business professionals and consumers.

— Hubert Chan, DDS



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PPSincnet@aol.com
www.PPSDental.com
California DRE License 324962

6155 LAKEPORT PPS knows practice well as we sold it to current Owner in 1984. 5-days of Hygiene. Revenues of \$800,000. Great location and nicely equipped.

6154 MARIN COUNTY Sterling opportunity. And hard to believe, but there is no competition. 1,400 different patients seen last 2-years. Strong Hygiene Department. Well-liked DDS is limiting New Patients due to wanting to control his schedule. Collects near \$500,000. Can do more. This is a well-insulated opportunity.

6152 SAN RAFAEL Across the street from Marin Academy. Collected \$520,000 in 2017. What makes this an extraordinary opportunity is stand-alone building is also "For Sale." Nearby practitioner who desires their own building should vertically integrate their practice into this building and have an instant \$1+ Million practice in a great location. Now you own two assets!

6151 MODESTO Located on the north end of Coffee Road where new development is occurring. Attractive 3-op office. 2018 tracking \$445,000 in collections on part-time basis. Did \$700,000+ in 2016 when Owner was full time with \$240,000 in Profits.

6150 HAYWARD Strong Dental DNA. Well-designed 5-op office. Digital radiography & computers. 2018 trending \$850,000+. 5-days of hygiene. Full Price \$200,000.

6149 NOVATO Stand-alone building at busy stop light intersection off Highway 101. All new just 2-years ago. 4-ops, digital, paperless, Pano with Ceph at cost of \$180,000. At doorway to Hamilton neighborhood with 100s of homes. No competition. Perfect for nearby Novato DDS who wants to own their building and relocate their practice or Group seeking perfect location. Scott McDonald from Doctor Demographics states: "Well, I have to say that you were right, Ray. This is an interesting and viable location." Scott's report is available upon request.

6148 SAN LEANDRO Great location on Hesperian Boulevard. Absentee owned. Shall collect \$460,000 in 2018. Has done \$670,000 in past with Owner here. Seller's daughter shall provide transition assistance.

6147 SAN FRANCISCO BAY AREA - "OUT-OF-NETWORK"
 2018 tracking \$2.15 Million. Hygiene produces \$1+ Million. \$600,000+ in profits. Very unique in so many ways! Seller available for long transition.

6146 AUBURN Highly regarded family community. 6-days of hygiene evidences strong foundation. 2017 collected \$880,000. 2018 projecting \$950,000.

6144 SACRAMENTO'S ELK GROVE 14-days of Hygiene. 2017 collected \$1.85 Million. Strong staff. 7-ops. Great location across from Apple Distribution Center. Condo optional purchase.

6143 BERKELEY'S ALTA BATES VILLAGE Perfect for nearby Premier Dentist to relocate their practice into stand-alone building on Webster Street. 3-day week collected \$550,000 in 2017. 4-days of Hygiene.

6142 OAKLAND'S PIEDMONT - "OUT-OF-NETWORK"
 3-ops, paperless and digital Pano. Does mid \$600,000 with very strong Profits. Successor should be proficient in Ortho or willing to learn. Seller available for long transition.

6141 NAPA VALLEY'S ST. HELENA 3-day per week PPO practice. 3-days Hygiene. 2017 Collected \$359,000. Attractive 3-op office. 15 new patients per month. Full Price \$100,000.

6139 SAN FRANCISCO BAY AREA PROS PRACTICE - "OUT-OF-NETWORK" 2017 billed \$1.2 Million, collected \$1.19 Million. 4-days of Hygiene. Owner available for long transition if desired. Condo is an optional purchase.

ALTA LOMA Great exposure. Grossing \$700,000. Five ops with 3-equipped.

BAKERSFIELD Will do \$1 Million. \$650,000 includes building.
BAKERSFIELD AREA Grossing \$1.2 Million. Owner works 16-hours per week. Nets \$300,000.

BAKERSFIELD AREA Grossing \$40,000/month on 2-days. 5-ops.

BELLFLOWER Part-time doing \$100,000. Buyer should do \$350,000+. Full Price \$65,000.

COLTON Latino. Absentee. Grosses \$350,000. 5-ops.

CORONA Near Capistrano Beach exit. Free standing building. Part-time grossing \$200,000. Full Price \$150,000.

DEL MAR -- ENCINITAS HMO grossing near \$400,000. 4-ops.

DIAMOND BAR High identity Asian strip center. 5-ops. Hundreds of pedestrians walk by front door every day. Will do \$1 Million. Check this out and see for yourself.

ENDODONTIST Join Periodontist in Santa Clarita. Only \$35,000. Or GP who wants a good reliable job.

GLENDALE / BURBANK Grosses \$840,000. Includes apartment.

INLAND EMPIRE DentiCal grossing near \$300,000. FP \$150,000.

INLAND EMPIRE Union Practice can do \$1+ Million. 5-ops.

INLAND EMPIRE On 215 Exit. Two practices one mile apart.

Merge and do \$1 Million first year. Take to \$1.5 2nd year. 7 ops.

INLAND EMPIRE Includes building. 7+ ops, Adec equipped and has cone beam. Gross \$1.3 Million. Full Price \$2.5 Million.

IRVINE Female Grossing \$1.2 Million. 5-ops.

LA MIRADA Like new 5-ops, 3-equipped. Grossing \$450,000.

NORTH LONG BEACH Hi Identity. 50% Latino. Part-time. Asking only \$85,000.

NORTH PASADENA Million Dollar practice. 5-ops in free-standing building across from Starbucks.

OC BEACH 6-ops, Dentrax, digital, computerized. FP \$150,000.

OC BEACH Absentee owned, grossing \$550,000. 4-ops. New Doc who devotes full attention should do \$1 Million.

OC BEACH Grossed \$100,000 last month. Full Price \$900,000.

OC'S FASHION ISLAND Grossing \$650,000. Rare opportunity.

ORANGE COUNTY- INLAND-EMPIRE Two practices Grossing \$1.8 Million. Right Buyer does \$3 Million. Gorgeous facilities.

PEDO Chinese & Latino. Grosses \$450,000. Full Price \$285,000.

REDLANDS Once did \$1 Million. Older DDS now wants to retire. Lots of potential. 6-ops.

RIALTO Empty 9-op office in 10,000 sq.ft. building near 210. Did \$1+ Million in the past.

RIVERSIDE Female grossing \$250K. 30-new pts/mth. FP \$165,000.

THOUSAND OAKS / AGOURA HILLS 5-ops, part-time grossing approximately \$500,000.

TORRANCE Entrance to Palos Verdes. Grossing \$300,000+ per year. Full Price \$290,000.

UPLAND Grossing \$135,000 part-time. 3-ops. Full Price \$65,000.

WEST COVINA Grossing \$650,000. 2 days hygiene. Refers lots of work!

Index to 2018 Articles

Journal of the California Dental Association

Vol. 46, Nos. 1-12

Author Index

Paul V. Abbott

Can We Regrow Pulp?
Vol. 46, No. 4:249

Imran Ahmed, primary

Child Misbehavior in the Dental Setting
Is Generally Assumed To Be Fear
Vol. 46, No. 7:423

Leif K. Bakland

Evolving Aspects of Endodontic Treatment
Vol. 46, No. 4:221

Tina M. Beck

The Pinhole Surgical Technique: A Clinical
Perspective and Treatment Considerations
From a Periodontist
Vol. 46, No. 10:647

James L. Borke, primary

Medication-Related Osteonecrosis of the Jaw:
Update and Future Possibilities
Vol. 46, No. 5:301

Kerry K. Carney

The Editor: Why We Change: Kirk vs. Spock
Vol. 46, No. 1:5
The Editor: Tooth Fairy Science
Vol. 46, No. 3:141
The Editor: The TDSC Marketplace and You
Vol. 46, No. 4:209
The Editor: Walter Clement Noel: Patient Zero
Vol. 46, No. 6:345
The Editor: End First Exposure: Dentistry's
Biggest Opportunity in the Opioid Crisis
Vol. 46, No. 7:405
The Editor: I'll Drink to That
Vol. 46, No. 8:473
The Editor: Nothing but the Tooth
Vol. 46, No. 10:605

David W. Chambers

How Dentists Learn by Combining Evidence
and Experience
Vol. 46, No. 5:315

Siddardha G. Chandrupatla, primary

Denture Group Visits: A Model To Improve
Access to Care and Reduce Treatment Period
for Dentures
Vol. 46, No. 11:707

Christina Chi, primary

Color Monitoring: Comparison Between
Visual and Instrumental Methods With
Do-It-Yourself Whitening
Vol. 46, No. 11:715

Cherissa Chong, primary

Tissue Engineering for Improving
Periodontal Phenotype
Vol. 46, No. 10:653

Anne-Maree Cole

Understanding Normal Sleep, Respiration
and Circulation
Vol. 46, No. 8:513

Yasmi O. Crystal, primary

Use of Silver Diamine Fluoride for Dental
Caries Management in Children and
Adolescents, Including Those With Special
Health Care Needs
Vol. 46, No. 1:45

Erin Dougherty, primary

Factors Associated With Hispanic Children's
Dental Utilization in Imperial County:
CA-CORD Project
Vol. 46, No. 7:429

Emily Ehsan, primary

Coronectomy of Mandibular Third Molars:
Our Experience With 250 Consecutive Patients
Vol. 46, No. 12:767

Joel B. Epstein, primary

Recognition of Non-Hodgkin Lymphoma
of the Maxilla
Vol. 46, No. 12:773

James W.C. Fedusenko, primary

Quality Improvement in Practice Leading
to Remineralization
Vol. 46, No. 4:185



Debra S. Finney, primary

Gingival Recession: What Is It All About?
Vol. 46, No. 10:617

David T. Ford

Making eHealth Relevant to the Practice of
Dentistry: A Proposed Strategy
Vol. 46, No. 5:293

Jane Gillette

Caries Arresting Approaches for Aging and
Medically Complex Patients
Vol. 46, No. 2:93

Anupama Grandhi

Pathophysiology of Oral Cancer: An Overview
Vol. 46, No. 8:507

Elissa Green, primary

Autogenous Soft Tissue Grafting for the
Treatment of Gingival Recession
Vol. 46, No. 10:625

Colleen Greene

How To Educate Millennials: Commentary
Vol. 46, No. 6:359

Markus Haapasalo

Can We Eliminate Microorganisms From
the Root Canal System?
Vol. 46, No. 4:227

Jeremy A. Horst, primary

Radiographic Changes Following Treatment of
Dental Caries With Silver Fluoride
Vol. 46, No. 2:105

Josih T. Hostetler, primary

Financial Considerations for Sustainability in
School-Based Oral Health Centers
Vol. 46, No. 3:153

Peter L. Jacobsen

The Core Elements of Antibiotic Stewardship
in Dentistry
Vol. 46, No. 12:757

Snehal Sanjay Jaiswal, primary

Prosthodontic Treatment in Parkinson's
Disease Patients: Literature Review
Vol. 46, No. 11:691

Daniel N. Jenkins

Craniofacial Physiology in Dentistry
Vol. 46, No. 8:485

Michael J. Kanellis, primary

Managing Caries in the Primary Dentition
With Silver Nitrate: Lessons Learned From
a Clinical Trial
Vol. 46, No. 1:37

Haejin Kang, primary

Survey of Dental Students and Recent
Graduates' Knowledge, Attitudes and Practices
in Regard to Treating Patients With Special
Health Care Needs
Vol. 46, No. 7:447

Steve Kirk

Searching for Research Articles on the Internet
Vol. 46, No. 9:555

Kyle Luis Larsen

Health Care in the Middle of Nowhere:
Millennials Who Practice in Small Towns:
Commentary
Vol. 46, No. 6:375

Kayhan L. Mashouf, primary

Mixed-Dentition Orthodontic Treatment:
Outcomes and Timing
Vol. 46, No. 5:307

Eric Mediavilla, primary

The Four Millennials You Meet in Dental
School: Commentary
Vol. 46, No. 6:369

Richard J. Nagy

To Graft or Not To Graft? An Update on
Gingival Grafting Diagnosis and Treatment
Modalities
Vol. 46, No. 10:615

Man Wai Ng, primary

Chronic Disease Management of Caries in
Children and the Role of Silver Diamine Fluoride
Vol. 46, No. 1:23

**Joan Otomo-Corgel, primary**

Acellular Dermal Matrix Allografts in
Periodontal Therapy
Vol. 46, No. 10:639

Arwa I. Owais, primary

Silver Diamine Fluoride Chemical Mechanisms of
Action as a Caries Arresting and Preventing Agent
Vol. 46, No. 2:113

T. Jaime Parado, primary

A Four-Year Study on Risk-Based
Recare Interval and New Cavitations in
Nontraditional Dental Clinics
Vol. 46, No. 3:177

Christian Piers

Millennials in Dentistry: A Journey Toward
Understanding
Vol. 46, No. 6:355

Francisco Ramos-Gomez

Dental Student Research: Pediatric Oral Health
and Vulnerable Populations
Vol. 46, No. 7:413

Paul Reggiardo, primary

Silver Diamine Fluoride – The New Old: Part I
Vol. 46, No. 1:15
Silver Diamine Fluoride – That Old Black Magic
Has Me in Its Spell
Vol. 46, No. 2:83

Lawrence D. Robertson

The Warm Springs Model: A Successful Strategy
for Children at Very High Risk for Dental Caries
Vol. 46, No. 2:97

Robert S. Roda

Can Use of Cone Beam Computed Tomography
Have an Effect on Endodontic Treatment?
Vol. 46, No. 4:237

Stephen Rogers

Dentists' Almanac: Commentary
Vol. 46, No. 6:363

Gary D. Sabbadini

Silver Diamine Fluoride: A Clinical Perspective
From a Pediatric Dentist
Vol. 46, No. 2:87

Ruchi K. Sahota

The Associate Editor: One-Stop Shopping
Equals Savings and Support
Vol. 46, No. 2:73
The Associate Editor: Dentistry DIY: A Fading Fad?
Vol. 46, No. 9:537

Gabriela Saledo, primary

Effects of an Educational and Outreach
Intervention on Community Oral Health Workers
Vol. 46, No. 7:413

Eric S. Salmon

Statistics for Practicing Dentists
Vol. 46, No. 9:577

Elise Sarvas

The History and Use of Silver Diamine Fluoride
in Dentistry: A Review
Vol. 46, No. 1:19

Scott E. Schames, primary

Periodontal Disease Contributes to Obstructive
Sleep Apnea
Vol. 46, No. 11:701

Terrence Shaneyfelt

How To Critically Appraise the Dental Literature
Vol. 46, No. 9:569

Brian K. Shue

The Associate Editor: Run, Hide, Fight
Vol. 46, No. 5:285
The Associate Editor: Dentistry in 2100
Vol. 46, No. 11:681

Jane D. Siegel, primary

Antibiotic Prescribing and Stewardship in
Dentistry: A Public Health Perspective
Vol. 46, No. 12:755

Tory Silvestrin, primary

Implant Dentistry and Endodontics: Can There
Be a Mutually Beneficial Relationship?
Vol. 46, No. 4:260

CONTINUES ON 792





WESTERN PRACTICE SALES

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in 2017 sales

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Database &
Unsurpassed
Exposure allows
us to offer you

Better
Candidate

Better
Fit

Better
Price

BAY AREA

AC-782 SAN FRANCISCO: Well maintained, multi-level Professional Medical Complex. 1450 sf w/ 5 ops \$195k

AC-886 SAN FRANCISCO (Facility): Unsurpassed visibility & location! Potential here is limitless! 850 sf w/ 3 ops \$85k

AC-893 SAN FRANCISCO (Facility): Amazing Move In Ready Facility in Union Square. 1000 sf w/ 3 ops \$30k

AG-852 SAN FRANCISCO: PRIME LOCATION! 600 sf w/ 2 fully equipped, computerized ops. **Reduced Price: \$325k**

AG-871 SAN FRANCISCO: The LOCATION of this office is the envy of all! 600 sf w/ 2 ops \$88k

AG-880 SAN FRANCISCO: Seller retiring after 39 years! Remodeled in 2010. ~ 700 sf w/ 2 ops \$350k

AG-895 SAN FRANCISCO: Stellar reputation and delivers the highest quality of dentistry! 1500 sf w/ 4 ops \$675k

AG-896 SAN FRANCISCO: Don't miss this opportunity pass you by! ~ 1300 sf w/ 2 ops \$600k

AG-900 SAN FRANCISCO: State-of-the-art equipment/Primed for success. 2000 sf w/ 5 ops \$695k

BC-741 DANVILLE (FACILITY): Move in Ready! Build the practice of your dreams! ~ 1600 sf w/ 3 ops \$150k

BC-789 OAKLAND (Facility): Perfect for Pedo or Ortho. 2800 sf w/ 6 fully equipped ops. Plumbed for 2 add'l \$135k

BN-891 PINOLE: This one won't last! Build your dental empire in this bedroom community! 1300 sf w/3 ops. \$425k

CC-798 PETALUMA: Partially equipped dental office for lease. Only \$2500/mo for 1400 sf! Call for Details!

CC-802 SANTA ROSA: Retail shopping center w/ 1200 sf and 4 fully equipped ops \$220k or \$260k w/CT Scanner

CC-846 SAN RAFAEL: Prof/Retail Building Complex. 3 ops 640 sf Collections \$433k in 2017 \$295k

CG-616 NAPA: State-of-the-Art practice and on track to do \$100k more in 2018. **Seller is ready for retirement!** \$425k

CG-859 SONOMA: Priced below market value at only \$395k! 2000 sf w/ 4 ops highly esteemed FFS Practice \$395k

CN-878 VALLEJO: Highly desirable thriving community! 2 story prof bldg. 2000 sf w/4 ops \$315k

CN-911 SANTA ROSA: "Quality Care & Patient well-being FIRST". 2250 sf w/4 ops + 1add'l. \$545k

BAY AREA CONTINUED

DC-812 REDWOOD CITY Facility: Reasonable rent and great landlord! 740 sf w/ 3 fully equipped ops \$65k

DC-916 DUBLIN: Rare Opportunity to own practice and real estate. 1220 sf w/ 4 ops & PRICED TO SELL!

DG-854 SUNNYVALE: Do your best dentistry here. Educated, diverse, family & business friendly! 782 sf w/ 3 ops \$875k

DG-862 MID-PENINSULA: Rare gem with up to 7 operatories in the Bay Area!! 2274 sf w/ 6ops + 1 add'l. \$475k

DG-868 SUNNYVALE: Hesitate and you might lose out on the practice of your dreams! 1350 sf w/ 5 ops. \$725k

DN-771 SOQUEL Facility: Sink down roots, raise a family & build an empire! 1100 sf w/2 ops + 1 add'l. \$38,500

DG-785 SANTA CRUZ: Great price and cash flow for only 3 days a week!! 1000 sf w/ 4 ops. **Seller Motivated: \$165k**

DG-842 FREMONT: Imagine being able to live, practice and play here! 3200 sf w/ 10 ops \$395k

DG-854 SUNNYVALE: This practice is set to have its best year ever! 790 sf w/ 3ops. **Steal at \$575k**

DG-857 SAN JOSE: Do the math - this associate-driven practice with profitability consistently! 1709 sf w/5 ops \$595k

DG-892 SAN JOSE: Excellent location & stellar reputation in one-of-a-kind setting! 1500 sf w/ 3 ops + 2 add'l. \$295k

DN-898 SAN JOSE: Built-out 2015 w/ location, visibility, convenience in mind! 2,204 sf w/4ops + 2 add'l. \$500k

DN-907 PLEASANTON Facility: One of the "50 Best Cities to Live 2014" by Money Mag. 1,170 sf w/ 4ops. \$95k

DN-914 SANTA CLARA: This beautiful and compact office produces a lot of dentistry! 950sf w/ 3 ops. \$210k

NORTHERN CALIFORNIA

EC-729 GREATER SACRAMENTO AREA: Seller retiring! FFS Practice and Real Estate Available!

EN-664 SACRAMENTO Facility: Great corner location, excellent visibility & easy access! 2300 sf w/ 4 ops. \$30k

EN-791 SO. SACRAMENTO CO: Highly esteemed practice. Adoring & appreciative patients. 1950 sf w/ 5 ops. \$495k

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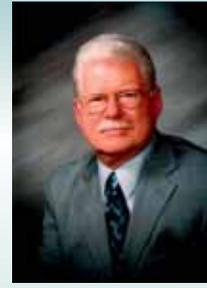
Timothy Giroux, DDS



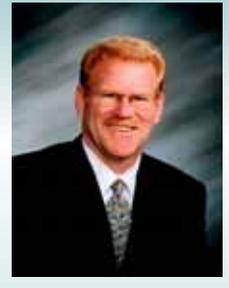
Jon B. Noble, MBA



Mona Chang, DDS



John M. Cahill, MBA



Edmond P. Cahill, JD

NORTHERN CALIFORNIA CONTINUED

EG-788 ROSEVILLE: Do not pass up on this remarkable opportunity! 2700 sf w/ 6 ops. **\$225k/ Real Estate Available**

EG-849 AUBURN: Imagine living in a peaceful, rural town w/ "big city" amenities nearby. 1400 sf w/ 4 ops **\$350k**

EG-887 FOLSOM Facility: Build the practice of your dreams here! 1200 sf w/ 2 ops **Priced for quick Sale! \$50k**

EG-910 MIDTOWN SACRAMENTO: Unlimited Potential. Well-established ~ 1107 sf w/ 2 ops + 1 add'l. **\$248k**

EN-831 SACRAMENTO: Wonderful location – Call for details! ~1600 sf w/4 ops. **Now Only: \$650k**

EN-836 CITRUS HEIGHTS: Well-established, quality practice. 30+ years of goodwill. 1300 sf w/3 ops + 2 add'l. **\$188k**

EN-858 ORANGEVALE: Perfect for a 2nd location or satellite situation! 850 sf w/ 3 ops. **Priced to Sell Only \$70k!**

EN-885 ROSEVILLE Facility: Ideal location, great visibility, and close to just about anything! 1000 sf w/3 ops. **\$85k**

EN-899 DIXON: State-of-the-art office, with all the "bells and whistles"! This fantastic practice has 3 ops. **\$195k**

FC-650 FORT BRAGG: Family-oriented practice. 5 ops in 2000 sf **\$350k for the Practice & \$400k for the Real Estate**

FG-841 ARCATA: Live In & own a little slice of heaven in this Collegiate Coastal Town! 1114 sf w/3 ops **\$275k/Real Estate Also available**

FN-855 NO. HUMBOLDT: Seller relocating! Long-established, 100% FFS practice! 1600 sf w/ 3ops + 1 add'l. **\$275k**

GN-799 PARADISE: Remarkable opportunity – Call for Details! 1800 sf w/ 4 ops. **Practice \$375k, Real Estate \$325k**

GN-904 CHICO AREA: Family-friendly, community-oriented, multi-generational patient base. 880 sf w/ 3 ops. **\$310k**

HG-815 SIERRA CO: Perfect location for outdoor enthusiast! 1000 sf w/ 3 ops **Reduced Price: \$165k/ Real Estate \$437k**

HG-827 SO. LAKE TAHOE: Ski, live, play and practice here where your lifestyle can't be beat! 1200 sf w/4 ops. **\$310k**

HG-851 SO LAKE TAHOE: Projected Revenue on track to do \$700k this year! 2100 sf w/ 5 ops **\$425k**

HN-618 SIERRA FOOTHILLS: Seller Retiring! Huge opportunity for growth by increasing office hours! 750 sf w/ 2 ops **\$65k**

HN-740 SHASTA CO: Beautiful mountain community, well-established practice, exceptional long-term staff. 2400 sf w/5 ops + 1 add'l. **\$475k/ Real Estate \$350k**

HN-773 SUTTER CREEK: Very qualified & credentialed Seller willing to show you how! 1536 sf w/4 ops + 1 add'l! **\$175k**

HN-879 SONORA: Live and practice in the captivating beauty of this family-oriented, scenic town. 2950 sf w/ 3 ops **\$275k**

CENTRAL VALLEY

IG-832 OAKHURST: Rare Opportunity. 2048 sf w/3 ops + 1 add'l. **\$235k/ Real Estate 375k**

IG-881 TURLOCK: Consistently growing practice ~3500 sf w/ 10 Ops (shared). **\$360k**

CENTRAL VALLEY CONTINUED

IN-764 STOCKTON: Well-established, fully computerized, paperless, digitalized. 5,000 sf w/10 ops. **Only: \$180k!**

IN-917 MERCED AREA: Well established practice with a stable, loyal patient base! 1300 sf w/ 3 Ops. **\$325k**

JC-811 FRESNO COUNTY: Amazing Opportunity! Considerable Goodwill in Community! 3,000 sf w/ 6 ops **\$350k**

JC-823 LOS BANOS: Heavy emphasis on hygiene. Growth potential by increasing DDS days. 1000 sf w/ 3 ops **\$80k**

JG-807 FRESNO: Reasonable Overhead, Stellar Reputation, Excellent Location! 1000 sf w/3 ops **Seller Motivated \$99k**

SOUTHERN CALIFORNIA

KG-779 SAN CLEMENTE Ortho: Huge growth potential by expanding relaxed work week! 2896 sf w/ 6 open bay chairs **\$325k/ Real Estate Available!**

KL-909 SAN DIEGO: Remarkable Opportunity. Long established in vibrant North Park. 2400 sf w/ 5 ops & 2 Pedo chairs **\$1.05M**

KG-921 SANTA MARIA: Live and practice in this desirable collegiate coastal community! 930 sf w/ 3 ops **Seller Motivated \$315k**

SPECIALTY PRACTICES

BC-784 CENTRAL CONTRA COSTA CO Perio: Seasoned Staff. Office runs like well-oiled machine! 3 ops **\$395k**

BG-843 WALNUT CREEK Perio: Collections over \$1M! Great gross and profit for only 2 ½ days per week! 1085 sf w/ 4 ops **Reduced Price: \$595k**

DC-835 TRI-VALLEY Perio: Professional office bldg in highly desirable location. Owner available to work back to assist w/ transition. Collections over \$1.2M. 2,100 sf **\$800k**

DG-912 SUNNYVALE Ortho: Premier ORTHO practice opportunity in the Silicon Valley today! ~2030 sf w/ 5 chairs in open bay **\$925k**

DN-908 SAN JOSE Pedo: Amazing Location! Providing affordable pediatric dentistry to families! 3600 sf w/ 4ops + 3 add'l. **\$275k**

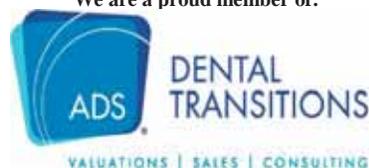
EG-903 CARMICHAEL Oral Surgery: Gross receipts \$1.1M+ in 2017! Stable patient base won't be affected by transition! 2282 sf w/ 5 ops **\$450k**

EN-821 DAVIS Perio: Live, practice & play here! It'll be the BEST decision you'll ever make! 1700 sf w/4 ops + 1 add'l. **\$385k**

EN-822 SACRAMENTO Perio: This practice is known throughout Sacramento for its stellar reputation! 2200 sf w/ 5 ops + 1 add'l. **\$790k**

JG-757 VISALIA Perio: 9 Hygiene days per week. On track to do almost 800k this year! ~ 2,000 sf w/ 5 ops **Steal at \$350k**

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CONTINUED FROM 789

Harold C. Slavkin

Lessons Learned as a Student of Craniofacial Biology: What This Might Mean for Orthodontic Professional Education and Clinical Practice in the 21st Century
Vol. 46, No. 8:487

Corey D. Stein, primary

Leveraging Informatics To Relieve Barriers to Oral Health Care in Disadvantaged Communities
Vol. 46, No. 3:171
Case Report: Integrating Teledentistry To Augment Clinical Outcomes in a School-Based Setting
Vol. 46, No. 7:439

Norman R. Thomas, primary

Inhibition of Collagen Crosslinking Produces Significant Retardation of Impeded and Unimpeded Eruption Rates
Vol. 46, No. 8:497

Joe Vaughn

Are Millennials Really That Different? Yes. No. It's Complicated: Commentary
Vol. 46, No. 6:379

Marisa K. Watanabe, primary

Advancing Oral Health Equity With Innovative Dental Approaches
Vol. 46, No. 3:149
The Impact of School-Based Oral Health Centers on Absence Rates and Dental Pain in a K-8 School
Vol. 46, No. 3:161

Andrew Young, primary

Enhancing Patient Care Through Evidence-Based Dentistry
Vol. 46, No. 9:553
The Anatomy of a Clinical Study
Vol. 46, No. 9:561
Where the Rubber Meets the Road: Incorporating Evidence-Based Dentistry
Vol. 46, No. 9:583



Title Index

A Four-Year Study on Risk-Based Recare Interval and New Cavitations in Nontraditional Dental Clinics

T. Jamie Parado, Shirley Y. Kang, Yesha M. Patel, Keith R. Boyer, Marisa K. Watanabe
Vol. 46, No. 3:177

Acellular Dermal Matrix Allografts in Periodontal Therapy

Joan Otomo-Corgel, Chanook David Ahn, Allen Gunn
Vol. 46, No. 10:639

Advancing Oral Health Equity With Innovative Dental Approaches

Marisa K. Watanabe
Vol. 46, No. 3:149

Antibiotic Prescribing and Stewardship in Dentistry: A Public Health Perspective

Jane D. Siegel, Erin Epton
Vol. 46, No. 12:755

Are Millennials Really That Different? Yes. No. It's Complicated: Commentary

Joe Vaughn
Vol. 46, No. 6:379

Autogenous Soft Tissue Grafting for the Treatment of Gingival Recession

Elissa Green, Soma Esmailian Lari, Perry R. Klokkevold
Vol. 46, No. 10:625

Can Use of Cone Beam Computed Tomography Have an Effect on Endodontic Treatment?

Robert S. Roda
Vol. 46, No. 4:237

Can We Eliminate Microorganisms From the Root Canal System?

Markus Haapasalo
Vol. 46, No. 4:227

Can We Regrow Pulp?

Paul V. Abbott
Vol. 46, No. 4:249

Caries Arresting Approaches for Aging and Medically Complex Patients

Jane Gillette
Vol. 46, No. 2:93

Case Report: Integrating Teledentistry To Augment Clinical Outcomes in a School-Based Setting

Corey D. Stein, Marisa K. Watanabe, Alexander Lee
Vol. 46, No. 7:439

Child Misbehavior in the Dental Setting Is Generally Assumed To Be Fear

Imran Ahmed, Shannelle Shahery, Clarice S. Law
Vol. 46, No. 7:423

Chronic Disease Management of Caries in Children and the Role of Silver Diamine Fluoride

Man Wai Ng, Rosalyn Sulyanto
Vol. 46, No. 1:23

Color Monitoring: Comparison Between Visual and Instrumental Methods With Do-It-Yourself Whitening

Christina Chi, Minna Chun, Arfassa Gullo, Darlene Teddy, Emily Hwang, Udochukwu Oyoyo, So Ran Kwon
Vol. 46, No. 11:715

Coronectomy of Mandibular Third Molars: Our Experience With 250 Consecutive Patients

Emily Ehsan, Paul Hauser, David Ehsan
Vol. 46, No. 12:767



Craniofacial Physiology in Dentistry

Daniel N. Jenkins
Vol. 46, No. 8:485

Dental Student Research: Pediatric Oral Health and Vulnerable Populations

Francisco Ramos-Gomez
Vol. 46, No. 7:413

Dentists' Almanac: Commentary

Stephen Rogers
Vol. 46, No. 6:363

Denture Group Visits: A Model To Improve Access to Care and Reduce Treatment Period for Dentures

Siddardha G. Chandrupatla, Lisa A. Thompson, Sirisha Kuna, Brian J. Swann
Vol. 46, No. 11:707

Effects of an Educational and Outreach Intervention on Community Oral Health Workers

Vol. 46, No. 7:413

Enhancing Patient Care Through Evidence-Based Dentistry

Andrew Young
Vol. 46, No. 9:553

Evolving Aspects of Endodontic Treatment

Leif K. Bakland
Vol. 46, No. 4:221

Factors Associated With Hispanic Children's Dental Utilization in Imperial County: CA-CORD Project

Erin Doughtery, Aarti Gupta, Tracy L. Finlayson, Shih-Fan Lin, Andrei Morales Cascaes, Guadalupe X. Ayala
Vol. 46, No. 7:429

Financial Considerations for Sustainability in School-Based Oral Health Centers

Josih T. Hostetler, Huong H. Le, Marisa K. Watanabe, Jenny S. Tjahjono, Curtis H. Le, Steven W. Friedrichsen
Vol. 46, No. 3:153

Gingival Recession: What Is It All About?

Debra S. Finney, Richard T. Kao
Vol. 46, No. 10:617

Health Care in the Middle of Nowhere: Millennials Who Practice in Small Towns: Commentary

Kyle Luis Larsen
Vol. 46, No. 6:375

How Dentists Learn by Combining Evidence and Experience

David W. Chambers
Vol. 46, No. 5:315

How To Critically Appraise the Dental Literature

Terrence Shaneyfelt
Vol. 46, No. 9:569

**How To Educate Millennials: Commentary**

Colleen Greene
Vol. 46, No. 6:359

Implant Dentistry and Endodontics: Can There Be a Mutually Beneficial Relationship?

Tory Silvestrin, Charles J. Goodacre
Vol. 46, No. 4:260

Inhibition of Collagen Crosslinking Produces Significant Retardation of Impeded and Unimpeded Eruption Rates

Norman R. Thomas, Daniel N. Jenkins
Vol. 46, No. 8:497

Lessons Learned as a Student of Craniofacial Biology: What This Might Mean for Orthodontic Professional Education and Clinical Practice in the 21st Century

Harold C. Slavkin
Vol. 46, No. 8:487

Leveraging Informatics To Relieve Barriers to Oral Health Care in Disadvantaged Communities

Corey D. Stein, Marisa K. Watanabe, Alexander Lee
Vol. 46, No. 3:171

Making eHealth Relevant to the Practice of Dentistry: A Proposed Strategy

David T. Ford
Vol. 46, No. 5:293

Managing Caries in the Primary Dentition With Silver Nitrate: Lessons Learned From a Clinical Trial

Michael J. Kanellis, Arwa I. Owais, John J. Warren, Deborah V. Dawson, Alberto Gasparoni, Reem R. Oweis, Mary Albert, Derek Blanchette, Matthew K. Geneser, Wei Liu, Mary C. Skotowski, Karin Weber-Gasparoni
Vol. 46, No. 1:37

Medication-Related Osteonecrosis of the Jaw: Update and Future Possibilities

James L. Borke, Jeffrey A. Elo, Ho-Hyun (Brian) Sun, Shirley Y. Kang
Vol. 46, No. 5:301

Millennials in Dentistry: A Journey Toward Understanding

Christian Piers
Vol. 46, No. 6:355

Mixed-Dentition Orthodontic Treatment: Outcomes and Timing

Kayhan L. Mashouf, Cameron K. Mashouf, Sean Laraway
Vol. 46, No. 5:307

Pathophysiology of Oral Cancer: An Overview

Anupama Grandhi
Vol. 46, No. 8:507

Periodontal Disease Contributes to Obstructive Sleep Apnea

Scott E. Schames, Orr Shauly, Rita Y. Chuang, Kaitlyn Tarbert, Hila Robbins, Michael Jordan
Vol. 46, No. 11:701

Prosthetic Treatment in Parkinson's Disease Patients: Literature Review

Snehal Sanjay Jaiswal, Ramandeep Dugal, Ajay Mootha
Vol. 46, No. 11:691

Quality Improvement in Practice Leading to Remineralization

James W.C. Fedusenko, Cindy Hannon, Cameron Fuller, Marcus Paulson, Brian B. Nový
Vol. 46, No. 4:185

Radiographic Changes Following Treatment of Dental Caries With Silver Fluoride

Jeremy A. Horst, Steven Duffin, Sherrie Sanchez, Michael Bratland
Vol. 46, No. 2:105



Recognition of Non-Hodgkin Lymphoma of the Maxilla

Joel B. Epstein, Alexa Martin, Ali M.M. Sadeghi, Dimitrios Tzachanis
Vol. 46, No. 12:773

Searching for Research Articles on the Internet

Steve Kirk
Vol. 46, No. 9:555

Silver Diamine Fluoride: A Clinical Perspective From a Pediatric Dentist

Gary D. Sabbadini
Vol. 46, No. 2:87

Silver Diamine Fluoride — That Old Black Magic Has Me in Its Spell

Paul Reggiardo, Gregory J. Sabino
Vol. 46, No. 2:83

Silver Diamine Fluoride — The New Old: Part I

Paul Reggiardo, Gregory J. Sabino
Vol. 46, No. 1:15

Silver Diamine Fluoride Chemical Mechanisms of Action as a Caries Arresting and Preventing Agent

Arwa I. Owais, Grace Lu, Khomson Keratithamkul, Michael J. Kanellis, Amanda J. Haes
Vol. 46, No. 2:113

Statistics for Practicing Dentists

Eric S. Salmon
Vol. 46, No. 9:577

Survey of Dental Students and Recent Graduates' Knowledge, Attitudes and Practices in Regard to Treating Patients With Special Health Care Needs

Haejin Kang, Francisco Ramos-Gomez, Hamida Askaryar
Vol. 46, No. 7:447

The Anatomy of a Clinical Study

Andrew Young
Vol. 46, No. 9:561



The Associate Editor: Dentistry DIY: A Fading Fad?

Ruchi K. Sahota
Vol. 46, No. 9:537

The Associate Editor: Dentistry in 2100

Brian K. Shue
Vol. 46, No. 11:681

The Associate Editor: One-Stop Shopping Equals Savings and Support

Ruchi K. Sahota
Vol. 46, No. 2:73

The Associate Editor: Run, Hide, Fight

Brian K. Shue
Vol. 46, No. 5:285

The Core Elements of Antibiotic Stewardship in Dentistry

Peter L. Jacobsen
Vol. 46, No. 12:757

The Editor: End First Exposure: Dentistry's Biggest Opportunity in the Opioid Crisis

Kerry K. Carney
Vol. 46, No. 7:405

The Editor: I'll Drink to That

Kerry K. Carney
Vol. 46, No. 8:473

The Editor: Nothing but the Tooth

Kerry K. Carney
Vol. 46, No. 10:605

The Editor: The TDSC Marketplace and You

Kerry K. Carney
Vol. 46, No. 4:209

The Editor: Tooth Fairy Science

Kerry K. Carney
Vol. 46, No. 3:141

The Editor: Walter Clement Noel: Patient Zero

Kerry K. Carney
Vol. 46, No. 6:345

The Editor: Why We Change: Kirk vs. Spock

Kerry K. Carney
Vol. 46, No. 1:5

The Four Millennials You Meet in Dental School: Commentary

Eric Mediavilla, Christian Piers
Vol. 46, No. 6:369

The History and Use of Silver Diamine Fluoride in Dentistry: A Review

Elise Sarvas
Vol. 46, No. 1:19

The Impact of School-Based Oral Health Centers on Absence Rates and Dental Pain in a K-8 School

Marisa K. Watanabe, Misa L. Yoshioka, Jihae H. Cho
Vol. 46, No. 3:161



The Pinhole Surgical Technique: A Clinical Perspective and Treatment Considerations From a Periodontist

Tina M. Beck
Vol. 46, No. 10:647

The Warm Springs Model: A Successful Strategy for Children at Very High Risk for Dental Caries

Lawrence D. Robertson
Vol. 46, No. 2:97

Tissue Engineering for Improving Periodontal Phenotype

Cherissa Chong, Yung-Ting Hsu, Paul Y. Lee, Richard T. Kao
Vol. 46, No. 10:653

To Graft or Not To Graft? An Update on Gingival Grafting Diagnosis and Treatment Modalities

Richard J. Nagy
Vol. 46, No. 10:615

Understanding Normal Sleep, Respiration and Circulation

Anne-Maree Cole
Vol. 46, No. 8:513

Use of Silver Diamine Fluoride for Dental Caries Management in Children and Adolescents, Including Those With Special Health Care Needs

Yasmi O. Crystal, Abdullah A. Marghalani, Steven D. Ureles, John Timothy Wright, Rosalyn Sulyanto, Kimon Divaris, Margherita Fontana, Laurel Graham
Vol. 46, No. 1:45

Where the Rubber Meets the Road: Incorporating Evidence-Based Dentistry

Andrew Young, Des Gallagher
Vol. 46, No. 9:583

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